

A new home for IT

SU's Information Technology Division's new building in Hammandshand Road is now the greenest on campus.

This month, the Information Technology (IT) division will enter a new era. Not only will they be moving to a new building, but this new home for IT will also be the first truly "green" building on campus.

A wide range of sustainability characteristics have been incorporated in the new building's design in accordance with the Green Building Council of South Africa's Green Star Office rating tool categories.

Energy efficiency and renewable energy: Solar photovoltaic energy generation on the roof; optimal northern orientation and window sizing; shading elements; vertical garden on the northern aspect to minimise heating and cooling; usage of river water for cooling; low energy lighting and smart lighting.

The University's Centre for Renewable and Sustainable Energy Studies (CRSES) modelled the 14kWp solar photovoltaic (PV) system for the building and calculated that, given the expected increase in electricity tariffs over the system's 20-year lifetime, the solar PV system will pay back within seven to eight years through energy savings alone. In other words, it will pay for itself almost three-fold over its lifetime.

The solar PV system is expected to generate 23 000kWh of electrical energy annually and, being an office building, its energy demand, which peaks during the day, is well-matched to the solar PV system's peak energy generation during the sunshine hours. Additionally, the system will help the building ride through load-shedding.

The vertical garden forms a green "scaffolding" which clads the northern aspect of the building. A mixture of specially-selected deciduous and evergreen plants creates a green mosaic that allows more sunlight in during the winter; but provides shade and natural cooling during summer. In effect, the building dynamically responds to the seasons. The building's energy model predicts that the vertical garden will reduce energy demand, through reducing the heat gain through external windows, by up to 36%.

Even if one ignores the contribution of the solar panels, the energy-efficient design should ensure that the building uses 54% less energy than a notional SANS 204 building of the same size and layout.



The new "green" IT building.

Photo: STEFAN ELS

Indoor environment quality (IEQ): Natural lighting; ventilation; minimisation of noise.

Transport: Bicycle store and facilities for cyclists; optimal parking spaces.

Innovation: Vertical garden; use of river and rainwater for air-conditioning plant cooling.

The building should not be seen as merely a space hosting a department, but also an integral part of the IT Division's work system – the people, processes they execute, and the spaces and facilities of the building all form an integrated whole.

The building can contribute to the goal of creating a new working culture, establishing new work methods and, above all, encouraging collaboration and communication.

The nature of knowledge work in the Information Age, in which the IT Division engages, is increasingly team-oriented, social, requiring intensive communication, interactions, knowledge sharing, continuous learning and consultation. The ability to collaborate, breaking out of silo-thinking, effective networking and flexibility become valued capabilities.

The new building features large open-plan working areas with abundant natural lighting and tracts of glass – much like the campus facilities of admired technology companies such as Google and Apple. Quality, utility and flexibility of furnishings and fittings are also vital as teamwork requires flexible furnishings that can be altered easily and quickly to accommodate new work areas.

Also, the work environment must be healthy, encourage creativity and collaboration and must be a place where people want to work and spend time. A working environment that is welcoming, open and does not reinforce hierarchies and promotes flexibility and communication will contribute to the transition to a next-generation IT Division.