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Official publication of Green
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26

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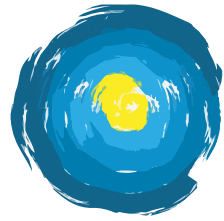
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+IMPACT

The official publication of GBCSA



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CALLING ALL THOUGHT LEADERS

+Impact magazine, the official publication of the GBCSA, presents thought leadership from local and international green building commentators and practitioners, and showcases the excellent work of GBCSA members. Are you a thought leader in your relevant field? GBCSA members are invited to submit stories about projects, design concepts, materials, research and anything else that promotes a healthy sustainable built environment. Submit a 100-word description of your content idea to: editor@positive-impact.africa

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EDITOR'S NOTE

COLUMN

Chair's corner

OUR EDITORIAL ADVISORY BOARD

1 000 STEPS FORWARD SINCE 2007

GBCSA celebrates the remarkable achievement of its 1 000th green building certification at Stellenbosch University's Visual Arts Building

EMPOWERING Y/OUR SPACE

Ahead of the GBCSA's 16th Green Building Convention, some of the participating plenary speakers and panellists share their knowledge, experiences and insights

CASE STUDY: CHILL YOUR OPERATIONAL COSTS

At a Cape Town supermarket, Daikin's ZEAS technology demonstrated an energy saving of 60% compared to a traditional refrigeration system

NEXT LEVEL: DESIGN MEETS SUSTAINABILITY

Growthpoint Properties' 144 Oxford premium-grade office development in Rosebank showcases a union of striking design and innovative sustainability initiatives

BUILDING THE TRANSITION

Green Building Councils around the globe joined WorldGBC's 15th World Green Building Week campaign to call for systemic transformation in the building sector

A GREEN LIFESTYLE

Greenbay Barn forms the focal point of a new property development in Gordon's Bay, which recently achieved a 6-Star Green Star Custom Lifestyle Centre rating

DEEP DIVE: POSITIVE, LEADERSHIP & PEOPLE

In the build-up to the launch of the New Build V2 tool, we highlight the last three categories in our Transforming Tomorrow series

SETTING A NEW STANDARD FOR GREEN PRECINCTS

Aiming to establish itself as the greenest mixed-use development in South Africa, the Newinbosch precinct in Stellenbosch is targeting a 5-Star Green Star Sustainable Precincts rating

MAKING SPACE FOR WASTE

As we edge towards a circular economy, the waste we generate should be minimal, and building design should consciously include dedicated waste management areas

PAVING THE WAY TOWARDS HIGHER SUSTAINABILITY STANDARDS

Midrand's The Precinct Luxury Apartments project is constantly evolving towards higher sustainability standards, transforming the market as it goes

A NET ZERO CARBON MILESTONE

The South African property sector marked a milestone in Redefine Properties' Net Zero Carbon Level 2 Measured certification for three of their existing Gauteng buildings





It takes years of unwavering commitment and dedication to bring a worthy cause to fruition. For 15 years, Green Building Council South Africa has been holding the sustainability torch aloft for transformation in the green building sector, and a better life for people and planet. Congratulations, GBCSA, on your 1 000th Green Star certification! Read about the newly certified structure – Stellenbosch University's heritage Visual Arts Building – which achieved a 6-Star Green Star rating under the Existing Building Performance (EBP) version 1 tool, on [page 20](#).

On the subject of recognition, nothing gives our team greater pleasure than to celebrate *+Impact* magazine's winning Property Publication of the Year at SAPOA's annual awards ceremony in September. As the publishing mouthpiece of the GBCSA, we couldn't be prouder of this accolade, and to be an active part of the drive towards positive change in the property sector. Thanks to the efforts of our dedicated team, and especially to our Director, Danielle Solomons, who steers this ship with expertise, in-depth knowledge and a can-do attitude, so we can consistently inform and inspire through impactful pieces.

November is set to be an exciting month for sustainability, with Africa's most powerful green gathering taking place on 15–17 November. GBCSA's 16th Green Building Convention promises an exciting array of topics and discussions – food for thought and inspiration for collective action towards a greener future. On [page 30](#), we've interviewed some of the thought leaders and industry professionals on this platform, who'll be sharing their knowledge and insights to inspire, educate and drive change in the sustainable development space. We hope to see you there!

As always, we showcase the tireless work of the GBCSA, and our cover project – a premium-grade office development at 144 Oxford in Rosebank – is a striking example of supremely elegant design meeting innovative sustainability initiatives. On [page 42](#), we present this latest addition to a portfolio targeting Net Zero Carbon by 2030.

Elsewhere on the planet, during 11–15 September 2023, the WorldGBC and their network of over 75 Green Building Councils (GBCs) united in a call to the global green building community for total systemic transformation of the building and construction sector. Learn more about World Green Building Week 2023 on [page 52](#).

Back in the Western Cape, Greenbay Barn Lifestyle Centre is the hub of a new property development in Gordon's Bay that recently achieved a 6-Star Green Star Custom Lifestyle Centre Design rating ([page 56](#)).

With the launch of the New Build V2 tool imminent, we unpack the last three categories – Positive, Leadership and People – in our Transforming Tomorrow series on [page 66](#).

Aiming to raise the bar for sustainable precincts is Newinbosch, in Stellenbosch, which plans to establish itself as the greenest mixed-use development in the country ([page 74](#)). The project is targeting a 5-Star Green Star Sustainable Precincts rating, which would make it the first such development in South Africa.

As we edge towards a circular economy, the waste we generate should be minimal, according to the Don't Waste Group, who share their thoughts on [page 82](#) as to how buildings should be consciously designed to make adequate space for waste management – and not just removal.

The Precinct Luxury Apartments development in Midrand is constantly evolving towards higher sustainability standards, changing both the market and mindset of middle-market residential tenants, one unit at a time – see how, on [page 86](#).

To round off this bumper end-of-year issue, we look at Redefine Properties' recent Net Zero Carbon Level 2 Measured certification for three of their existing Gauteng buildings. It's the first time that commercial buildings at scale in South Africa have attained a "measured" rating, based on actual performance data. See more about this achievement on [page 94](#).

And with that, on behalf of the *+Impact* team and our extended team, we wish you a safe and restful break over the holiday season (it'll be here before you know it)...

Happy reading!

Mariola Fouché
Editor



+Impact magazine won Property Publication of the Year at the 2023 SAPOA awards, held at Sun City in September. From left: new SAPOA president, Jackie van Niekerk, Danielle Solomons and Neil Gopal, CEO of SAPOA.

If we could pick any colour, we'd always pick Green.

Over the past decade, Growthpoint has been a leader in transforming green building from a niche experiment to an indispensable element in designing, constructing, and managing properties. As proud owners of one of the country's largest collections of Green Star-rated buildings, we are committed to crafting sustainable workspaces that minimise environmental impact while maximising the benefits for the people who occupy these spaces.

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PROPERTIES



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By the time you read this, you should be prepping for your attendance at 2023's Green Building Convention in Cape Town, or deciding on which sessions to attend. I am always excited to see what Lisa Reynolds, Tamlynne Wilton-Gurney and their respective teams have created for us and the delegates. This year's theme is about SPACE, and not necessarily physical space, such as the built environment, but a "space for a robust discussion that inspires actionable outcomes".

This entire phrase got me thinking quite hard. Allow me to explain. In updating my employer's sustainability strategy, I came across material that pointed to the "use of more efficient modes of transport and use of new technologies" as opportunities towards a decarbonised future. My mind then wandered to electric vehicles (EVs) and whether embracing EVs, now, is the correct approach for South Africa, given our context.

What triggered me was an old column by American economist Thomas Sowell that decried California's approach to enforcing EV quotas on automobile manufacturers, which he claimed was the cause of California's electricity crisis or, as he put it, "a result of years of refusing to have any sense of proportion between the desirability of environmental goals and the desirability of having electricity". While the article hasn't dated well in some respects – it still bemoaned EVs for not having sufficient range or being powerful enough to move at reasonable speed – he wasn't wrong when he asked what difference it makes when the EV does not create pollution, but the pollution occurs at an electric power station. This is still the reality today in South Africa and all renewable generation is being snapped up to mitigate against load shedding. I believe that as our grid develops, with or without Eskom, our focus will continue to be on reliable energy production or just keeping the lights on. Then it will be about producing energy to meet the developmental needs of the economy before one can consider the necessary charging infrastructure EVs will no doubt require to become mainstream. But my anxiety goes beyond that – it deals solely with the potential unemployment we could face.

The rest of the world has been "pumping their own gas" for as long as I can tell, while in South Africa, we rely on petrol pump attendants. According to the Department of Energy, we have around 5 000 petrol stations, while according to the South African Petroleum Industry Association, we have 4 600 petrol stations in the country. Either number is large, and according to the South African Petroleum Retailers Association, these petrol stations employ some 73 000 personnel. My worry is how will we absorb these inevitable job losses should EVs become mainstream, as is being called for. Our economy has proven to be structurally "stuck", lacks the agility and is therefore unable to allow for "just transitions"; and these petrol pump attendants are but one sector – others are beyond the scope of this column.

Greencape's *Electric Vehicles 2020 Market Intelligence Report* noted five-year exponential growth in momentum in the EV market, primarily driven by commitments to emission reduction. While South Africa has a significant automobile manufacturing sector that could easily transition to a thriving EV market promising economic growth and job creation, current media reports suggest that the EV momentum may be slowing.

Recent developments and market forces might slow down the momentum, and allow the thinking, creativity and space required for the transition that is worrying me. Bloomberg reports that Chinese EVs are piling up with no market demand and a large German manufacturer, which had previously committed to a 100% EV future, recently announced two new internal combustion engines (ICEs), while Japanese manufacturers continue to pin their hopes on hybrids. The UK Prime Minister's policy U-turn, where he pushed back the deadline for the selling of ICEs and halted the expansion of the ultra-low emissions zone (ULEZ), was allegedly based on wanting to take a "more pragmatic, proportionate, and realistic approach".

Perhaps Thomas Sowell may then be pleased to know that it appears there is a "sense of proportion" after all, and that "other benefits will be sacrificed, and other costs will be paid". Maybe, just maybe, my worry is unjustified.



André Theys
GBCSA Chairman





EDITORIAL ADVISORY BOARD

BOB VAN BEBBER

Bob van Bebber, a senior director at Boogertman + Partners spearheads the conceptualisation and delivery of many of the practices' large complex projects. From Soccer City, the main stadium for the 2010 FIFA World Cup, to large mixed-use precincts as well as the largest single tenanted corporate head office in the southern hemisphere for Discovery Health. He was recently recognised by the South African Professional Awards as the winner of the Professional of the Year: Architecture Class Award as well as the Overall Professional of the Year for 2019. Van Bebber's passion extends into urban design, interior design and education.

www.boogertmanandpartners.com



GRAHAME CRUICKSHANKS

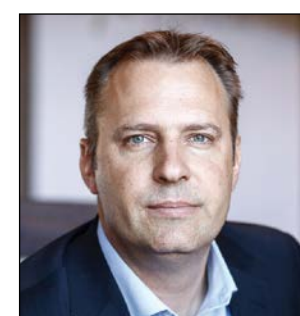
Grahame Cruickshanks has worked as a professional architect, sustainability consultant and management consultant with 20 years of experience in the design, construction and property industry. Focusing much of his career on green buildings and an expert in his field, he has worked on a variety of Green Star and BREEAM certified projects and other building projects in South Africa, Singapore and the UK. Prior to joining Growthpoint Properties as the head of sustainability and utilities, Cruickshank's previous roles included managing executive for market engagement at the GBCSA and manager at EY's Climate Change and Sustainability Services.

www.growthpoint.co.za

JUTTA BERNS

Jutta Berns is an industry leader and one of South Africa's first internationally accredited green building professionals, establishing her company Ecocentric in 2007. She has degrees from the Universities of Bonn (Germany) and Cambridge (UK), and a diverse blue-chip client base. Berns specialises in sustainable and net-zero solutions for large property portfolios. She has several LEED Platinum and 6-Star Green Star projects in her portfolio, is a GBCSA faculty member, a Green Star Assessor and GBCSA TAG member, and winner of the Gauteng Entrepreneur of the Year 2019 Award by the Women's Property Network and 2019 winner of the Established Green Star Awards by the GBCSA.

www.ecocentric.co.za



MANFRED BRAUNE

Braune currently holds the position of Director: Environmental Sustainability at the University of Cape Town (UCT), where he leads the strategy and implementation of environmental sustainability across all spheres of the university since early 2019. He has also served as a non-executive director of GBCSA in a voluntary role since August 2020. Braune's background is as a professional engineer, having worked at WSP Group for over 10 years as a consulting engineer, where he then started and led WSP's green building business for three years and then worked for the GBCSA for 10 years.

<https://www.uct.ac.za/main/explore-uct/sustainability>

MARLOES REININK

Marloes Reinink is owner of Solid Green Consulting. With an academic background in innovation and architecture, she has been working as a sustainable building consultant for more than 15 years in South Africa and Africa. She founded Solid Green in 2010, which is one of the leading sustainability consultancies in Africa and achieved its 100th green building certification in October 2020. Reinink's passion is advocating for a greener built environment and she recently started GreenED, an online education platform for sustainability in the sector. Reinink is an ambassador for the International Living Future Institute; a Living Future accredited professional; and a facilitator of the SA Collaborative Network for a Living Future.

www.solidgreen.co.za



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Improved Climate Control: Maintain a stable indoor climate, stay comfortable in any weather. **Accessibility:** Inclusive and convenient. Revolving doors cater to everyone, including those with disabilities or using mobility aids. **Noise Reduction:** Experience tranquility indoors.

Revolving doors minimise external noise for a quieter, peaceful environment. **Create extra space:** Making internal spaces comfortable thereby increasing use and rental opportunities.



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Our journey has just begun

Our neighbourhood is a beacon of innovation, dedicated to responsible environmental practices:

- Reducing our carbon footprint through circular design for sustainability.
- Aiming to eliminate single-use plastics by 2025.
- New buildings aim for minimum net-zero green rating.
- Establishing a waste-to-energy pyrolysis plant to divert waste from landfills.
- Converting waste into synthetic gas for electricity, complementing solar power.
- Our desalination plant provides fresh water, reducing strain on the city's sewage system.

We've achieved remarkable milestones on our sustainability journey:

Our neighbourhood is home to **22 green-rated buildings.**



A 40% reduction in energy consumption



reflects our commitment to efficient practices.

A 62% reduction in water consumption,



which speaks to our dedication to conserving this precious resource.

A 47% reduction in carbon emissions



is testament to our effort to create a greener future.

More than **2 700 tons of waste diverted**



from landfills annually signifies our commitment to reducing landfill waste.

We've planted **90% indigenous & drought-resistant**



plant species, embracing the nature that surrounds us.

At the V&A Waterfront, we are dedicated to the idea that responsible choices and forward-thinking initiatives can make a positive impact, and we're excited to share this journey with you.

Our environmental programme has come a long way since its early days in 2008. Over the years, we've worked tirelessly to increase energy efficiency, conserve water, and promote waste recycling across our sprawling 123-hectare complex.

"It's not just about being innovative pioneers, but creating a shared value environment, one which is not only more self-sufficient, interconnected and provides an inclusive future for generations to come, but also because protection of the environment and efficient use of resources is the right thing to do."

– André Theys: Operations Executive, V&A Waterfront; Chair: GBCSA board.

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A neighbourhood pioneering environmental stewardship for a greener tomorrow.

Join us at the water's edge for a greener tomorrow.

**Reduction of water consumption/m2 vs FY09



MAKING AN IMPACT

CURRENT AFFAIRS

Growthpoint Properties became the first party to wheel renewable electricity in the City of Cape Town in September, in collaboration with licenced electricity trader Etana Energy. Wheeling is a process in which electricity is bought and sold between private parties, using the existing grid to transport power from its generation point to end-users.

The City's six-month pilot project includes 15 wheeling participants, representing 25 generators and 40 customers, and will lay the groundwork for future wheeling in Cape Town so that businesses can harness energy from



Estienne de Klerk, CEO of Growthpoint Properties

rooftop solar panels in different locations. Solar energy generated at Growthpoint's shopping centre in Constantia is currently being exported into Cape Town's electricity grid for use at the company's 36 Hans Strijdom office building in the Foreshore.

According to Estienne de Klerk, CEO of Growthpoint Properties, "This project brings Growthpoint closer to our climate commitment of being carbon neutral by 2050 and is the starting point to providing clean green energy to our tenants in Cape

Town to further their environmental commitments." www.growthpoint.co.za; www.etana.energy

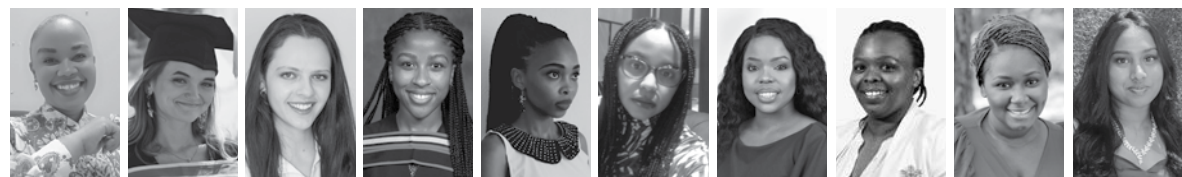
IFC WOMEN IN GREEN BUILDING COMPETITION 2023

The IFC and GBCSA strive to empower and upskill women professionals within the property and construction sectors. To help achieve this goal, the IFC Women in Green Building competition, launched in August this year, provides EDGE Expert green building training for 10 finalists.

Congratulations to the finalists for 2023 (below, from left): Sindile Buthelezi; Amber Freestone; Luze Kloppers-Mouton; Aobakwe Makwaba; Antoinette

Mralasi; Blondie Matshata; Sanelisiwe Mmusi; Lorraine Mooi; Lungile Mthi; and Giselle Pillay. Prizes for the top three exam scores from the EDGE Expert exam will be awarded in November at the GBCSA Annual Convention.

There's more! You can also access a green building training course developed by the IFC. Sign up for the free online **Design for Greater Efficiencies course** at www.learn.edgebuildings.com



URBAN EMPOWERMENT

Dignified, affordable housing can become a reality for all South Africans – with the right support. South African Minister of Human Settlements Mmamoloko Kubayi recently revealed that 1.9 million households (11.4% of the population) endure life in informal dwellings.

In the heart of Cape Town's housing crisis, a beacon of hope is emerging from the sprawling informal settlements.



Cape Town-based NPO, the Urban Think Tank Empower (UTTE) has developed a revolutionary housing model in Khayelitsha, one of the country's largest and most marginalised informal settlements. Phase one of the

Empower initiative has already transformed the lives of 350 residents through 72 Empower homes designed to meet their needs and cultural values.

Delana Finlayson, Managing Director at UTTE, says: "We're confident that scaling up and replicating our housing model can help to deliver the promise of 'housing security and comfort' for all South Africans, as enshrined in the 1955

Freedom Charter." Phase two is set to expand this success with 70 more Empower homes, public spaces and shared assets, and UTTE aims to deliver numerous new homes annually. www.utte.co.za

NEW LEADERSHIP FOR SAPOA

The South African Property Owners Association (SAPOA) recently announced Attacq CEO Jackie van Niekerk as its new president at the association's 2023 Annual Convention and Property Networking event in Sun City.

Van Niekerk has over 14 years' experience in the property industry and, prior to joining Attacq in 2018, she was CEO of Pivotal Property Fund.

Representing almost 90% of the country's commercial and industrial real estate owners, SAPOA promotes the interests of its members by representing them on matters affecting the property industry at national and local government levels.

"SAPOA continues to ensure that the industry has the right voice and is at the right table, lobbying on behalf of the industry to improve policy, supported by excellent research," said Van Niekerk. "It is imperative that we help our businesses navigate the current landscape with the right messages. Education and training remain close to my heart. [They] remain a powerful means for building a better future for South Africa."

www.sapoa.org.za



SAPOA's new president, Jackie van Niekerk

A PLACE IN THE SUN

Regional Director of WSP in Africa, Alison Groves, believes domestic solar power is key in reducing South Africa's reliance on fossil fuels in energy generation:

Although South Africa showed a decrease of **around 3% in carbon dioxide (CO₂) emissions** from fossil fuel combustion and industrial processes between 2021 and 2022, it remains among the top 15 largest emitters of CO₂ worldwide.

With loadshedding compromising the ability to work effectively, the need to become energy self-reliant has become pressing. An increase in the international oil price has rendered diesel-fuelled generators unaffordable, facilitating the rapid uptake of renewable energy solutions for the home.

There have been two significant legislative enablers for rooftop solar adoption in South Africa in the last year, and since these key changes, rooftop solar has become far more accessible to local households, with renewable

power generation capacity doubling in a year. This, in turn, makes it easier for individuals to be part of the Net Zero solution at home.

Private households are taking up the opportunity to feed in excess power to the grid where transmission and distribution systems are sufficiently developed to accept it, and the cost/benefit ratio makes sense.

Some municipalities, including the Cities of Cape Town, Johannesburg and Tshwane, have started to implement **feed-in tariffs for households**, allowing those that can generate excess power to feed back into the grid.

So, in thinking about renewable energy, and climate change in general, we can make a difference in our "small" individual actions at home. The impact of South Africans adopting home solar power is already visible and continues to make a positive difference to lower-income households as grid feed-in becomes more prevalent. www.wsp.com



Alison Groves, Regional Director of WSP in Africa

TOWARDS A GREENER FUTURE

Representatives from the International Finance Corporation (IFC – the private sector arm of the World Bank), and two South African property developers last month visited innovative affordable housing projects in Johannesburg being certified by EDGE (Excellence in Design for Greater Efficiencies), the green building certification developed by the IFC.

Inkanyezi Village in Katlehong and Wisani Heights in Soweto are two projects by Alleyroads Holdings, a national-scale property developer and landlord with a focus on creating sustainable green affordable housing. The third project site visited was Jewel City, in the heart of old Johannesburg, being developed by Divercity, a property developer transforming entire neighbourhoods of former office buildings to affordable urban housing, to combat urban sprawl. The new green homes will reduce energy and water consumption, as well as embodied carbon used in building materials, by at least 20% – the minimum standard for EDGE certification.

About 70% of new building in South Africa is in the residential sector and 85% of all EDGE certifications are residential. EDGE (certified by GBCSA) dominates the residential green building certification market with more than 90% of certifications. www.edgebuildings.com



Carel Kleynhans, CEO of Divercity; Kushinga Kambarami, Green Building Consultant, IFC; Lenore Cairncross, Green Building Lead for Africa, IFC; Diep Nguyen-van Houtte, Senior Manager for Climate Business at IFC; and Richard Dube, Investment Associate, Divercity.



RETROFITTING FOR WATER CONSERVATION: TRANSFORMING THE FUTURE

Retrofitting, a technique gaining momentum in the water conservation context, offers a powerful and innovative way to address the pressing global concern of water scarcity. In the context of water conservation, it refers to the process of enhancing or modifying existing water systems and infrastructures to improve their efficiency and reduce water waste.

Retrofitting matters for the following reasons:

- 1. Preserving Precious Resources:** The world's fresh water supply is finite, and retrofitting ensures that we use it wisely. By reducing water waste, we safeguard this precious resource for future generations.
- 2. Economic Benefits:** Retrofitting can lead to substantial savings in water bills for both individuals and businesses. In the long run, it is a smart financial decision that often pays for itself through reduced consumption.
- 3. Environmental Impact:** A lower demand for water means less stress on ecosystems and reduced energy consumption for water treatment and transportation. This translates to lower carbon emissions and a smaller environmental footprint.
- 4. Adapting to Climate Change:** As climate change leads to more erratic weather patterns, retrofitting can make water systems more resilient. Water-saving technologies help mitigate the impact of droughts and water scarcity.
- 5. Continual Improvement:** As new information, designs and technology become available, this affords us ongoing opportunities to design, replace and implement these responsible water initiatives.

Applications of Retrofitting

Various retrofitting technologies, ranging from low to high-cost interventions, can be employed at domestic, commercial, and industrial levels, leading to savings of up to 40% in water consumption:

- **Taps:** Taps in dishwashing areas, sinks, and bathrooms can account for up to 30% of domestic water usage. A standard tap typically consumes 15–18 litres of water per minute, while a water-efficient tap, equipped with flow regulators, reduces the usage to six litres and less of water per minute. For commercial and industrial settings, push-button (self-closing) taps that automatically shut off after each use can further contribute to water conservation.
- **Showers:** Conventional shower heads use 15–25 litres of water per minute, whereas water-efficient shower heads, retrofitted with flow regulators, bring the usage down to six to eight litres of water per minute. This adjustment doesn't compromise water pressure.
- **Bathtubs:** Showers and bathtubs collectively make up around 20% of household water consumption. Opting for a smaller bathtub with a reduced water capacity of 150 litres of water, compared to larger ones holding up to 300 litres, can significantly contribute to water conservation.
- **Toilets:** Toilet flushing constitutes approximately 20% of household water usage. Older cisterns used 10–13 litres of water per flush, while more recent ones utilise nine litres of water. Choosing a dual-flush system



further reduces water consumption to three to six litres of water per flush.

- **Rainwater harvesting:** This involves collecting, storing, and utilising rainwater from roofs or paving. Rainwater can be directed into storage tanks through gutter and drainage systems, reducing reliance on municipal water by up to 40%. Monitoring the tank's water level with a water level monitor ensures efficient usage.

Championing Water Conservation through Retrofitting

- 1. Embrace Innovation:** Stay updated on the latest water-saving technologies and practices. Invest in them to reduce water consumption and waste.
- 2. Educate and Advocate:** Promote water conservation within your community and organization. Encourage others to adopt retrofitting measures. Work with water utilities, environmental organizations, and other stakeholders to develop and implement water-saving strategies.

Rand Water is dedicated to supporting both industries and communities in becoming conscientious water consumers. This commitment is exemplified, in part, by its Water Wise brand. Beyond educating on various facets of water conservation, the brand delves into pioneering methods and techniques for promoting responsible water usage. Water Wise challenges you to retrofit today for a greener, more prosperous tomorrow.

Be #WaterWise. +



www.randwater.co.za and click on the Water Wise logo For further information on water wise, please contact us on: 0860 10 10 60



WATER WISE

“Unearth the Hidden Leaks in Your Design”

Water is among the world's most valuable resources, yet it is also a universally mismanaged resource. As a result, water shortages are becoming ever more common. Leaks amongst others are the main factors that exacerbate water scarcity which results from network failure caused by amongst others, incorrect installation, lack of maintenance, aging infrastructure, and too high-water pressure. To reduce network failure, it is necessary to plan and budget for resources that will investigate and implement the necessary corrective steps to the water supply system. Furthermore, the advancement in technology has led to the development of quick “leak detector” devices that enables a quick detection and location of leaks within the network system, including the so-called hidden leaks which lose water into the ground through gaps derived in impaired pipelines.

South Africa loses about 40% of its water through leaks and unaccounted for water. This triggers the need for the architectural and maintenance industry to consider investing in a Smart Water concept as an innovative approach to improve efficiency and sustainability. Smart water systems use equipment and technology like sensors and control panels to detect and relay information about leaks and variation in water pressure. This system can be integrated with automated shut-off valves that automatically switch off the water supply when a leak is detected. To a certain extent, buildings could be complemented by divine landscapes which will then necessitate the extension of the smart water system to help detect leaks within the landscape's irrigation system. To assist with reducing the unnecessary water leaks, each water offtake in the landscape should ideally be fitted with its own meter that is either monitored manually or via a smart device (preferred). Moreover, it's essential to consider other areas where water leakage could pose a significant problem. For instance, a constantly dripping faucet or a leaking toilet can result in an average daily water wastage of 30 to 60 liters.

To address these issues and reduce water expenses, Water Wise provides straightforward DIY solutions, including:

- **Monitor your water usage:** Reading your water meter at the beginning and at the end of each day/every month can help you gauge your household and business water consumption.
- **Irrigation system leaks:** If an irrigation head is steadily dripping water when the system is off, you may have a leaking valve underground or a worn diaphragm which needs to be replaced. It's always best to call in the professional landscaper to step in and patch things up properly.
- **Landscape inspection:** It's a good idea to periodically inspect your landscape for irrigation system problems, such as moist ground which indicate an underground leak.
- **Toilet leak detection:** To check if your toilet is leaking, simply add approximately 4 to 5 drops of food coloring into the toilet tank/cistern. If you notice the coloring seeping into the bowl without flushing within 30 minutes, it signals the presence of a leak that requires immediate repair.
- **Fixing leaking taps:** Address tap leaks by replacing worn-out tap washers.

Be #WaterWise



www.randwater.co.za and click on the Water Wise logo

FOR FURTHER INFORMATION ON WATER WISE, PLEASE CONTACT US ON: 0860 10 10 60



1000 steps FORWARD

* SINCE 2007

Green Building Council South Africa recently celebrated its 1 000th green building certification – the Visual Arts Building at Stellenbosch University – signalling exponential growth for South Africa’s green building sector.

WORDS & IMAGES GBCSA



Above, from left: Prof Stan du Plessis (Stellenbosch University), Dannica Pedro (Stellenbosch University), Lisa Reynolds (GBCSA), John de Wet (Stellenbosch University), Leane de Wet (Imbue Sustainability), and Oliver Bumstead (Imbue Sustainability) with GBCSA’s 1 000th certification plaque awarded to the Visual Arts Building at Stellenbosch University. Right, from left: Taariq Fakier, Robert Todkill and Aloma Fourie, all of Stellenbosch University.



Opposite page, from left: Dr Kathryn Smith of Stellenbosch University shares some interesting facts about the Visual Arts building during the building tour; the Stellenbosch University subterranean library.



Green Building Council South Africa’s (GBCSA) 1 000th green building certification is a milestone that’s been 15 years in the making, and is reflective of a growing appetite for sustainable and resilient green buildings in the South African built environment sector. Notably, the certified structure – the Visual Arts Building at Stellenbosch University – is a heritage building constructed in 1905, and epitomises the transformational capacity of the green buildings’ movement.

EXPONENTIAL GROWTH

As the saying goes, a journey of 1 000 miles begins with the first step. The first step towards 1 000 certifications started in 2009, explains GBCSA CEO, Lisa Reynolds. At the time, no one knew how long it would take to get to 1 000 certifications, but the growth has been steady, and then exponential. “It is an amazing place to be in, to pause and reflect on how far we have come, and to look to the future to see that there is still much to be done,” says Reynolds, emphasising that there is still more work needed to mitigate the effects of climate change.

“When GBCSA started [in 2007], it was primarily focused on the office environment, and we were doing 20 to 30 certifications per year,” says Georgina Smit, GBCSA Head of Technical. “We have evolved to processing approximately 100 certifications per year, and engaging with industry leaders who want to demonstrate their green commitment in the residential, industrial and tertiary spaces.” In 2022 alone, the organisation certified 165 buildings.

Reynolds adds: “GBCSA’s vision is to be a vital part of the transformation of the built environment to a place where people and planet thrive. The global goal is to halve carbon emissions by 2050. Achieving both goals requires ramping up our efforts. Certifications serve as both a means and a measure to assist in achieving a greener and more resource-efficient future. The 1 000th



The 1 000th certification is the perfect place to promote a paradigm shift in the built environment.



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Housed within Stellenbosch University Library, the Makerspace (one of three on the campus) is a collaborative workspace in which students can invent, design and create.



Ultimately, green buildings are here to stay.

certification is the perfect place to promote a paradigm shift in the built environment.”

It’s also worth noting that GBCSA’s first certification was done prior to the intense electricity and water crises that we have been experiencing. “The energy and water savings within the 1 000 certifications have helped avert an even bigger crisis,” says Reynolds.

The annual savings resulting from the 1 000 GBCSA certifications, when compared to “business as usual” buildings, equates to 1 320 thousand MWh of energy, 1 590 million kg of CO₂ emissions, and 1 220 million litres of water. With savings like these, the benefits of green building become substantial. They also contribute to financial sustainability.

THE BENEFITS OF GREEN

The newly certified building houses Stellenbosch University’s Department of Visual Arts. The heritage structure has attained a 6-Star Green Star rating under the Existing Building Performance (EBP) v1 tool. It’s part of a bulk certification of 18 buildings, which indicates the University’s commitment to playing their part.

“Environmental sustainability is a core principle that permeates all aspects of campus life and is deeply integrated into the operations and core business of the institution,” says Environmental Sustainability Manager at Stellenbosch University, John De Wet. The multiple building certifications form part of the university’s Environmental Sustainability Plan to ensure they achieve carbon neutrality by 2030 and Net Zero by 2050. De Wet emphasises that the process of certifying their buildings will ensure “a more environmentally sustainable institution that will be more resilient, reduce operational costs, reduce greenhouse gas emissions and, ultimately, the institution’s carbon footprint – healthier, cleaner and more productive spaces, while improving our biodiversity”.

Certifying a green building offers more than just a handshake for doing a good job and a pretty certificate to put up on the wall. The benefits are tangible. De Wet explains that the certification is helping the university to benchmark their portfolio of buildings against each other, and against best practices. Doing so allows them to identify the gaps in their processes and procedures. In essence, it helps them optimise their portfolio and manage their buildings more efficiently and cost-effectively. An added benefit is how the behaviour change of the building’s users leads to a more sustainable way of doing campus life.

Simon Penso, Green Star Accredited Professional and founder of Imbue Sustainability, explains that Stellenbosch is the first university in South Africa to achieve EBP certifications, which is an achievement not to be taken lightly. This, in itself, has some knock-on effects.

Penso adds: “Stellenbosch University has approximately 400 buildings within its organisation, and it is just one of many academic institutions in South Africa, therefore the positive impact that this sector can have with regard to sustainability is hugely significant.

“A large percentage of the building occupants are students, which is a fantastic aspect for a few reasons. Firstly, this is often their first exposure to the green building sector and therefore starts raising awareness to a critical demographic. Secondly, those already aware of the importance of sustainability in the built environment are starting to demand change and progress towards a sustainable future. This commitment by the university drives the sustainability agenda forward beyond the bounds of the building itself.”

BEYOND 1 000 CERTIFICATIONS

It’s all systems go at the GBCSA to increase capacity to certify a higher number of green buildings per year. This includes identifying ways to streamline the certification process, without compromising standards and robustness. An exciting next step for the sector will be the launch of the pilot phase of GBCSA’s New Building v2 Green Star rating tool in 2024.

Ultimately, green buildings are here to stay. While there is still much work to be done, it’s encouraging to reflect on past achievements, remembering that each small step contributes to a larger journey to a future where people and planet can thrive.

“As we celebrate this significant milestone of 1 000 certifications, we’re not just planting a stake in the ground – we’re laying the foundation for exponential green thinking,” says Reynolds. “We’ve made good progress, but there’s also a call to action.

“The next 1 000 certifications await, and with them, a more sustainable future for South Africa’s built environment sector.” +

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Creating a **GREEN HERITAGE**



Stellenbosch University's Visual Arts Building was recently awarded GBCSA's 1 000th certification – a 6-Star Green Star Existing Building Performance V1 rating.



The Visual Arts building, located in the heart of Stellenbosch University's main campus, is a heritage building that was constructed in 1905. It recently attained a 6-Star Green Star (Existing Building Performance v1) rating, making it one of 18 buildings in the University's Jan Marais Square to have achieved this illustrious accreditation from the Green Building Council South Africa.

With a total floor area of 6 731m², and spanning four floors, the Visual Arts building consists of lecture halls, workshops and offices. Careful consideration has

enabled the implementation of a number of sustainability initiatives, which allow it to operate at a very low energy and water intensity, according to Simon Penso, Director of Imbue Sustainability, the Accredited Professional for the project. "A lighting retrofit means that the building now benefits from energy efficiency lighting throughout. Efficient air conditioning systems have been put in place, in conjunction with natural ventilation," he says. "The passive design elements that older buildings employ, such as the internal courtyard with covered walkways shading the windows, means that the majority of the building



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can be naturally ventilated.” The Indoor Environmental Quality (IEQ) of the building scored well owing to the high volume of fresh air, and access to views and daylight.

SUSTAINABLE ACCESS

The Visual Arts building also scored highly as a result of the green transport options available. On the Stellenbosch campus, and in the town itself, attention has been given to the establishment of safe pedestrian routes and the encouragement of walking, together with the use of bicycles and campus shuttle services.

“All the main campus facilities are located within a two-kilometre radius from the building, and various traffic-calming mechanisms have been put in place – for example, raised pedestrian crossings and walkways with ridges for the blind,” says Penso. The University, as part of its Spatial Development Framework (SDF), identified various primary and secondary Non-Motorised Transport (NMT) routes across the main campus to provide safe and easily accessible routes along strategic corridors for all, including individuals with disabilities.

Cycling around Stellenbosch and the campus has been encouraged for many years, and in 2012, Matie Bikes was launched to rent bicycles to staff and students, with bicycle racks and stands available. Safe bicycle sheds are currently being erected, while the establishment of cycling lanes is being undertaken together with the Municipality. Shuttle services also form part of the sustainable transport options available, with a campus shuttle service offering daytime transport.

“Another notable sustainable initiative to mention is the fact that the Visual Arts building achieves an 81% waste diversion from landfill,” says Penso. “The building has on-site recycling, but in addition to this, the waste is taken to a central waste handling facility for the University, for further sorting.

“And then there’s the fact that all the departments have committed to a full set of sustainable plans, such as green cleaning, as well as an interdepartmental green lease. The buy-in and true commitment of all involved with the University is highly noteworthy – they really want to drive change for the good of the planet,” Penso concludes. +



ACHIEVE YOUR WASTE MANAGEMENT GOALS

Attaining a 6-Star Green Star rating on a building is a challenging goal, and the way that waste is handled plays a vital role in this achievement. WastePlan are specialists in waste reduction, driven by a vision of a cleaner, greener future. They recently helped three key clients achieve their goals, and here they share how it was done...

STELLENBOSCH UNIVERSITY

Stellenbosch University comprises five campuses, with more than 30 000 students. WastePlan has provided on-site waste management and recycling services at this prominent institution for years and has delivered a remarkable average waste diversion rate of 76%. This means they only send 24% of all waste from across every campus to landfill. This has been achieved by implementing a holistic ZWTL strategy in collaboration with SU Management, providing ongoing training to students and facility operations, establishing a centralised on-site waste sorting facility to optimise recycling, and finding alternative solutions for various grades of plastic that are currently non-recyclable.

“It takes huge efforts between SU Management and WastePlan to continuously measure and analyse the data, which is used to change systems and packaging materials, resulting in maximising diversion rates. WastePlan as our service provider is instrumental in all the targets we achieved.” – John De Wet, Environmental Sustainability Manager & Facilities Management at Stellenbosch University

V&A WATERFRONT

The V&A Waterfront is one of the most popular tourist destinations in South Africa. Spreading over 123 hectares, this multi-use neighbourhood welcomes millions of visitors every year, offering everything from residential to commercial property, hotels, retail districts, extensive dining, leisure and entertainment facilities.

In October 2022, WastePlan was appointed as the V&A Waterfront’s waste management service provider. Since then, the V&A Waterfront’s average diversion from landfill ratio has increased from 35% to 61% and the overall waste-to-landfill ratio has decreased by 31% (close to 100 tons of waste per month). This has been achieved by fine-tuning operational processes in close partnership with V&A Waterfront Management, intensifying training and education around separation at source processes to limit the contamination of recycling, accurate, real-time

tracking and detailed reporting of the waste generated, and managing daily servicing for up to 400 collection points supported by four dedicated vehicles.

“It is vitally important for us to choose the right business partner when it comes to waste management. Since we’ve joined forces with WastePlan, we have seen phenomenal growth in our diversion ratios.” – Petro Myburgh, Senior Manager for the Waterfront

LIBERTY TWO DEGREES

Liberty Two Degrees (L2D), which has a large national retail and commercial portfolio of over 622 000m², with a market-leading trading performance and an increase in annual footcount, is set to achieve Net Zero readiness by 2023 and attain certification in 2023. WastePlan has provided waste management services since August 2021 and has significantly improved their waste management efforts to reduce waste-to-landfill from the L2D buildings. The current waste diversion rate achieved for the entire portfolio is 90%. This has been achieved by focused, on-going engagement with L2D management on the achievement of ZWTL, providing ongoing training to waste generators, accurate, real-time tracking and detailed reporting of the waste generated at source, and enabling a user-based billing process.

“Since having been appointed, WastePlan has improved the waste diversion ratio of our property portfolio to an average of 90%. This is the result of ongoing successful interaction between our management team and WastePlan.” – Martin Lamprecht, Head of Facilities

WastePlan has empowered Stellenbosch University, the V&A Waterfront, and Liberty Two Degrees to generate income from their waste, improve their sustainability score and reduce their waste to landfill – they can do the same for you! +

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THE WASTEPLAN DIFFERENCE

In 2022 alone, WastePlan recycled 89% of all the waste handled across 800 client sites. This is through customised services to match the distinct needs of each client, including:

On-site waste and recycling management: Trained, experienced on-site staff (real experts in sorting waste) ensure that the waste sorting, recycling and collection processes are relevant and effective.

Waste-to-value rebate programme: They pay rebates for the recycling collected from the client’s site, which reduces your overall waste management cost.

Accurate reporting: a user-friendly reporting platform provides verifiable, real-time data – empowering you to track your progress regularly and make informed decisions.

Compliance: WastePlan ensures 100% compliance by partnering exclusively with correctly certified transport, recovery, recycling and disposal service providers.

Waste-reduction solutions: They identify possible ways to reduce waste streams, as well as opportunities for recycling and repurposing (remember that there is profit from recycling waste, so here is where the best innovations happen).

Training: They provide training to employees (or tenants) to change behaviour and adopt new processes.

GEBERIT URINAL SYSTEM

THINK OF WHAT YOU SAVE WHEN **YOU SAVE WATER**



WATER-SAVING



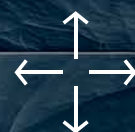
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FUNCTION



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FOR THE
PUBLIC AREA



Empowering Y/OUR SPACE

From renewable energy initiatives in the Antarctic and innovative water management to creating more inclusive city spaces, this year's GBCSA Green Building Convention brings together industry leaders, decision-makers and trailblazers in the realm of sustainable development. *+Impact* speaks to some of the stellar experts who'll be sharing their insights in this dynamic space.

**GREEN
BUILDING
CONVENTION**
2 — 0 — 2 — 3
**GREEN
BUILDING
COUNCIL**

LISA



LISA REYNOLDS
CEO of Green Building Council South Africa (GBCSA)

What prompted the theme of Y/OUR SPACE for this year's GBCSA Green Building Convention, and what does the sustainable development space mean to you?

In a day/week/month/year/lifetime, we occupy spaces. We ask for space when we need time to think and contemplate. The theme asks everyone to contemplate all aspects of space and how we consciously make them more sustainable.

We are creating a space for redefining our thinking. A space for robust discussion that inspires actionable outcomes. A space for sharing innovative solutions and

“
For many of us, attending the convention is like “coming home”.

tried and trusted best practices. A space to connect the built environment as a force for change.

For me, a sustainable development space is where all stakeholders in the built environment are committed to a greener future, and we are finding and implementing the solutions.

How is the conversation about sustainable spaces changing, and are there any projects that you're particularly fond of?

With the erratic climate that South Africa (and the world) has been experiencing has brought the reality of climate change to the forefront of conversation. More people are aware that we need to change. I have also noticed that people are more demanding about the spaces they occupy. Thus, more questions are being asked around how we make these changes and what can be done to improve our spaces.

I cannot choose one project out of all of them. Firstly, because I would get into trouble, and secondly, each of the 1 000 certified projects has its own properties that make it sustainable and unique.

What would you most like attendees to gain from the 2023 Green Building convention?

Attendees should come away with a sense of positivity and the knowledge that there are solutions to the many crises we are facing. These solutions are implementable and in their hands. We are going to have to come up with some of these innovative solutions at the convention. Networking – with intent – will be the foundation of these innovations.

For many of us, attending the convention is like “coming home”.

ANDRÉ



ANDRÉ THEYS
Chairperson of GBCSA; Executive Manager, Operations, V&A Waterfront, Cape Town

Please tell us about your personal experience in the sustainability arena.

My day job entails directing the operations and facilities services of the V&A Waterfront, a mixed-use property precinct and tourist destination in South Africa. Apart from the day-to-day managing of utilities, infrastructure maintenance, security, traffic management, parking, cleaning, hygiene services and waste management, I also drive the sustainability agenda.

I've been fortunate to be part of the desalination plant, which will start producing water in 2024, taking the V&A Waterfront off the grid.

To mitigate against the increased energy usage the desalination plant requires, I am directing the roll-out of an additional 1.8MW of photovoltaic solar installations, as well as a waste-to-energy pyrolysis plant, which we hope will deliver some 1.8 million kWh per year while increasing our landfill waste diversion ratio. This waste-to-energy plant requires an environmental impact

assessment and we are roughly halfway with this process. Then I am involved in the deployment of a large-scale battery energy storage system (BESS) for the Victoria Wharf shopping centre to mitigate against diesel usage during load shedding, and the use of seawater cooling for the HVAC to save energy. The V&A Waterfront's black water recycling system, which went live early in 2023, reclaims irrigation standard water from the sewerage, used for the flushing of lavatories in the shopping centre.

What do you think the sustainable development space of tomorrow will look like?

Given our context in South Africa, I think that in the short- to medium-term future, most focus will be in the renewable energy space as we try to recover from the effects of load shedding. The acceleration of energy wheeling will be a game-changer, allowing the property sector to move towards decarbonisation and, in the long run, it will boost the renewable energy sector. Until we sort out our energy constraints, new builds in the property sector will be few and this allows retrofitting and resource efficiencies to be targeted in the existing property sector.

In the long term, and predicated on the assumption that load shedding is a thing of the past, effectively unshackling the economy, the built environment will again lead the way in decarbonising the economy, although I think that green policies and sustainable development in South Africa will have to forge their own path, and at a pace to allow for inclusion of our society.

Are there any key takeaways you hope to gain by attending the 2023 Green Building convention?

Last year's convention held interesting sessions on environmental, social and governance (ESG) principles, all of which I attended. This remains a fluid area for organisations and companies (listed or unlisted) and I again look forward to building my knowledge and expanding again on this both in terms of what investors are wanting as well as how reporting is evolving.

“
The acceleration of energy wheeling will be a game-changer.”

PLENARY SPEAKERS



ROBERT SWAN

Explorer; Founder, 2041 Foundation

What does leadership mean to you?

We are all on a journey towards sustainability – a journey we must succeed on, as none of us inherits our time on earth from our parents. We borrow our time here from our children. Leadership needs to be creative and positive, and any leader who commits to anything on this sustainable journey MUST deliver. Above all, leadership should inspire trust.

“
Antarctica is the last true wilderness on Earth, owned by us all.”

What inspired you to create the 2041 Foundation, and how does it contribute towards combating climate change and the preservation of Antarctica?

Antarctica is Earth's last true wilderness, owned by us all. [Ocean explorer] Jacques Cousteau gave me this 2041 mission 32 years ago, and we have 18 years to go until the world will decide on the fate of the Antarctic. To preserve the Antarctic, we need to make it not financially worth exploiting it for fossil fuels. Therefore, I have devoted my life to the preservation of the Antarctic by trying to bring renewable energy to scale, which will also contribute towards halting climate change.

How does your work leverage energy innovation and environmental action to further your mission?

We've taken energy innovation to the ends of the earth, in the most hostile places. The work continues – I will soon announce that in 2025, I will be spending the “Polar Night”, six months, alone in the Antarctic, surviving only on renewable energy.

Have you seen any significant changes and transformations in attitudes towards environmental sustainability in your career?

When I started this journey, sustainability and ESG principles were not even part of the environmental vocabulary. Great steps have been taken, but sadly we need to take more. People still believe that if we do the same [as before], things will magically change for the better. However, if we do the same, we get the same – and more of the same is not the way forward.

Is there an overarching message you would like people to gain from your keynote presentation?

I hope to leave them with a sense of *hope*, a sense of *urgency*, and the inspiration to move forwards on this sustainability journey. www.robertswan.com



DR SARA CANDIRACCI

Associate Director at Arup
– Cities, Planning and Design, Milan

In your view, how can city spaces become more inclusive, and how does that impact sustainability?

The social pillar of sustainability has until recently taken a back seat to environmental and economic concerns – not surprising, given the constant push for economic growth and the climate crisis. But more and more professionals in the built environment industry are recognising the importance of social value in relation to spaces and are starting to take their responsibility towards the local communities they work in far more seriously.

For city spaces to become more inclusive, it is critical to consider and address the needs of the communities where we are working, in particular of the most vulnerable and excluded groups – children, youth, women and girls, people with disabilities, the elderly, the urban poor.

We need to engage with these groups and co-create solutions to ensure that projects, policies, strategies and interventions are designed and implemented to deliver positive quality of life outcomes, as well as equity and justice goals for those involved.

“
A place is always its people – they all have different needs and priorities, and a different way to interact with their environment.”

Could you describe a few examples of your work in urban planning and how they can deliver social value in cities today?

Together with the Bernard van Leer Foundation [which funds and shares knowledge about work in early childhood development], I led the development and piloting of the [Proximity of Care Design Guide](#), a practical online tool that helps urban planners, designers, developers, and city leaders embed child and family-friendly design principles into their work. The guide provides a compendium of guiding principles, working tools and best-practice

“
Professionals in the built industry are recognising the importance of social value in relation to spaces.”

examples developed with partners worldwide, which can be used to assess, design and build healthy, protective, stimulating and supportive environments for children to thrive, with benefits for the whole community.

In collaboration with the Lego Foundation, I led the development and piloting of the [Playful Cities Design Guide](#), which provides practical and inspirational ideas to help urban practitioners and city authorities to embed small-scale play elements in city design and planning, to enable play for everyone, anywhere. This guide has been used to inform the design of play strategies and interventions in Milan, Cape Town and London.

Together with the United Nations Development Programme and the University of Liverpool, I led the development of the publication [Cities Alive: Designing Cities That Work for Women](#), which provides guidance and practical steps and case studies to mainstream a gender-inclusive and responsive approach in urban planning and design.

“
Consider local materials and construction techniques, and utilise local expertise.”

What key messages would you like people to take away from your talk?

Adopt a systemic approach to understand people's interactions and relationships with spaces: to prioritise social value in urban planning and design it simply as recognition that a place is always its people, and that they all have different needs and priorities, as well as a different way to interact with their environment. Effective design that changes long-term behaviour and supports human interactions is rooted in the holistic understanding of the local context.

Move from box-ticking “engagement” to meaningful participation and co-creation: traditionally, most projects carry out some stakeholder engagement before moving into the design and development phase, then follow up with a final check-in late in the programme. A more socially valuable approach would be to engage with key stakeholders and the community that will benefit from and be impacted by your project, to listen closely and ask them what they actually need and would like to see.

Value and localise existing resources, skills and patterns: it is key to learn from international best practices to be inspired and push for innovation. At the same time, bear in mind that approaches that work in one context may not apply to others. Partner with local organisations or community groups with previous experience and knowledge on the community you are seeking to engage and support. Consider local materials and construction techniques, and utilise local expertise. This will boost local economic development and foster a sense of ownership of the project and its results. www.arup.com



PROF STANLEY LIPHADZI
Group Executive Manager, Water Research Commission, City of Tshwane

How can knowledge and technology support sustainable growth and development in South Africa and beyond?

Socio-economic development requires new knowledge (the know-how) and innovations (technologies), especially in this ever-changing environment. Although sustainable growth and development means many and different things to different people, many can agree that we all need an assured supply or access to food, clean water and energy. This is the meaningful definition of sustainability, as it informs our actions, governance frameworks and plans, investment choices and practices.

South Africa has many communities ravaged by poverty, unemployment and inequality, and our experience here is that it will take many years to address those challenges, especially when the growth of our economy is almost stagnant. The societal needs (demands) are outstripping the capabilities, competencies and resources that our institutions have. In consideration of all that, I'm convinced that our best bet as a country and society is to embrace and use available knowledge and innovations (including technologies) to address current and anticipated future

challenges. There are relevant innovations and knowledge applicable in rural, semi-urban and urban environments, offering great prospects of enhancing sustainable growth and development. However, we need to be agile in decision-making to optimise the benefits promised by the new knowledge and inventions.

We should use new knowledge and innovations to improve resource-use efficiency, to enable availability of more water, energy, space/settlements and food. When all people have adequate access to these resources, their livelihoods and well-being also improve. It is when innovation and knowledge enable improvement of the present and future generation's well-being that sustainability of our growth and development can then be realised.

Could you give some examples of how living spaces have been improved through innovative solutions in a water-scarce environment.

Improved access to clean drinking water in (urban, peri-urban and rural) settlements: there is continuous effort to produce new innovations that improve quality of our tap water to be always suitable for drinking purposes. As such, there are developed protocols and process that ensures production of water quality by waterworks or treatment facilities, and they can be used in both rural and urban environment.

For instance, the Water Research Commission (WRC), with partners, continues to create and improve membrane technologies for drinking water treatments. There are technologies available for treating drinking water, such as VulAmanz technology, which can be used at small scale and on site, and are deployable in even in deep rural settlements to increase access to portable water.

What is the key message you would like conference attendees to gain from your presentation?

Be aware that South Africa, via the WRC, has developed innovations and provided knowledge about alternative options in resolving water and sanitation challenges for rural, semi-urban and urban settlements or dwellers. Developers and individuals (at all decision-making levels) should consider tapping into these innovations to improve their well-beings and livelihoods. The WRC is always ready to work with all decision-makers and innovators to improve water and sanitation access to all citizens. www.wrc.org.za



MARCELA GUERRERO CASAS
Co-founder, Local South

How do public spaces serve as a catalyst for sustainable development – and how can they drive positive change for people and planet?

It is often said that public space is the “living room” of our cities. It is where the good and the bad are on display. While it serves as an indicator of where social challenges lie, public space can also galvanise the type of positive energy that leads to sustainable development.

Public space can galvanise the positive energy that leads to sustainable development.

Educating and engaging residents across the board is essential in this process. Interventions need not be a technical exercise; they can be creative and fun. Indeed, the potential for experimental and interactive initiatives is greatest in public space and it can show us a better future for people and planet alike. Public spaces can provide the opportunity to transform our cities, making them more pedestrian-friendly, dynamic and liveable places.

There is a great opportunity for building new thinking, learning, and collaboration across the Global South.

Please tell us about some of your work in shaping the urban landscape, specifically with regard to transforming neighbourhood-level engagement.

There is no shortage of ideas when it comes to improving our cities; the challenge lies often in finding an appropriate way to implement them. At Local South, we support organisations and individuals working at the nexus of public and private sector with a special focus on urban issues. We believe that, in most cases, knowledge is already available, and unlocking ideas requires testing and validation. At the neighbourhood level, residents are best placed to guide those processes.

We work to bring together experience, knowledge and dreams, while building on the opportunity to share across similar contexts. We help to localise ideas with those who

Public space is the “living room” of our cities.

– like us – believe in the enormous potential of Global South cities. We do this through urban interventions, research and content development, strategy and project management, creative public engagement, and facilitation, brokering and special projects. We work with a range of partners across the private and public sectors.

What would you like people to gain from your participation at the 2023 GBCSA Convention?

Appreciation for the untapped potential in the Global South. It's easy to feel despondent in South Africa because of the myriad challenges our cities face. This feeling is often exacerbated when we look to cities in the Global North. However, there are other cities with similar conditions, creatively addressing and overcoming challenges.

There is a great opportunity for building new thinking, learning and collaboration across the Global South – to strengthen local work on the ground in different contexts, provide an opportunity to reflect in powerful ways, and allow for new thinking from the South to enter the public conversation in a meaningful way.

When it comes to the built environment and public space, it is crucial to work towards global standards, while looking at how implementation is happening in similar cities. The work at Local South highlights the opportunities, particularly between Africa and Latin America. www.thelocalsouth.com

be used to advance all or most parts of the planet. People first need efficiency to understand what that translates to in the environment.

Have you encountered any barriers in the course of your eco-friendly transportation solution?

There are several, but top of mind are, firstly, finance – nobody was willing to fund my venture and it was all risk, so I had to start another business as a cash cow and I used that to build what I have today. Secondly, access to market – everyone wants to stick with the “trusted” traditional brands and not risk new products they don't understand first-hand, so I had to offer many free demonstrations!

People first need efficiency to understand what that translates to in the environment.

Any key takeaways you'd like people to gain from your participation in the 2023 Green Building convention?

Green Scooter is working on a few interesting concepts to make the entire ecosystem work – from an Electric Urban Society to the rural environments. Green Scooter has answers that many in the room would pay for and we would like for them to work with us and champion this new era of technology and a cleaner planet. We would share our SDGs and detail how we have conceptualised these frameworks to actually work. www.greenscooterza.com



FEZILE DHLAMINI
Founder, Green Scooter and Scooter Treats

What led to your conception of Green Scooter, and what do you hope to achieve?

I founded the company with the aim of introducing first-mile and last-mile transport options that could be adopted and applied in all types of markets. It was a problem that was marginally being solved in developed cities through technology, but none existed through the use of electric mobility. I'm working on building a technology company through automotive and other related products that could

MURENDENI



MURENDENI MAFUMO
CEO and Founder, Kusini Water

What inspired you to create water purification and distribution systems for communities in need – and how does renewable energy play a part?

In Venda, where I grew up, water was always a topic of conversation and a part of daily life, for a variety of reasons. Many had to collect from rivers, tanks and hand-dug pumps – my grandmother would tell us many stories relating to fetching water from her youth, from crocodiles to unfortunate drownings.

On a professional level, I became a public servant at the City of Cape Town, and then a water scientist at Johannesburg Water. I got to hear stories from many parts of the country that were similar to mine or that of my grandmother, and after nine years I knew I had to do

LLOYD



LLOYD ALTER
Author and Adjunct Professor, Toronto Metropolitan University

In terms of lowering your carbon footprint, what kind of impact can one person have?

I am author of the book [Living the 1.5 Degree Lifestyle](#),



The biggest cost in producing water is the energy it takes.

something about it. The biggest cost in producing water is the energy it takes. In a country with scarce energy resources, we need to ensure our systems can operate optimally, and at all times.

Tell us a little about your Water Champions programme.

Our organisation strongly believes solutions to local problems will come from local communities. Water Champions is a skills and technology-sharing programme: we share our model and know-how with youth from communities that are affected by a lack of access to safe drinking water. We train them to run our system, so in the communities we operate in, the first people to react to any maintenance issues will be the youth.

Is there a key message you would like people to gain from your presentation?

Water is a precious and essential resource, but in South Africa, it has become a source of concern due to persistent challenges related to scarcity, pollution and mismanagement. The nation's water issues are multifaceted and require a coordinated effort to ensure a sustainable and equitable supply for all.

With annual rainfall averaging around 464mm – far below the global average of 860mm – our limited water supply is further exacerbated by increasing population growth and urbanisation, as well as the impacts of climate change. Operational models for buildings, owners, businesses and regulators need to change to reflect this. As a scarce resource, water should be priced correctly and overuse should be disincentivised. That should mean mandatory monitoring and reporting to a set standard. www.kusiniwater.co.za

in which I spent a year trying to keep my total lifestyle carbon emissions below 2.5 tonnes. I found that the impact is considerable in terms of physical health (less meat, more walking and biking!).

I will admit that one person reducing their footprint makes little difference, but if a lot of people do it, it sends a message. It leads to political action (More bike lanes! Safer streets!) and can directly affect corporations if we are not buying what they are selling.

How do you help achieve a culture of sustainability?

I teach at Toronto Metropolitan University, where it is important to set examples. I can talk all I want, but if there is two feet of snow on the ground and I am still cycling to class, the students get the idea. When I never have a disposable cup on my lectern, they soon are bringing their own refillable bottle. We lead by example.

In your view, how can transforming a space help redefine sustainability in the built environment?

I teach sustainable design and, absolutely, transforming a space can help. You can reduce heat gain with exterior shading and heat loss with insulation; you can use healthy materials that do not release harmful VOCs; you can install proper filtered ventilation; and you can reduce water use. www.treehugger.com

GRAHAM



GRAHAM HILL
Founder and CEO, The Carbonauts

The Carbonauts teaches people how to live a low-carbon lifestyle. Can a single person make an impact?

The world is made up of 8 billion single humans. To

PANELLISTS



KURA CHIHOTA
Regional property consultant

What key roles does the real estate sector play in driving transformative change within the built environment?

Now, more than ever, the built environment post-pandemic is responding to very human needs – making the spaces we interact with aesthetically pleasing, with pleasant ambient heating and cooling. The changes demanded by tenants in the built environment are key drivers of changing the built environment. Green alternatives create real, tangibly better environments.

Any your thoughts on the intersection of sustainable building and commercial viability?

The commercial viability comfortably intersects with sustainable building in lower operating costs over time. In the battle to protect margins, landlords and tenants would rather opt for the lower operating costs of green buildings than “older” conventional buildings. The win is all round. The landlord wins with a better return. The tenants win with lower operating costs. The occupants win with an improved operating environment, meeting the very human needs of fresh air and natural light. www.twitter.com/KuraChihota

have our species survive, we're going to have live a little differently than we have in the past 100 or 200 years. Your impact matters in that you make a difference but, more importantly, you influence others around you. If we can get a third of the population living compelling, lower footprint lives, the rest of the population will quickly follow. Your living in this way specifically fights climate change, and helps support building the social norms necessary to get us to where we want to go.

Many companies are developing sustainability strategies, but to succeed, it's important to develop a culture of sustainability. How do you aim to help achieve this?

We help develop cultures of sustainability by helping inspire and educate staff at large companies regarding their footprints at home. We do this as the home is the most personal aspect of people's lives and therefore the most likely to engage them. We teach live, cameras-on, highly interactive workshops in groups – that's the best way to get people engaged with the content.

How do you believe transforming a space can help redefine sustainability in the built environment?

Quite simply, one space that transforms – such that it can be used for more hours of each day – means you need less space, and therefore you save on materials and energy. Less space means a lower footprint. www.thecarbonauts.com



GARY GARRETT
Managing Executive,
Property Finance,
Nedbank CIB at Nedbank

How do banks recognise and back sustainable properties?

Banks can help facilitate change in how they elect to deploy capital within economies. Given the size of Nedbank's property finance business and the diversity of our client base, we recognise the importance of creating products that meet the sustainability objectives of our clients. These products cater for the development of new buildings built to green standards, the greening of existing buildings and the creation of a more energy-efficient and sustainable environment.

What insights and innovations does the banking sector bring to the sustainable building table?

I believe banks should be working as part of a broad group of sector participants in innovating and developing solutions for efficient and sustainable properties. The collective will come up with significantly better solutions than any one individual, provided objectives are aligned.

Nedbank is focusing on a number of initiatives, including solutions that allow clients to benefit from technologies that measure energy efficiency and providing solutions to reduce the costs associated with the greening of buildings. www.cib.nedbank.co.za



MBUYISWA MAKHUBELA
General Manager, Corporate Services, Rand Water

How does water play a role in sustainable development?
Water is a finite resource that is fundamental to human well-being and only renewable if well managed. Smart water management is a pre-condition of sustainable development. Water is fundamental to the three dimensions of sustainable development, including social needs, economic development and environmental limits, and a cross-cutting driver.



Smart water management is a pre-condition of sustainable development.

Water and Agriculture: agriculture accounts for about 70% of water withdrawals worldwide (61% for South Africa), although this figure varies considerably across countries. Agriculture is by far the largest consumer of water.

Water and Industry: industry is a broad sector, comprising manufacturing, extractive industry, power generation and agriculture. Industry accounts for 20% of water demand (3% for South Africa).

Water and Energy: 90% of all power production is water-intensive.

Water and Sanitation: water is very critical for sanitation. A lot of poor areas lack both and thus development becomes difficult. If we are to develop areas, water becomes a key factor.



Water is fundamental to the three dimensions of sustainable development: social needs, economic development and environmental limits.

Please expand on Rand Water's initiatives in ensuring reliable water solutions for green buildings.

Rand Water is working earnestly on ensuring sustainable provision of water to all those in our area of operation, including for green buildings. Recently, Rand Water launched the new purification plant, Station 5, which added about 200ML/day capacity to our operation. This means we will be able to supply more. Rand Water formed the Innovation Hub to focus on innovation that will improve how we supply water, and also how we ensure or improve the quality of water. www.randwater.co.za



DESIGAN CHETTY
Chief Operations Officer at Property Point; economic transformation strategist

What sort of role can small businesses play in building a sustainable future?

Small businesses in South Africa are said to be responsible for almost a third of the business sector's greenhouse gas emissions. This indicates the need for small businesses to significantly reduce their carbon footprint and adopt more sustainable practices. Previous research¹ has found that energy-efficiency measures are the most widely adopted by SMEs to reduce emissions, and South African small businesses are eager to be more sustainable. Though difficult to quantify, they are already at the forefront of providing innovative solutions towards building a sustainable future, using renewable energy sources (wind energy, bioenergy, solar and hydropower).


Secondly, it is said that 600 million jobs will be needed by 2030 to absorb the growing global workforce². Should enough attention be given to the development of small businesses, they can serve as engines of job creation in a sustainable manner, addressing both issues of climate change impact and high unemployment rates, particularly among the youth.



South African small businesses are eager to be more sustainable.

How are small businesses contributing to the green building movement?

Small businesses can and are making pivotal contributions to the green building movement by adopting sustainable building practices, offering eco-friendly products and services, and overall creating healthier and more sustainable built environments. The businesses we support through our green programme offer a wide range of services. Resource efficiency management services for energy, water and waste materials, solar installations, land rehabilitation, vertical gardens, wetlands maintenance and recycling services are a few examples of these small businesses' green practices and technologies.

Moreover, we support the businesses on our green programmes to acquire the necessary green building accreditation and certification, which not only provides them with the framework for achieving high-performance and environmentally responsible buildings, but also demonstrates their commitment to sustainability. The element of support is essential for small businesses to effectively contribute to the green building movement as they face resource, expertise, and financial constraints. By providing support in these areas, organisations and industry players can empower small businesses to overcome barriers – not only for their own benefit, but also for the broader goal of creating a more sustainable and environmentally friendly built environment. www.propertypoint.org.za 

1. British Business Bank, "Smaller Businesses and the Transition to Net Zero," British Business Bank, 2021; Sage and Oxford Economics, "The Climate Impact of SMEs: Evidence from the UK and South Africa,"
2. International Finance Corporation, "The Unseen Sector: A Report on the MSME Opportunity in South Africa."



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CHILL YOUR OPERATIONAL COSTS ...AND MAXIMISE YOUR OPERATIONAL PROFIT WITH DAIKIN



In 2019, Daikin engaged Pick n Pay Panorama to explore a refrigeration solution that could save on operational costs and maintenance costs in the store. Part of the strategy was to monitor the energy consumption of the existing plant: a condensing unit connected to a 12-foot deli cabinet. After the monitoring process, Daikin ZEAS technology

was installed at the store. Following the installation, the monitored electricity consumption demonstrated an average electricity saving of 60%, compared to a traditional solution. Alongside an increase in operating profit, other benefits were also evident: less maintenance, noise reduction for neighbours and reduced floor-space usage. +

KEY BENEFITS TO CONSIDER WHEN CHANGING TO DAIKIN ZEAS

Reduced operational cost:

Guard yourself effectively against future electricity price increases and the side effects of load shedding.

More usable floor space:

With the best surface-to-capacity ratio, ZEAS' design allows for flexible installation. The unit can be installed inside, outside, hanging on the wall, and standing on a roof.

Peace of mind:

- Daikin's quality standard: Each unit is standardised on an automated European factory line. 100% of the units have gone through quality tests, including leak and running tests.
- Reduced failure rate: Our system design philosophy is focused on no failures and enhancing the lifetime of the equipment by using DC motors, economisers, a head pressure controller and Daikin's unique oil management system.
- Daikin's support: Every unit in the South African market will be commissioned and checked by a certified Daikin engineer.
- Guarantee: Three-year full guarantee on all Daikin equipment.

Low noise: Daikin ZEAS condensing units are designed to operate quietly.

Compatibility:

Daikin ZEAS is compatible with almost every third party cabinet and control system (including shop controls).

Optimal food conservation:

Tight evaporation control ensures food stays fresh for longer.

Full flexibility:

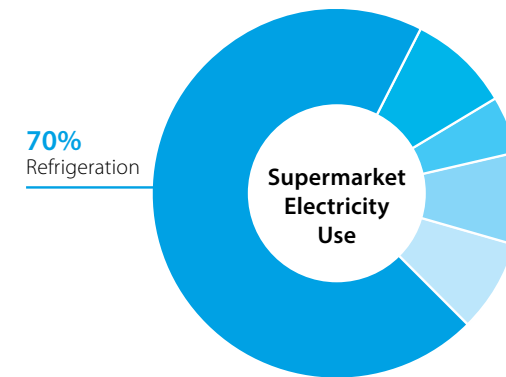
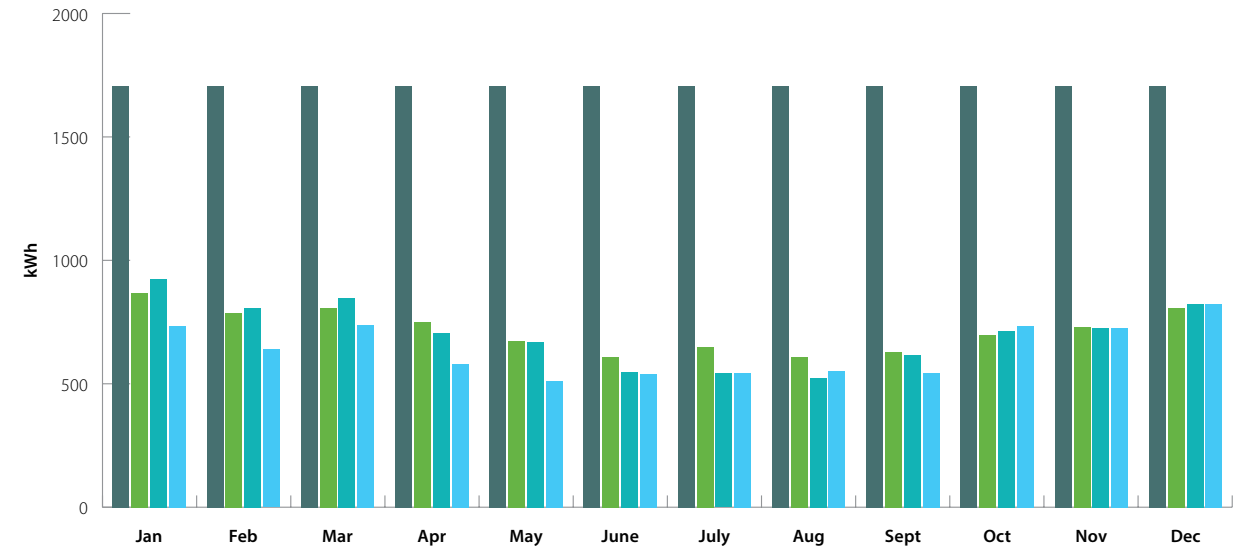
Units come in various capacities and can be easily configured to suit any size store.



Pick n Pay Panorama – Electricity measurements for the past 4 years

Electricity consumption of 12ft deli cabinet (kWh)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total	Saving
Old traditional solution (2020)	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	20484	
New Daikin ZEAS solution (2021)	871	788	807	752	675	610	652	609	631	700	732	810	8637	58%
New Daikin ZEAS solution (2022)	925	808	850	707	672	549	544	526	620	717	728	825	8471	59%
New Daikin ZEAS solution (2023)	737	641	741	584	512	541	545	553	545*	736*	726*	825*	7686	62%

*September, October, November and December 2023 show projected estimates



FEEDBACK FROM THE STORE OWNER...

How did you hear about the Daikin refrigeration product?

A friend – a senior manager at Daikin South Africa – contacted me and mentioned that Daikin was introducing refrigeration equipment in the South African market. He explained that although Daikin is known locally for its AC equipment, the company also has a large refrigeration footprint in Europe. Asked if we were willing to trial one of the units, in 2019, we started planning to test the first ZEAS system.

How long have you been using the Daikin ZEAS system?

Our first units were installed in 2020, and the remainder of the replacement units in 2021.

What was the biggest standout after changing to the Daikin product?

The energy savings!

From a maintenance/reliability point of view, how do you find the ZEAS units?

The cost of maintenance cost is very low, there have been no breakdowns or gas leakages since installation, and they keep very good temperature consistency throughout the year.

Could you see a difference in energy consumption after changing the five simplex systems to Daikin equipment?

Yes, definitely!

Are you happy with the Daikin product – would you recommend it to other store owners?

Absolutely – the Daikin system comes with many benefits compared to traditional refrigeration equipment.



Mr M das Neves
– Pick n Pay
Panorama owner



NEXT LEVEL:

design meets sustainability

Integrating innovative sustainability initiatives with trailblazing design, Growthpoint Properties' 144 Oxford premium-grade office development in Rosebank is the latest addition to a portfolio targeting Net Zero Carbon by 2030.

WORDS Anne Schaffer
IMAGES Growthpoint Properties

PROJECT NUTSHELL

Location: 114 Oxford Street, Rosebank, Johannesburg
Green Star rating: 5-Star Green Star Office As Built, 5-Star Green Star Office Design v1.1 (August 2019)
Type of building: Office over nine floors; 6 parking levels
Project dates: 2019 – 2023
Project size: 42 345m² total gross floor area; 3 791m² parking area

At 144 Oxford Street in Rosebank, Johannesburg, the two high-performance glass office wings, connected by a towering nine storey atrium, are both visually arresting and integral to the temperature control within the building.



In 2019, Growthpoint Properties' iconic 144 Oxford Street project in Rosebank, Johannesburg, was awarded a 5-Star Green Star Office Design rating by the Green Building Council of South Africa (GBCSA). Recently, the development also secured a 5-Star Green Star Office As Built rating.

Sustained value has long been a non-negotiable, integral part of Growthpoint Properties' corporate strategy, and the real estate investment trust (REIT) has one of the largest portfolios of Green Star-rated properties and green buildings in South Africa. The company considers green buildings as one of the most cost-effective solutions to climate change – one that provides significant environmental, economic and social benefits. Growthpoint maintains a focus on creating a positive work experience for each of its own employees, as well as driving sustainable impact for the communities in which it operates.

AIMING FOR CARBON NEUTRALITY

Head of Sustainability for Growthpoint Properties Grahame Cruickshanks says, "Growthpoint has committed that all buildings within our direct control are targeted to operate at Net Zero carbon by 2030, and all buildings by 2050. Our target for Carbon Neutral 2050 includes a multipronged approach: to build, own and operate a portfolio of energy-efficient buildings across all sectors

where we have assets (office, industrial and retail, plus our Healthcare and Student Accommodation funds); to optimise onsite renewable energy opportunities, primarily through rooftop solar installations; and to make use of wheeling agreements to access off-site renewable energy.

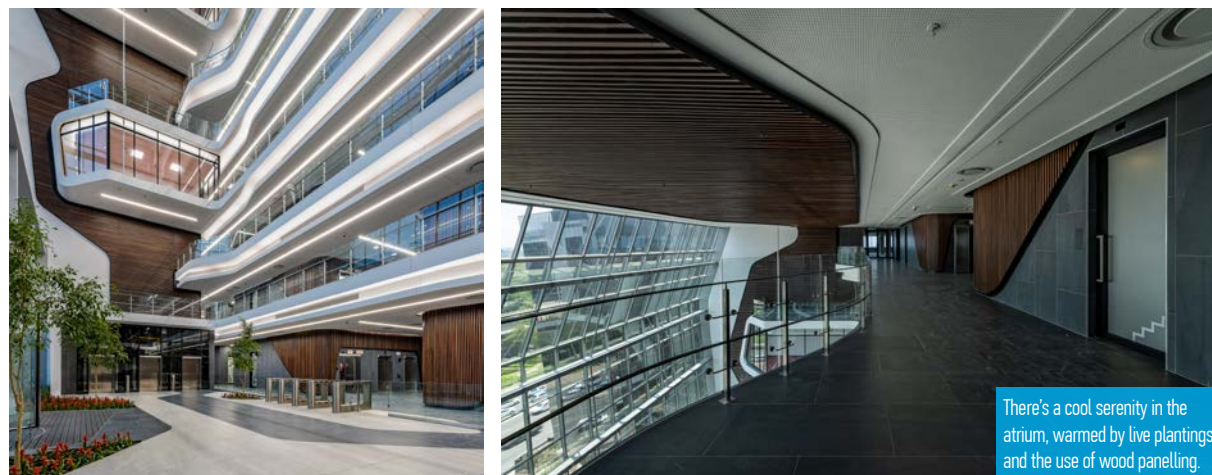
"144 Oxford represents points one and two, with the possibility of wheeling renewable energy to the building once viable within the City of Joburg." Obtaining the initial design rating for 144 Oxford was step one of the journey to achieving a 5-Star Green Star Office As Built accreditation, which it did in June 2023.

TRAILBLAZING DESIGN

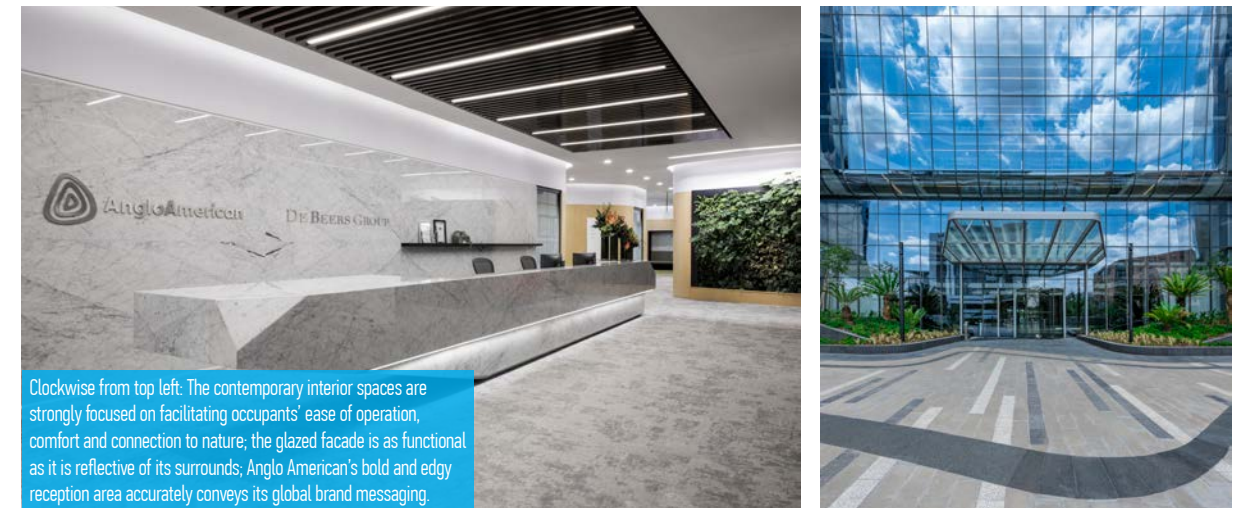
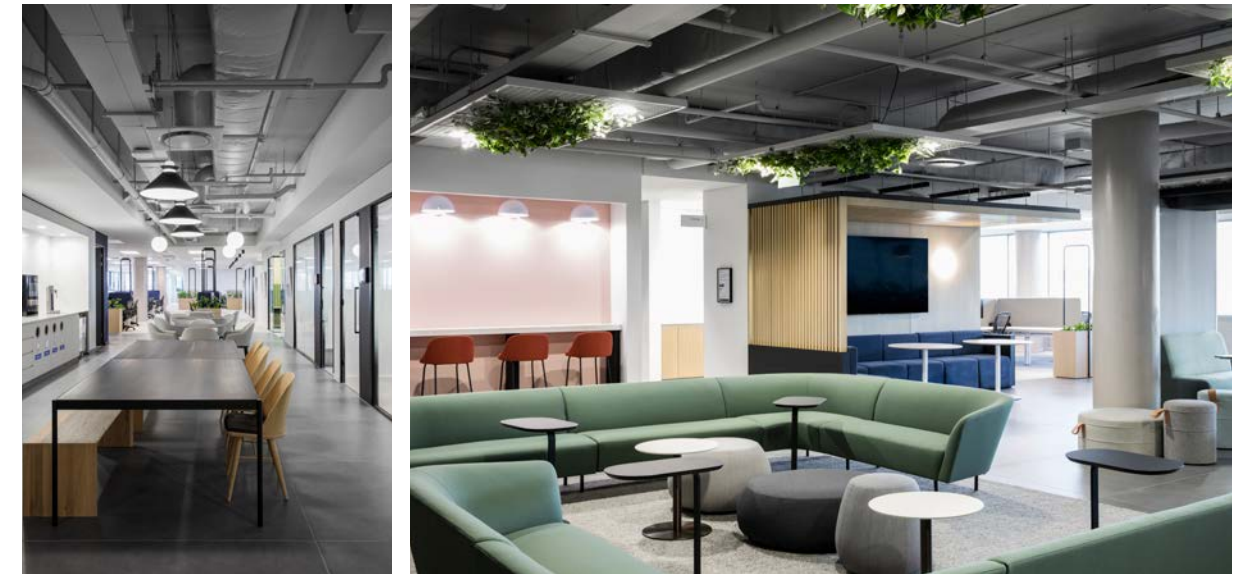
The 144 Oxford Street development was Growthpoint's definitive response to an increased demand for premium office space in the sought-after suburb of Rosebank.

The architects, Paragon Group, crafted a dynamic, certainly dramatic building that not only secured rockstar presence on Oxford Street, but most importantly, through the entire design process, also placed sustainability alongside aesthetics to imagine a building for the future. Constructed as a joint venture by WBHO and Tiber, 144 Oxford is the Rosebank landmark in a landscape marked by innovative design and architectural daring.

The building's premium office space consists of nine occupiable floors and six basement levels for parking. Set right in the heart of a richly treed Johannesburg



There's a cool serenity in the atrium, warmed by live plantings and the use of wood panelling.



Clockwise from top left: The contemporary interior spaces are strongly focused on facilitating occupants' ease of operation, comfort and connection to nature; the glazed facade is as functional as it is reflective of its surrounds; Anglo American's bold and edgy reception area accurately conveys its global brand messaging.

neighbourhood – across the road from high-end retail centres, hotels and the Gautrain station – the building's dramatic facade is not only visually arresting, but the extensive glazing also reflects the momentum and energy of the ever-changing sky and passing traffic on the west side of Oxford Street.

This building was the perfect choice for leading global mining company Anglo American's head office, where location, integrated sustainability features and goals, and iconic architectural design spoke directly to the organisation's corporate image.

Mike Woodruff, Director of Origin Project Management, says, "From the very start, it was clear Growthpoint Properties was committed to achieving an environmentally sustainable building. This was demonstrated during the design process where good, eco-friendly design was promoted, and innovative and technology-forward thinking was encouraged.

"All the 'greening' design elements were reviewed in terms of the capital costs as well as life-cycle cost benefits. Origin ensured the professional team conducted thorough analysis of the long-term economic advantages associated with these design aspects, including factors such as reduced energy consumption, lower maintenance costs and benefits to the building users. 144 Oxford was completed on time and within budget."



The dramatic facade is visually arresting, and the extensive glazing reflects the momentum and energy of the ever-changing sky.

A FEAT OF ENGINEERING

For the architects, awareness that this structure would form the "entrance" to the Rosebank urban precinct, as well as be part of the residential suburbs, was key. Visually, it's breathtaking: two massive, curved wings clad in glazing – the office towers – linked by a nine-storey atrium. In essence, the two elongated "winged" towers cantilever outwards towards Oxford Road, and are interlinked by a towering central atrium which, with no column support, spans over 24m. The atrium roof support structure spans the towers, with tension rods supporting the nine-storey hanging glass curtain wall and four hanging steel-framed meeting pods. It's a masterful feat of engineering. Woodruff described the process: "The beam was brought to the site in two sections, assembled on the road, and then lifted into position with a 400-ton crane. This required a partial road closure and had to be undertaken over a weekend. The operation was completed without a hitch."



ORIGIN is proud to have been associated with Growthpoint's 144 Oxford office development and the achievement of a 5-Star Rating.

Our vision for our clients, our teams and our communities is to help build a better environment for all.

We have a passion for project management that instils the principle of responsible sustainability as a core value.

We assist our clients and project teams in delivering projects that are not only profitable but are environmentally sustainable.

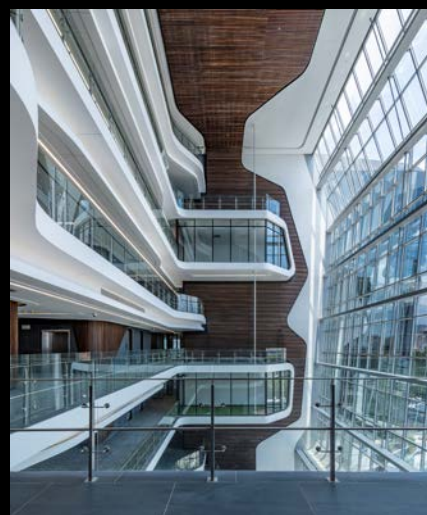
ORIGIN has been a corporate member of the Green Building Council South Africa since 2010.

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Credit: Infrastructure Photos



An extensive PV array on the roof supplies an annual production capacity of 285 000kWh.



Landscaping played a significant role in the overall look and feel of the building's exterior and interior.

Zutari (formerly Aurecon) was appointed as the mechanical engineer and the environmentally sustainable design (ESD) consultant on the project. The ESD team was led by Yovka Raytcheva-Schaap, who explained: "We worked very collaboratively with an engaged and invested client, architects, professional team and contractors to ensure that the clearly defined sustainability objectives aligned seamlessly with the proposed design of the building and the building services. The goal was to design a building for optimal energy, water and material use, but always with a focus on enhancement of the occupants' health, well-being and productivity."

Whether you're an onlooker, occupant or a stakeholder, the bespoke facade of 144 Oxford takes centre stage, a perfect example of the comfortable handshake between design and sustainability features. The glazing of the building went way beyond its dramatic visual impact. The main facade consists of double-glazed unitised facades, the outermost one featuring an offset glazed skin. This high-performance glazing had to account for the cooling load. Uniquely for this project, the glazing was coated and baked with a variety of chemicals to reflect the heat, so natural light enters, but heat wavelengths reflect back out. In essence, the glazing allows ample light penetration without

excess solar heat gain, and maximises the occupants' access to natural daylight, views and connection to the outdoors.

ENERGY-EFFICIENT INNOVATIONS

Recycling is always front of mind, and this facade was designed so as to allow for disassembly and potential reuse, to minimise the embodied carbon emissions. Likewise, by means of recycling and reuse, over 70% of the construction waste was diverted from the landfill. The reinforcing steel has a recycled content of more than 90%. And to address the responsible handling of operational waste, a dedicated space for storage of recyclable materials is provided in an easily accessible location for service providers' trucks.

At 144 Oxford, extensive consideration was given to the most appropriate type of HVAC system for the building and its intended use. The system needed to provide maximum tenant flexibility, least onerous maintenance requirements, low noise levels, and high levels of individual control. The use of four 800kW CIAT chillers was the chosen methodology, a system with the flexibility to capitalise fully on the seasonal changes experienced in Johannesburg, so natural cooling of the building can occur. All air-handling units have full economy cycles. Ultimately, the provision of outdoor air at 144 Oxford has rates exceeding national buildings standards' requirements. Furthermore, a chiller study was conducted with a present-day cost analysis over a 25-year lifecycle to determine the most efficient chiller combination, bearing in mind there was a phased approach to the building's two towers at the time of the system selection. The final HVAC selection provided not only



a highly energy-efficient system, but also a cost-efficient design satisfying to everybody, all the requirements, and the budget.

Innovation featured strongly throughout this project, one of which was a solution developed by Zutari to detect refrigerant leaks from the air-cooled chillers. The mechanism deploys weighing cells, which are connected to the building management system (BMS) to continuously monitor the weight of the chillers. In that way, it detects even a minor refrigerant leak, thereby limiting the environmental damage caused by refrigerants with global warming potential. All refrigerants and gaseous fire suppression systems have zero ozone depletion potential.

In addition to the municipal supply, electrical energy is provided by the extensive photovoltaic (PV) array on the roof, with an annual production capacity of 285 000kWh. An energy-efficient lighting system is installed throughout the building, and includes zoning and daylight harvesting sensors to ensure lights are switched off automatically in spaces when not needed.

WATERWISE, INSIDE AND OUT

Reduction or reuse of potable water was a constant focus. The sustainable approach to water consumption included efficient low-flow rated sanitary fittings – toilets, taps and showers. The irrigation system employs drip irrigation, soil moisture sensors and an automatic controller to reduce potable water use. So, too, water from routine fire protection tests is captured, stored and recirculated so as to facilitate the reuse of potable water. A 200kL tank for rainwater harvesting provides an additional capacity for water security and use of non-potable water.

The wealth of landscaping – both hard and soft – played a significant role in the overall look and feel of the building's exterior and interior, and importantly, connected people to their natural surrounds. For the landscapers, complementing and reflecting the lines, shapes and character of the building meshed with the creation of enticing outdoor spaces where occupants can rest, refresh and breathe.

The indigenous waterwise planting, an ability to tolerate highveld extremes, and calculated design to amplify the occupants' experience, was the province of Karen Marais of landscape architects, The Ochre Office. This was no easy feat, particularly in challenging areas such as that between the building's two glazed wings, where extreme changes of sunlight, heat, direct sun and shade were a constant. Equally challenging was the decision to plant over the basement slab above the six levels of parking, as well as the raising of landscaping material up to the podium slabs – from benches and pebbles to 600m³ of planting medium, 10 000 plants and 52 trees.

In pursuing the 5-Star Office As Built GBCSA accreditation, 144 Oxford's proximity to the Gauteng train station, public transport and the retail sector is highly beneficial as it offers occupants various options for public transport and limits the use of private vehicles. For this, the project scored high in the Transport category.

MANAGEMENT AND MONITORING

Inclusion or installation of sustainability features is one thing, but ongoing effective management, monitoring and operation is crucial. Management was one of the highest scoring categories in 144 Oxford's quest for the 5-Star Green Star Office As Built rating. It began with the comprehensive commissioning of building services facilitated by SEM Sustainability Engineers, an independent commissioning agent. The facilities manager was actively involved during the design phase to ensure that the operational intent of the sustainability initiatives was effectively implemented.

Growthpoint Properties will be taking its climate response to the next level by implementing a robust and viable carbon-neutral strategy. For Raytcheva-Schaap, "144 Oxford is the latest addition of a large office building to Growthpoint's portfolio. The building is fully geared to support the company's vision and that of Anglo American, the largest tenant in the building, for a more sustainable future and to contribute to achieving their carbon reduction targets." +



Abundant, impressive indoor planting strengthens the occupants' connection to the outdoors and the environment.

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GET THE MOST OUT OF YOUR RAINWATER HARVESTING SYSTEM

Rainwater harvesting is a critical facet of sustainable urban development, offering a multitude of advantages for both residential and commercial properties. Despite its apparent simplicity, the process of setting up an effective rainwater harvesting system requires meticulous planning, consideration of various components, and careful evaluation of costs and benefits.

For urban planners, environmentally conscious property developers, and commercial business owners seeking to integrate rainwater harvesting solutions into their properties, a thorough understanding of the complexities involved is essential.

These are some key considerations for rainwater harvesting systems:

Identifying Application and Site-Specific Requirements
Rainwater harvesting systems can range from simple rain barrel setups for basic water conservation to intricate, fully integrated systems involving telemetry for automated municipal supply switching and water purification. Understanding the specific application requirements is vital for effective system design and execution.

Understanding Advantages and Limitations of Available Solutions
Various system types, including live in-feed automated systems, multiple tank setups, dual systems and basic rain barrel systems, cater to different needs and site and business constraints. Assessing the advantages and limitations of each system type is crucial for making informed decisions during the planning phase.



Components and Infrastructure
A comprehensive rainwater harvesting system involves multiple components, including guttering systems, first flush systems, piping networks, foundation structures, tanks, filtration and purification systems, pumping mechanisms, and telemetry setups. Each component plays a pivotal role in ensuring the efficiency and sustainability of the system.

Cost and Budgetary Evaluation
Evaluating the initial setup costs, ongoing maintenance expenses, and the return on investment is fundamental to gauging the feasibility of rainwater harvesting systems. Factors such as local rainfall patterns, municipal water supply costs, and budget constraints must be considered to make financially sound decisions.

Location and Legal Constraints
Understanding the property's location and terrain limitations, including potential servitudes, is essential for determining the feasibility of rainwater collection. Navigating municipal authorisation requirements is crucial, considering the increasingly stringent regulations in place.

Implementing Rainwater Harvesting Systems
Implementing a successful rainwater harvesting system requires collaboration with a network of professionals and experts, including architects, engineers, plumbers, and equipment suppliers. Partnering with reputable organisations, such as SBS Tanks, can streamline the implementation process, ensuring the integration of efficient rainwater harvesting solutions tailored to specific property needs.

Choosing a Partner that Builds for Better
SBS Tanks remains committed to supporting the realisation of efficient and effective rainwater harvesting systems through its extensive network of professionals and contractors, contributing to the advancement of sustainable urban development and water conservation. With 25+ years of dedicated service to the commercial, industrial, residential, municipal and mining sectors, SBS Tanks is the obvious choice for a water storage tank partner.

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BUILDING the TRANSITION

On 11–15 September 2023 – World Green Building Week – the WorldGBC and its network of over 75 Green Building Councils united in a call to the global green building community for total systemic transformation of the building and construction sector.

WORDS & IMAGES WorldGBC



before countries submit updated Nationally Determined Contributions (NDCs) in 2024. WGBW23 also led into the [UN's 2023 SDG Summit](#) (18–19 September) and therefore pinpointed 11 of the 17 Sustainable Development Goals that are essential to catalyse a sustainable built environment.

Throughout the week, WorldGBC's network also shared examples of #BuildingTheTransition across three themes:

The Energy Transition

The energy transition is about more than switching to renewable energy. We're talking about a complete systemic change – accelerating the uptake of built environments that reduce energy demand, store and share clean energy, and produce more energy than they use. It's investing in clean technologies and driving economies of scale. And it's deep retrofitting existing buildings to be exceptionally energy-efficient.



The regenerative transition begins with the materials we reuse

#BuildingTheTransition



The energy transition starts with energy we don't use

#BuildingTheTransition



The Regenerative Transition

How do we advance regenerative principles in the built environment from niche to normal? Our planet's resources give us life, but they are not infinite. Humans and the built environment must exist together within a cycle of natural systems. That means not just protecting biodiversity, but also prioritising its restoration, embracing nature-based solutions, and creating a thriving circular economy across the entire building value chain.



In one week, over 120 WGBW23 events were hosted across 35 countries.

The World Green Building Council (WorldGBC) is the largest and most influential local-regional-global action network, leading the transformation to sustainable and decarbonised built environments for everyone, everywhere.

Now in its 15th year, the campaign World Green Building Week 2023 (#WGBW23) was the most successful yet as Green Building Councils (GBCs) around the world hosted events, joined in the campaign on social media and took part in a unified message to demonstrate that through systems change thinking, and leveraging local solutions, we can transition to sustainable built environments.

The #BuildingTheTransition campaign called upon the global building and construction sector to accelerate the transition to secure an **energy-efficient, regenerative and just future for all**. In one week, over 120 events were hosted across 35 countries, including South Africa.

The Green Building Council South Africa (GBCSA) hosted a Wednesday Wine event, presented by the Western Cape Department of Infrastructure, in which guests had the opportunity to gain insights into the evolution of the 9 Dorp Street project from the perspective of the department's internal certification team.

The distinguished panel of speakers included Dr Gavin Kode, Deputy Director-General of the Western Cape Department of Infrastructure; Tracy Davids, Deputy Director of the Immoveable Asset Management Directorate; Ebrahim Jakoet, Mechanical Engineer in General Infrastructure; and Karl-Robert Gloeck, Chief Architect in Health Infrastructure. They shared invaluable stories and lessons learned on their journey to achieving a 4-Star Green Star Existing Building Performance V1 certification.

FAR-REACHING IMPACT

With a social media reach of 6.5 million, 85% of GBCs taking part and over 20 press features around the world, the campaign demonstrated the power behind a unified voice.

The campaign tied into events and political action taking place on the global stage too. At the UN Climate Summit COP28 taking place in Dubai, UAE, (30 November – 12 December 2023), the world's first Global Stocktake will result in a review of the collective goals agreed upon under the Paris Agreement, highlighting areas of progress and identifying key gaps



At the GBCSA gathering were, from left: Ian Haupt, Chief Mechanical Engineer at the Western Cape Government's Department of Transport and Public Works; Ebrahim Jakoet; Gavin Kode; GBCSA CEO Lisa Reynolds; Tracy Davids; and Karl-Robert Gloeck.



The just transition creates opportunity

#BuildingTheTransition

The Just Transition

We cannot achieve climate justice without social justice. The people who have contributed the least to environmental degradation are suffering the biggest consequences. Equality is not the same as equity. Advancing a just transition in the built environment means committed solidarity to protect human rights from financial flows, to supply chains, to geopolitics. +

We cannot achieve climate justice without social justice.

Find out more at www.worldgbc.org/wgbw23 and see the social media campaign at @WorldGBC (www.twitter.com/worldgbc), #BuildingTheTransition and #WGBW23. www.worldgbc.org

A message from Cristina Gamboa, CEO, World Green Building Council:
 “Thank you to our network for presenting such a powerful and unified call during #WGBW23. We are grateful to GBCSA for the leadership they demonstrated, hosting events and taking part in social media throughout the week. Over 8% of the GBCs and a range of partners demonstrated that by leveraging localised solutions from across the built environment, we can accelerate the global transition to a decarbonised, sustainable and resilient society. The built environment is the largest contributing sector to global energy-related carbon emissions – and therefore it is key to leveraging solutions to secure a sustainable future for all.
 “We have had a final reminder from this year’s Sixth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC) that we must take urgent action if we are to prevent our being evicted by an uninhabitable planet. Yet while we may be running out of time, by no means are we running out of solutions, which are being pioneered around the world right now by our global network, as we advocate together for #BuildingTheTransition.
 “If we are to succeed, solutions must be scaled up, and that’s why political and industry ambition is crucial. Our global community sent a strong message to leaders around the world that the time to act is now, and it is with their ongoing support which is driving action to transition to energy efficient, regenerative and just built environments for everyone, everywhere.”

What we build today defines our tomorrow

#BuildingTheTransition

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The Greenbay Barn lifestyle centre, the focal point of a new property development in Gordon's Bay, has recently achieved Green Building Council South Africa's coveted 6-Star Green Star Custom Lifestyle Centre Design rating.

WORDS Katherine Graham
IMAGES Balwin Properties



Energy efficiency, the use of solar energy, water efficiency and waste management are some of the reasons the Greenbay Barn in Gordon's Bay achieved a 6-Star Green Star rating.

A green LIFESTYLE

PROJECT NUTSHELL	
Location:	Firlands Minor Road, Helderberg Rural, Gordon's Bay
Green Star rating:	6-Star Green Star Custom Lifestyle Centre Design
Type of building:	Residential estate
Project date:	Lifestyle estate certified June 2023
Project size:	1 069m ² total gross floor area



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When Balwin Properties decided to build a new residential estate in Gordon's Bay, Cape Town, it was always the plan to have a lifestyle centre as its hub. The Greenbay Barn is an impressive structure, characterised by two massive barn doors. These doors open to reveal a tree in the middle, serving as a living centrepiece.

The idea behind the Greenbay Barn was to have a communal area where residents could eat, exercise, work, socialise and play. The amenities on offer include a fitness centre, yoga studio, café, multipurpose sports field, office space, swimming pool, amphitheatre, dog park and laundromat. "The Greenbay Barn plays a pivotal role in fostering a sense of community and providing convenience and recreation for residents," comments Steve Brookes, CEO of Balwin Properties.

"Sustainable development is a key differentiator for us," he says. "We regard science-based targets as a business imperative that drives innovation in new technologies and operational practices. This ultimately saves money and increases competitiveness. Our mission is to continue to improve the growth of the low-carbon economy, differentiating Balwin as a responsible brand that cares about its homeowners, the environment and the planet."

SUSTAINABLE BY DESIGN

As with most of Balwin Properties' projects, sustainability was never an afterthought, but an integral part of the early design process. Lloyd Tinney, Balwin Energy's green Accredited Professional for New Buildings and Major Refurbishments, explains how they sat down with Solid Green Consulting to see which environmental considerations they could incorporate into the building's design.

"Initially, we met with Solid Green to discuss our goals of achieving a 6-Star Green Star rating," says Tinney. A few design aspects were changed (with minimal cost implications) as they didn't fit in with the overall green strategy. "These decisions will pay off in the long run as the building will perform more efficiently and be less reliant on water and electricity," he maintains.

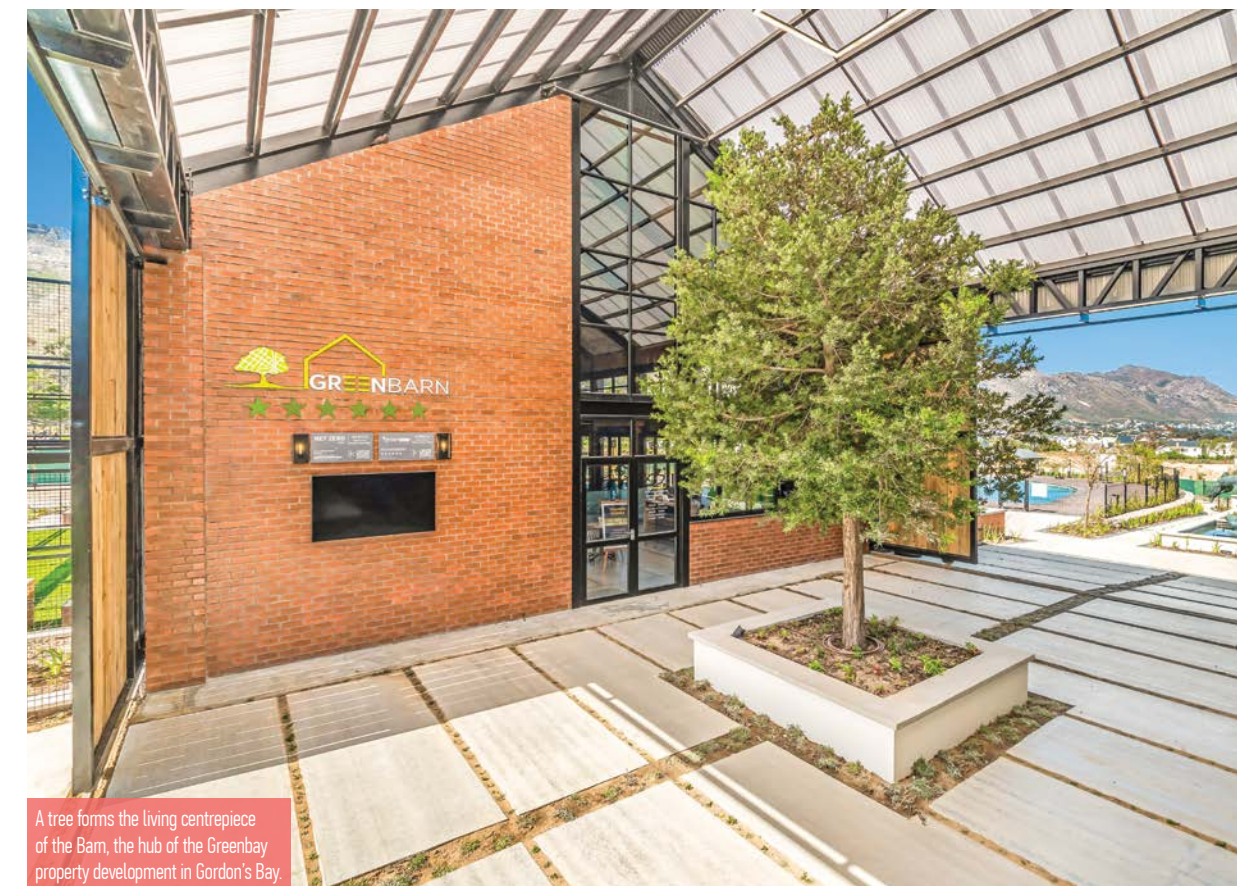
Partnering with Solid Green was a no-brainer, says Tinney. "The value of having them as the sustainability consultant on the project was critical to ensure our goals were met," he asserts. "Knowledge and experience learnt from previous projects have played a massive role in knowing what strategy will work best and allowing us to achieve our goals," he says.

Jennifer Dean and Kamohelo Selepe of Solid Green Consulting say the 6-Star certification was a first for both of them, making them proud of their contribution. "From the start, we made sure the sustainability goals were clear and applied them during the project's various phases," Dean states. "Particular attention was paid to energy efficiency and renewable energy, water efficiency, waste management, user comfort and connectivity."

One of the first things Solid Green did in the design phase was come up with an energy model of the proposed barn. From a greenhouse gas emissions perspective, the building design showed a 100% improvement over a SANS 10400 notional building.



The Barn plays a pivotal role in fostering a sense of community among residents.



A tree forms the living centrepiece of the Barn, the hub of the Greenbay property development in Gordon's Bay.

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Enclosed spaces in the Greenbay Barn can be individually lit, meaning only occupied areas use electricity. In addition, a visual connection with the external environment is accomplished in most of the building.



The Greenbay Barn features an indoor gym and café. A comprehensive waste management and recycling plan has been put in place to reduce the amount of waste going to landfill.

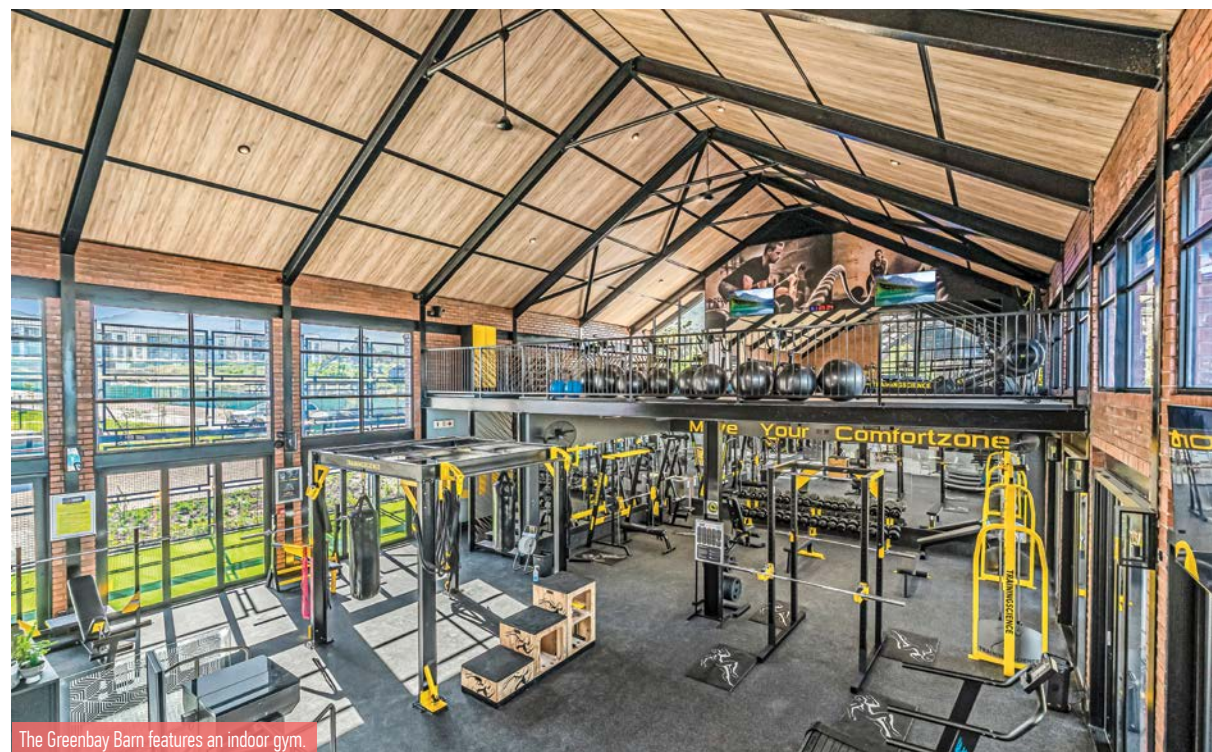
ENERGY SAVINGS

The principal means of greening the project in terms of energy was the installation of a photovoltaic system. In this way, the building's peak electrical demand is actively reduced. "Electricity efficiency is mainly achieved through the large solar array, which offsets energy consumption," says Tinney.

In addition, provision was made to ensure all individual and enclosed spaces are individually lit, offering flexibility for light switching. "This makes

it easy to light only occupied areas and contributes to energy savings," says Dean. LED light fittings and occupancy sensors also minimise the time that lights are left on unnecessarily.

An innovative feature of the Greenbay Barn is the sub-metering of both the energy and water systems. "Sub-meters help you gain an understanding of water and energy consumption, and allow for better management of these resources, as well as the ability to assess further savings," explains Dean.



The Greenbay Barn features an indoor gym.

WATERWISE FEATURES

The building achieves significant water savings through low-flow fittings, dual-flush toilets, rainwater harvesting and a water treatment system. Black water provides water for flushing and irrigation purposes. In terms of landscaping, drought-resistant plants were chosen, which eliminate the need for irrigation. "It was important for us to support local biodiversity through our xeriscaping," says Kamohelo Selepe of Solid Green.

As well as incorporating sub-metering, Balwin took the decision to place signboards throughout Greenbay that display the estate's energy and water usage, as well as information on recycling and the location of amenities. Tinney views these as learning resources that raise awareness among residents about sustainable living.



To bridge the divide between the natural and built environment, a biophilic framework was developed.

Additional green features include having an excellent visual connection to the external environment. "A direct connection is provided for in 80% of the building's occupied area," states Dean. To bridge the divide between the natural and built environment, a biophilic framework was developed. This framework integrates elements of nature into the design, such as natural materials, plants and natural lighting. "It was important that we used locally sourced materials in addition to products with a high percentage of recycled content," she says.

Maintaining a high level of thermal comfort was also a key consideration. "We achieved this by addressing the internal operative temperatures through modelling and

ensuring they are within the ASHRAE [The American Society of Heating, Refrigerating and Air-Conditioning Engineers] Standard 55-2004 acceptability limits for at least 98% of occupied hours," says Dean.

Reducing waste was another objective. "An environmental management plan was developed and implemented throughout the building phase to establish guidelines to minimise the environmental impact associated with construction," explains Dean. Moreover, a waste management plan was put in place to minimise the amount of waste going to landfill during construction. Solid Green also helped devise a waste and recycling management plan for the operational phase of the building.

SETTING THE BAR HIGH

Dean is most proud of the fact that the project achieved the 6-Star Green Star design rating, which sets the bar quite high for future projects: "It is encouraging to see the positive impact that a certified Green-Star building can have on the environment, building users and the surrounding community."

Selepe agrees, saying the certification is a huge accomplishment. "What really stands out for me is how united the project team was throughout the entire process," she shares. "It was clear that we all had the same goal and were committed to making this initiative a success."

Dean hopes that other projects will emulate some of the building's underlying principles. "These include energy efficiency, water conservation, waste reduction and recycling, minimising the use of raw materials, providing a comfortable, healthy indoor environment, encouraging pedestrianisation and sustainable transportation, and incorporating landscaping that supports local biodiversity," she says.

From a user perspective, the response has been overwhelmingly positive, says Brookes. "It's been a rewarding experience to see the impact our efforts have had on the community and it has been great to set the standard for the area." +



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The increase in the cost of living experienced worldwide has naturally affected South Africa, which also bears the expense of load shedding. This necessitates changes in purchasing trends and products traditionally chosen for local building projects in order to maximise benefits and save both energy and reduce peak demand. Rehau's uPVC window and door systems are products that offer these benefits...



ENERGY EFFICIENCY AND REDUCTION OF ENERGY CONSUMPTION AND PEAK DEMAND

Rehau recently undertook a performance modelling exercise with Solid Green Consulting to evaluate and demonstrate the energy efficiency of Rehau's uPVC windows and doors, as energy efficiency is highly important when selecting products for new build or refurbishment building projects.

The performance study took various climate conditions, thermal comfort and light conditions into consideration across areas like Cape Town, Johannesburg and Durban. Thermal comfort, solar heat gain and temperature losses through the building envelope were modelled and calculated.

The performance modelling exercise showed excellent results for lower energy consumption in the modelled building when using Rehau fenestration systems – either single or double glazed – compared to single glazed standard metal windows.

Installing Rehau uPVC windows and doors will greatly assist with the reduction in annual energy consumed from heating and cooling a home.

DURABILITY AND LONGEVITY

The uPVC profiles are made using a special recipe to ensure that the windows and doors are suitable for the climatic conditions in South Africa, and are UV stable.

This ensures that Rehau's high-quality window and door profiles are hardwearing and durable. Some of the installations done countrywide about 30 years ago are still effective and in good condition.

Rehau offers a best in class 10-year warranty on uPVC window and door profiles, with very few local alternative systems offering a warranty of this length.

NOISE REDUCTION

Fitted with single or double glazing, uPVC windows and doors offer noise reduction of up to 38dB. This is an important benefit for homeowners staying close to busy highways, shopping malls, airports or in dense housing developments.

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uPVC profiles supplied by Rehau are low in maintenance requirements as they don't need to be treated or maintained to keep them working effectively and looking good. They only require a wipe down to remove the dust build-up.

The benefits mentioned make Rehau uPVC windows and doors the preferred choice for all kinds of buildings. They have been specified for various developments such as Northgate Heights, Groot Parys Lifestyle Estate, 22 on North, and hotels such as the Fairlawns Boutique Hotel, Aviator Hotel, Holiday Inn Sunnyside Park, and the Cape Milner Hotel have chosen Rehau uPVC systems for their many advantages. +

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*Photo courtesy of Groot Parys Lifestyle Estate.

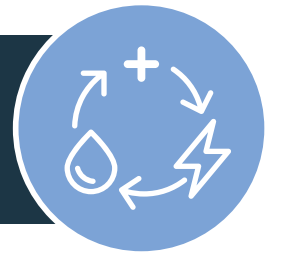




The Green Star New Build v2 tool per category, unpacked:

POSITIVE CATEGORY

CATEGORY DIRECTOR: Francois Retief, Founder: Sow & Reap Green Building Solutions
MINIMUM REQUIREMENTS: Upfront Carbon; Energy Use; Water Use
OTHER CREDITS: Other Carbon



The **POSITIVE** category embodies the industry's Net Zero journey up until today. According to Francois Retief, Category Director and founder of Sow & Reap Green Building Solutions, it's time for the industry to take on a productive role in society by generating power and using regenerative materials that reduce buildings' negative impact on the environment. Task team member and Partner and Director at PJC+Partners Yogesh Gooljar believes all eyes are on this category's credits, emphasising the need for it to be robust enough to align with real-time situations, and to respond to the Paris Agreement's Net Zero targets.

"Measuring the **UPFRONT CARBON** of a building might just be a game changer, driving a much bigger uptake of low-carbon building materials," says an animated Retief. As a **minimum requirement**, the upfront carbon needs to be measured by project teams, with tools and guidance provided by the Green Building Council South Africa (GBCSA). Project teams who then reduce their upfront carbon compared to the provided baseline will be rewarded, based on their level of improvement.

According to Dash Coville, Technical Manager of Special projects at the GBCSA, this can be done by considering the following design interventions for material selection: reuse, correct size, dematerialisation, carbon-storing materials, product substitution, sourcing and circular design. Gooljar goes on to say that everyone has a role to play: "The structural engineer can be approached for ways to make the building structurally efficient with less material, while architects can be tasked with finding ways of using fewer materials from a design perspective." This helps projects lower their carbon footprint – and the more of these steps that are taken, the more points are up for grabs. Retief believes this credit

will level out the playing field when it comes to alternative building materials, which will now be incentivised.

A minimum of 20% reduction in **ENERGY USE** on a baseline building, without the use of renewable energy, is required to apply for a Green Star rating. Retief elaborates that points will be awarded on a sliding scale. Every percentage of better efficiency awards a project more points, and it can reach full points for being a net-positive building. Retief adds that, as a minimum requirement, project teams will also be required to provide a net-zero action plan.

According to Gooljar, the current modelling protocol is being updated to align with current international and local benchmarks. "A calculator is also being developed by the GBCSA, where the baseline building is standardised through the calculator to ensure transparency and equal comparisons," he says. Gooljar adds that a lot of work has been done to ease the process (considered somewhat cumbersome in the past) and encourage uptake, by not only using modelling for certification purposes, but also to use it as a practical and valuable tool. To close the gap between predictions and actual meter readings, Retief says the tool has been adapted to align more with actual operational consumption.

"The **WATER USE** credit is structured similarly to energy use," says Retief. "There's a minimum efficiency requirement, after which points are awarded on a sliding scale for a project's percentage improvements on the baseline." The water balance calculator has also been updated to align with international and local best practices. Adding to that, Retief says some improvements and adjustments have been made to ensure that all building typologies are covered. A word of advice from Gooljar: "Look at the tools provided – such



DEEP DIVE:

Positive, Leadership & People

As the anticipation for the launch of the New Build v2 tool builds, we highlight the last three categories.

WORDS Marlinée Fouché

From inspiring the industry's frontrunners to drive market transformation, to democratising the process of metering and modelling, so everyone has access, and empowering the people who experience new buildings with access to opportunities... here's what you need to know about the Positive, Leadership and People categories in the New Build v2 tool.



as the calculators – and use them early on in the design development phase, rather than looking at them towards the end of the project.” Retief agrees, saying these tools will help teams to plot their journey, and avoid confusion in cases where it is applied as an afterthought.

There are three levels to the **OTHER CARBON** credit. Its three focus points consider refrigerants, operational energy offset and upfront carbon offset. Projects teams aiming for the first level of points must identify refrigerants used in the building, as well as their carbon impact – and then offset that.

The second and third levels tie in with the credits of **Energy Use** and **Upfront Carbon**, which, according to Retief, cover the full lifecycle of these processes. “For both of these levels, there may still be a carbon impact,” explains Coville. “In buildings where there is a carbon impact, project teams would need to quantify the carbon through

LEADERSHIP CATEGORY

CATEGORY DIRECTOR: N/A

MINIMUM CREDITS: None

CREDITS: Market Transformation; Leadership Challenges



Previously known as “Innovation”, the **LEADERSHIP** category calls on the sector’s frontrunners and game changers. “It aims to recognise and celebrate innovative ideas that fall outside the scope of the Green Star framework,” says Coville. Project teams are encouraged to identify initiative(s) in their project, or flowing from their project, that are not included in the Green Star categories. “If it can set a precedent that addresses a valid environmental concern, exceeds Green Star benchmarks, or be considered a pioneering initiative, process or strategy, it could become something that is available as guideline for all future projects,” he adds. A prime example is how the industry is designing and building staircases to minimise the use of lifts.

“It’s time for the industry to take on a productive role by generating power and using regenerative materials.”

the calculators provided, and offset it.” Gooljar adds that there is an opportunity for meeting some elements of the **LEADERSHIP** category in terms of offsetting emissions from construction activities.

By making the whole process more accessible, Gooljar believes the tools and structure of this category are democratising the way project teams think about modelling and calculating energy and water use – “whether you’re big or small, complex or simple – and for everyone with various levels of expertise.”

Although the rating structure of the category is still being finalised, it will likely have two credits, drawing from the Australian tool’s “Leadership Challenges” and “Market Transformation” credits. According to Coville, 10 points, aligning to 10 initiatives, will be made available initially. “Over time, we’ll be able to open up that threshold, in line with the Australian tool, once we’ve built up a bit more of a library of these innovations that projects can choose to target.”

MARKET TRANSFORMATION is going to be similar to the current **INNOVATIVE STRATEGIES AND TECHNOLOGIES** credit, and encourages project teams to demonstrate that they are pushing the boundaries, and



“The Leadership category aims to recognise and celebrate innovative ideas that fall outside the scope of the Green Star framework.”

inspiring others to follow their lead. Coville warns that not every “novel” concept will qualify as an innovation. Initiatives would have to add value to the South African context that the credit is being adapted to respond to. He says teams must demonstrate that the proposed market transformation meets the following: has a guaranteed outcome; delivers a long-lasting impact; demonstrates an impact at significant scale; proves that the initiative has the potential to transform the industry; and provides benefits to both stakeholders in the industry and the general public.

Without these standards, the concept of a “Market Transformation” might seem quite vague, but the credit provides structure and guidance. “It’s about making sure that you can respond to these questions, because that would imply that there’s an environmental benefit to what you’re claiming,” Coville says.

The other credit, **LEADERSHIP CHALLENGES**, combines elements of the previous “Environmental Initiatives” and “Exceeding Greenstar Benchmarks” credits. The concept of a long-term, lasting and measurable impact comes to mind. Coville uses an environmental initiative as an example: “The intention is to grow a database of the innovative initiatives to serve as guidelines for other projects to be able to implement similar processes or systems.” He emphasises that potential leadership challenges will have to be assessed for validity as a Leadership Challenge ahead of the project being submitted for assessment. This is because they must carry the weight of applicability beyond that specific project. “The reason for this is to make sure that it is justifiable in terms of being applicable to other buildings too – so that as an outcome, that credit can be used and applied by others on their projects.”

“The intention is to grow a database of the innovative initiatives to serve as guidelines for other projects.”





PEOPLE CATEGORY

CATEGORY DIRECTOR: Michelle Ludwig, Founder: Ludwig Consulting
CONSIDERED CREDITS: Socially Responsible Building Practices; Social Equity; Design for Inclusion; Green Star Accredited Professional (AP) Development; and Green Star AP Training



“Buildings are for people, and buildings are about people’s experience of occupying them – that’s why we’re in the construction industry in the first place.”

This statement by Abi Godsell, Research and Content Project Manager at the GBCSA, underscores the essence of this category. It expects project teams to ensure that aspects of the design process, construction process and the finished building encourage long-term inclusion and access to opportunities within the different phases of new projects.

This category is still being refined and some changes can be expected. For now, we’ll just outline the four principles that interested projects teams can start thinking about.

The first credit centres on **SOCIALLY RESPONSIBLE BUILDING PRACTICES**, which challenges project teams to identify and engage groups of people who are underrepresented in the design and construction phase. “It means taking an in-depth look at the industry you’re working with, identifying systemic barriers, and trying to address challenges that different groups of people may face in participating in that particular industry,” Godsell says.

On the design front, a possible approach is to make sure that the appointed team – from the Accredited Professional (AP) to all the companies associated with the building design – are socially responsible. This includes, but will not be limited to, BEE ratings. With regard to the construction phase, this could mean the inclusion of women, youth or people with disabilities.

The promotion of **SOCIAL EQUITY** expects teams to pro-actively facilitate equitable access to income-generating work, and full participation in the building’s design, construction and operation for everyone. Some elements will bear resemblance to those of the previous “Social Economic Category”, but will be streamlined and simplified to make it more accessible to the market.

This is being explored in two broad ways, firstly through recognising projects that use the services of well-rated B-BBEE contributors, and Small, Medium and Micro Enterprises (SMMEs), and secondly through promoting the dedication of space within a project itself to allow micro enterprises to operate. “It’s the idea that within the structure of the building, there is room for alternative means of income-generating work,” say Godsell. “It requires dedicated space and an agreement with the eventual building owner that the space remains dedicated for micro-enterprises.” Essentially, this targets skilled people who generate their income through less traditional economic models. These size-limited spaces are set aside for traders in goods like snacks and airtime, or those offering services such as small-scale repairs.

“We haven’t encountered specific resistance to this as a concept yet,” she adds. “It’s a very South African mode of doing business, but it’s often limited to public buildings, or transport interchanges. We’ve got good precedents for the value that it adds to a space, but I don’t think we’ve seen much uptake of this value by green buildings yet.”



Buildings are for people, and buildings are about people’s experience of occupying them.

Thirdly, project teams are urged to **DESIGN FOR INCLUSION**. Projects must demonstrate a range of universal design interventions that make buildings more accessible to a diverse group of users, and welcoming to a diverse range of needs. Some examples of universal design principles include well-designed access ramps that not only benefit users in wheelchairs, but also parents with prams or those moving heavy loads on trolleys. Another example is raising the height of electrical outlets. When the outlet is placed higher in the wall so that it can be accessed easily by users who cannot bend down, it means that no-one must make the undignified hands-and-knees shuffle to these outlets. “The idea behind this credit is that when you provide appropriate infrastructure for the people who have more specific needs, you also make it easier for people with less specific needs to use the building,” says Godsell.

Lastly, project teams hoping to achieve points in this category should demonstrate **GREEN STAR AP**

DEVELOPMENT and **GREEN STAR AP TRAINING**.

“This category is one of the most direct investments in the future of green buildings,” says Godsell. “It benefits all of us if we have more construction workers and contractors who have experience in green projects, and more APs who upskill as the green project runs its course, building on the expertise of our current generation of APs. It allows direct, short-term, tangible benefits (in the form of Green Star credits) to be attached to these long-term investment actions being undertaken by project teams.”

Her advice to projects teams is to maintain clear communication between all team members involved, and to reach out to the GBCSA for assistance or supportive resources. Along with that, she offers the following: “It’s important to take this category seriously, because nothing grows if it’s not watered – and that includes our green construction sector. These are all investments in a healthy and sustainable future.” +





LITHIUM TECHNOLOGY CAN ADDRESS LOADSHEDDING SECURITY CONCERNS



South Africans will be all too aware of battery backup for electric gate motors and alarm systems running the risk of becoming severely compromised during and after bouts of load shedding. It is far more than an inconvenience – it is a legitimate security concern. Thankfully, advancements in technology have changed the way batteries are made, with lithium iron phosphate batteries providing a game-changing solution...

While this compromise is a function of batteries being required to work overtime, as loadshedding forces longer and more regular intervals of needing to provide backup, it is also a function of battery chemistry. Most, if not all, batteries in the market presently that are designed for these purposes are lead acid batteries, meaning that if they are drained to below 50% charge, their lifespan and performance become compromised. If they are allowed to run completely flat, they'll never be the same again.

Think about when your car has stood for a long time and your battery was allowed to run completely flat," says REVOV MD Lance Dickerson. "A completely flat battery can be recharged but its lifespan has been compromised. Many of us would have found ourselves in a situation where despite the battery being recharged, its performance kept downgrading to the point where we needed to replace it sooner than later," he says.

The good news is that advancements in technology have changed the way batteries are made. Lithium iron phosphate batteries are superior to lead acid batteries in every metric. While those who look exclusively at the crude measure of shop shelf prices would disagree, one only needs to weigh the performance, lifespan and safety profile of lithium iron phosphate batteries against their archaic lead acid counterparts to appreciate the value for money. In a 12V and 24V format, if built in series, lithium iron phosphate batteries are a more economical investment in the medium to longer term while keeping mission-critical applications – such as security and monitoring systems – up and running during power cuts.

MULTIPLE BENEFITS

"These benefits, which are already plain to see in renewable installations and uninterrupted power supply

(UPS) systems, are poised to take the pain out of a host of 12V battery applications, not least battery backup for electric gates, alarm systems, communication systems, off-site installations and even camping and fishing uses," explains Dickerson.

"These batteries are definitely a topic our teams are picking up as they interact with various stakeholders," says Dickerson. "For example, those who live in housing estates or complexes where there is a lot of traffic find that their gate motor batteries get totally depleted far quicker, meaning they sit with a gate stuck open or the gate is switched to manual for extended periods of time. Home or office alarm systems are also affected, and in a country where security is important, we all want peace of mind if the power is cut.

Dickerson says that portable lithium iron phosphate batteries have far more uses than merely security. "Of course, security plays a key role in our country and around the continent, especially where businesses need to monitor or secure remote sites. However, in this country we also have a rich fishing and camping culture, and portable batteries that can stand the test of time without deteriorating at the rate of lead acid batteries – even when doing nothing in the garage – is expected to be a game-changer," says Dickerson. +



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SETTING A NEW STANDARD for Green Precincts

The Newinbosch precinct in Stellenbosch aims to establish itself as the greenest mixed-use development in the country, and is targeting a 5-Star Green Star Sustainable Precincts rating – making it the first such development in South Africa.

WORDS Nicole Cameron
IMAGES Similan

PROJECT NUTSHELL

Location: Stellenbosch, Western Cape
Green Star rating: Registered for a Green Star Sustainable Precincts and EDGE for Homes rating, aiming for a 5-Star Green Star rating and an EDGE Advance rating.
Type of development: Mixed-use development
Project dates: Commenced in 2023 and to be rolled out in phases over the next 4-6 years
Project size: 48 hectares

Newinbosch, in Stellenbosch, is a mixed-use development aiming for a 5-Star Green Star Sustainable Precinct rating, and is considering registering for other certifications.



Just three kilometres from the heart of Stellenbosch in the Western Cape, Newinbosch is a sustainably designed neighbourhood estate offering exceptional amenities and diverse, affordable opportunities for those looking to embrace secure community living and a wholesome lifestyle. Owned and developed by local property developer Similan and JSE-listed construction firm Raubex, the 48ha mixed-use development will be rolled out over the next four to six years, with the first-phase occupation taking place in the first quarter of 2024.

The Newinbosch precinct aims to incorporate internationally benchmarked and acknowledged sustainable design and green building practices. It is currently registered with the Green Building Council South Africa (GBCSA) for a Green Star Sustainable Precincts rating and aiming for a 5-Star Green Star rating, and is registered for and targeting an EDGE Residential certification.

STARTING WITH THE END IN MIND

Green building and sustainability consultant André Harms, Founder and Director of Ecolution, says that it has been an incredibly interesting and inspiring project to work on, given that Similan set out to develop a sustainable residential precinct, and put into practice what needed to happen in order to achieve that vision – only seeking a green building



Newinbosch was meticulously crafted to introduce a live-work-play ethos that enriches residents' quality of life.



Newinbosch is an inclusive development providing safe and secure living for middle-income families and young professionals.

certification along the way, to confirm, expand on and enhance the interventions incorporated. “They had a good intuition as to what sustainability means on this neighbourhood precinct scale, and had researched and applied various initiatives because of their passion and convictions,” Harms says. “When Ecolution came on board, it was a case of taking stock of what had been done, and then applying it to the Sustainable Precincts benchmark. They had already included so many things organically, and we were able to advise on some further additions in order to push the boat out further. We submitted the Round 1 submission for a 5-Star Green Star Sustainable Precincts rating, which we will hopefully achieve to make it the first in South Africa for this type of development.”



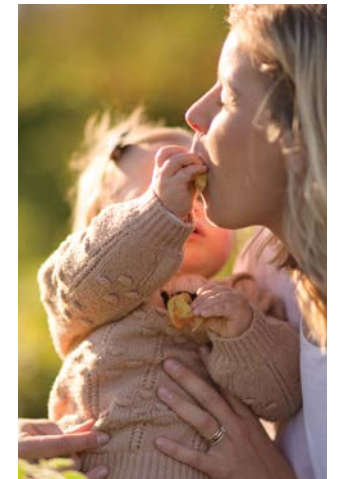
The architectural style draws inspiration from the area's Old Cape Dutch roots, while incorporating simple rectangular lines.



Families will be able to obtain fruit and vegetables from the neighbourhood's not-for-profit urban farm.



Similan



All the amenities have been planned around community connection, health, accessibility and the needs of residents.

The Sustainable Precincts tool evaluates large-scale development projects at a precincts/neighbourhood scale, based on a “Plan for Development”, and applies to new rather than existing precincts. The categories considered in this tool are governance, livability, economic prosperity and environment. Dr Peta Brom, Senior Sustainability Consultant and Certification Operations Manager at Ecolution, says that the Newinbosch precinct has a good spread across each of the categories. “From an economic prosperity perspective, the different housing typologies and erf sizes reach diverse target groups. There are a number of start-up projects in various phases of ideation to drive empowerment and economic development, which really fall at the crossover between economic prosperity and livability. For example, the neighbourhood will boast a not-for-profit urban farm, where the restaurant and residents can obtain healthy produce, with proceeds going to those working at the farm.”

In addition to encouraging and recognising projects that engage in and facilitate the development of the project's community, livability points are awarded for projects that promote healthy and active living. Newinbosch was meticulously crafted to introduce a Live-Work-Play

ethos that enriches residents' quality of life. The sports and training facilities are vast and varied, from a 25m swimming pool and kids' pool, gym facilities and cycling and running routes, to pickleball and multipurpose courts, boules, a farm and recreational dam, and a dog park. Other amenities include an outdoor amphitheatre with picnic lawns, an eatery, coffee shop and wine bar, shared office space, the Grappa Shed events venue, and the on-site Newinbosch Square shopping centre.

Newinbosch is the only development in Stellenbosch with specifically allocated zoned land for a school. The pre-school facility, in collaboration with Pret op die Plaas, a well-known local preschool, opens in January 2024, and a private primary and high school are planned to launch in the future. The whole neighbourhood is designed to help children flourish in an environment where they can learn, grow and have fun. Amenities like jungle gyms, trampolines, a skate park, a bouldering wall, smooth paths for little wheels, and cricket nets all prioritise safe and holistic development, within the realms of a natural, outdoor world.

CONNECTING WITH PEOPLE, CONNECTING WITH NATURE

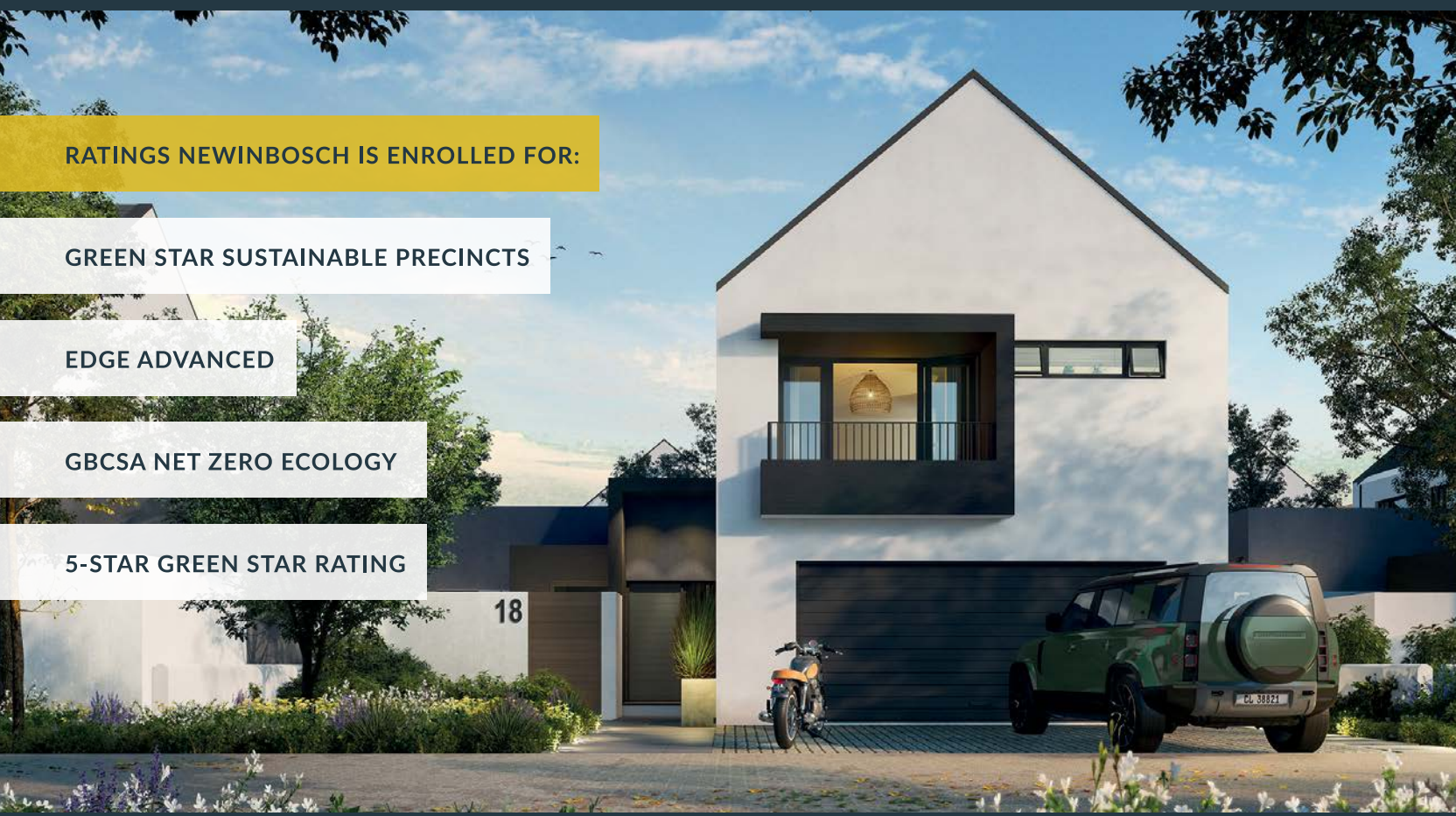
All of the amenities have been planned around community connection, health, accessibility and the needs of residents, as well as the wider community. “It's about being able to greet neighbours walking past the work-from-home office

Newinbosch is a sustainably designed neighbourhood just three kilometres from the heart of Stellenbosch. It's a prime location with exceptional amenities, but it's also so much more.

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Here, sustainability is the starting point, not an afterthought, including cost-saving energy efficiencies that inform the design considerations, truly green infrastructure, a not-for-profit urban farm and the restoration of local fauna and flora.

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RATINGS NEWINBOSCH IS ENROLLED FOR:

GREEN STAR SUSTAINABLE PRECINCTS

EDGE ADVANCED

GBCSA NET ZERO ECOLOGY

5-STAR GREEN STAR RATING



newinbosch.co.za



The retail centre is located at the entrance of the Newinbosch neighbourhood.



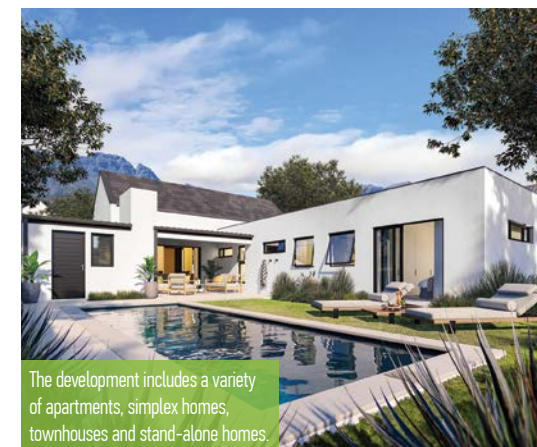
Great effort has been taken to help restore local fauna and flora habitats with locally indigenous plants and trees.

niche, with openable windows directed at thoroughfares, or breaking up the day by heading to the lifestyle centre,” says Harms. Newinbosch is based on the five-minute neighbourhood concept, allowing residents to reach amenities within a five-minute walk/ride from any point in the neighbourhood.

When it comes to the handling of the environment and land that Newinbosch is being developed on, there is a commitment to not only minimise the effect on the site, but to also enhance the biodiversity, habitat and quality of the green spaces. “The existing ecology had

been heavily invaded due to commercial agriculture and the use of herbicides and the like, so there was a lot of room for improvement, but the team has really taken it to the next level,” says Dr Brom. “The original land was quite interesting ecologically, located on a narrow finger of Swartland Shale Renosterveld, which contains the highest concentration of threatened plant species.”

Great effort has been taken to help restore local fauna and flora habitats, with locally indigenous plants and trees planted in parks and green spaces. The landscaping design has been integrated with water-sensitive urban design (WSUD) solutions such as swales, thereby combining flood resilience with ecosystem regeneration. Pocket forests all around the precinct provide shade and cooling. “Biodiversity corridors have been included so that fauna can travel through the site. The water network provides pathways for freshwater organisms such as amphibians to move along and connect with existing stormwater



The development includes a variety of apartments, simplex homes, townhouses and stand-alone homes.



The neighbourhood has been designed to encourage community and a relaxed lifestyle.



Biodiversity corridors have been included so that fauna can travel through the site.

underpasses to the nearby river. And then there's the pollinator corridor along the electrical servitude, so there's been a great deal of consideration put into Newinbosch's ecology," she says. In addition to being locally contextualised, the landscaping has also been designed to be climate resilient. As a result of these efforts, the site could, in the future, register for a Net Zero Ecology certification through the GBCSA.

Newinbosch residents are having positive conversations, about the benefits they receive as residents, and how well it works, then we will know we've done our job properly," says Harold Spies, Director at Similan.

The balance between achieving these sustainable solutions, while keeping home prices accessible and affordable, is a key challenge for the development. "It's easy to throw money at getting the right technical solution, but our vision is to keep the homes accessible, and so we have put a lot of effort into negotiation, and ongoing, proactive collaboration, so as to stand firm to our principles," says Spies.

"I think another challenge is to be honest about the fact that these topics are nuanced, and relatively new, and in some cases difficult to reconcile with the status



LOAD SHEDDING RESILIENCE

Asked as to what other aspects of the precinct really stand out in terms of being a "sustainability highlight", Harms says that the energy system that the Newinbosch team has devised comes to mind. "I have not seen a hybrid energy solution of this scale and comprehensiveness elsewhere in South Africa," he says. "It is complicated, as the residential units are being rolled out in phases, but the plan is that once it reaches a certain size, there will be sufficient renewable energy being generated through solar PV, coupled with a battery energy storage system, to make the whole precinct resilient to at least the first four stages of load shedding." Harms says that there will likely also be a back-up generator.

"The topic of energy and electricity is an inevitable one around South African braais and dinner parties. When



There's a pollinator corridor along the electrical servitude.

quo - how industry does things and what information is available, for example," says Harms. "Newinbosch will hopefully receive the preliminary 5-Star target Green Star Sustainable Precincts rating in the next few months. When it does, it will really reflect a giant effort that is possible only as a result of learning from other projects and standing on the shoulders of those others who have walked this journey," concludes Harms. +

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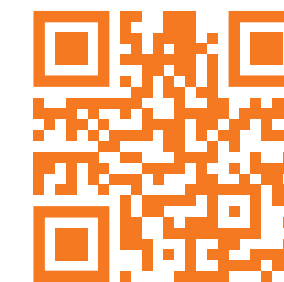
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Making space for WASTE

As we edge towards a circular economy, the waste we're generating should be minimal. Buildings need to be consciously designed to include not just space for waste removal, but also dedicated waste management areas.

WORDS Linus Naik & Melissa van Rensburg
IMAGES Supplied

“Making Space for Waste” can be tied to the evolving landscape of waste management in Africa. When looking at Africa’s infrastructure journey, the historical roots reveal a story of rapid development without due consideration for waste management.

Following the scramble for Africa, only Liberia and Ethiopia had retained their independence by the advent of WWI. For the first half of the 20th century, there was rapid development and expansion of capital cities, driven primarily by the exploitation of natural resources at the expense of human capital.

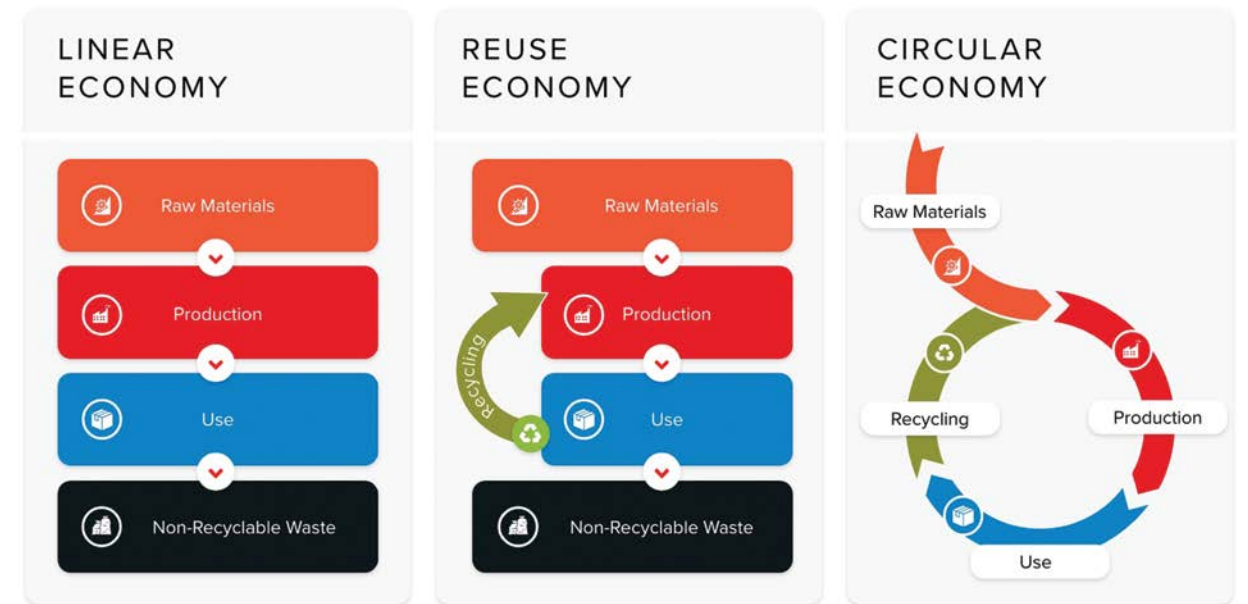
A similar analogy can be drawn between infrastructure and waste, where there was major development, without consideration for what would happen to the waste generated. Prior to 1980, in Africa at least, the prevailing business model followed the linear economy principles: take, make, waste – and this was reflected in the way buildings were designed. As an example, there are shopping centres in

major central business districts (CBDs) with a gross leasable area of well over 130 000m², but only 10m² set aside for waste management. The area allocated to waste was essentially a storage area for bins for disposal.

With increased environmental awareness after peak oil (1970s), recycling became a novelty and was only really employed when it made financial sense. By that time, however, most of these larger CBDs where the shopping centres existed had already been built, so there was no space for the management and sorting of waste. As noted, all the waste was simply put into bins for removal by the municipality and taken to landfill.



Most major metropolitan areas will reach the end of their landfill space within the next 10 years.



From a linear to circular economy

WASTE MANAGEMENT IN SA

Here in South Africa, the waste management policy was called “The minimum requirements for safe disposal of waste to landfill”, and everything was tailored to support the safe disposal of waste to landfill. So, while there may have been a space for waste, there was no actual space for waste management. As such, even buildings built as recently as the early 2000s did not make adequate space for waste management, only waste removal. Some recent developments in recently gentrified Gauteng and the Northern Cape have been built with no access for waste removal vehicles, because waste was clearly an afterthought.

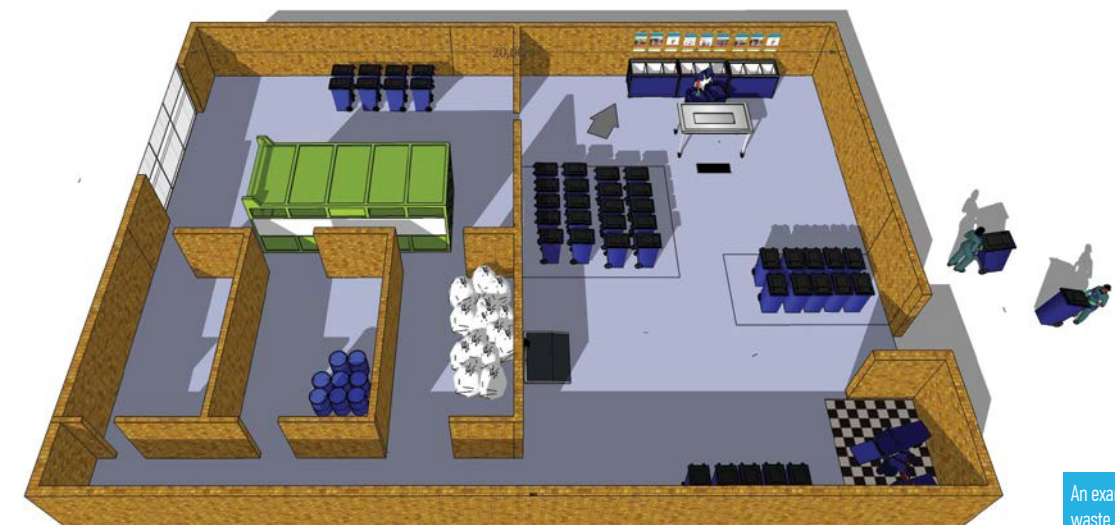
Currently, however, we are making more space for waste management. The Green Building Council South Africa (GBCSA) is presently reviewing the Green Star New Build V2 tool – under the responsible construction and responsible waste management credits – to ensure that enough space is being dedicated for waste. The tool covers best-practice guidelines used to calculate waste generation rates and justify access arrangements. Essentially, buildings will need to be consciously designed

with responsible waste handling, which means sufficient space for sorting and storage of various general waste grades and responsible handling of any hazardous waste.

Current best practice will have collected waste (ideally with some degree of source separation) making its way to the waste area. Recyclables are sorted into final grades and sold for a rebate and the non-recyclable waste is consolidated for disposal. Don’t Waste has in-house expertise to assist with the design and planning of bespoke waste handling and sorting areas, and specialises in best practice on-site waste management.

That said, the recycling of waste is only halfway up the waste hierarchy as the preferred treatment option. Furthermore, if there is a portion of waste that is being recycled, it means that there is still a portion being disposed of, which is not ideal.

This is exacerbated by the fact that most major metropolitan areas will reach the end of their landfill space within the next 10 years. The way to solve this is to minimise the amount of waste by strategically understanding what steps will have the best impact on the diversion rate and the environment.



An example of a waste area design



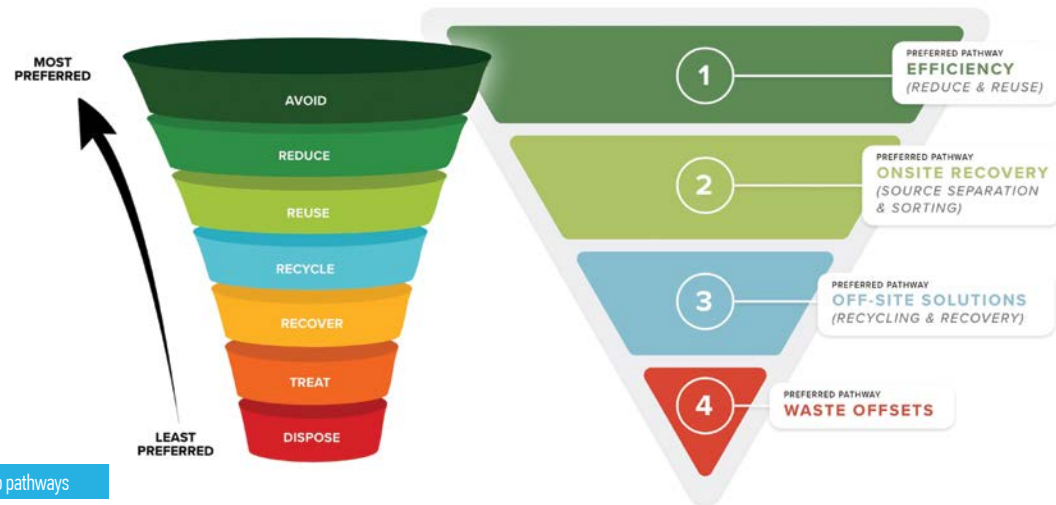
GBCSA GUIDELINE ADJUSTMENTS

Employing a Net Zero approach – as outlined in the GBCSA’s Net Zero Technical Manual referencing Net Zero Waste – now allows for a more nuanced consideration of diversion rates and waste offsets. The recent adjustment in the diversion rate, from 100% to a practical 90%, aligns more accurately with achievable targets. Consequently, achieving Net Zero Waste certifications for operational waste entails maintaining a 90% diversion from landfill consistently over a 12-month period.

The updated guidelines also specify a prerequisite for projects aspiring to achieve Net Zero Waste certifications, mandating that a project must first exhibit a 70% diversion from landfill with a validated diversion rate at the site before introducing waste offsets. Don’t Waste aligns to these guidelines, prioritising on-site efficiency as per the recommended approach for reaching Net Zero or Net Positive Waste status. This involves an initial focus on on-site waste reduction and reuse, followed by on-site recovery through sorting and separation and off-site sorting and separation – and only after these steps, considering offsets (see the Net Zero pathways below).

TOWARDS A CIRCULAR ECONOMY

As we transition to a circular economy, the amount of waste generated should be minimal. Reuse, repurposing and refurbishing will all happen to the majority of waste before it actually reaches the waste area and at that time, we will probably, and hopefully, need to make less space



Net Zero pathways

Head of ESG & Sustainable Business at Don’t Waste Group, a pioneering waste minimisation company, Linus Naik is an environmentalist at heart and in practice. He holds a doctorate in Chemical Engineering, which focused on technology deployment for sustainable urban development through waste to energy solutions.

Linus continually volunteers his service on the boards of non-profit organisations that align with environmental conservation. He is also a Net Zero Accredited Professional, specialising in Net Zero/Positive Waste Certifications.

A dedicated environmental advocate on a mission to drive positive change, Don’t Waste Group’s Sustainability Communications Manager Melissa van Rensburg channels her passion into protecting the environment by effectively communicating environmental and sustainability issues. She has completed a master’s degree in environmental science and has a strong academic foundation in environmental management, geography and sustainability.

Melissa’s expertise extends to being a Net Zero Accredited Professional, specialising in Net Zero/Positive Waste certifications.



We look forward to a time when we no longer even need enough space for waste.

for waste. So, while the focus right now is to make sure that there is enough space for waste, we look forward to a time when we actually won’t need any.

Speaking of goals, the United Nations’ Global Sustainable Development Goals (SDGs) have officially reached their halftime mark, and the current status indicates that only 15% of the targets are on track. It’s a critical moment in the match, but the good news is that, like any game, it can be turned around in the second half. A pivotal strategy in achieving the 2030 Sustainable Development Agenda lies in the shift towards a circular economy and minimising waste within the built environment.

To achieve the SDGs and secure a better future for both people and the planet, we believe partnerships and collaboration are key. Here at Don’t Waste, we have a team of Net Zero Accredited Professionals ready to support you on your Net Zero Waste Journey. So, let’s regroup, recommit, and create space for waste as we dive into the second half. www.dontwastegroup.com +



GBCSA Net Zero/Net Positive Certification Scheme Technical Manual v1.0

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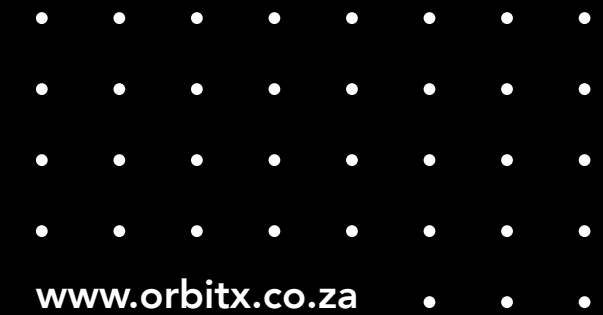


GREEN FOCUS

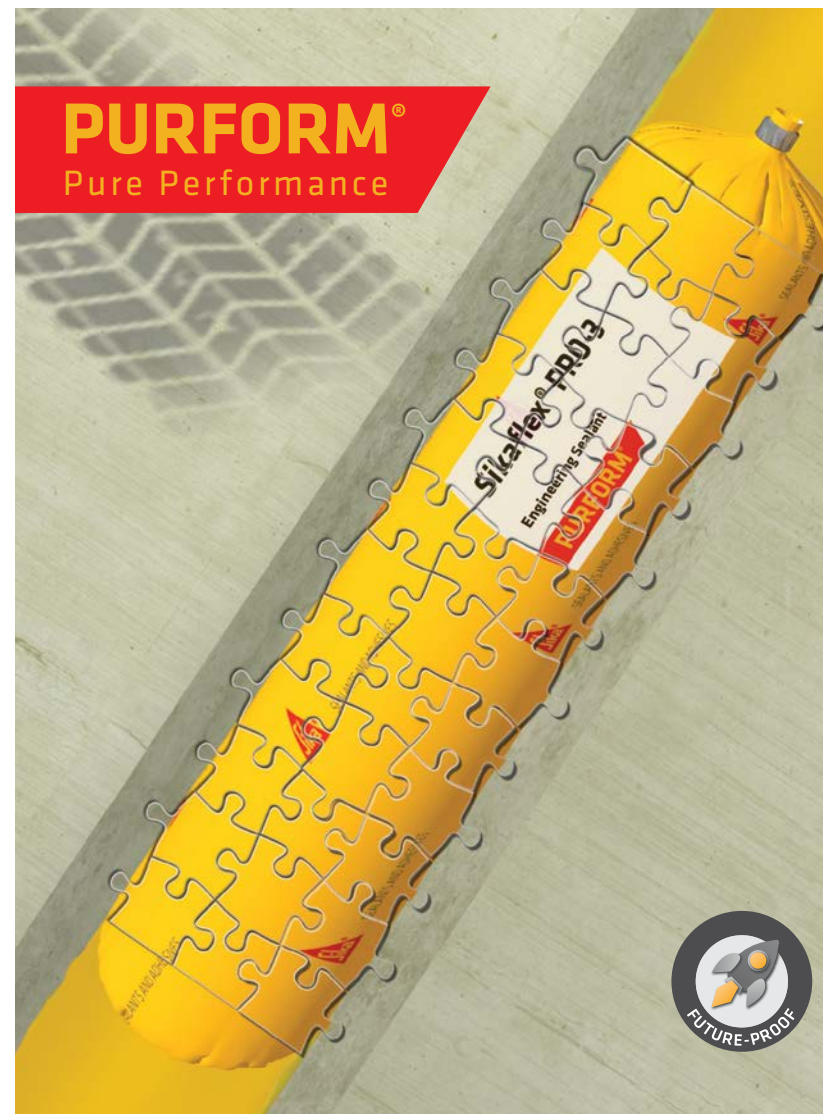
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BUILDING TRUST





The Precinct Luxury Apartments enclave in Midrand is constantly evolving towards higher sustainability standards, inspiring Century Property Developments to take on more green projects, transforming the market as it goes along.

WORDS Marlinée Fouché

PAVING THE WAY

towards higher sustainability standards

Within The Precinct Luxury Apartments development in Midrand, Gauteng, 16% of the energy used is generated by photovoltaic panels on its roofs and carports.

PROJECT NUTSHELL

Location:	Midrand, Gauteng
EDGE rating:	Preliminary EDGE Advanced V2 Certificate: Design
Type of building:	Residential
Project dates:	Certified 23 March 2023
Project size:	205 904.68m ²

Douglas Eva



Conveniently located in Midrand, Gauteng, The Precinct Luxury Apartments development is changing both the market and the mindset of middle-market residential tenants, one unit at a time. When the project started between 2017 and 2018, it soon became clear that only a few minor changes were needed to achieve EDGE (Excellence in Design for Greater Efficiencies) Advanced V2 certification – and the rest is history. The first four phases of the project, consisting of 1 388 units, boast 41% energy and 37% water savings, and the materials used demonstrate 35% less embodied energy.

It's built for rent, enabling the owner to ensure that the project stays its course. "Our teams understand what is going on inside the units, and as tenants move out and in again, the teams do a thorough check of the status of the unit," says Douglas Eva, Site Operations Manager at Century Property Developments. "If all those units were sold, and different owners were doing different things inside the unit, it would be a lot less manageable."

EDGE Auditor and owner of Inside Out Consulting Yvonne Pelser highlights other challenges typically faced with these types of developments: "Energy usage is mostly at night, the number of solar panels are limited for optimum efficiency, and battery systems are not ideal, due to their complexity in apartment buildings."

“

The development is changing both the market and the mindset of middle-market residential tenants.

Century Property Developments decided to take these challenges head on – and although The Precinct Luxury Apartments is rated under the previous EDGE version, the project is constantly evolving, and even drives market transformation.

To achieve EDGE Advanced V2 certification, the project had to demonstrate minimum energy savings of 40%, minimum water savings of 20% and at least 20% less embodied energy in materials. It took time, and a higher initial expenditure. "You must really work through your design, unit by unit," says Quantity Surveyor Executive at Century Property Developments, Japie Vos. "Get everyone – your architect, your XA calculations expert [SANS 10400 XA is the South African National Standard regulating energy efficiency in building design], your electrical consultant – to sit with the EDGE expert. Look at all the elements and do the small tweaks on specifications. You must go through the design development to get here."



A view from the top.

Douglas Eva



Each new phase of the development adapts more efficient systems, owing to effective smart metering.

Douglas Eva



The use of cored face bricks, timber rafters in the roof and 0,5mm steel sheets for roofing helped achieve a score of 35% less embodied energy in materials used.

Century Property Developments



Century Property Developments

“

All the development's energy-efficient initiatives and designs are tied together with smart metering.

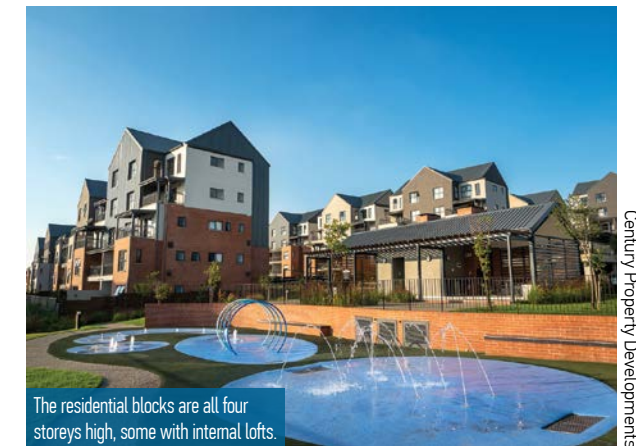
Here is how they did it:

41% ENERGY SAVINGS

Reducing energy usage was achieved through specific design processes and structural elements. It included a reduced window-to-wall ratio of 17.78% which, according to Pelser, compares well with the EDGE base for the middle-market segment (30%). The roofs are insulated with cellulose, consisting of 80% newsprint waste, and internal spaces are fitted with LED lights. But what happens when the globes or other added elements break? "We have well-equipped maintenance teams for each development, with a very good understanding of the specs of all the fittings, to keep tenants from performing maintenance themselves," says Eva. He adds that the teams have access to a warehouse that stocks a large amount of all the different elements required in the buildings, so maintenance teams can pull stock when something needs speedy replacing.

Power is supplied via a 428.4kWp PV system, mostly placed on carports and rooftops, and generates 16% of the total energy used, providing each of the 1 388 units with 0.3kWp. Solar power also plays a big role in the combined methods of water heating.

The first phase of the development was fitted with electric geysers and dedicated solar panels. In phase two, heat pumps with a COP (coefficient of performance) of 3.45 were installed. In phase three, a pre-heating solar system was added to the heat pumps to ensure water is heated before it is sent into the system, culminating in a combined average COP of 4.



The residential blocks are all four storeys high, some with internal lofts.

Century Property Developments

All these energy-efficient initiatives and designs are tied together with smart metering, to which tenants have access. It forms part of the billing system for electricity and water, which is displayed on a tenant's mobile application, so they're able to monitor their own consumption. "The landlord also benefits from this," says Pelser. "It can help them identify leaks, overcrowding, tampering and other problems. So, by monitoring the peaks and the troughs, you can see if there are any issues in the way the building is running." Eva and Vos add that the collection of data helps inform better decisions at each phase – citing the water heating system as an example where notable changes in energy consumption are visible. "There's better efficiency from an energy point of view, it reduced capital expenditure on installations and it's an easier installation," elaborates Eva.



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Pelser highlights another contributor towards energy saving: "Sustainable water use is linked to electrical consumption because a lot of the water you use in the shower is hot, which requires electricity. So water flow rates, for example, can also help reduce your electricity consumption."

and six litres on the second flush," says Pelser. "Here, it's 4 litres for the first flush, and 2.6 litres for the second flush."

35% LESS EMBODIED ENERGY IN MATERIALS

Although many materials used throughout the project only meet the base case requirement, they have been carefully considered with the future in mind. According to Vos, the long-term lifecycle cost of the project plays a key role in sustainable developments because "the higher your maintenance cost, the higher your lifecycle cost".

Aluminium window frames are a base case requirement, explains Pelser. They are, however, most suitable in the long run considering the harsh Gauteng climate, resulting in what Eva describes as a "maintenance nightmare" – wood would have to be treated almost biannually. Along with that, cored face brick has been used throughout the different phases, also meeting the base case requirements.

37% WATER SAVINGS

Low-flow showerheads and tap fittings in both kitchen sinks and wash basins aided this achievement. According to Pelser, Hansgrohe taps, already fitted with restrictors from the factory, helped the team go beyond the EDGE base case flow rate. "Showerheads run at 5.7 litres per minute, in comparison to the base case of 10 litres per minute. Kitchen taps run at 7 litres per minute as opposed to 8 litres per minute, and bathrooms taps compare at 5 litres per minutes to the base case of 8 litres per minute.

Another prominent water saving feature is the dual-flush water closets, and installation of Geberit Abalonas in lavatories. "The base case is 8 litres on the first flush,

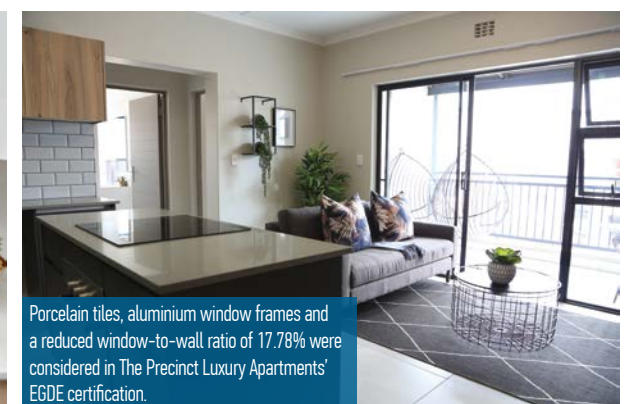


Centrally located in Midrand between Johannesburg and Pretoria, The Precinct Luxury Apartments boast 41% energy savings, helping them achieve an EDGE Advanced V2 certification.



Century Property Developments

The taps in the bathrooms and kitchens were already fitted with restrictors from the factory, aiding in water savings of 37%.



Porcelain tiles, aluminium window frames and a reduced window-to-wall ratio of 17.78% were considered in The Precinct Luxury Apartments' EDGE certification.

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Douglas Eva

“The creation of face brick uses less material and it’s lighter to transport. You don’t have to worry about plastering it when there are cracks, and you don’t have to repaint it,” says Pelser.

The residential blocks are all four storeys high, some with internal lofts. The floors consist of 150mm hollow-core precast slabs, topped with porcelain, which complies with the base case, but again, Pelser maintains this kind of flooring is more durable from a long-term maintenance point of view. The roofing pushed some boundaries. Instead of the base case of concrete, timber rafters were used, covered by 0.5mm steel sheets. Although steel is generally considered a less ideal material of choice, Pelser says it was considered and utilised owing to its durability and thinness.

GOING THE EXTRA MILE

The buck doesn’t stop at meeting EDGE Advanced V2 requirements, says Pelser, who describes the developers as being highly pro-active. This is evident in the constant



The choice of recycled material skirtings helped encourage market transformation.

evolution throughout various developments, and some of the spill-over effects that weren’t necessarily considered in the official certification. Their choice of skirtings, made of recycled materials, helped encourage market transformation. Eva elaborates: “When the company came to us, it cost more than timber, but because we needed such large quantities, the company we purchased it from has now expanded with an entire range of different skirtings and products. It’s grown in size as a company, and the price of its recycled material skirtings is now lower than that of timber.”

In addition, Century Property Developments is considering the certification of other projects, including schools and a distribution centre, slowly but surely paving the way towards a more sustainable future. +



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A NET ZERO Carbon Milestone

Rosebank Link, Oxford Road, Rosebank, Johannesburg

The South African property sector marked a Net Zero milestone in Redefine Properties' achievement of a Net Zero Carbon Level 2 Measured certification – awarded by the GBCSA to three of their existing Gauteng buildings.

WORDS & IMAGES Redefine Properties

Real Estate Investment Trust (REIT), Redefine Properties, has successfully achieved a Net Zero Carbon Level 2 Measured certification by the Green Building Council South Africa (GBCSA) for three of their existing properties in Gauteng: 90 Rivonia, 2 Pybus and Rosebank Link. This is the first time that commercial buildings at scale in South Africa have attained a “measured” rating, based on actual performance data, including tenant consumption.

UNDERSTANDING NET ZERO CARBON

A “net zero carbon” building is one that operates with zero net carbon emissions over the span of a year. Such a building is highly energy-efficient and uses renewable energy (preferably on site, but also off site) for its remaining energy requirements, where feasible. It only relies on carbon offsets to balance its energy use as a last resort.

Redefine has achieved its Net Zero Level 2 (Measured) ratings through a combination of energy efficiency-



At the Rosebank Link plaque handover, from left: Dash Coville (GBCSA Technical Manager – Special Projects), Anelisa Keke (Redefine Properties CSO), Andrew Robinson (WeWork Executive Director) and Andrew Konig (Redefine Properties CEO)



At the 90 Rivonia plaque handover, from left: Anelisa Keke (Redefine Properties CSO), Stuart Boyd (Chief operating officer, Webber Wentzel), Andrew Konig (Redefine Properties CEO) and Dash Coville (GBCSA Technical Manager – Special Projects)

Green building practices are a key milestone in the journey to net zero.

enhancing projects, on-site renewable energy installations (where possible), and carbon offsets traded through a well-established voluntary carbon offsetting programme. It’s a significant achievement that signals Redefine’s commitment to performance-based sustainability and underscores the company’s leadership in the journey towards net zero carbon.

THE JOURNEY TO NET ZERO CARBON

The GBCSA Net Zero and Net Positive certifications recognise projects that have taken the initiative

to completely neutralise or positively redress their environmental impacts, going beyond the partial reductions recognised in the current GBCSA suite of tools.

The certification scheme aligns with international best practices and offers a clear pathway for projects to follow:

1. Prioritise energy efficiency
2. Use on-site renewable energy production
3. Use off-site renewable energy production
4. Employ carbon offsets only as a last resort

Achieving net zero carbon is a process that requires the regular assessment of measured carbon emissions ratings every year, with the certification itself renewed every three years. In South Africa, most organisations across all sectors are only beginning their net zero carbon journeys.

“Green building practices are a key milestone in the journey to net zero,” says Anelisa Keke, chief sustainability officer at Redefine. “A sound climate-change resilience strategy ensures that our capital investments are



2 Pybus Road, Sandton, Johannesburg



90 Rivonia Road, Sandton, Johannesburg

safeguarded against manageable climate risk exposure and creates long-term value for our key stakeholders.”

MEASURED VS MODELLED NET ZERO RATINGS

GBCSA offers two different Net Zero Carbon ratings: modelled and measured. “Modelled” ratings refer to predicted energy consumption over a 12-month period for buildings as per their design. On the other hand, “measured” ratings are operational ratings for existing buildings based on actual performance data over the same period.

“Most of the Net Zero Carbon ratings we are seeing in our market are based on modelled estimates of performance. Actual measured outputs can be quite different,” says GBCSA Head of Technical, Georgina Smit.

All measured Net Zero schemes must be renewed every three years, hence the REITs who are bold enough to commit to this methodology and be externally verified should be highly commended, as they have now started a journey that requires them to demonstrate continuous performance.

UNDERSTANDING LEVEL 2 RATING

The Net Zero Carbon certification differentiates where the boundary is drawn for measuring carbon. Level 2 goes a step beyond Level 1 by including not only base building emissions but also the operational energy use by occupants.

“These are the first Level 2 Net Zero Carbon Measured ratings at scale so far in South Africa, so it’s a real milestone,” Smit says. “The move for a landlord from focusing on base build energy, which is within their control, to including tenant behaviour, is also a major consideration within the Level 2 rating that has been achieved.”

RESPONSIBLE CARBON OFFSETS

“As REITs grapple with the environmental impacts of their property portfolios, and take positive steps towards pursuing net zero, it’s important to understand the role of responsible offsetting within decarbonisation trajectories,”



Improving efficiency and exhausting on-site renewable supply has a return on investment.

says Smit. Even with great design and management, and utilising all our best available technology, many buildings will still incur a significant carbon impact that can only be addressed through offsetting. Yet, carbon offsets must only be used as the last resort, once all other aggressive emissions-reduction strategies and effective, high-performance building design initiatives have been implemented. Practically, it’s also critical to understand that improving efficiency and exhausting on-site renewable supply has a return on investment, while offsets have costs associated with them.

However, we need to be realistic about the options for existing buildings to achieve net zero at this point in time in South Africa, explains Smit. “Until wheeling and procurement of renewable energy becomes easily accessible at a building-level scale, our market will require carbon offsets. The key is to understand the transitional role of this within the greater net zero journey of a building and its lifecycle. Given the cost of offsets, building owners are inherently incentivised to move away from this option as quickly as possible.”

REDEFINE’S ACHIEVEMENT AND FUTURE PLANS

“Being certified as Net Zero provides an objective confirmation to Redefine’s key stakeholders that our certified buildings have been benchmarked against global best practice efficiency standards,” adds Keke. “We will take the successes achieved from these three buildings to enhance energy efficiencies broadly across our portfolio, which benefit Redefine and its tenants, in line with our purpose to create and manage spaces in a way that changes lives.”

With this ground-breaking achievement and commitment to continuously pursue and maintain their Net Zero Carbon status, Redefine is setting a clear example for the rest of the property sector to follow. +

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