

# Environmental Affairs head office earns six Green Stars

The Green Building Council South Africa (GBCSA) has awarded a 6 Star Green Star SA Office Design v1 certification to the new Department of Environmental Affairs (DEA) head office in Pretoria.



This is the first government building in South Africa to achieve a 6 Star Green Star SA rating, as well as being the first 6 Star rated green building in the City of Tshwane. A further stellar accomplishment was that the project achieved the highest score for a large commercial office space of this magnitude awarded by the GBCSA to date.

"The DEA has taken the lead, and is demonstrating commitment to market transformation in the built environment in South Africa. This is an exceptional illustration of the public and the private sector working together to deliver an outstanding example of green building," said GBCSA, CEO Brian Wilkinson.

## Commitment to staying green

Achievement of this 6 Star Green Star SA rating signifies world leadership in green building and shows dedication to sustainable design by all stakeholders in this sizeable public-private partnership (PPP) project.

"This is not just another good-looking block of offices in town, but a performing green building with specific targets on energy efficiency, water efficiency, an industry-first sophisticated energy consumption mechanism never implemented in any other project in the construction sector, the use of renewable source of energy and a unique first facilities management system that encapsulate a rigorous penalty regime (with no precedent in the construction sector) to reward operational efficiency and penalise poor performance," says Minister Edna Molewa.

Wilkinson added that the entire project team has worked together to express the core values of the DEA through sustainable design, resource efficiency, and excellent project execution.

A significant benefit of this PPP structure is that contractual obligations for all participants ensured that all cost, timeline, and green specifications were clearly outlined, and successfully met during design and construction. It will also ensure that

the building is operated optimally over the next 25 years to ensure that it stays green throughout its lifespan, and achieves the environmental and resource savings envisaged at the outset.

"Through this green building we will propel the department above the construction industry players, setting a good example for other organisations, of course for the benefit of the environment and future generations," concluded Minister Molewa.

## **Outstanding achievement rewards green teamwork**

The Green Star SA 'design' rating objectively assesses how 'green' the building plan is, with all the green initiatives included. It considers categories including management, indoor environmental quality (IEQ), energy, transport, water, materials, land use and ecology, emissions, and innovation.

The DEA specified that the building should achieve a minimum 4 Star Green Star SA rating; however, the professional team surpassed this goal by scoring full points in the energy category, as well as being only the second project to achieve five points in the innovation category. Once construction is complete and the building is occupied, the DEA head office will also submit documentation towards receiving an 'As-built' Green Star SA rating, which ensures that the original intentions in the design phase were adhered to.

A major benefit of green building is that it breaks down the traditional silos of work, and encourages teamwork between disciplines to ensure the best outcome.

PDNA Consulting Engineers Green Building & Sustainability Services head Mike Aldous has been responsible for the Green Star SA submissions, and ensuring that the project remained on track to achieve accreditation. Aveng Grinaker-LTA project manager Derek Andresen chaired weekly multi-disciplinary design review meetings throughout the design phase of the project, while daily meetings were held on-site during construction.

## **High-tech green design**

Aldous explains that the project made extensive use of 3D building modelling upfront, allowing the professional team to identify and resolve potential issues before they emerged, and improve integration and co-ordination. Every discipline created 3D building integrated models of their work to ensure that the building was fully coordinated from a services and structural point of view, explains Boogertman & Partners architect Lood Welgemoed. This reduced on-site issues, which could cost time and money.

The project brief specified that energy consumption in the building should not exceed 115kWh/m<sup>2</sup>/annum - a lofty goal, which required optimal building orientation from the start, and intense modelling and efficiencies to be met. The roof of the building is almost entirely covered with solar photovoltaic panels, which exceeded a 10% target, and will supply almost 20% of the building's energy needs. The northern parking area hosts a large concentrated photovoltaic panel (CPV), which tracks the sun during the day, and supplies power to the electric vehicle (EV) charging station for the DEA's EV pilot project.

Water efficiency is also a major characteristic of the building, which is expected to consume 30% less water than a comparable conventional building. This is thanks to numerous water-saving devices installed in the building, including a rainwater harvesting system, and use of water-wise indigenous plants for landscaping, with efficient irrigation systems.

Uys & White Landscape Architects' Tiaan Laker explains that the landscape design was seen as an extension of the building design. The landscaped entrance includes a custom-designed vertical green wall, roof gardens and a wetland component facilitating storm water run-off. A natural veld component surrounds the parking and building areas.

## **Spurring on sustainable practices**

The Facilities Management (FM) team has been involved with the project from the very start - including decisions on

designs, suppliers, materials, and sub-contractors. FM plays a role in the commissioning of the building, ensuring that accurate data is collected, and used as a benchmark to evaluate the ongoing building performance.

"Operating the Building Management System will require specialised training, as will the Facilities Management System. Facility managers will attend the GBCSA Accredited Professional course to gain insight into green building and what they are required to do to keep this building green," explains Dijalo Property Group director Peter Gray.

Green buildings represent responsible investment and reduced liability, and financial benefits of green buildings are realised through savings on energy and water over the long-term. Importantly, green buildings can also play a role in increasing productivity in the workplace, and greater attraction and retention of valuable skills.

The new DEA head office is likely to be a catalyst in the South African built environment, spurring momentum of the adoption of sustainable building practices.

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