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Official publication of the Green Building Council of South Africa



12



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The official publication of GBCSA



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+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 200-word description of your content idea with 1-2 images to: maryanne@positive-impact.africa

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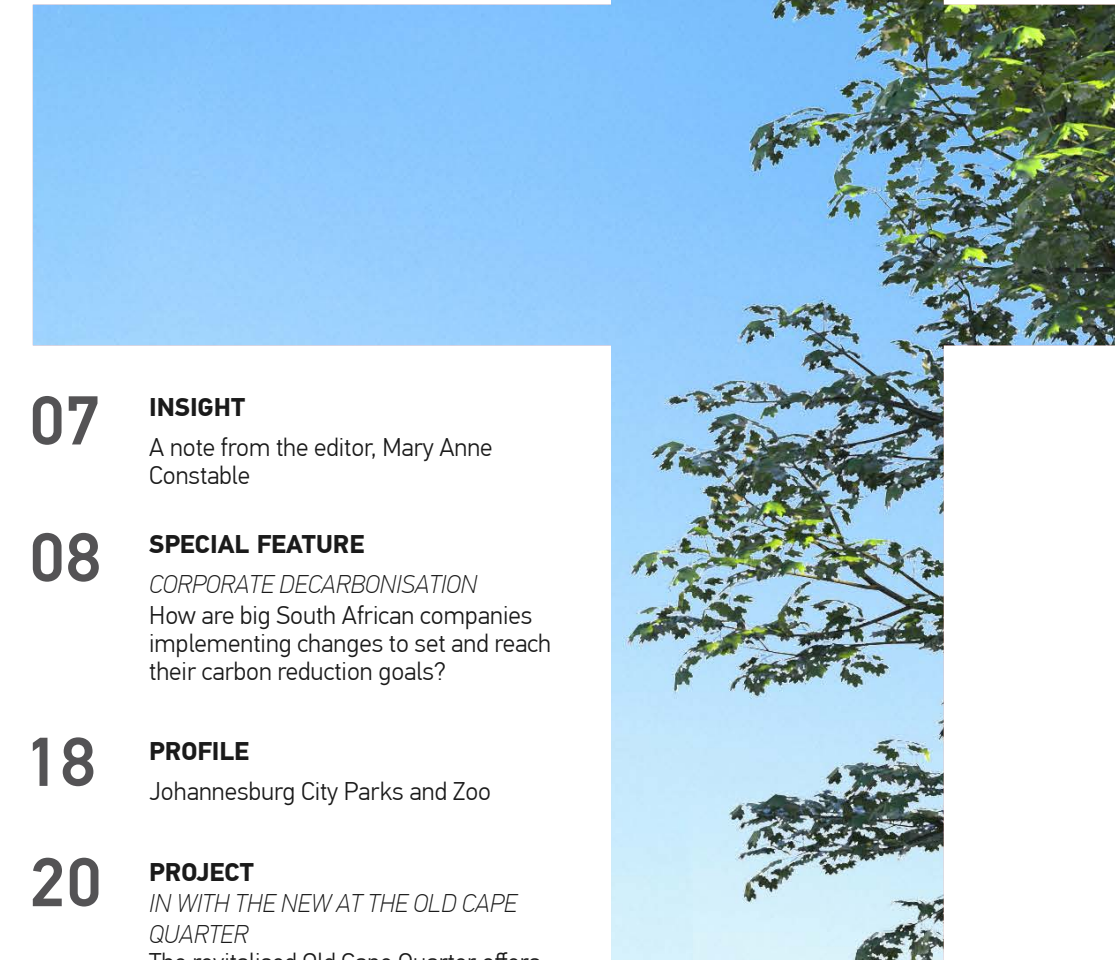
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SUSTAINABLE

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It's now officially the middle of 2021, and the month of the winter solstice (always a milestone towards next summer in my mind). And while many things are opening up, many things are standing still, or going backwards. It seems that the only constant these days is change, and uncertainty. I cannot help but contemplate: What will the next half of 2021 bring? What milestones will we be looking forward to? And what achievements will we be looking back on?

In this wintery edition of *+Impact Magazine*, we present some green achievements of the commercial property sector. We explore 'corporate decarbonisation' in a special feature. Six of South Africa's big companies reveal their progress on their net-zero carbon journey. It's a compelling read, which looks not only at the financial side (Nedbank), but also at manufacturing on both a local and international scale (Belgotex and Saint-Gobain), and also dips into healthcare (Netcare).



I cannot help but contemplate: What will the next half of 2021 bring? What milestones will we be looking forward to? And what achievements will we be looking back on?

On to retail with the revitalisation of the Old Cape Quarter in Cape Town's heritage precinct of De Waterkant. A goldmine for property investors, and now a destination for astute sustainability-minded tenants. The project was recently awarded a 4-Star Green Star Design rating under the Multi-Unit Residential tool, which is a different animal to the usual suite of Green Star tools.

From a new build perspective, the new Courtyard Hotel in the green precinct of Waterfall City, effortlessly blends sustainability with hospitality in a robust hotel offering. On the flip side, the National Energy Regulator of South Africa (NERSA) opted for a major refurbishment of their existing headquarters in Pretoria (instead of a new build), achieving a 4-Star Green Star Office As-built rating. It's always encouraging to see government organisations embracing green building practices.

Speaking of government, a thought leadership piece from Dr Magash Naidoo of eThekweni Municipality discusses the complexities of developing new policies, in the wake of their recently adopted New Buildings: Green Policy which seeks to aid the municipality in achieving their net zero targets.

A bit of mixed bag of projects but ones that span across different facets of commercial property. And thus, hopefully something to every reader's delight.



Mary Anne Constable

Editor

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CORPORATE DECARBONISATION

Big business and its journey to net-zero carbon

OLDMUTUAL

Immediate global action against climate change is imperative if we have any hope of slowing emissions and reversing global warming. How are big South African companies implementing changes to set and reach their carbon reduction goals?

WORDS Melinda Hardisty

In 2015, at COP21, the international treaty on climate change known as The Paris Agreement was adopted and came into effect in November 2016. This is a legally binding agreement that aims to limit global warming to well below 2°C (ideally 1.5°C) as compared to pre-industrial levels by 2050. Greenhouse gas emissions would need to reach their global peak as soon as possible, and be reduced to half by 2030, in order to achieve climate neutrality by mid-century. Participating countries were required to submit their Nationally Determined Contributions (NDC) that explain their targets and action plans for carbon reductions, by the end of 2020. South Africa remains committed to addressing climate change based on science, equity and sustainable development. Similarly, the present draft updated NDC seeks to balance the three structural components of mitigation, adaptation and means of implementation/

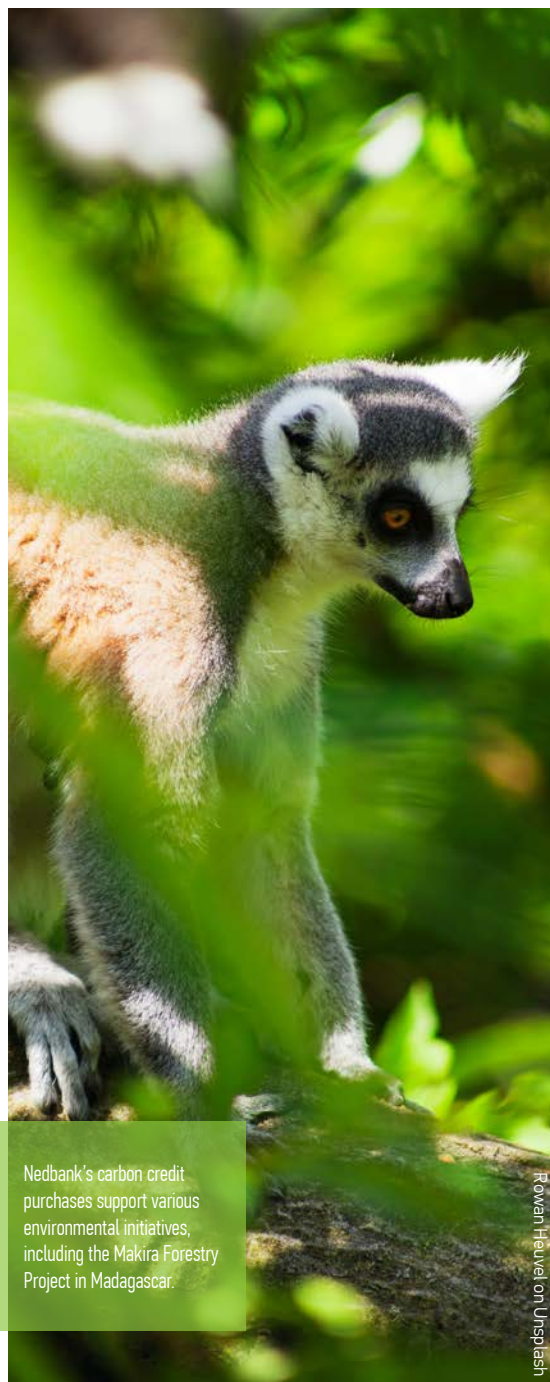
support requirements. The updated mitigation NDC proposes a significant reduction in greenhouse gas emissions (GHG) emissions target ranges up to 2030, with the 2025 target range allowing time to fully implement the national mitigation system, including those elements contained in the Climate Change Bill. It will also allow space for the implementation of IRP 2019 and other key policies and measures, as well as the national recovery from Covid-19. C40 Cities net-zero pledge has seen Cape Town, Johannesburg, eThekweni and Tshwane (among a plethora of other global cities) pledge to make all new buildings net-zero carbon by 2030, and all buildings by 2050. Many of the country's larger businesses and institutions are already embracing the challenge of achieving net-zero carbon targets, and some have also committed to the pledge. We take a look at some of their journeys COP26 takes place in Glasgow at the end of the year.



NEDBANK

Nedbank may be considered a veteran in terms of sustainable practices considering its own operations have been carbon neutral since 2010. Its Sandton office building became the first building to receive a GBCSA Green Star rating back in October 2009, and its Menlyn Maine building in Pretoria was the building in the first South African precinct to be developed according to LEED neighbourhood criteria in 2012.

Dr Marco Lotz is Nedbank's sustainability carbon specialist. He passionately explains the reports, charts and schedules that show Nedbank's steady improvements in various sustainability categories. Nedbank has consistently achieved its own targets, and continues to monitor its operations, setting even more stringent targets for coming years.



Nedbank's carbon credit purchases support various environmental initiatives, including the Makira Forestry Project in Madagascar.

Roman Hevel on Unsplash



Beyond internal operations, Nedbank also looks at the sustainability of the companies it invests in.

'Carbon' is generally used to reference the quantity of greenhouse gases that are released into the atmosphere, but there are a number of greenhouse gases (GHGs) to blame, not just CO₂. Lotz explains that in order to have a universal unit of measurement for calculating emissions, the most prevalent and potent GHGs are given a Global Warming Potential (GWP) value. So, CO₂, being the baseline, has a GWP of 1. Methane (CH₄) has a value of 21 to 23, and Sulphur hexafluoride (SF₆), a by-product of the electronics industry, has a GWP of 22 800 to 23 900. The use of GWPs as a type of equivalent measure results in being able to add different, seemingly unrelated, types of GHG pollution together. As an example, the GHG pollution of a box of paper can be added to that of an aeroplane flight.

Nedbank's strategy in terms of carbon emissions is first to reduce, then optimise, and finally to offset. The idea behind carbon offsets is that a monetary value is assigned to carbon so that the real cost can be internalised. To purchase carbon offsets one can invest in an organisation (usually an environmental cause) and obtain 'carbon credits' to offset emissions that cannot be eliminated internally. At this stage, buying carbon credits is still voluntary, but Nedbank has been supplementing its already good statistics with credits for some time. Lotz adds that the point of internalising these carbon costs is that it makes one think carefully before buying or using things, as there is a self-imposed financial implication.



Nedbank's strategy in terms of carbon emissions is first to reduce, then optimise, and finally to offset.

Beyond internal operations, Nedbank also looks at the sustainability of the companies it invests in. "The world is changing," Lotz says, "banks are now being held responsible for the projects they fund." He explains that this can be quite complicated as reporting is not uniform and isn't always externally audited. Carbon emissions are classified in three categories; Scope 1 (Direct), Scope 2 (Indirect – related to purchased energy), and Scope 3 (Indirect – other). Some company reports may exclude Scope 3 while others go as far as including staff commuting into the calculations. Landlords may choose to include or exclude electricity used by tenants. So, Nedbank has to carefully assess every application to confirm that its investments align with its sustainability goals.



OLD MUTUAL

The issue of climate change is central to Old Mutual's Responsible Business Philosophy. In 2015, Old Mutual was a signatory of the Montreal Pledge, a voluntary carbon disclosure initiative that requires members to annually disclose their carbon footprint. Since then, its building in Sandton has received a 5-Star Green Star rating (Office As-built v1.1), and the Mutualpark campus in Cape Town received a 6-Star (Existing Building Performance v1) rating.

"Old Mutual Alternative Investments (OMAI) strives to be a key participant in Africa's transition to a low carbon economy, driving the energy mix of invested jurisdictions toward a low carbon outcome. We believe private markets can play a significant role in achieving the positive impact needed against climate change," says Dean Alborough, head of environmental, social, and governance (ESG) at OMAI. "OMAI, through its infrastructure fund manager – African Infrastructure Investment Managers – is one of the largest equity investors in renewables in South Africa, with 31 large scale renewables investments in wind, solar, hydro and off-grid solutions and just over 2GW of installed renewable power capacity."

Old Mutual takes its responsibility as stewards of customers' investments seriously. Old Mutual Wealth is the first investment platform in South Africa to independently rate and publish its own unit trusts in terms of ESG criteria. This was done in collaboration with MSCI and is the start of the journey to creating transparency to help customers invest with purpose. This enables investors to access more information on where their money is invested.

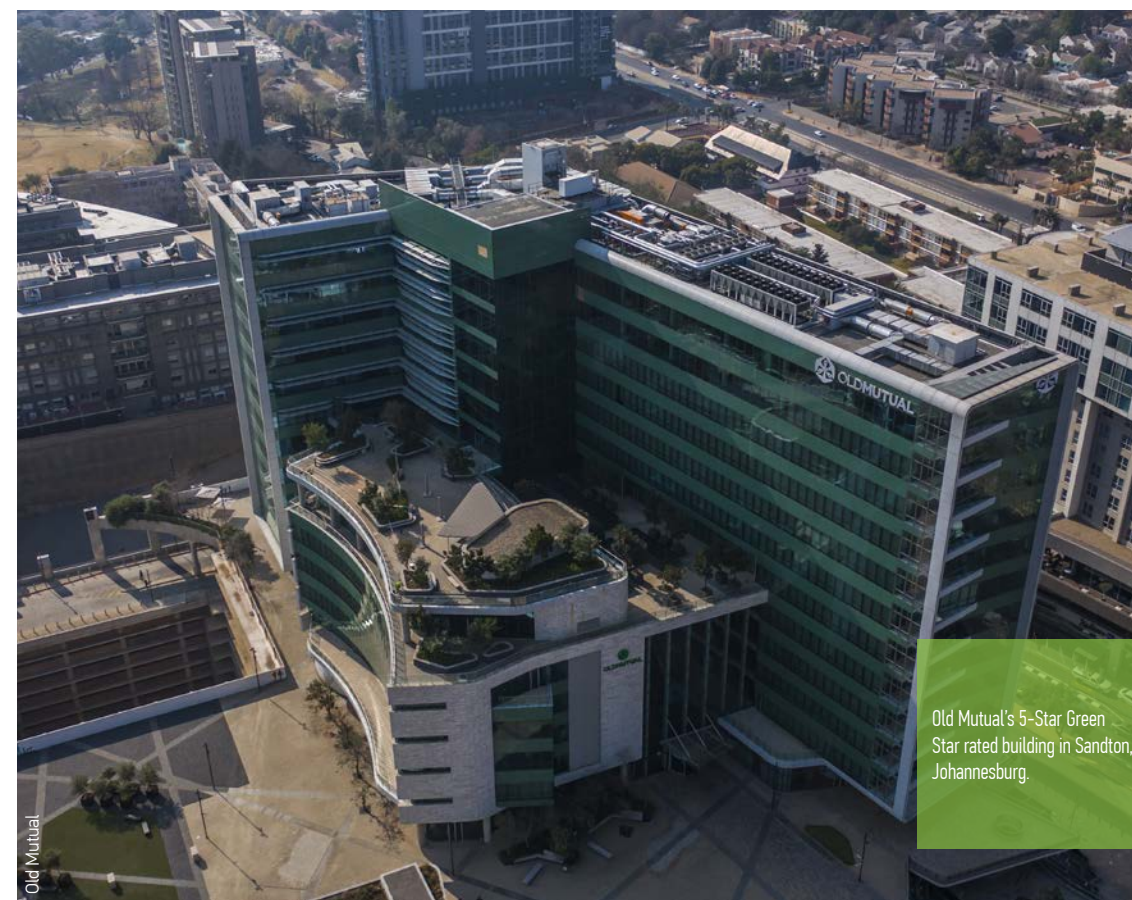
"There is a growing public interest in responsible living, with increased public discourse about climate change, inequality, environmental degradation and governance to name a few," says Old Mutual's managing director of unit trusts, Elize Botha. "Subsequently, there is a growing trend internationally of investors using their investments to influence and exercise choice for companies whose values are aligned with theirs."

Increasingly for investors it's no longer about profit alone, but unfortunately there are still very few responsible investment options available to the retail investor. There has also been a general assumption that 'good cause' investing will never be as lucrative in the long run. However, statistics show that companies with high ESG ratings have proven to be more resilient in times of crisis than companies with lower ratings. Old Mutual Unit Trusts now offers several ESG funds.



Statistics show that companies with high ESG ratings have proven to be more resilient in times of crisis than companies with lower ratings.

[CLICK TO LEARN MORE ABOUT RESPONSIBLE INVESTMENT OPTIONS HERE](#)



Old Mutual's 5-Star Green Star rated building in Sandton, Johannesburg.



Eastgate Shopping Centre's solar trees are both an attractive and functional addition to the plaza

LIBERTY TWO DEGREES

Liberty Two Degrees (L2D) is a South African precinct-focused, retail-centred REIT (Real Estate Investment Trust). Its portfolio currently includes well-known shopping destinations such as Sandton City, Melrose Arch and Eastgate Shopping Centre. Its Sandton City Precinct, which incorporates Sandton City Shopping Centre, Nelson Mandela Square, Atrium on 5th and Sandton Office Tower, was recently awarded a 6-Star Green Star rating (Existing Building Performance v1). This is the first super-regional retail precinct in Africa to have achieved this. This latest achievement also means that, as a first for the South African retail industry, L2D's entire portfolio is now GBCSA certified.

L2D was reconstituted and listed as a corporate REIT in 2018, but its green journey began before its newer identity. In 2012, recognising its corporate responsibility to the environment, it started investigating solar installations. By 2018, it was formalising its environmental target. L2D's over-arching goal is to create spaces for people that are built using three main building blocks; GOOD Spaces, SMART Spaces, and INTERACTIVE Spaces. These blocks are underpinned by the SAFE Spaces building block, which ensures that their environments adhere to the highest standards of hygiene, care and security. L2D's digital transformation journey forms the basis of SMART Spaces while INTERACTIVE Spaces has a focus on the experiential offerings throughout the business and drives innovation. Both of these overlap environmental targets, but GOOD Spaces is the one that aims to develop precincts as healthy ecosystems that don't just reduce negative impacts but have positive effects on people and the planet, explains Brian Unsted, the asset management executive heading up GOOD Spaces.

L2D has committed to being net zero by 2030 and this is being undertaken in phases. Net-zero waste is on track for 2021. This includes on-site composting programmes as well as a ban on the sale of plastic bags in all its malls. Net-zero water will follow by 2025, and net-zero carbon should be achieved by 2030. Carbon emissions are being tracked and reduced across the portfolio and renewable power installations are being invested in.



As a first for the South African retail industry, L2D's entire portfolio is now GBCSA certified.

Liberty Midlands Mall in Pietermaritzburg and Eastgate Shopping Centre in Johannesburg already have large solar installations that reduce carbon emissions and reliance on non-renewable energy sources. "The Midlands system was the first system commissioned in early 2019," says Unsted, "Eastgate Shopping Centre also features three solar tree structures that operate off the grid, are self-reliant and provide a source of renewable energy to the centre, while increasing the public's awareness of sustainable green methods of preserving energy and contributing to feature lighting and the overall aesthetic in the piazza," Unsted adds.

[CLICK TO LEARN MORE ABOUT L2D'S TARGETS AND ACHIEVEMENTS HERE](#)



BELGOTEX

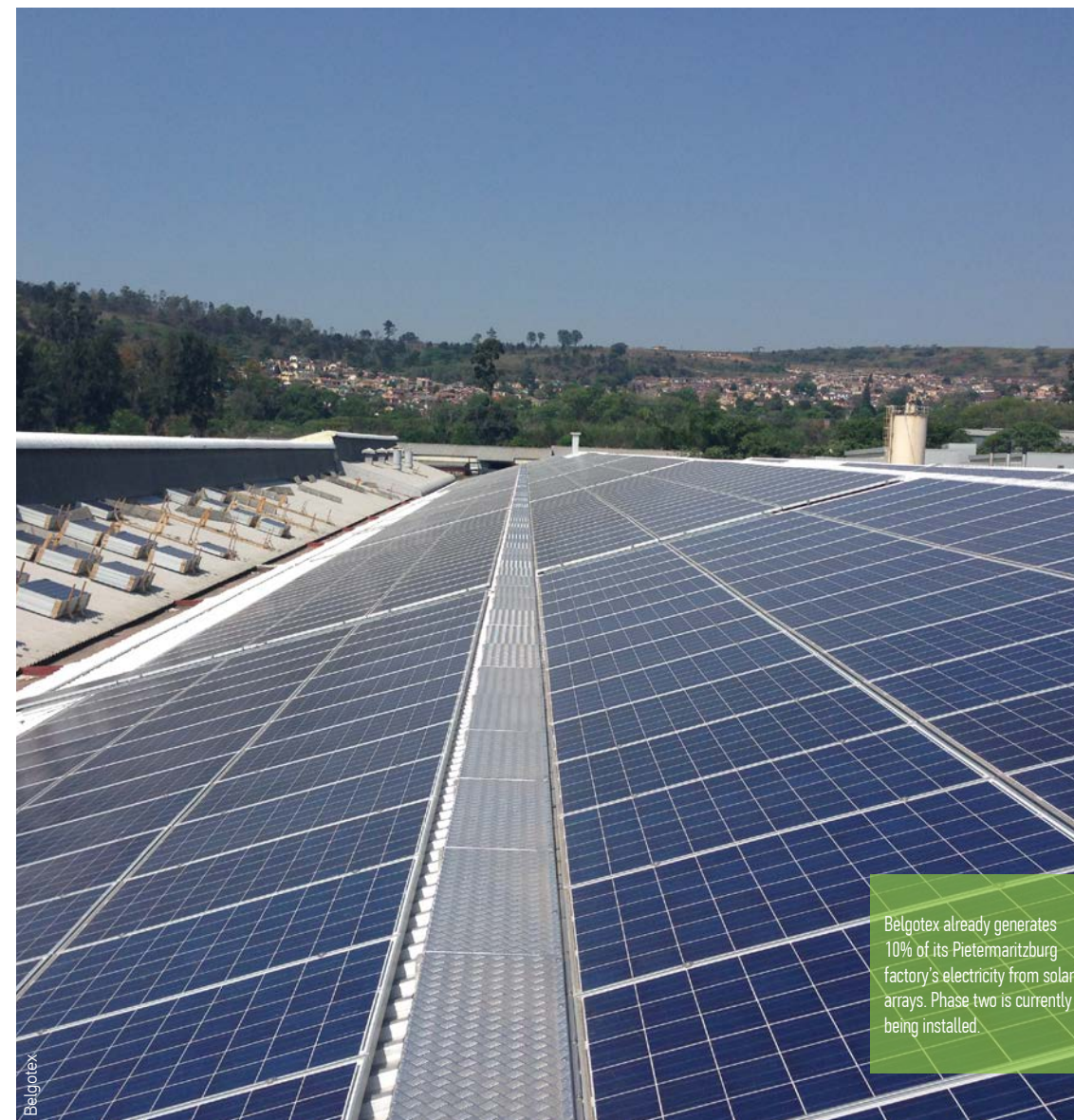
Carpet and flooring manufacturer, Belgotex, has long been leading the way in shifting both its products and manufacturing processes towards a more environmentally sustainable goal. Its 'green journey' started way back in 1991 and, since then, its product range has already eliminated harmful VOCs and Belgotex is constantly innovating new ways to incorporate more recycled and environmentally friendly material content.



Belgotex has invested significantly in solar power, resource efficiency and plant upgrades to save energy and reduce GHG emissions.

Belgotex has invested significantly in solar power, resource efficiency and plant upgrades to save energy and reduce GHG emissions. In 2017, the Belgotex factory in Pietermaritzburg, KZN was awarded the very first 6-Star Green Star rating for industrial buildings (EBP), and by 2019, 10% of its manufacturing energy requirements were generated by its extensive solar PV arrays.

Since 2010, Belgotex has been quantifying its carbon footprint and steadily reducing its impact. Terri Clapperton, sustainability officer at Belgotex, explains that the company is currently in the process of developing its circularity and energy strategies, and setting science-based targets for its operation going forward, focussing on reducing GHG emissions and keeping materials in use. Its second phase of solar power installations is already underway, as well as a number energy efficiency and productivity projects whereby IoT (Internet of Things) solutions are being used in its manufacturing process areas. The company's current studies will provide the data necessary to keep updating its sustainability targets for its buildings, processes and products into the future.



Belgotex already generates 10% of its Pietermaritzburg factory's electricity from solar arrays. Phase two is currently being installed.



SAINT-GOBAIN

Saint-Gobain was founded over 350 years ago and has developed into a leading brand today, recognised around the world. The group designs, manufactures and distributes innovative materials and solutions for the construction, mobility, healthcare and industrial markets and has over 1 000 manufacturing facilities in 70 countries.

Over the years, much of its R&D has gone into becoming more environmentally sustainable as a business, and creating healthy and sustainable product ranges. The group is committed to reducing VOCs and other harmful compounds from its products, and

“
Saint-Gobain’s carbon neutral strategy includes optimising and reducing energy use, innovation in its industrial and design processes, transitioning towards renewable energy sources, and new initiatives in transportation.”



holds over 900 verified EPDs (Environmental Product Declarations) – standardised life cycle documents certified by a third party.

In 2019, Saint-Gobain committed to being net-zero carbon by 2050. This is a particularly lofty challenge as a large-scale manufacturer, and as a company of its size, with bases in many very different contexts. Its first interim target, in 2025, will include a 20% reduction in Scope 1 and 2 emissions (from 2010), as well as 80% reduction in water discharge and 50% reduction in non-recovered waste.

Its carbon neutral strategy includes optimising and reducing energy use, innovation in its industrial and

design processes, transitioning towards renewable energy sources, and new initiatives in transportation.

Earlier this year, Saint-Gobain opened its new headquarters in La Défense, outside Paris. The building is designed to showcase its products and its commitment to environmental sustainability. It is 165m high, 44 levels, and uses over 80 of Saint-Gobain’s materials and solutions. It has been awarded four top certifications, including Platinum LEED, and BREEAM’s New Construction: Excellence.

[CLICK TO LEARN MORE OR VISIT VIRTUAL 3D HERE](#)



NETCARE

Netcare operates the largest private hospital, primary healthcare, emergency medical services, mental health and renal care networks in South Africa. It is also the largest private trainer of emergency and healthcare workers in the country. It developed its comprehensive Environmental Sustainability Strategy in 2013. Its initial 10-year plan is well on track and included targeting a 22% reduction in energy intensity per bed by 2023, which has been achieved. It has subsequently added 10-year and 30-year strategies. By 2030, Netcare aims to have 100% of its power supplied from renewable sources, and to achieve ‘zero waste-to-landfill’ status.

André Nortjé is Netcare’s national environmental sustainability manager who oversees a team of engineers dedicated to introducing and evaluating sustainability measures within all Netcare buildings. He explains that Netcare’s energy efficient equipment and green energy technologies ensure that each patient’s carbon footprint, while undergoing hospital care, is being kept to a minimum, and this directly translates to lower healthcare costs. He further explains that “the risks associated with certain initiatives require careful consideration before being implemented.

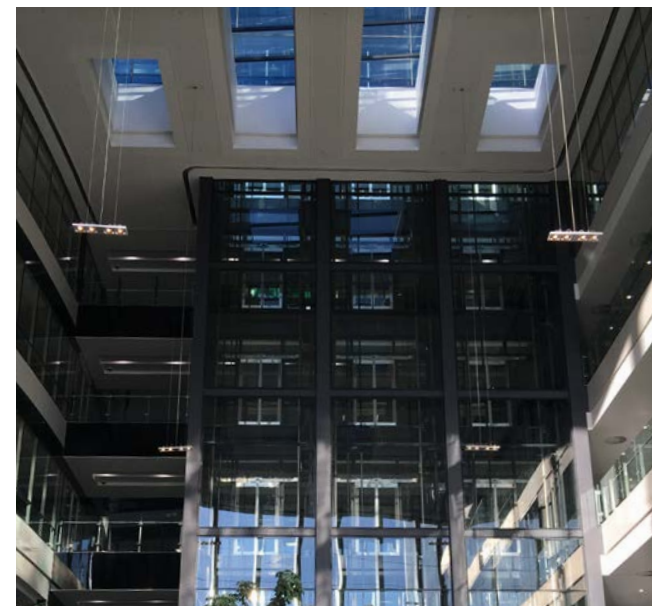
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By 2030, Netcare aims to have 100% of its power supplied from renewable sources, and to achieve ‘zero waste-to-landfill’ status.”

Supplying reliable energy as efficiently as possible remains challenging”. This relates to the fact that hospitals run at high capacity 24 hours a day, 365 days a year, and that unreliable power means back-up power systems, which are less cost-efficient, need to be used.

Nortjé is also excited about another significant ‘first’ for the company. In March this year, Netcare and Standard Bank concluded the African continent’s first sustainability linked bond (SLB). This type of bond allows capital to be raised by a company through public investment in bonds that are tied to the borrower achieving their set sustainability targets. Apart from the benefit to Netcare’s environmental goals, it also gives investors another option for ‘green’ investing. +

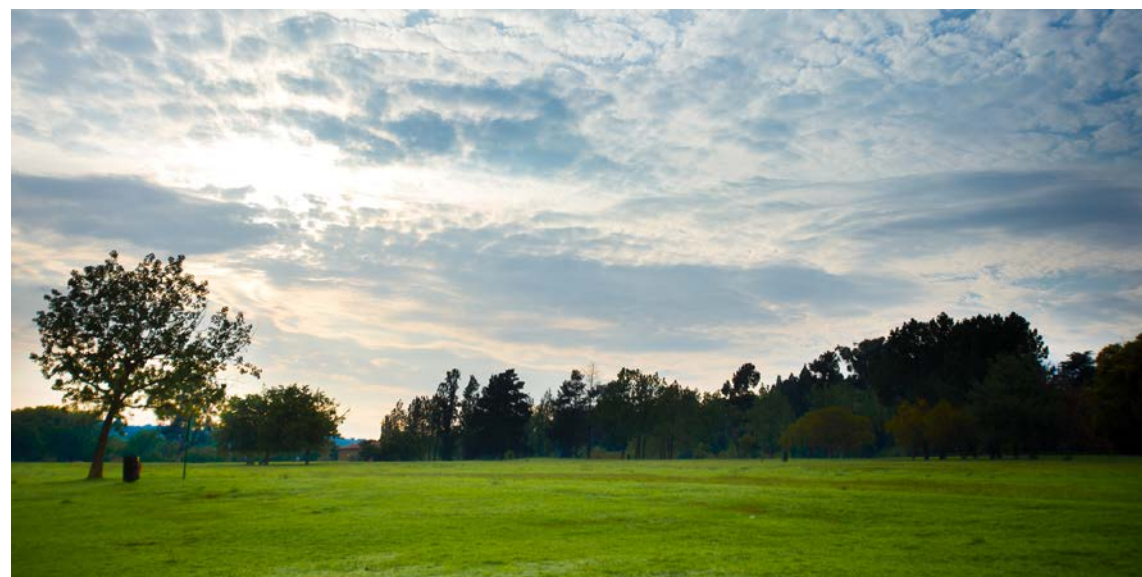
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PARKS MAKE CITIES LOW CARBON AND RESILIENT

Low-carbon environments are better able to retain and grow their market value – and as a result facilitate economic development and sustainable, liveable neighbourhoods.

The principles governing Johannesburg City Parks and Zoo (JCPZ) are closely aligned with those of net zero carbon and actively avoid and mitigate climate change impacts across Johannesburg through providing and strengthening ecosystem services.

Facilitating a city that is environmentally sustainable and liveable by developing, maintaining and conserving public open spaces, cemeteries, Johannesburg Zoo and street trees are a broad and crucially important remit.

The past ten years, 2010-2020, was the hottest decade on global record, with each year scoring infamous records related to heat, drought, fire, floods and more, all indicators of global warming. It is expected that South Africa will continue to experience hotter weather but with less rainfall.

FUTUREPROOFING OUR NEIGHBOURHOODS

How can urban parks and other public open spaces help mitigate climate change in the City of Johannesburg? All of them play a specific role in minimising the impacts of climate change. Here are some of the benefits they create: green infrastructure, cool urban heat islands, minimise flooding, reduce wind, lessen noise, house wildfire habitats, filter air and clean water. Apart from the environmental benefits, green spaces can also improve property values, protect the rates base, strengthen local economies, protect infrastructure and create job opportunities.

This cumulative effect of ecosystem services compounds incrementally. As Albert Einstein is reputed to have said, “Compound interest is the eighth wonder of the world. He who understands it, earns it; he who doesn't, pays it.”

COOL URBAN HEAT ISLANDS

Consider the value of Johannesburg's urban forest, parts of which were planted more than a century ago. The cooling effect of a mature street-side tree was found, by the US Department of Agriculture, to be the same as 10 regular-sized air conditioner units. Besides exhaling cool water vapour, they cast shade onto the dark, heat-retaining tar roads. The cooling effect of parks sometimes extend almost a kilometre beyond their boundaries into surrounding neighbourhoods, studies in three US cities showed.

REDUCING FLOODING WHILE IMPROVING WATER QUALITY

Landscaping in parks can be designed to prevent flooding and protect water quality. By using green infrastructure, an approach to water management that protects, restores or mimics the natural water cycle, parks can filter almost all major pollutants out of storm-water runoff, and combined with features like rain gardens and swales, not only is the runoff reduced but the groundwater tables are restored. By decreasing the runoff that the roads and storm-water

departments manage, parks reduce the maintenance requirements of civil infrastructure.

CLEANING THE AIR

Urban tree canopies in parks and the wide network of street trees throughout Johannesburg remove a significant amount of air pollution, specifically from car fumes. Trees remove toxic micro-particles and heavy metals from the air by either absorbing them through their leaves or providing a place for these pollutants to settle before rain washes them into the water system. Trees also act as carbon sinks, absorbing carbon and turning it into wood as they grow.

TRAVEL AND TRANSPORTATION

Offering motorists the option to switch from using cars or mini-bus taxis to walking or cycling first requires commuter routes to be safe. Urban parks and public open spaces provide increased opportunities for walking and cycling to and from work through their boundaries, especially if they are near a road network or can give users the option of taking a short cut through the neighbourhood.

Pathway systems that connect neighbourhoods across the municipality are becoming more important to accommodate pedestrians. Park designs mostly accommodate multi-use pathway systems as they encourage all types of recreational use and serve as a transport function. Studies have shown that without these connections the distance to travel on the road increases, along with the potential for traffic accidents.



Compound interest is the
eighth wonder of the world.
He who understands it, earns it;
he who doesn't, pays it.

Albert Einstein

ECONOMIC DEVELOPMENT

Parks require an investment from the municipal budget. The operational and maintenance costs of a park, or network of parks, can be easily calculated. It is understood that the municipalities return on investment is through the many social benefits parks provide. While these social benefits are difficult to objectively quantify to a rand figure, it does not mean that parks are a negative drain on local governments. The economic effects of well-managed parks and public open spaces are obvious when looking at the municipalities business model.

Income from rates and taxes is a significant portion of their budget, these are charged to residents and businesses living and operating inside the municipal

boundaries in proportion to the estimated value of property. Therefore, to maintain and attract residents to aspire to live within higher-value neighbourhoods, the value of amenities and opportunities to conveniently access parks and nature is required to be high.

Quality of life, measured in no small part by vibrant urban green space, is a determining factor in real estate values and the economic viability of a neighbourhood. Property values climb if a property is located nearby or has views of a park, and the virtuous cycle is that properties located near these amenities not only benefit from accelerated capital growth, but more frequent improvements, further increasing their value. The higher level of this capitalised value results in more property tax revenue, which in theory is expected to pay for the annual costs related to the development and maintenance of the park.

Parks also facilitate the local economy through their impact on local businesses. The increased pedestrian traffic caused by a popular park attracts regular footfall. Large and small events which make use of parks and public open spaces, such as park runs or marathons, are known to attract out-of-town visitors to local businesses, especially those in the hospitality industry.

These factors generate greater income and resilience to municipalities dealing with the effects of global warming.

RESILIENT AND ROBUST

Low-carbon benefits of parks are robust. To amplify positive climate and health outcomes the development and implementation of strategic green infrastructure networks stack these benefits at the scale of the site, neighbourhood and city scale. Projects that give multiple benefits, such as cooling, absorbing, protecting and connecting will most often provide a greater and quicker return on investment than single-purpose projects.

Social cohesion is an additional core benefit and results from park developments and programming. A community's ability to withstand shocks and disasters, and come back stronger, is often determined by its social fabric. In hard times, this cohesion can be the difference between the successes and failures of communities. As established parks and public open spaces directly improve environmental and economic resilience, they also build social resilience especially if they are developed and stewarded in a collaborative, community-driven approach.

Socialising, volunteering, civic pride, preserving history and appreciating one another's differences are examples of how activities in parks provide opportunities for leadership development and social capital that matures into community development.

Importantly, parks often serve as an introduction to natural spaces for those who grow up and live within urban environments. The development of children and young people provided by access to activities in parks is invaluable, especially for at-risk youth and vulnerable populations. Experiences of positive play and social interactions lead to healthy development to the next generation of leaders, to who this generation will pass on the baton of responsibility to ensure communities thrive in the face of obvious challenges. +





IN WITH THE NEW at the Old Cape Quarter

With its cobblestone streets, sidewalk cafés and heritage cottages, Cape Town's fashionable inner-city suburb of De Waterkant is highly sought after, attracting upper-end property investors. The revitalised Old Cape Quarter offers the perfect solution for chic urban living, combined with the many benefits of sustainable building design.

WORDS Nicole Cameron

Project date	October 2021
Green Star rating	4-Star Green Star Multi-Unit Residential Design
Project location	72 De Waterkant Street, De Waterkant, Cape Town
Project type	Mixed-use development
Project size	5 315m ²

A view from one of the Old Cape Quarter's luxurious penthouses, with Signal Hill forming a backdrop.



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Developed by Tower Property Fund and designed by dhk Architects, the Old Cape Quarter has been reimagined as an exciting mixed-use development and is set for completion by October 2021. With very few opportunities available to investors looking for unique spaces in a historical setting – with easy access to all amenities including Cape Town’s city centre – the development of 55 upmarket apartments will enable residents to take full advantage of the heritage and buzz of one of the city’s oldest precincts.

The residential aspect of the development is located in the four storeys above the existing building, which comprises of retail and offices on levels two, three, four and five. Naturally, it made sense to green this asset, with the numerous advantages of a reduced environmental impact being well recognised.

“These include its marketability and being able to attract tenants and investors through higher quality assets with greater returns and increased value,” says Simon Penso, director of Imbue Sustainability and the accredited professional working on the development, which achieved a Multi-Unit Residential 4-Star Green Star Design rating from the GBCSA. “Green buildings have reduced operating costs for tenants, efficiently designed building services and are premium spaces that offer great indoor environmental quality. The improved saleability and risk mitigation associated with green buildings have consistently shown improved rentals and valuations worldwide,” he adds.

With this in mind, the Old Cape Quarter apartments were devised to be more sustainable through specific design interventions. Penso says that these initiatives will result in fewer natural resources being required, greater health and wellness benefits, as well as lower monthly energy and water costs for occupants. For

starters, double-glazed floor-to-ceiling windows enhance natural light and reduce the electricity load, which is further diminished through the installation of LED lighting and heat pumps instead of geysers. A detailed thermal comfort modelling process took place, with insulation installed and a highly efficient HVAC put in place, only where needed. The development’s living and work spaces have been designed to optimise comfort and well-being, and the indoor air quality has been an intentional focus, improved through the use of non-toxic indoor paints, flooring, adhesives and sealants.

When it comes to water efficiency, features such as an advanced greywater system collects water from the showers. This water is cleaned and used to flush toilets and for onsite irrigation. Indigenous landscaping with minimal watering requirements drastically reduces the expected water use, and efficient shower, tap and toilet fixtures further decrease potable water use on site. Each apartment is to be fitted with energy and water monitors to track consumption and manage usage. “The sharing of this



The Old Cape Quarter’s sustainable building features further entrench Cape Town’s position as an eco-centre, once again putting high-end green residential complexes on the map.



The revitalised Old Cape Quarter offers easy access to restaurants, shops and amenities amidst the bustling De Waterkant precinct.

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An artist's impression of the completed Old Cape Quarter, with the 'timbre soleil' adding a stylish finish.



Green buildings have reduced operating costs for tenants, efficiently designed building services and are premium spaces that offer great indoor environmental quality.

metering information with the building managers and occupants will allow for a better monitoring of the building's usage, and this information and awareness will influence the consideration of future sustainability plans," says Penso.

A LOWER CARBON FOOTPRINT

"Greener transport options are encouraged through user-friendly cycle routes and lockable and secure cycling facilities," he continues. "There are also a number of parking spaces designated to fuel-efficient vehicles, such as scooters and motorbikes." The fact that the area is highly walkable, with safe and easy access to the closely situated Sea Point Promenade, Green Point Park, Cape Town Stadium and other green spaces, makes this more sustainable lifestyle possible. The MyCiti public transport facility has two bus stops conveniently situated right up and down the road from the Old Cape Quarter, providing easy access into the CBD, Atlantic Seaboard and further out of Cape Town.

Penso says that amalgamating an existing building with a new build extension can be a challenge, especially when the sustainability consultants are brought in further down the line once the design in more set in stone. "With this project, Imbue Sustainability was actively involved right from the

beginning, which made incorporating these initiatives into the design much more streamlined," he says. He also adds that integrating sustainability initiatives into an architectural design is a balancing act, especially within the context and any perceived barriers. "One such barrier is the perception that building green will increase the cost of the project, as with most projects, cost is a limitation. However, on this project and across the industry it has been seen and proven that designing and implementing a 4-Star level building incurs negligible additional costs. As was shown in the 2016 Green Building in South Africa: Guide to Costs and Trends Report, green buildings can be built for a negligible premium, and this green cost premium appears to be progressively diminishing overtime. The implementation of complex sustainability initiatives will attract good return on investment."

Bruce Rogerson of Tower Property Fund Limited says that there have been two major shifts in the economy while developing the Old Cape Quarter, circumstances during the lead time between the development approval and the actual physical building taking place. "These included international rating agency downgrades and Covid-19. Fortunately, there is incredible demand for the commercial component



The Old Cape Quarter's sustainable building features further entrench Cape Town's position as an eco-centre, once again putting high-end green residential complexes on the map.



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of the development, but we have had to reduce the residential pricing to remain competitive.” Rogerson says that a highlight has been working with a team that must get huge credit for working under extremely unnatural circumstances during and after lockdown. “We are on track to complete the development by the last quarter of the year and would like to thank the local community for their patience during development, which can be very disruptive.”

AN INNER CITY OASIS

Ranging from one- and two-bedroom apartments to three-bedroom penthouses, the Old Cape Quarter residential prices start from R2 950 000 Vat inclusive. Speaking of the design concept, dhk describes each apartment as “displaying clean, contemporary lines with floor-to-ceiling windows, bedrooms with shutters, timber flooring, Rheinzink cladding to the penthouse level, all set within the existing multicoloured sophisticated fabric of the De Waterkant precinct, resulting in a well-proportioned elegant architectural solution.” They go on to say that the central courtyard, which sits at the heart of the development, “will be activated through the creation of a new green oasis with flanking and cascading planted terraces. A timber brise-soleil will hold the edge of the courtyard on the northern side, while providing a visual barrier between public and private realms”.

The parking, office and retail spaces are being refurbished to a high standard, with the size of the office floor plate increased, and the retail and restaurants areas invigorated. “There was a partial demolition of the existing building in the redevelopment phase, in order to strengthen the building’s core structure and allow for the insertion of the modern four-story residential component,” explains dhk.

“Any new development is exciting when you see it emerge from concept to reality,” says Rogerson. “When Cape Quarter Square was developed, it overshadowed what was then called the Cape Quarter Piazza. As a

“
The improved saleability and risk mitigation associated with green buildings have consistently shown improved rentals and valuations worldwide.”

result, the Piazza lost its identity, and we soon realised that we needed to re-invent it so that it would once again form part of and add value to the precinct.” Tower Property Fund Limited acquired the Cape Quarter Piazza, Cape Quarter Square and 32 Napier Street in 2013, together making up the Cape Quarter Precinct. They have focused on a greening strategy across the precinct to make it more water and energy efficient, and Cape Quarter Square boasts a PV solar panel system, recycling, and other initiatives which have contributed to it achieving a 4-star Green Star GBCSA rating.

The Old Cape Quarter’s sustainable building features further entrench Cape Town’s position as an eco-centre, once again putting high-end green residential complexes on the map. Imbue Sustainability are currently working with the professional team as the construction process goes forward, to gain its certification with a Green Star Multi-Unit Residential As-Built submission. Once the project reaches completion, it will be ready to be submitted for its Green Star As-Built rating.

There is no doubt that the Old Cape Quarter is going to breathe significant new life into the complex, its modern architecture complementing the old town charm and fusing sophistication, creativity and culture into a vibrant destination in the heart of the city. Perhaps most importantly, the building occupants will reap the rewards of the environmental benefits imbued into the design – lowered costs, boosted comfort, and the overarching contribution towards a more sustainable society. +



The apartments boast high-end features such as MIELE appliances in kitchens and Hansgrohe sanitary fittings.

PROUDLY INVOLVED WITH Old Cape Quarter development

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Hospitality meets Sustainability

As the first hotel to be Green Star certified in the Attacq portfolio, the Courtyard Hotel Waterfall City sets a new sustainable benchmark for the company's future leisure developments.

WORDS Melissa Baird

Project date	Certified February 2021
Green Star rating	4-Star Green Star Custom Hotel Design
Project location	Waterfall City, Johannesburg
Type of building	Hotel, restaurants & conference facilities

City Lodge Hotel Group's new offering, the Courtyard Hotel in Waterfall City, is the result of extensive local and international research into creating a space that has longevity, is highly resource efficient, and has a uniquely South African design flare.

Part of the Attacq portfolio – the JSE listed property development company – the Courtyard Hotel is invaluable to Waterfall City as it enhances its lifestyle offering and solidifies the precinct's compelling value proposition of being a live, work, play hub.

The precinct has always prioritised sustainability and is testament to Attacq's commitment to best-in-class green design that has attracted top calibre companies to the area. Attacq's vision for creating safe and sustainable spaces in which people and communities can connect and thrive, is brought to life – the hotel espouses the belief that buildings should not

be considered in isolation from their environments and communities, but rather complement and accentuate their surroundings.

Its central placement (being close to the Sandton and Midrand CBDs, Gautrain Midrand Station, major highways, Gallagher Convention Centre, Kyalami International Convention Centre, and Netcare Waterfall City Hospital) offers convenient public transport options. In addition, the hotel guests will appreciate the convenience of its access to the sustainability award-winning Mall of Africa and its array of entertainment and lifestyle offerings.

With this pedigree, it goes without saying that the hotel has been designed with sustainability at its core, impacting the efficiency of water, waste and energy. Green is a predominant colour in the design palette, and it offers breathtaking aesthetics that soothe and welcome every guest. Designed to impress, this is the



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- Light industrial with office components
- Hotel
- Mixed Use

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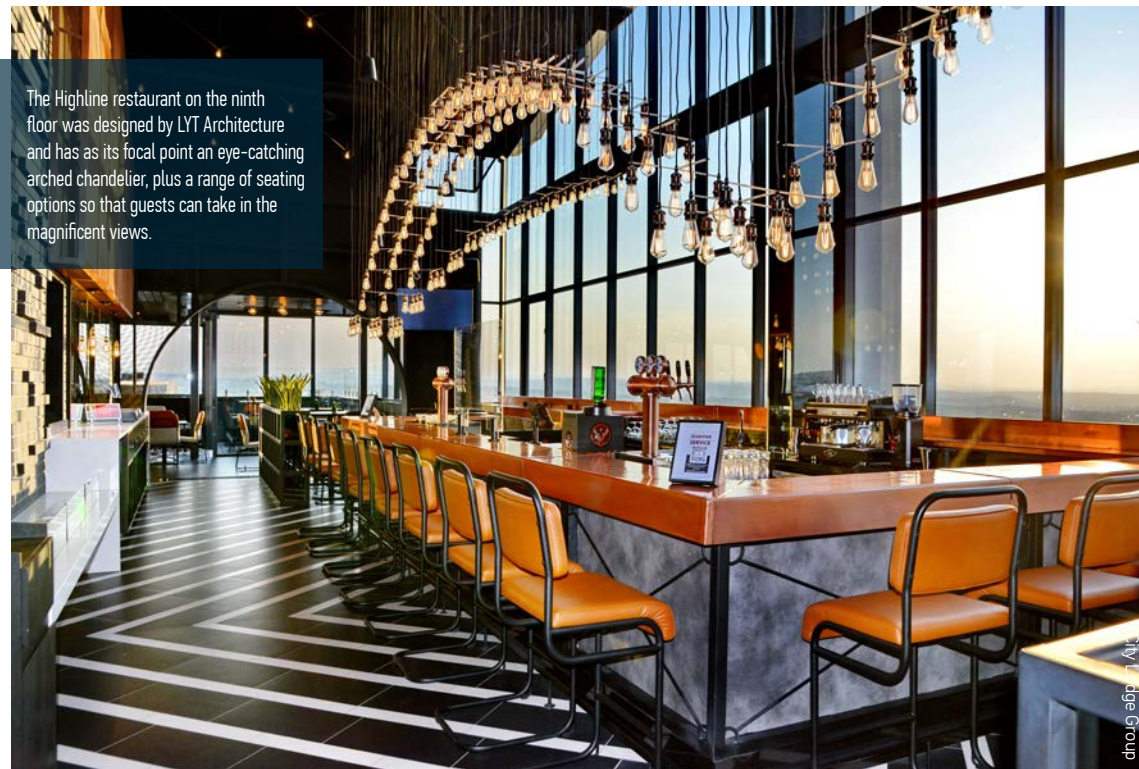
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Aluview designed, supplied and installed the arched shopfronts and the showers for the development.

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The Highline restaurant on the ninth floor was designed by LYT Architecture and has as its focal point an eye-catching arched chandelier, plus a range of seating options so that guests can take in the magnificent views.

63rd hotel in the City Lodge Hotel Group, 56th in South Africa and sixth in the Courtyard Hotel brand, bringing the total number of rooms in the group to 8 070.

Annelide Sherratt of Solid Green, sustainability consultant and Green Star AP on the project, notes that the safe, well-lit pedestrian walkway and a cyclist sidewalk encourages building users to use non-motorised transport. Six parking bays for fuel-efficient and hybrid vehicles, and six dedicated motorbike parking spaces have also been provided in the building's basement.

When it came to the design, Indoor Environmental Quality (IEQ) was a priority. This led to designs that optimise daylight and minimise potential health issues by specifying interior materials that have a low VOC content, and all selected gaseous and fire suppression systems and thermal insulants used for the development have an Ozone Depleting Potential (ODP) of zero.

The Courtyard Hotel has 164 rooms and four suites and is founded on principles that consider the impact on the environment as well as the people inhabiting the space. The 4-Star Green Star Custom Design rating was awarded

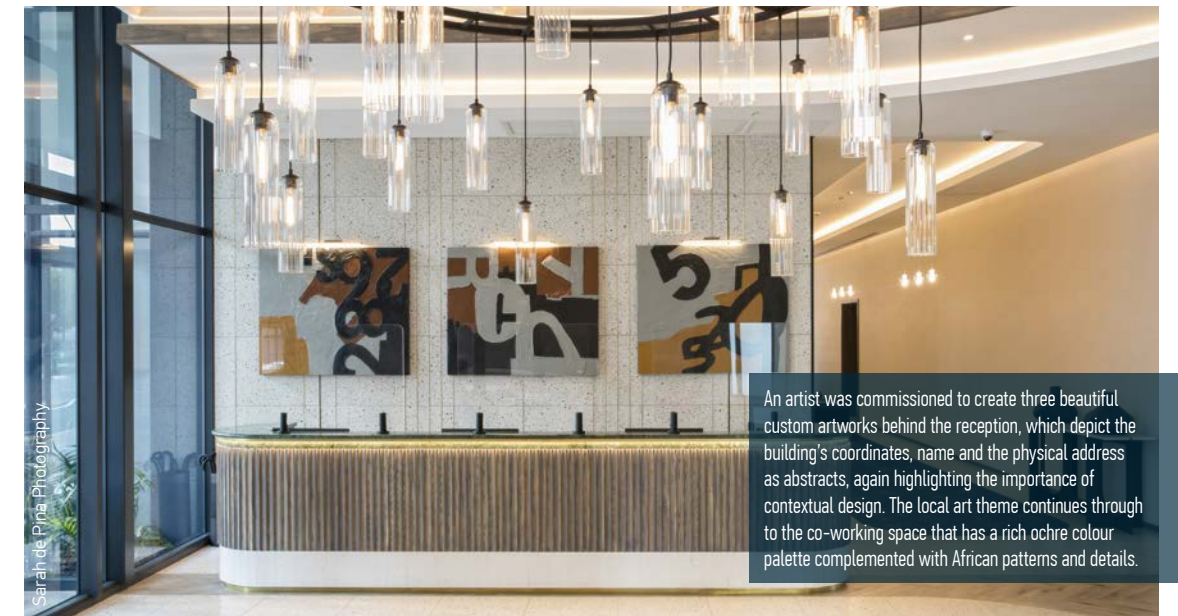
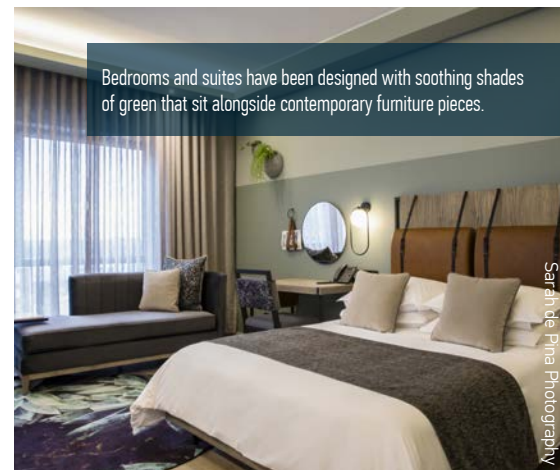
in February 2021, and it verifies the environmental best practice endeavours that were implemented during the design, construction, and procurement phase both through direct and indirect initiatives.

Louise Nogueira Dracopoulos, owner of Oniro Studios, led the team entrusted to realise a new vision for the Courtyard Hotel Waterfall City's ground floor public spaces and guest rooms. LYT Architecture was responsible for the architecture of the building as well as the interior design of The Highline restaurant. Nogueira Dracopoulos notes: "The importance of representing a South African context and flair throughout the concept was as important as addressing the personal experience within hotels, an ever-growing key theme within the hospitality industry. This directed my story for creating a concept for this property."

The City Lodge Hotel Group has a long history of supporting local artists and guests will note their talent in all the public spaces, a gallery of sorts to the furniture manufacturers, industrial designers, shopfitters, artists, and ceramicists who created art deco inspired pieces.



Bedrooms and suites have been designed with soothing shades of green that sit alongside contemporary furniture pieces.



An artist was commissioned to create three beautiful custom artworks behind the reception, which depict the building's coordinates, name and the physical address as abstracts, again highlighting the importance of contextual design. The local art theme continues through to the co-working space that has a rich ochre colour palette complemented with African patterns and details.

The cohesive colour palette is a signature aspect of the design and flows through each unique space that has its own lighting, furniture, art and decorative pieces.

A green wall made of recycled plastic planters proclaims a new experience to be found within by both business travellers and leisure guests and a new market altogether. Welcome the 'bleisure' guests who work remotely and like to take time out for their own enjoyment after a long working day. Increasing footfall, the hotel is also open for day visitors who can enjoy fare from several on-site restaurants, or need a quiet space to work in.

The biggest hurdle in completion was the arrival of the pandemic, which shut the construction industry for months. Despite this tremendous social and economic setback, the hotel is open and ready for business.

Andrew Widegger, CEO of City Lodge Hotel Group, says, "Research indicates that this new concept Courtyard Hotel will be popular with our core market. The hospitality landscape has changed dramatically since we first conceived of this hotel as a result of the Covid-19 pandemic; however, the key offering remains in line with principal demand and trends, and we are delighted to welcome guests to this exciting new space."

Lindiwe Sangweni-Siddo, COO of City Lodge Hotel Group, adds: "Inspiration for this property, from its sustainability features to its cutting-edge design, has been sourced from and inspired by best practice in hospitality around the world. With luxury finishes and an open, airy feel, it should give great safety reassurance to guests as it opens amidst the Covid-19 pandemic, and has excellent longevity as the tourism industry recovers."

The global pandemic has decimated the hotels and meetings sector and for a return to being able to meet and work together again, this hotel offers a space of restoration and community, ideal for business and leisure and for solo workers who want to combine remote work with the aspects of safety and solitude.

Dracopoulos has more to say about the evocative aspects of the design: "The goal for the interiors was not only to create a space which celebrates a richness of layers, details and textures but it had to be functional, and it had to transition from a light-filled cosmopolitan

character, ideal for daytime meetings, into a night-time venue where lighting settings would shift the spaces into a moodier atmosphere. Not only was it important that the aesthetics play a role, but there is a synergy required where technology, sustainability and design meet to create an unforgettable guest experience, an authentic 'home-away-from-home' experience."

Another unique and compelling sustainability feature is the efficient water and electrical designs that were implemented throughout to minimise demand on resources. These include energy efficient lights and appliances as well as intelligent lighting management systems and building monitoring systems. There is an effective automated sub-metering mechanism for monitoring water consumption data, which also acts as a leak detection system. Water efficient fittings were specified to ensure that water usage is limited and can offer savings of approximately 30%. Smart landscape irrigation measures have been implemented and it is expected that the installed water efficient irrigation systems will achieve a 70% reduction of potable water for irrigation.

The on-premise laundry further carries through on the water conservation approach with a state-of-the-art facility using energy, water and laundry efficient chemicals and equipment. Guests and staff are made aware of these efforts through the data shared by the intelligent metering which is displayed on permanent screens strategically placed within the foyer. Data is available in real time and shows the daily, weekly, monthly and yearly energy and water consumption of the building.

When it comes to waste there is a dedicated waste management plan in place to minimise waste going to landfill. The building's basement houses a waste recycling storage area for paper and cardboard; plastic, glass and cans; metals; and general waste. A monthly waste saving of 60% recycling and reuse is targeted.

The hotel offers complimentary WiFi throughout; contactless check-in; QR codes for restaurant menus; an app that controls guest room doors, air conditioners and televisions; as well as free, secure underground parking; same-day laundry and dry-cleaning service; photocopy services and 24-hour security. +

Injecting **NEW ENERGY**

Jacques Nel

While many organisations choose to move out of historical CBDs to build flashy new headquarters, the National Energy Regulator of South Africa (NERSA) opted instead for a major refurbishment of their existing premises, which has much merit in terms of its reduced environmental impact.

WORDS Nicole Cameron



Project location	Arcadia, Pretoria
Project type	Government office
Project completion date	February 2021
Project size	8 720m ²
Green Star rating	4-Star Green Star Office v1.1 As-Built

NERSA Kulawula House is in the heart of Pretoria's inner city and has been home to the regulatory authority since the building was constructed in 1982. "Choosing an existing building over a new building has major implications," says accredited professional Zendré Compion of Solid Green. "There is an obvious attraction to starting a design project with a clean slate in a new precinct or developing area, but as we know, the impact of construction, associated waste and sprawl is huge.

GBCSA awards Green Star points to refurbishment projects for exactly these reasons – points are given for reusing the building structure and façade, as well as reuse of land. Credits for topsoil and contamination of land are excluded where they are not impacted by an existing building, and the material credits also fall away (timber, concrete, steel) as the material value is less than 1% of the contract value. This rewards the project through a slightly simplified set of criteria."

Compion says that while older buildings may be a challenge on some fronts, another benefit to refurbishment is that many older structures incorporate good passive design principles, which slowly fell away when building thermal comfort started being managed by automated systems. "These older buildings, like Kulawula House, have smaller glazed elements, large overhangs, external vertical blinds where the afternoon summer sun hits the building, and narrow floor plates."

Given that the building is now more than 35 years old, a focused refurbishment was necessary to bring the building fabric and services up to date. This meant upgrading to and complying with the latest technology, standards, regulations, and codes, while also addressing the building's current and

predicted future requirements. The team targeted Indoor Environmental Quality (IEQ), Energy (ENE) and Water points, all elements that form the core of a major systems refurbishment. "As we were working with an older building, with no physical extensions, additions or alterations, there was no room for getting points for innovation," explains Compion. The team faced some challenges such as getting all the existing building information from old drawings, as well as working around the tenants who remained in the building throughout. The office is split across eight floors and so refurbishment had to happen floor by floor, which made the process relatively slow and with obvious discomfort to the building users at the time, recalls Compion.

A GREEN APPROACH

To attain Kulawula House's 4-Star Green Star Office v1.1 As-Built certification, a comprehensive set of sustainability features were put in place. The energy of the building was modelled using the as-built building and systems information and compared to a notional building model, and the refurbished building showed an improvement in operational energy consumption of 42% over the SANS standard.

Sub-metering was provided to facilitate ongoing management. The lighting power density for artificial light was limited to a maximum of 2.0W/m² per 100 lux, and energy efficient lighting was installed throughout.

Some water initiatives included making use of dual-flush and low-flow sanitary fittings to reduce potable water consumption, rainwater harvesting (re-used for toilet flushing), and the installation of water meters and an automated monitoring mechanism. The building's discharge to sewers has been reduced by 50% against an average practice benchmark due to the reduction in potable water use. Water for use in the canteen kitchen is heated using a heat-pump. The building also saves energy by not including hot water in the ablution facilities.

Some of the environmental aspects that were tackled to enhance occupant wellbeing included upgrading the roof insulation for improved thermal comfort (which also reduces energy required to cool the building), as well as using heat-pump chillers on the roof to keep the building warm during winter and cool during summer. This equipment produces hot and cold water that air conditioning units in the ceilings use to blow cool or warm air into the office spaces, depending on the temperature setting. Fresh air is provided to these units from a fan on the roof, at a rate of 12.5l/s/p, which exceeds conventional standards. Internal blinds are used on all windows to reduce daylight glare.



Kulawula House is an excellent example of how upgrading an existing building in the inner city can contribute towards the revitalisation of our traditional hubs.

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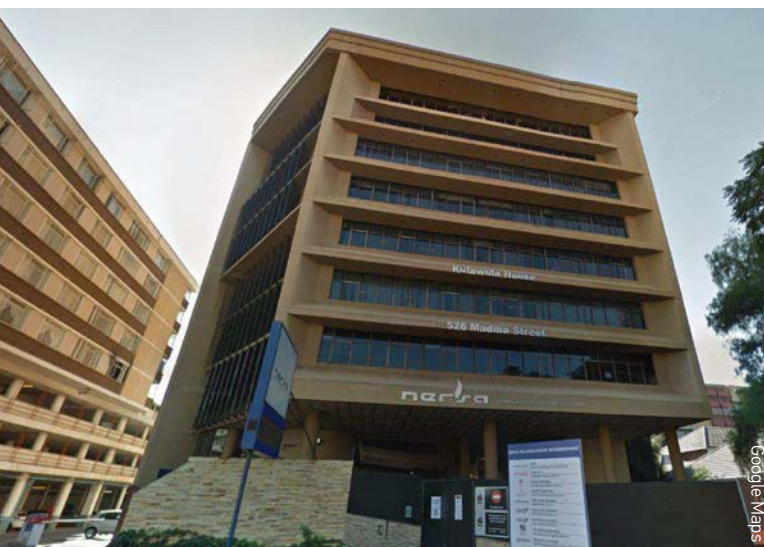
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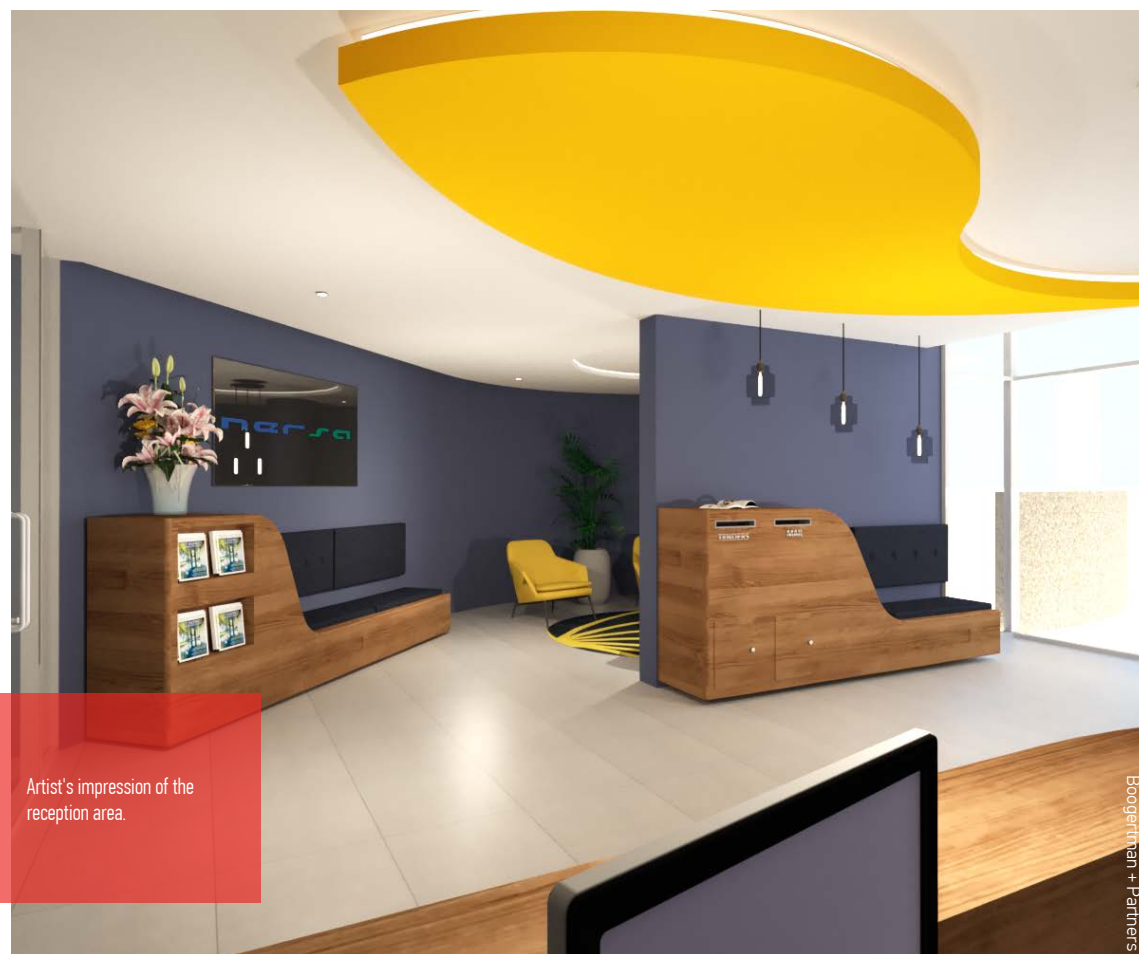
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Artist's impression of the cool blue pause areas, designed to promote relaxation.

Boogertman + Partners



Artist's impression of the reception area.

Boogertman + Partners



Thomas Bennie

“**Inner cities are multi-sector economies that, when managed well, attract pedestrians, commercial activity and reliable tenants while stimulating new businesses.**”

The NERSA Kulawula House has two waste storage areas, and a recycling and general waste contractor picks up the waste frequently. Through monitoring and reporting on the waste produced each year, waste targets can be established. The building should aim to reduce its overall waste by 10% and improve its recycling rate by 5% per year.

Located in Arcadia, the building is well connected to local amenities and existing public transport infrastructure. Parking for occupants is provided in the basement, with preferential parking indicated for electric and car-share vehicles.

INJECTING VIBRANCY

Andre Wright, director at Boogertman + Partners, architects on the project, describes the NERSA Kulawula's design concept: “The aim was to transform the outdated, non-descriptive space into a space of creativity, energy and vibrance through the use of colour and graphics. We stripped, cleaned and repainted the

interior of the building to create a neutral shell, with dedicated graphic walls to navigate the user through the buildings. The idea of energy was used in these graphics and decals, and the interior used all the colours of the NERSA brand dedicating certain colours to various functions. For example, pause areas were a cool blue, to promote relaxation. The circulation spaces were designed to envelop movement and flow.”

According to the Centre for Development and Enterprise (CDE), 70% of South Africa's population will be urbanised by 2030, with more than 60% urbanised already. While South Africa's traditional approach to commercial and residential development has given rise to enormous and unsustainable urban sprawl, building owners and developers are in a unique position to carefully manage growing densification to prevent urban decay, which is what we are currently seeing in traditional CBDs.

“Kulawula House is an excellent example of how upgrading an existing building in the inner city can contribute towards the revitalisation of our traditional hubs, and I hope that many more of our clients will consider this kind of refurbishment,” says Compion. Inner cities are multi-sector economies that, when managed well, attract pedestrians, commercial activity and reliable tenants while stimulating new businesses. “With so much existing infrastructure, it makes sustainable sense to work with what is already there, rather than focusing on new builds. This has a significant effect in reducing one's construction impact and contributing towards greener future cities.” +



‘Shelf-less’ Policy:
NEW GREEN BUILDINGS

We have all heard a statement something like: “Another document developed to sit on the shelf.” Policy development should not be merely stringing together sentences in a logical and easy to read format, in isolation, or under the banner of pseudo-consultation. Policies need to be developed sincerely, especially when they revolve around something new, such as transitioning buildings to net-zero carbon and resilience, according to Dr Magash Naidoo from eThekweni Municipality.

WORDS Dr Magash Naidoo, eThekweni Municipality

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CHANGE IS THE ONLY CERTAINTY

Change means that a system is alive. When there is equilibrium a quick end follows. For organisations to be effective, especially those organisations upon which our daily lives are based, beneficial change needs to be embraced, at all levels. Change, however, needs to be carefully 'co-ordinated'. The reason that we say 'co-ordinated' and not 'managed', is that in a complex system managing a massive, constantly changing system is impossible from a central point.

The best we can plan for is to get most stakeholders to engage in a dynamic dance. There are many theories that relate to change, but there is a certain level of elegance that is normally missed when dealing with complexity. The reality of life is that our contexts are never static (not even down to the minute). When there is already an established way/existing regulations and we seek to change behaviour/standards to become more ambitious, how do we transition? The tried and tested methodologies have developed marvellous colourful documents but fail dismally on implementation.

NEW BUILDINGS PROGRAMME

In this ever increasing connected and complex world, partnerships are vital for successfully addressing existential threats, in this case climate change. C40 Cities Climate Leadership Group (C40) is a global network of mega-cities that endeavour to support cities in their journey towards resilience and net-zero carbon futures. C40 has played an instrumental role in assisting eThekweni Municipality, in recent years, with multiple aspects of the municipality's climate-change-related work. In 2018, C40 launched the South African New Buildings Programme. The core objective of the programme is that by 2030 all

new buildings should be net-zero carbon, from an operational perspective, by utilisation of relevant regulatory mechanisms. Embodied carbon and existing buildings will be addressed, but only in future initiatives. Four municipalities are active in the programme: Cape Town, Johannesburg, Tshwane, and eThekweni. C40's local implementing partner is Sustainable Energy Africa.

eThekweni Municipality, Cape Town, Johannesburg, and Tshwane have also formed part of a pioneering group of cities committed to C40's net-zero carbon buildings declaration by 2030. Alongside the cities globally, many private sector organisations across the globe – from property developers and construction firms to engineers and architects – have committed to net-zero carbon by 2030 through the World GBC's net-zero carbon commitment, forming a movement to act now to protect against future climate impacts.

This led to the creation of a New Buildings: Green Policy by eThekweni Municipality. The technical energy principles are simple: gradually decrease energy intensity (kWh/m²/year) from 2021 to 2030, in a phased approach, with mandatory compliance from 2025. In addition, renewable energy supply would be gradually increased, this figure primarily relates to 'own supply' (either on or off site) but also takes the 'greening of the grid' into account. eThekweni Municipality took this a step further by including guidance on adaption/resilience considerations – which are not mandatory at this point. The final policy was adopted on the 29th of April 2021 by the eThekweni Council. This results in eThekweni Municipality being the first city in Africa to have such a policy.

The Municipality has also developed learning notes from the experience gained through the programme. These learnings will be shared with other African and global cities so that they can be better informed on the journey towards net-zero carbon.



eThekweni Municipality recently drafted its New Buildings: Green Policy.



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EMBEDDING AND IMPLEMENTATION

A living entity requires a suitable ecosystem to thrive. This is the approach that was adopted to develop the eThekweni New Buildings: Green Policy. The policy was conceptualised as one element consisting of the New Buildings Programme (in eThekweni). The rationale of taking this approach – ecosystem conceptualisation – is simple. There are numerous ‘components’ to consider in the building sector, such as regulations, officials, developers and processes, to name a few. Other elements include bylaws, financial incentives, building guidelines, and training. Each element has its own unique and specific function, ambitions and objectives. Traditional logic dictates that we should try to reach consensus among stakeholders, but think about it – how difficult and practical is it for vastly different components to agree on specifics? Perhaps there are elements that can be agreed upon – such as the principle or need to transition to net-zero carbon buildings. However, there are elements that are simply contentious, such as the assumed additional cost to developers. In such a situation, compromise is required by all stakeholders. To illustrate this point, we unpacked some experiences from the development of the New Buildings: Green Policy.



Buffelsdraai Reforestation Centre of Excellence was restored from the ruin of an old farm house.

Errol Douvres

KEY LEARNINGS UNPACKED

Assessment of plans

At this point in time, current national building regulations are not as ambitious as ‘net-zero carbon’. As a result, additional officials, who have the relevant expertise and capacity, are needed to interpret developers’ plans, that include the enhanced city requirements. Those officials currently do not exist, but a plan is in motion to operationalise the assessment function of the policy. This is required as our plans approval branch is legislated and mandated by very specific law, and we do not want to compromise our colleagues’ position.

Inspection, monitoring and enforcement

The building inspectorate branch consists of auditors of our built environment, among other critical roles. The building inspectorate officials will now need to ensure compliance with enhanced energy standards. The need for a review and a revision of all standard operating procedures and documentation has been accepted, and will be managed within the building inspectorate branch prior to implementation on the ground. This will result in the need for building inspectorate officials (and also those in the development applications branch) to be upskilled and to be familiar with the new technology. Initially, we did include resistance from various quarters as a risk, but we were met with a high degree of enthusiasm by our colleagues to pursue this work.

Additional cost of the building

It is inevitable that net-zero carbon buildings will be more expensive, at current rates. This has a direct impact on developers and property owners. However, in the public participation process, eThekweni stakeholders were much more supportive of the transition to net-



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zero carbon buildings than opposed to it. This could be attributed to a few aspects: civic duty and the need to address climate risks, and the upfront capital cost is higher when building a green or net-zero building, but the life-cycle cost is lower.

Financial incentives

In order to off-set the additional cost to developers and property owners, the eThekweni Municipality has proposed a Green Building Incentive Policy (forthcoming). This would essentially offer the opportunity for developers to apply for a financial incentive for all newly built green rated buildings (as built). This incentive is still being maintained during the tough financial circumstance that most of the country finds itself in, due to Covid-19.

National regulations

South African building regulations are seated at a national level. The energy standard, SANS 10400 XA,

dictates the minimum requirement – this is then enforced at a local level. However, we are now developing the enhanced requirement, as well, at a local level. The Department of Trade, Industry and Competition, as custodian and regulator of the National Building Regulations (NBR), have been supportive of the policy goal. Naturally, the enhanced requirements cities are developing should not conflict with the NBR. There has been great dialogue with the national building regulator, and in principle the objective has not been opposed but requires legal alignment.

Developers guideline

There are some altruistic individuals in the buildings sector. We were introduced to the South African chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and started a general discussion on the programme and policy. This engagement gave rise to the voluntary development of the *Net Zero Guide* that essentially provides technical guidance for developers on net-zero carbon buildings. While members of ASHRAE developed this guidebook, they are also professionals and gave hundreds of hours to help the sector, pro bono.

The above provides a little bit of insight into the various ways in which stakeholders to the process have adapted their stance, and in some cases, processes, to ensure that the policy is implementable or that a conducive ecosystem is developed. +

Magash Naidoo has been with the eThekweni Municipality for over 12 years. He is currently a project manager at the eThekweni Energy Office. His doctorate research focused on the eThekweni green economy with a ‘systems thinking’ underpinning.



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CASE STUDIES: GREEN BUILDING SERVICES, MATERIALS AND TECHNOLOGIES

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SapienStone is the first large format porcelain slab designed with the kitchen in mind, making it ideal for high-traffic surface areas. However, it does not stop there, SapienStone can be used in all spaces.

SapienStone porcelain slabs are crafted from ceramic clays and mineral colourings – and, thanks to its unique manufacturing process, cannot be altered by heat, UV light or chemical cleaners. SapienStone is scratch resistant, resistant to thermal shock and requires no special care and maintenance. The outstanding qualities of SapienStone worktops are characterised by a long-lasting, unalterable product that is resistant to the most common forms of damage and wear such as blows, scratches and abrasions. These qualities are the natural result of careful selection of the best raw materials and decades of experience.

With its large range of colours and finishes to choose from, SapienStone is entirely customisable to make your space exactly what you want it to be, whether it be ultra-modern or classic and traditional. Its large format slab size (3200x1500mm) allows for a seamless finish with the least number of joins or grout lines.

SapienStone can be used in *all* spaces and not just as a kitchen countertop. It can easily be used as a bathroom countertop, shower cladding, outdoor tabletop, external building façade, and so much more. The applications of SapienStone are only limited by your imagination.

SapienStone is the newest addition to the Iris Ceramica Group SPA, a world-leader in the production of high-quality porcelain and ceramics for over 50 years. With cutting-edge technology in nine industrial plants based in Europe and the United States, advanced logistics and a constant focus on the environment, the Group has always been at the forefront of the ceramic industry on an international scale.

Ethics and sustainability have always been present in the history of Iris Ceramica and the green mentality was not born recently, but from the start. The Group has always tried to bring together ecology and economy with an attentive look at the well-being of all its stakeholders as well.

Iris Ceramica has also been the world's leading manufacturer of *photocatalytic* ceramic tiles, known as **ACTIVE SURFACES**. This means the effects are triggered by light sources, both natural and artificial.

This innovation is the Group's response to the pressing need to rethink the world of design, with the future in mind. This ceramic product affords

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Issue 15: December 2021

Issue 16: February 2022

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