

# Construction KENYA SHOWCASE



JANUARY-MARCH 2022

## THE GLOBAL TRADE CENTRE, NAIROBI

How the mega project was executed

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- 3RD PARK HOSPITAL
- GREEN BUILDINGS
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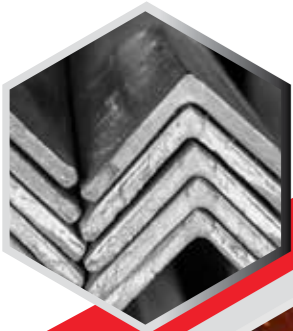
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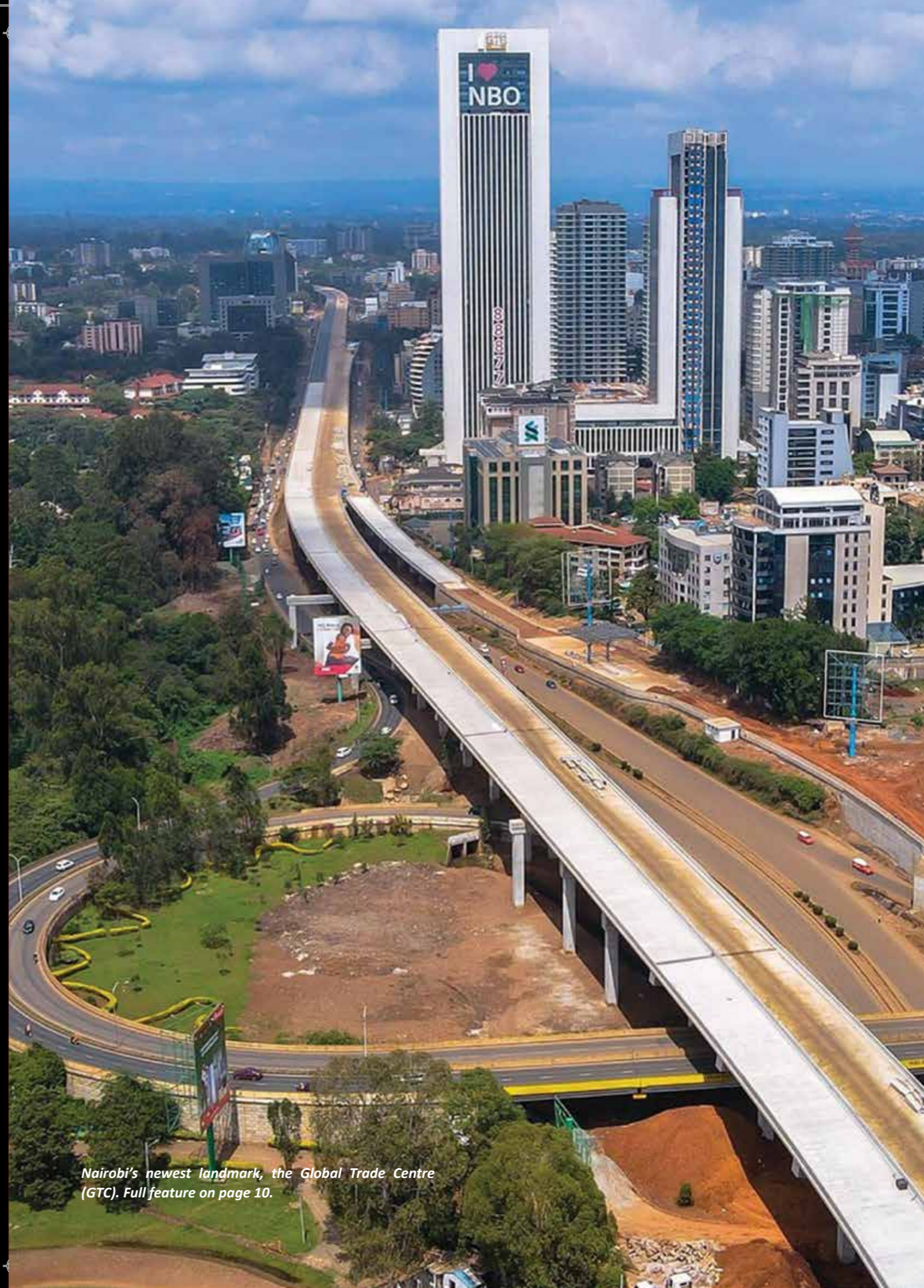
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Nairobi's newest landmark, the Global Trade Centre (GTC). Full feature on page 10.

# Contents

JANUARY-MARCH 2022

JANUARY-MARCH 2022



## 8 | INDUSTRY

Despite persistent efforts by regulators such as the National Construction Authority (NCA) to ensure developers and their contractors adhere to the **building code** and all **regulatory requirements**, we still witness pockets of non-compliance. Why?



## 12 | COVER

The **Global Trade Centre (GTC)**, one of the largest building projects to be undertaken in Kenya, has changed the skyline of Nairobi and could easily become the next landmark for the Kenyan capital, in the same way KICC has been over the years. As it nears completion, we take a look at how the complex was put together.



## 24 | PROJECTS

Hospital design does not have to be plain. In fact, studies have shown that the design of a health facility has an impact on the healing process of patients. This is what the architect and interior designer of the new **3rd Park Hospital** in Nairobi's Parklands area considered when designing the facility.



## PEOPLE | 30

**Emma Miloyo** wears many hats. Not only is she a practising architect but is also an author and a mentor, helping women enter and cement their positions in the construction industry. As the first female President of the Architectural Association of Kenya (AAK), she spearheaded several initiatives to improve the status of the built environment in Kenya. We ask her how she juggles all these and what plans she has for the future.



## FEATURES | 34

Is **Green Building** just another buzzword to advertise and sell building developments? Not necessarily. We explore the aspects of green design that modern building projects are called upon to adopt in order to remain sustainable.

**Value engineering** is an approach that ensures the project owner is not overpaying for quality when an equally effective, less expensive option exists. Value engineering is all about making the best use of the available budget. We look at how value engineering can be actualized in a building project.



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UK firm Atkins Global has been appointed to design the "Railway City".

## SH28BN RAILWAYS CITY PLANNED

UK FIRM Atkins Global has been appointed to design Nairobi's new Central Train Station and associated public realm, which will provide the centrepiece of Nairobi Railway City. This is according to UK Minister for Africa, Vicky Ford.

The UK involvement follows an earlier meeting between British Prime Minister Boris Johnson and President Uhuru Kenyatta.

The project will be situated within 425 acres, of which 292 acres is owned by the Kenya Railways and currently serving as the Nairobi Railway Station. Nairobi Metropolitan Services (NMS) Director-General Mohammed Badi said the project will see Public Service Vehicles (PSVs) currently picking and dropping passengers around Haile Selassie roundabout forced to find a new holding ground to pave way for works on the project.

## ALL SET FOR MALINDI AIRPORT EXPANSION



THE EXPANSION of Malindi International Airport in Kilifi County is now set to take off. This is after the State agreed to meet the demands of locals to be affected by the project.

The National Development Implementation Technical Committee (NDITC) led by Health Principal Secretary Susan Mochache said the government had set aside Sh5 billion to compensate them. The Kenya Airports Authority plans to, among others, extend the main runway to the north from the current 1.4km to 2.4km to allow large planes to land with ease.

KENYA'S first 3D printed home was recently unveiled at Athi River. UK-based firm, CDC Group, in conjunction with Bamburi Cement's parent firm Holcim in a venture named 14 Trees launched the house at a ceremony attended by Principal Secretary for the State Department for Housing and Urban Development, Charles Hinga. The structure will act as a show house for a 52-unit housing development in Kilifi whose construction is scheduled to begin early 2022. The project, set to be Africa's largest 3D printing housing project, will offer 1, 2 and 3 bedroom units.

## 3D-PRINTED HOMES NOW A REALITY



The showhouse: A 52-unit 3D housing development is set to be built in Kilifi, heralding the official entry of 3D buildings in the country.



At the end of December 2021, President Uhuru Kenyatta launched the last box girder along the main alignment of the Nairobi Expressway. The project is expected to be complete in March 2022.



In December 2021, the Engineers Board of Kenya (EBK) launched the Engineers Stamp as another step towards enhancing professionalism in the engineering practice.



In February 2022, AAK released its bi-annual Status of the Built Environment Report. From left: John Mwaniki, AAK Registrar, Florence Nyole, AAK Vice President, Charles Hinga, PS Housing and Urban Devt., Wilson Mugambi, AAK President, Jacob Mwangi, AAK CEO and Ambrose Ofafa, Member AAK Landscape Architects Chapter.



Residents and the business community of Northern Kenya are relieved, thanks to the ongoing construction of the South Sudan Link Road.



NCA Director of Corporate Services James Kilonzi (right), receives an award from State Dept. for Uni. Education & Research P.S. Amb. Simon Nabukwesi during the National Innovation Awards last December.



In December 2021, President Uhuru Kenyatta presided over the official commissioning of the Nairobi Global Trade Center Office Tower in Westlands, Nairobi.

# WHY SOME DEVELOPERS AND CONTRACTORS FAIL TO COMPLY WITH REGULATIONS

**D**espite what may appear as an increase in cases of structurally unsound buildings as reported in the media in recent months, the National Construction Authority (NCA) has been doing a commendable job policing the construction industry in the country. They have intensified site visits, slapped hefty fines on errant developers as well as contractors and stopped non-compliant projects. In addition, they have enlisted the support of the Kenya Police in enforcing compliance with building regulations by holding sensitization meetings with officers from the Service and having them accompany NCA officials on site visits. But with thousands of construction projects going on in the country at any one time, the Authority is stretched thin and has to, on many occasions, rely on intelligence and random site inspections.

Several studies have been done to establish the real reasons why some developers and contractors fail to comply with the stringent NCA regulations. In one recent study by University of Nairobi Masters Degree in Project Planning student Rachael Gichuke, it was found that several factors played an important part in determining the extent to which a developer was compliant.

A developer's financial capacity was identified as one of the main factors. It was found that the ability of a developer to finance the project through completion without struggling had a positive influence on compliance with NCA regulations. Whether it's cash at hand, overdraft or buying on credit etc., a project is a cash-intensive undertaking that requires these facilities. However, not all developers have the muscle and a name to attract funding especially from financial institutions. And even when they do, interest rates in the country remain high and sometimes come to haunt the borrower post-project or even before completion. This probably explains why some developers will look for shortcuts here and there, playing cat-and-mouse games with the NCA and other regulatory authorities.

Technological capacity also plays a role in enabling compliance. Small developers or contractors who may not have access to information technology may not always be able to comply with requirements, especially those that involve online applications. In other cases, even those who try to are frustrated by poor connectivity.



## INDUSTRY

Inadequate human capital was cited as another impediment to compliance. The ability to successfully undertake projects largely depends on the skill set of each individual working on the project, be they artisans or technical personnel. Generally, organizations with good human resources tend to be keen in observing laid down procedures and ensuring that each specific task is executed in accordance with requirements for that task. Developers and contractors who may not have sufficient human capital are more prone to cutting corners in some areas, thereby eventually compromising the integrity of projects.

In an earlier study, another Masters Degree in Construction Management student Esther Gacheru of JKUAT found that many contractors felt that the fees levied by NCA were high. A significant number did not view NCA favourably as a positive force in the construction industry and were inclined not to comply with certain provisions. Some felt the Authority was merely a government tool to collect revenue, underlining the extent of misinformation that exists in the sector. This attitude is not uncommon towards most government institutions that are charged with regulating various sectors. Others cited corruption in the regulatory process as a dissuading factor. However, none of the contractors surveyed backed this claim with evidence. None of them was willing to admit having taken part in any corrupt transaction or name anyone who had. Still, others felt adequate sensitization about the role of NCA and what they need to do in order to be compliant was lacking. However, NCA has in recent years embarked on training aimed at addressing these concerns.

While there is no real excuse not to comply with the law, the NCA and other regulatory bodies need to continue listening to stakeholders in the sector in order to identify areas where adjustments in procedures or other changes may help minimize compliance challenges.

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# THE GLOBAL TRADE CENTRE, NAIROBI

## HOW THE MEGA PROJECT WAS EXECUTED

By JOHN NJIRAINI



**B**ack in 2014 when Avic International Holding Corporation announced plans to set up its Africa headquarters in Kenya, not many fathomed the magnitude of the investment that was coming to Kenya. As a global behemoth based in China, Avic has interests in a cross section of sectors and ranks among the Fortune 500 companies. Opting to have its headquarters in Nairobi was thus a significant statement not only on Kenya's strategic interest to China but also on the country's importance as a continental economic powerhouse.

"Our company has set up holding subsidiaries in major cities across China, has established over 110 branches in more than 50 countries and owns eight listed companies. In Africa, we have around 20 branches, and Kenya is planned as our headquarters in Africa," said Huang Hong, Avic International Africa Director back then.

Cumulatively, the company committed to invest KSh20 billion in Kenya. The amount has since doubled to KSh40 billion, with KSh25 billion being committed in the construction of the ultra-modern Global Trade Centre skyscraper minicity that is transforming the skyline of Nairobi's central business district (CBD) and putting Kenya on the global map in terms of futuristic buildings.

Undoubtedly, GTC is the face of marvelous architectural and structural engineering works. Already partially open, the mixed-use development today hosts the tallest office space not only in Kenya but across East and Central Africa. For Westlands, an area where the Nairobi County Government is transforming from residential to an extension of the Nairobi CBD, GTC is a testament of the area's ability to accommodate modern buildings.

Unknown to many, GTC has managed to stand tall in Nairobi's skyline not only because of Avic's decision to set its Africa headquarters in Nairobi but also due to the hard work, commitment and dedication of a retinue of consultants both local and foreign. Among them, and one that has played a central role in its construction, is Triad Architects. "When you look at the duties of an architect, we have played the biggest role in the construction of GTC," says Julius Kibwage, GTC Project Director.

To a large extent, Triad's involvement with the biggest

project north of Limpopo and south of the Sahara was a no brainer. Triad is a top architectural firm in Kenya with iconic projects to its name. In fact, the firm's signature is inscribed in many buildings in Kenya and across the African continent.

Thus when Avic International Real Estate, a subsidiary of Avic International, ran an architectural competition to select consulting architects to do the design and construction supervision of the project, it was obvious for Triad to participate.

The competition attracted significant interest from local and international consultants, with China based GMP Architects being appointed to provide the concept design while Triad was appointed as the implementing architects. The two consultants embarked on a collaborative journey to design and implement the project, a task that was both audacious and exciting.

"Avic, a global client, wanted a concept with a level of international touch as well as international experience. GMP was appointed because they have done so many global centers," explains Kibwage. He adds that according to the brief, the client was looking for an efficient building that responds well to local conditions and an economic solution that is upmarket, modern, technological savvy as well as responds to the environment. "The solution by GMP was far superior and adequately met the client's needs," he notes, adding that the building is classy enough to attract corporate clients and meets local standards.

Built on a 7.6 acre plot in Westlands, GTC is one sophisticatedly designed and extraordinary mixed-use development consisting of six towers. The main tower, a 42-storey building, is an ultra-modern office block that will be the highest office block in Nairobi with spectacular views of the city and the surrounding environs. Apart from housing Avic International headquarters, the office block is designed to be the preferred offices for Fortune 500 companies and other international and local organizations seeking for the ideal work environment with an international setup and touch. *Continued on page 15*



*Spectacular fireworks by Jays Pyrotechnics light up the Nairobi sky on 22 December 2021 when President Uhuru Kenyatta officially opened the GTC office tower.*



## SOME KEY PEOPLE BEHIND THE MEGA PROJECT



**"We had a lot of meetings both electronically and in person both in Kenya and China to be able to interpret the client's brief and customize it for Africa."**

**ARCH. JULIUS KIBWAGE, TRIAD ARCHITECTS: PROJECT DIRECTOR**



**"Working at GMP offices in China was an eye opener in terms of how global practices execute projects."**

**ARCH. SUJESH PATEL, TRIAD ARCHITECTS: PROJECT ARCHITECT**



**"It has been a wonderful journey in terms of engineering. We are happy to work as one team. In future, we would want to see more local subcontractors. We are also comfortable with local materials."**

**MR SHELDON ZONG, MANAGING DIRECTOR, ZJCC: MAIN CONTRACTOR**

*Continued from page 12*

The second 32-storey building is a high-end hotel. Avic signed an agreement with Marriott International, the largest hotel chain in the world with operations in 131 countries to operate the five-star JW Marriott hotel. The hotel offers 317 guestrooms and 51 serviced apartments, an 800 square meter grand ballroom and seven conference rooms. The other four towers are intended to be apartment blocks, with Avic planning to sell and rent units.

As a unique mixed-use-development, GTC is designed to provide a peaceful home and an inspiring work environment for the leading elites in the corporate world. It has distinguished volumes crafted with top finishes to reflect opulence and elegance. The language spoken here represents the long existence of a prudent culture.

The residential complex comprises apartment blocks with a range of units from 1-bedroom, 2-bedroom, 3-bedroom and 4-bedroom units. The serviced luxurious apartments rise from between 28 and 31 floors above ground in the four blocks and offer spectacular views of Nairobi's CBD from the vantage point where the establishment sits.

GTC will also have a mall in the podium of the western wing. It is designed to provide various services to the users. The mall is developed at the heart of the complex offering visual continuity and special correlation with the other developments through a glass façade.

Of importance, GTC has lived up to its billing in terms of a modern building in the aspects of sustainability and smart projects. In terms of sustainability, the building is well oriented and positioned to receive the best natural lighting with minimum impact on adjacent buildings despite standing significantly higher than them.

The building also comes with green aspects of recycling of water and efficient use of water and energy. Rain water is harvested for use in irrigation, toilet flushing and cleaning. Energy consumption is kept low by use of smart lighting and energy efficient fittings. The buildings also feature numerous solar panels for heating water.

"GTC is probably as smart as any building of its time," avers Kibwage. He adds that as part of measures to make the building efficient in terms of energy use, the lighting systems are designed to go on when a person enters a room. "We've also used LED technology that uses little energy and is very efficient," he notes, adding that security and fire systems are high tech making GTC not only one of the most secure establishments but also the safest.

Notably, the features of GTC do not tell the whole story because the implementation of the project has been a grueling process for the team of consultants and workers. At the height of the construction process, the project employed as many as 1,000 workers providing a livelihood for many households.

Due to the sheer scale of the project, it has been a tough journey for Triad in coordinating and supervising its implementation. Triad's employees, particularly project architects Sujesh Patel and Julius Talaam also spent weeks in Beijing where they worked closely with GMP architects, Services and Structural Engineers at the design stage.

In fact, the Triad team contributed valuable insights at the design stage centered on many local factors including the environment, privacy set up in the apartment units among others. "GMP consulted us heavily while doing the concept design," explains Kibwage who also had to make several trips to China and held numerous meetings with the various teams involved in the project.

For Triad, a key aspect of the project involved getting the necessary approvals from the Nairobi County government and other national government agencies like the National Environment Management Authority (NEMA). Owing to the scale of the project, the various agencies took months to study and understand the project. While Triad had a long history of good working relationships with the government agencies, it was vital for them not to rush the approval process and needed to get everything right.

According to Kibwage, while the approval process took long, it was worthwhile because county government officials granted the approvals with a clear understanding that GTC would not have any adverse impacts. He adds that

## GROWTH IN CONSTRUCTION INDUSTRY SOARS PAINT DEMAND IN KENYA

Kenya's construction industry is on an upward trajectory despite the economic challenges that were brought by the Covid-19 pandemic. The country has witnessed increased activity in the property market and infrastructure development driven by both the government and private sector which has enabled construction professionals and manufacturers of building materials to record double digit growth in income on increased demand.

The second term of President Uhuru Kenyatta's government has witnessed massive investment in upgrading infrastructure network such as roads, dams and housing. This is driven by the government's desire to achieve the big four agenda programs meant to improve the livelihood of Kenyans.

Statistics from the Kenya National Bureau of Statistics (KNBS) indicate that both the real estate and the construction industries have played a significant role in driving the country's economy and as the urban population continues to increase due to young graduates seeking for better opportunities, we still expect the sector to continue soaring. Recent analysis by BMI Research indicated that Kenya's construction sector grew by 8.7 percent in 2021 and is expected to remain stable until 2026 with an average growth rate of 6.2 percent. Experts from Cytonn Investments noted that despite the economic challenges facing most Kenyans, there is a good demand in real estate given the positive demographics with Kenya's high urbanization and population growth rates currently standing at 4.0 and 2.2 percent compared with the global averages of 1.9 and 1.1 percent respectively.

The construction industry growth particularly in real estate has catapulted the growth of other sectors such as the paint industry which has witnessed the rise in demand. Crown Paints Plc Group Chief Executive Officer Dr. Rakesh Rao said the easing up of Covid-19 restrictions saw investors begin to inject cash in stalled projects which increased the demand for paint. The demand was also driven by supply to commercial entities who had dropped at the height of the pandemic compared to the residential segment.

In the second quarter of 2020, residential units gobbled up about 90 per cent of all the paints sold in Kenya against just over 10 per cent that went towards commercial application during the same period. Dr. Rao said as a result, several initiatives were set in motion to target stylish and quality-conscious consumers in the commercial property market to drive up sales.

Dr. Rao's sentiments rhyme with most investors in the construction industry in Kenya. Towards the end of 2021, President Uhuru Kenyatta officially opened the tallest tower in Nairobi, **the Global Trade Centre (GTC) in Westlands which Crown Paints supplied the interior paint.**

"As the construction sector grows, new trends too set in and consumer preferences change. With these constant changes, Crown Paints' transformation journey continues. We are committed to innovating transformative products that change people's lives while caring for the environment", Dr. Rao explained.

Just like in the construction sector, the paint industry is quite competitive in East Africa which has seen a number of new entrants in the market. In 2005, there were approximately 10 paint companies. Today, there are about 70 paint companies with majority of them manufacturing low-end products.

"As market leaders with over 60 percent market share, customers are always looking up to us to meet their ever-changing demands. We've therefore invested very significantly in our research and development department to provide tailor-made solutions to the construction industry. We have also ensured that the retail segment of the market is well equipped and supported by innovative products that address customers' needs", Dr. Rao added.

Crown Paints (Kenya) PLC established over 60 years ago, has grown over the years. With factories in Nairobi and Kisumu, it has an annual turnover of Ksh. 10 Billion and produces 3 Million litres of paint per month. The only listed paint firm on the Nairobi Stock Exchange enjoys regional operations in Uganda, Tanzania and Rwanda.

The listed firm boss says, embracing technology has also enabled Crown Paints to maintain market dominance arguing that technological innovations have led to development of paint products that are safe, environment friendly, durable, affordable and have a wide range of aesthetic options to protect customers. Dr. Rao said that the paint industry is witnessing a new era where technology is disrupting old ways by applying a fresh coat. Mobile applications and Color Apps in the market are now making it easy for customers to make more accurate selection of their preferred home interior color schemes through the touch of a button.



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“While the approval process took long, it was worthwhile because county government officials granted the approvals with a clear understanding that GTC would not have any adverse impacts.”

the county government was also happy that there was a foreign investor ready to invest in their vision of upgrading Westlands to be part of the CBD.

As an architectural and engineering marvel, Triad has ensured that the construction of GTC went by the book and to the letter. Apart from having a team specifically dedicated to the project, including a team of 10 staff members for almost two years, Triad had its own architect on site solving any design issues that could crop up. At some point the firm had two architects. And unlike in other projects, the construction of GTC has been one project where the safety standards have been very high.

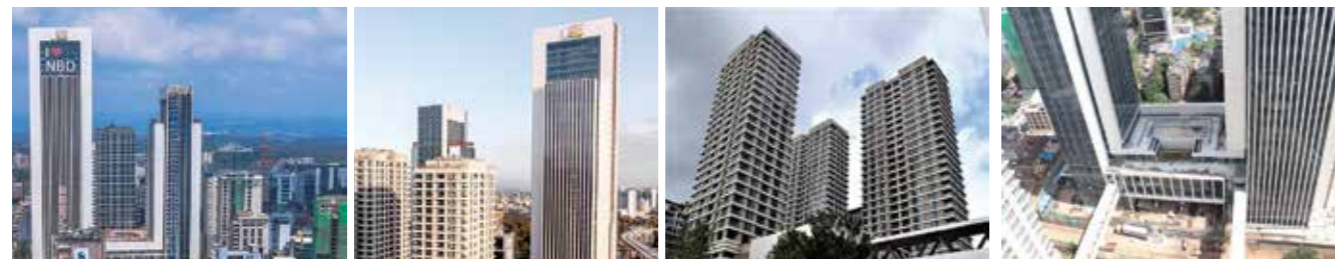
Though being implemented by a global conglomerate, the need to contribute to the local economy has been vital for Avic. More importantly though has been the use of local materials like cement, steel, blocks, cables, pipes among others. Being a huge project, it means that many local companies have been direct beneficiaries of the project. “We only imported materials that are not locally

available,” says Kibwage, adding that this was a positive commitment by Avic to empower local industries because the company had the liberty to import materials, some at much lower prices than what the local market was offering. The successful implementation of the project is an accomplishment that Triad is proud of, and one that propels the Kenyan practice to new heights. In fact, the fact that GTC is nearing completion largely in line with the agreed timelines despite Covid-19 pandemic disruptions is reason enough for Triad to celebrate. “We put our best foot forward on this project and we feel honoured by the outcome,” avers Kibwage.

As the project gears for completion, there is no doubt the development and operation of GTC will significantly create business opportunities for the Kenyan economy and improve the overall business level of the country. More importantly, the project is bound to be the face of local capacity in the ability to implement huge projects, a feat that has the potential to attract more global corporations into Kenya.



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## GTC: A FERTILE TRAINING GROUND AND TEST OF LOCAL CAPACITY

The Kenyan architectural landscape boasts renowned practices that have designed and overseen the construction of iconic and breathtaking buildings in the country and across the continent. However, when compared to firms in the developed world and emerging economies, the capacity and exposure of local firms remains largely limited.

“We take pride as one of the best architectural firms but our exposure (in terms of grand developments) is still somehow limited compared to large firms in developed countries,” says Julius Kibwage, GTC Project Director and Partner at Triad Architects. He adds that while Avic International saw the need to appoint a local firm to collaborate closely with overseas consultants in executing the project in line with the client’s brief, the fact that Triad was able to execute the project very well speaks volumes about the capacity of local consultants. It is testament that Kenya firms can be entrusted with projects irrespective of their magnitude.

For Triad, being selected as part of a team of consultants to oversee the implementation of Avic International Real Estate Africa headquarters complex in Nairobi added a glittering feather in its rich history. Here was a project that would not only propel Triad to the international sphere but would also offer the best learning experience under the tutelage of a global practice that is among the leading architectural firms in the world.

GMP Architects, which boasts a rich history dating back about five decades and with offices in Germany, China and Vietnam, has built a global brand going by the





projects the firm has designed and implemented. Driven by a philosophy of designing things that are simple enough to maintain relevance and preclude obsolescence, GMP is the brain behind some of the most iconic buildings across the globe.

Working with GMP on the GTC project was thus not only a big honour for Triad but also offered a fertile ground to learning and gaining international experience going by the sheer size of the project that happens to be the biggest in East and Central Africa. Apart from gaining in terms of technology transfer, the knowledge the firm gained was immense. Notably, the knowledge would not only be beneficial to Triad but also on a wider scale the local industry.

“For us it was a learning exercise and gaining and sharing of experience,” states Kibwage, adding that Triad dealt exclusively with the GMP Beijing and Shenzhen offices that

were responsible for the concept design of the project.

Triad staff travelled to China on many occasions and benefited immensely on technology transfer. The trips were beneficial in exposing Triad a lot more to what the client wanted. The trips included visits to Avic’s projects in several cities to have a firsthand feel of what the client envisaged. During these trips, Triad got to work with GMP architects in the concept design of the project, rendering valuable insights while learning new trends in architecture.

Also of critical importance during the trips was that Triad was able to visit several companies that were manufacturing some of the components for the project, something that was going to assist the firm in making the correct specifications.

Sujesh Patel, one of the GTC project architects, reckons that working in GMP offices was not only vital and



**Two young engineers who worked on the project: Left: Matheus Muita, Assistant Resident Engineer; Right: Michael Kamunguna, Assistant Resident Electrical Engineer.**

necessary in ensuring timely implementation of the project but was an eye opener in terms of how global practices execute projects. “Global firms are ahead of us in many aspects and I was able to gather immense knowledge,” he explains.

According to the Triad team, the lessons accrued by working with international consultants on the GTC project have been many. On a general perspective, they include the need to lift the standards of buildings coming up particularly in Nairobi. While emphasis on proper planning and high quality buildings is a core principle in mature markets, in Kenya standards are wanting. “We need to lift our standards up, not build concrete jungles,” observes Kibwage.

Another vital lesson is on the importance of ethics and professional conduct. For Kenyan firms to break the glass ceiling and compete effectively for global projects, adhering to ethics and high standards of professionalism is paramount.

For Triad, which bore the biggest responsibility in the implementation of the GTC project, the successful execution of the project gives the firm the muscle and confidence to compete for any project in the future.

## GTC PROJECT TEAM

DESIGN ARCHITECTS: **gmp International GmbH Beijing**  
 LOCAL ARCHITECTS: **Triad Architects Ltd.**  
 QUANTITY SURVEYORS: **Integrated YMR Partnership**  
 MECHANICAL & ELECTRICAL ENGINEERS: **HSA Architects**  
 LOCAL MECHANICAL, ELECTRICAL & SECURITY CONSULTANTS: **Norkun Intakes Ltd.**  
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# PATIENT COMFORT IS AT THE HEART OF THE NEW 3RD PARK HOSPITAL

By JOHN NJIRAINI



**H**ospital ceilings are designed to be boring. In many hospitals, being admitted is an experience many would wish to avoid at all costs. The trauma is exacerbated by lying on a hospital bed, eyes looking up to a ceiling that is monotonously white.

But not all hospitals ceilings are built to be dull. In fact, being conscious of the stress that ceilings exert on patients, at times prolonging the healing process, 3rd Park Hospital has become one of the few hospitals giving patients a totally different experience. It has designed ceilings that are 'alive' and which provide patients an atmosphere of feeling rejuvenated. And it is not just the ceilings. The whole interior design of the hospital sought to purposely bring out an aesthetic feeling that enhances the healing process instead of making patients more traumatized.

"Most hospitals are generally boring and we wanted to make the interior of 3rd Park stand out and ensure it helps in the healing process," said Maureen Ngunjiri, an interior designer.

The ceiling, however, is just one of the many features of 3rd Park Hospital, a boutique facility that is changing the face of healthcare provision in the country. Driven by its 'we care' motto, the hospital is



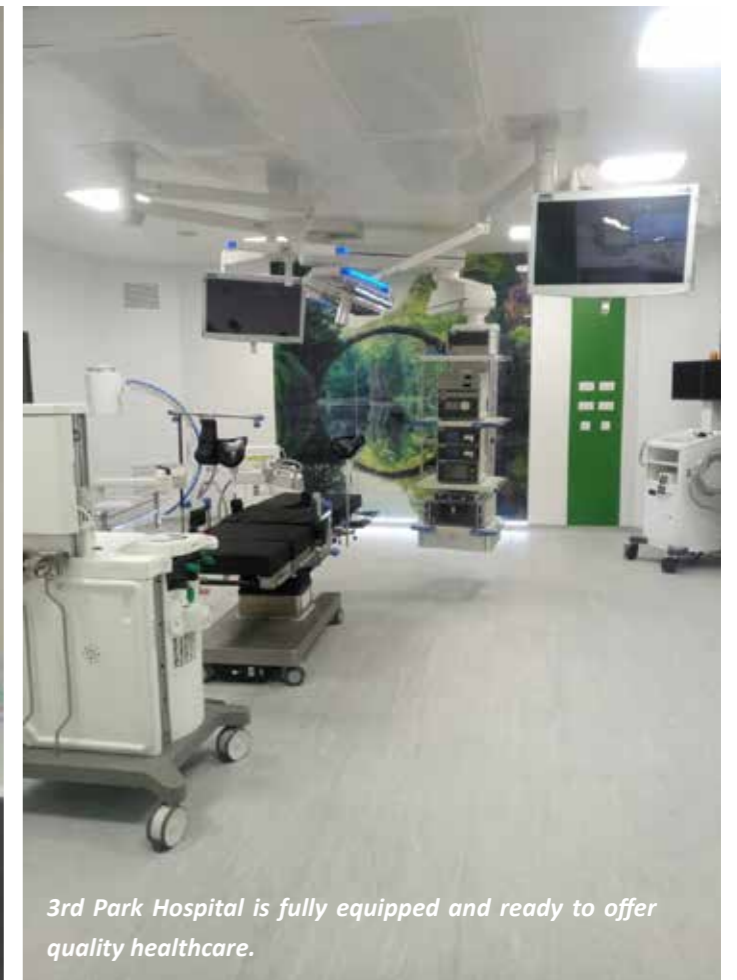
determined to offer specialized medical care in a friendly environment that takes away the depressing feeling when one has to walk to a hospital.

"The dream of the client was to build a boutique hospital that is one of its kind. The whole idea was to create an environment where you don't feel like you are in a hospital, something that is important in the healing process," says Samwel Muriithi, Construction Project Manager. He adds this is something the contractor and a team of consultants have achieved in implementing the KSh1 billion project whose construction started in November last year and which is now operational.

Conceived by a team of renowned doctors, 3rd Park Hospital has a mission to offer innovative and advanced healthcare solutions while maintaining a focus on people, patients, healthcare professionals and medical trainees. Its vision is to give life comfort and healthcare through technology, cutting edge health care knowledge and experience offered by ethical and reputable doctors.

The hospital brings together numerous specialists under one roof in an effort to give patients the best that medical knowhow and technology can offer. Among the specialists in the hospital include gynecologists and surgeons – both minimal invasive and open surgeries, orthopedic surgeons, urologists, gastroenterologists, plastic surgeons, kidney and heart transplant specialists, ENT surgeons, pediatric surgeons, bariatric surgeons, neurosurgeon and IVF among others. The initiation of 3rd Park Hospital is based on a critical mass of specialist doctors with good reputation in their medical practice.

Of importance, 3rd Park Hospital has invested in ultra-modern facilities to guarantee provision of unrivaled medical services. "The facilities of the hospital are world class, and most have been supplied by top companies from across the globe," explains Muriithi. He adds that being a compact and boutique facility with a bed capacity of 13 – five beds in private rooms, eight beds in the wards and two beds in the intensive care unit – the hospital had to invest in the best available facilities.



*3rd Park Hospital is fully equipped and ready to offer quality healthcare.*

## PROJECTS

When it comes to facilities, the hallmark of 3rd Park Hospital is its theater, wards, conference/training hall among others. The hospital boasts a state-of-art surgical theater that is equipped with the latest technologies and medical equipment. The facility has hi-tech, highly accurate and safe surgical equipment and instruments to provide world-class surgical theater services not only to Kenyan patients but also patients from countries like Uganda, Tanzania, South Sudan as well as West African nations. The theater is one of its kind in east and central Africa and was sourced from Italy.

In terms of the interior, the team made use of gypsum, wallpaper and other acoustic materials that have brought out an exquisite aura that is rare in hospitals. Even the choice of paint on the wall was well thought out, with factors like being anti-bacterial and dust proof being critical. In terms of lighting, the team avoided the cliché of using basically white like in most hospitals and went for a blend that include warm lighting. “We know the type of light and wall paints affect the psychology of people and we had to be very careful in our choice,” avers Maureen. The conference/training hall is another high tech facility equipped with the latest communication devices that can facilitate trainees to follow a procedure being performed in the theater from the comfort of their seats while listening to the doctors through specialized speakers. Four ultra-sensitive microphones also enable them to communicate directly to the doctors in the theaters.

Apart from high-tech IT systems whose cyber security capabilities are also top notch, the hospital’s other systems like energy and water conservation, air-conditioning and security make it totally world class. The air conditioning, for instance, provides for clean air circulation thereby eliminating the ‘sick building syndrome’. In terms of security, the hospital has installed biometric access in all doors, motion sensors and CCTVs besides alarm systems and emergency exits in case of disasters like fire outbreaks. “We want to ensure patients are treated and heal in an environment that offers comfort,” explains Muriithi. He adds the environment is also conducive for staff including the doctors, nurses and other support staff. This is evident from the moment someone walks out of the lift to the main



**Samwel Muriithi, Construction Project Manager**



**Maureen Ngunjiri, Interior Designer**



*The interior of 3rd Park Hospital is designed to help in the healing process.*

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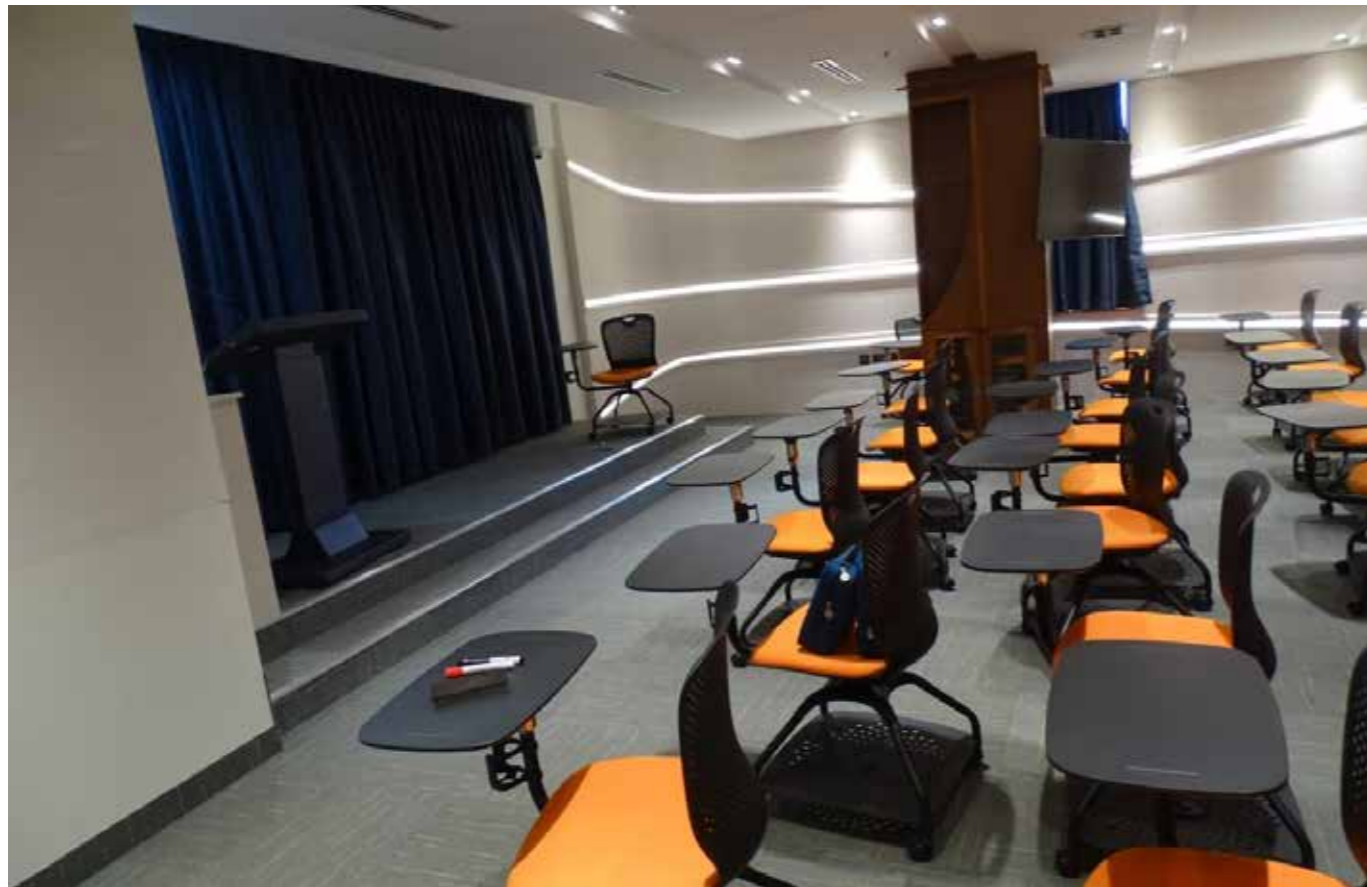
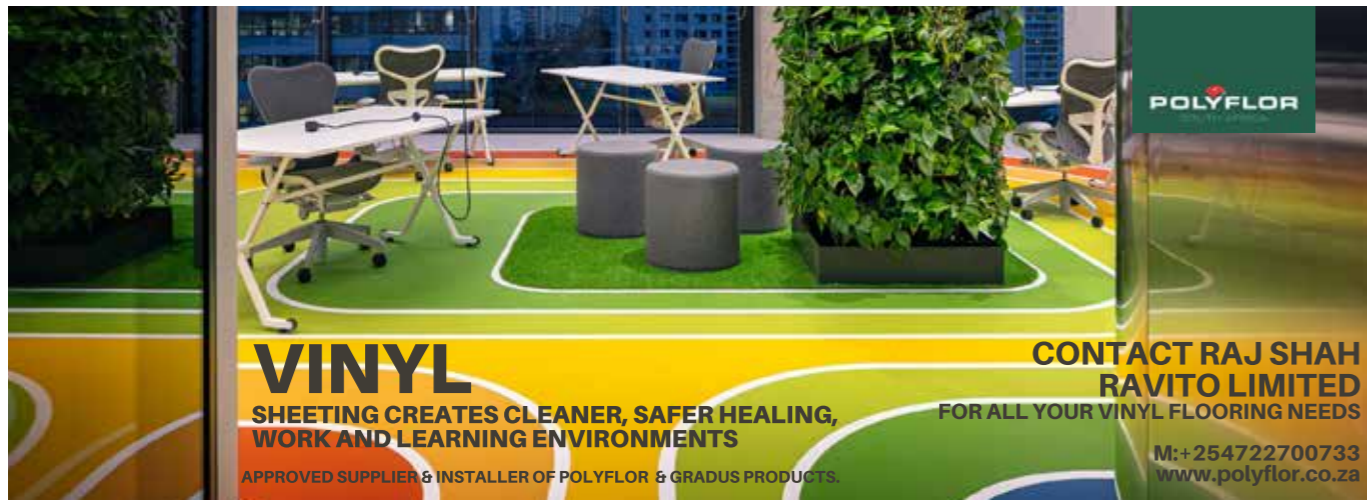
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The conference/training hall is a high tech facility equipped with the latest communication devices.

reception areas, the various waiting areas, the patient's changing room, the nurses' station to the doctors' lounge. According to Muriithi, although implementation of the project encountered some challenges mainly caused by the Covid-19 pandemic, the clear brief of the client in terms of wanting a boutique facility made the job fascinating. This is because the team working on the project did not have a ceiling on the budget. "This was a unique project because we did not work with a set budget. We had the freedom to

source for the best in terms of materials, technology and even personnel," he notes.

3rd Park Hospital is already proving to be a pioneer in catapulting medical care to the next level. In fact, in the coming months and years Kenyans and other Africans will not need to travel to India in search of specialized treatment mainly for non-communicable diseases. It is estimated that close to 10,000 Kenyans spend KSh10 billion annually seeking treatment in India.

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# DECODING THE INDEFATIGABLE

## EMMA MILOYO

“I am an avid jogger and recently took up boxing. Don’t mess with me!”

**CKS: Please give us an introduction to yourself - where and when born, raised and schooled.**

**Emma:** I am a practicing Architect and partner at Design Source with vast experience in the building industry in the East and Central Africa region. I was the first female President of the Architectural Association of Kenya was recognized as one of “Top 40 under 40 Women in Kenya” in 2011 and 2018 by the Nation Media Group’s *Business Daily*. I am also an Eisenhower Fellow (2015).

I was born and raised in Nairobi, I studied at Kenya High School before proceeding to Jomo Kenyatta University of Agriculture and Technology (JKUAT) to study Architecture.

My lifelong ambition is to inspire young girls and help them break the glass ceiling that has limited their success, especially in male-dominated fields like architecture. I graduated from Jomo Kenyatta University of Agriculture and Technology (JKUAT) with first-class honours in architecture, the first woman to do so. I am passionate about the built environment and also very enthusiastic about preserving Kenya’s architectural heritage.

**When did you develop an interest in the construction industry and specifically architecture?**

I took art in high school and was encouraged by my art

teacher to pursue architecture as I wanted to practice in a creative field.

**Do you have siblings or other relatives who are in the industry who might have inspired you?**

My mother was a maths teacher at Kenya Science Teachers College, one of the few women the maths faculty had. She encouraged me to look beyond gender stereotypes and pursue my dreams.

**Take us through your journey as an architect – from your first job to the current position as a director at Design Source Limited.**

I started my career as a graduate architect at SK Archplans where I worked on various buildings including Krep Centre and Timau Plaza, then proceeded to TMS, where I worked on Delta Centre in Upper Hill. In 2009 I joined Design Source where I have been since as director with my partner, Christopher Naicca.

**What are some of the most exciting projects you have handled in your career? Tell us why so.**

I think each project is unique and exciting in its own way... with its unique challenges and joys. Clients also drive the energy of a project and it has been exciting working







**Emma with her co-author Robyn T. Emerson display copies of their best selling book “Building in Kenya: Real Estate Developers Toolkit”.**



**The authors with National Construction Authority (NCA) Executive Director Eng. Maurice Akech.**

with a myriad of clients, from individuals to corporates and institutions alike. I have worked on various hospitality projects like the Alba Hotel in Meru, office buildings like the Headquarters of the Jesuits of Africa and Madagascar, energy projects for Gulf Energy across the country and more recently the MEC High School amongst many others.

Some of the corporate social responsibilities (CSR) that Design Source has undertaken over the years include putting up a high school for Kibera Girls Soccer Academy, the construction of an ICT Centre in Eldama Ravine, a Maternity Facility for the Red Cross in Turkana among others. Those too have been quite fulfilling.

**You served as President of the Architectural Association of Kenya. What was your experience at the helm of that association and what were you able to achieve?**

As the first female president of the premier built environment association, it was quite a humbling experience. I had been chosen to lead by an association whose membership was 90 percent male. This was a testament to the fact that both men and women have a major role to play in breaking gender stereotypes. Leadership is always exciting, “never a dull moment” they say. One can take for granted the work it entails, amid running a practice and other commitments. It was a great experience, and I had a lot of support from

both family and colleagues that helped me achieve all that I did. My term coincided with the 50th anniversary of the AAK and therefore it was a period of rebirth and rejuvenation. During my term, AAK certainly became more visible through media presence, both social and traditional, advocacy and CSR projects. Most notable were the bi-annual publication of *The Status of the Built Environment*, *The Kenya We Want* and the *Je, Una Mjengo?* public awareness clinics. One of my proudest achievements is also the fact that I inspired many other women to also join the leadership of not only AAK but also all the other Built Environment professional associations with many now boasting 50% female leadership. These associations are no doubt reaping the benefits of a balanced leadership.

**You co-authored a book, *Building in Kenya: Real Estate Developers Toolkit*, with Robyn Emerson which was a major feat in itself. How did the idea of a book come up? How was the publication received by the industry?**

*Building in Kenya* aims to be any developer’s one-stop informational resource, an invaluable guide through the real estate development process. It assists with identification and evaluation of risks involved in the different stages of a building project and development of

strategies with checklist and worksheets for developers to minimise risks on their project.

With the publishing of *this book*, we became authors of the first and only book of its kind here. We’re honoured that it has been wholeheartedly embraced by the sector - private and government. As leaders in the sector, we are called upon to speak at relevant conferences and lead workshops on its content. We are seeing consistent sales of the book at major bookstores in Nairobi and Mombasa as well as on a major online book selling portal.

The book has been very successful and was recently listed as a top 10 bestseller among Kenyan authored books by Rafu Books, for which we are grateful. The uptake of the books has shown that indeed, there is a need in the market for this kind of information.

**What do you think of Architecture in Kenya today in terms of professionalism, training, ethics, etc? What changes have you seen since you started practicing?**

The profession is growing; that means our ratio of architects to citizens will improve which I hope will reflect in the quality of built environment. Training has changed drastically, with the ratio of lecturers to students being dramatically affected negatively. I do hope that institutions of higher learning can do better to ensure that students get the attention and instruction they need. Architecture training is supposed to be almost like apprenticeship and the trends in the Universities are worrying. You know the famous saying “*Doctors bury their mistakes; architects have to live with them*”.

**What does Emma Miloyo do away from construction sites and CAD screens? How do you unwind? What are your hobbies?**

I am an avid jogger and recently took up boxing. So I am just putting it out there! Don’t mess with me! I also love reading and I am at any one time reading two books.

**What are your future plans? Do you intend to retire or venture into other activities?**



**Emma (right, standing) is passionate about empowering women to take up positions in the construction industry.**

Retire? No way! I am also an educationist and look forward to not only growing Design Source to new heights, but to also seeing the success of Kiota School, where I’m a co-founder, in moulding the next generation of leaders.

**Training has changed drastically, with the ratio of lecturers to students being dramatically affected negatively.**



# ELEMENTS OF GREEN BUILDING

By UDDI BENKIFF

**G**reen building design seems more like a buzzword or a catchphrase to advertise and sell projects, rather than something practical and achievable. How does one transform a regular building project from ordinary to sustainable and ‘green’ within budget, and with limited expertise?

But first, just what is a ‘green’ building? According to the World Green Building Council, a green building is one that in its design, construction or operation, minimizes or eliminates negative effects on the surrounding climate or natural environment and in turn promotes positive effects. Thus, these buildings improve human quality of life and protect precious natural resources in the environment.

Approaches to green building may be shaped, firstly, by available resources, climatic conditions, the cultures and traditions of the occupants, and other environmental, economic, and social priorities. This article will delve into the most pertinent features that can transform any building into a ‘green’ project.

## Use of Renewable Energy

According to the United States EPA, buildings including commercial and residential account for about 65% of total electricity use and about 35% of total energy use. About 30% of all energy is wasted. This presents a good opportunity for energy and cost savings.

Solar energy and biofuel represent the easiest ways of improving energy stats and the ‘green’ conditions of buildings.

## Efficient Use of Resources Such as Energy and Water

In more advanced economies, innovative technological solutions such as thermostats and smart apps help reduce the net energy consumption in homes and other establishments by reducing energy waste. Locally, ‘smart meters’ can integrate both solar power and metered Kenya Power connections to balance usage, thus improving energy efficiency.

Rain water harvesting and recycling are two ways of improving water use. There are many organizations in Kenya that offer products and services in this sector.

## Use of Sustainable Materials in Construction

While preferred, the use of ethical, non-toxic and sustainable materials sometimes proves difficult in the quest for green building. This is especially so in Kenya where concrete and steel are almost ubiquitous in building projects. While ecologically sustainable materials such as bamboo and wood may be impractical in some building projects, architectural and structural models can implement some elements of these, such as in partition walls. Expanded Polystyrene (EPS) panels are one type of building material that should be considered when building. EPS minimizes the amount of steel and concrete, and also reduces construction time and costs.

## Consideration of the Environment in Design, Construction and Operation Processes

Keeping the environment in consideration during the entire life cycle of a building especially at project conceptualization and design is important in improving the ‘green’ aspects of a building project. The project should not impact the environment adversely, for example, through being located on riparian land or other protected areas such as game reserves. Likewise, the waste disposal mechanisms should consider any impact on the surrounding environment.

These methods can be integrated into any building projects such as schools, churches, community halls, apartment blocks, or even shopping or industrial complexes. Finally, all these methods should keep the quality of life of the building occupants as a key priority regardless of the method chosen.

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# VALUE ENGINEERING DOES NOT MEAN COMPROMISING QUALITY



As a client or project owner, your main goal is for the project to be built to class and budget.

## Can Value Engineering be Applied on Smaller Projects?

Absolutely! Even smaller residential projects qualify for value engineering, although this may be limited due to the lack of the technological tools utilized in much larger projects. The best advice is to always have a key person such as the architect who can then formulate the necessary team to complete the project tasks and brainstorm with them as may be needed.

By UDDI BENKIFF

Value engineering is an approach that ensures the owner is not overpaying for quality when an equally effective, less expensive option exists. Value engineering is all about making the best use of the available budget.

As a client or project owner, your main goal is for the project to be built to class and budget. For the architect, the main concern is a building that is aesthetically pleasing and is effective to use. Usually, the architect doubles up as the project manager, and thus represents the client's needs on the ground. For the structural engineer, the desire will always be to produce a structurally sound building that can fulfill both serviceability and ultimate loading requirements. Numerous other stakeholders such as Mechanical-Electrical-Plumbing (MEP) consultants, and specialized décor providers can also be part of a single project.

Value engineering, therefore, entails ensuring that the needs and concerns of all these stakeholders are considered during the design process. This is centered around collaboration, making sure that the potential

problems associated with the project are well understood by everyone on the project team and solutions produced on time.

## How is Value Engineering Actualized?

For large building and infrastructure projects, value engineering is fully realized in two major ways. One is to schedule frequent project meetings with the entire team either in person or on remote calls, such as Zoom. The second is to utilize the power of BIM, specifically 4D BIM where different aspects of project management such as schedules, drawings, amendments, cost tracking, and documentation are all handled in a single repository, or in a virtual station that can be fully accessed at any time by all team members. Leveraging the power of 4D BIM is how projects in developed countries and higher-scale projects in places like Nairobi can be accomplished within time and budget.

## What are the Advantages of Value Engineering?

Engineering with a holistic mindset is the best approach to working on any building project, although the benefits might seem more inherent in larger projects where

every project element concerning time and cost matters greatly. Value engineering provides a means to capture problems before they arise and share this with a highly trained team that offers ideas and solutions on time that is practical.

Value engineering tools also exist in the interfaced CAD environment, for example, the BEXEL module of programs and Blue Beam Revu allows different technicians such as engineers and architects to have their work interfaced. Thus, costs can be shared in real-time, survey points can be amended by ground teams and immediately received by office teams, project management can highlight red flags in cost, markups and annotations can be produced on a single drawing and shared across the collaborative platform, etc.

The most important part of holistic engineering is the ability to save huge costs by reducing errors and getting the most practicable solution without losing quality, thanks to different specialists brainstorming to come up with solutions.



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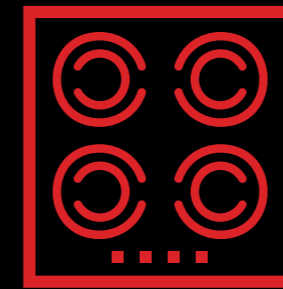
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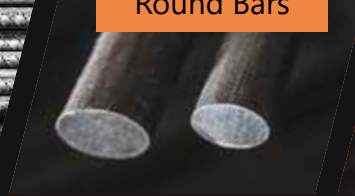
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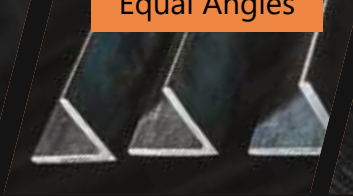
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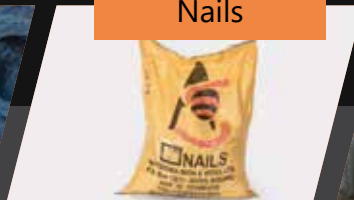
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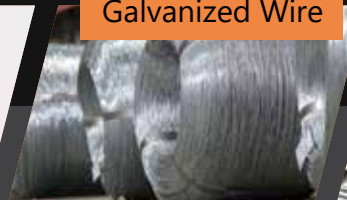
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