

BUILDING SUSTAINABLY

Originally developed in the Brundtland Report, 'sustainability' and 'sustainable development' are now top of mind in South Africa.

The importance of sustainability is becoming clearer every day. Increasing pressure on natural resources and the destruction of our environment has certainly changed the face of the Earth over many years. And, if we don't act soon, modern-day technology and developments may turn against us. But it is not just about our demand for resources. It has become essential to carefully consider the dominance of buildings and the role these structures play in everybody's lives.

For Llewellyn van Wyk, architect and senior researcher for the CSIR's Built Environment Unit, the integration of sustainability in building design cannot begin soon enough before it is too late. He says: "Unfortunately nothing is in place in South Africa. For a start, sustainable design is not compulsory at university so we still have a long way to go".

Van Wyk is certainly knowledgeable on this subject. He graduated as an architect in 1980 and practised in the field for many years. He also served as a member of the housing and town planning committees of the City of Cape Town. And he has been actively involved with the South African Institute of Architects since 1991. "We are now in a vacuum," he points out. "Even if we make it a compulsory subject at universities, it will take several years before the first students graduate and even longer before they become experienced. This vacuum can only be overcome when government takes the lead." Nevertheless Van Wyk realises this is too much to expect from government as it is already dealing with a variety of issues. But he has noticed small steps in this direction. "The focus is

now on energy, which is obvious. Our economy is growing in line with our reliance on energy. But there are many more issues to address." A guideline he drafted contains 93 important issues regarding sustainability. "And each and every single one is of equal importance."

From bronze to platinum

The sustainable building movement originated in the UK with the introduction of the Building Research Establishment Environmental Assessment Method (BREEAM) with the 'environment' and 'energy management', albeit two independent issues at the time, as central. Buildings were assessed and awarded points for sustainability. The assessment checked certain aspects like indoor environmental quality, the use of natural resources, lighting, ventilation and low-flow water fittings or energy consumption. The use of materials with low-harm chemicals was also assessed. A building considered 'sustainable' was awarded either a gold, silver or bronze rating.

The US then followed the UK example. "What is called LEED in the US is basically the same. The only exception is the way buildings are rated in the US," explains Van Wyk. "Where the UK had gold, silver and bronze ratings, the US decided to use platinum, gold and silver as bronze was considered too low. Being competitive, the US felt that bronze would equate to 'loser'." To date, about 40 000 architects (the majority of architects practising in the US) have been accredited as Leadership in Energy & Environmental Design (LEED) practitioners. But only 5% to 7% of the buildings have been certified according to LEED. "The costs of assessment of a building are



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very high and make it very expensive for the owner so government buildings have mainly been assessed and received the certification. Sustainability was top of the agenda during the Clinton administration. Today it receives less attention from the US president."

Absence of science

Apart from the low number of buildings certified, LEED is also criticised for the award system it maintains in the US. "The Americans are now more critical because they are considering certain issues as more 'green' than others because LEED doesn't have a strong-enough scientific



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VIEWPOINT

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Safety on site

Sustainability of buildings does not begin with its layout or materials used. The safety of construction workers on site should also be addressed when buildings are inspected for sustainability, Van Wyk believes. Construction staff also require proper safety training.

base," Van Wyk points out. The Green Building Council oversees LEED in the US. This differs from the UK and South Africa. "In South Africa, the South African Property Owners Association (SAPOA) has begun driving the concept. This is different because SAPOA members are involved in the commercial segment." In September, SAPOA announced the official establishment of its platform.

Van Wyk believes that South Africa faces other challenges when it comes to sustainable building. "You can't separate the process from the product," he says. "South Africa still has to learn a lot and has to make

many changes compared to the First World." One of the typical examples is the treatment of staff. "The treatment of construction workers should also be an issue," Van Wyk points out. "When workers are transported on the back of a *bakkie*, the building should receive fewer sustainability points than when workers are transported in a safe and proper way. The same applies to situations where staff have to work in unsafe conditions or without proper protection. This also makes good governance part of the process." In this respect, Van Wyk believes environmental and social governance (ESG) issues should be

incorporated into a system for South Africa. "Using this system allows for a more balanced scorecard in the end. ESG goes further than LEED. It recognises that a building has to perform according to a certain level regarding governance and reporting issues." In line with this, construction of the Moses Mabhida Stadium in Durban was halted when safety officials declared the working environment unsafe.

Late FM involvement

The downside of sustainability is that it can only be successful when it is accepted by all stakeholders and implemented at an early stage.

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Karen Elcker

Perfect blend

- 1 The architects of the Highlands Mountain Retreat took 'blending in with the environment' quite literally.
- 2 The role buildings play in society, as well as the way they blend into the environment, is part of sustainability. The architect of the new Tembisa Community Library, for instance, designed the entrance so that people would feel as if they were being invited to walk in. The library is also used for other purposes and serves as a community centre.

During the FM Expo in August 2007, facility managers from various organisations and industries complained they were only allowed to become involved in the design of buildings at a late stage. "Architects would rather design iconic buildings that lack functionality and sustainability than buildings that fit purpose," one visitor remarked. If facility managers were able to share their experiences and opinions at a much earlier stage, many believe they would be able to save companies vast amounts of money by pointing out the downsides of design in terms of functionality or the difficulties experienced with maintenance and cleaning. "China could reduce its energy consumption by half just by insulating its buildings, and fitting more efficient light fittings and electric motors," Van Wyk says. "Imagine how much else is possible and how much that would be financially!" To this end, South African facility managers could also play a more dominant role. "Facility managers must become more proactive," Van Wyk says. "Demand for greener buildings is slowly beginning to increase among tenants. If asset managers do not take action, the value of assets will depreciate rapidly, and this will make the building obsolete within five years and reduce the return on their investments." Van Wyk says the design of a building must comply with a business plan. In the design stage, architects and engineers must

consider how the building could perform without mechanical intervention. "This should be the point of departure," adds Van Wyk.

But insufficient knowledge and the complexity of the issues at hand doesn't make it easy. "People want to design as they have always designed," Van Wyk says. "Issues are sometimes too complex for architects as the correct information is simply not available or it is inadequate." The establishment of a Green Building Council by SAPOA is an important step forward, Van Wyk believes but he also has some advice. "SAPOA should do research and gather information on old projects to compare with new data for better insight. When buildings have been changed, SAPOA has the necessary data on, for example, its energy consumption before and after the changes were made. Only then will we know whether or not the changes really had an impact."

Blending in better

Van Wyk not only believes sustainability of buildings in South Africa depends largely on design, construction and operation, he also believes some buildings should be rated more sustainable than others when they blend into the environment. He prefers the Brundtland definition: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This includes



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Buildings should blend into the environment. They should be multi-functional in use but 'invisible' to the passer-by

economic, social, environmental, ecological and technological capital, as well as the building's impact on the environment. "An office block with high walls and electric fencing doesn't blend into an area," Van Wyk adds. "And with so many places in South Africa lacking basic services or services that could be offered by an office block, I would rather see the purpose of buildings within a particular social environment also being awarded. If a building can be used by the community after hours, it should be awarded extra points." School sports facilities or meeting halls in corporate buildings, are some example. Multi-purpose use could become the norm. ■