

Construction KENYA SHOWCASE



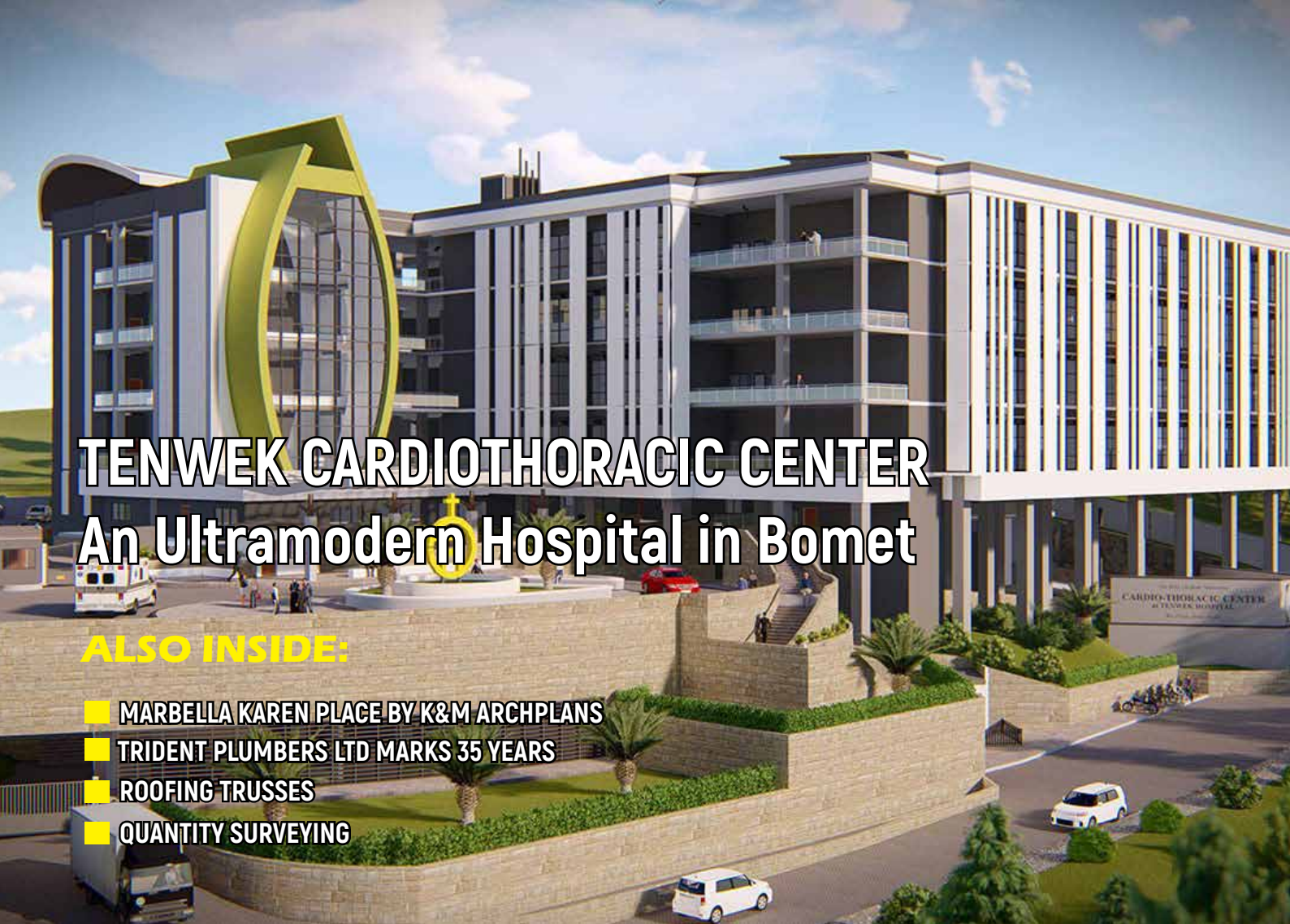
APRIL - JUNE 2023



TENWEK CARDIOTHORACIC CENTER An Ultramodern Hospital in Bomet

ALSO INSIDE:

- MARBELLA KAREN PLACE BY K&M ARCHPLANS
- TRIDENT PLUMBERS LTD MARKS 35 YEARS
- ROOFING TRUSSES
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Kenbro Industries Ltd's Ekta Varia (right), Director Sundeep Varia Director (Centre) and Sales Manager Suresh Sachani at their stand during the KABCEC Convention and Expo in May.



IEK President Eng. Erick Ohaga awards an engineering student during the University of Nairobi Student Awards ceremony held in May.



In March, Arch. Wilson Mugambi handed over the AAK Presidency to Arch. Florence Nyole who will steer the association for the next two years.



Eng. Esther Segero assumed leadership of Women in Real Estate (WIRE) in March taking over from Robyn T. Emerson.



Swedish Ambassador, Caroline Vicini (centre), Atlas Copco East and Central Africa CEO R. Kiandiko (left), and Business Line Manager for compressors, Mr D. Karimi. Atlas Copco are marking 150 years.



Building in Kenya authors Emma Miloyo (left) and Robyn T. Emerson seen here at CTM Ngong Road, published a second edition of their popular handbook.



NCA Board of Directors Vice Chairperson Adv. Mercy Okiro welcomes Qs. Said Athman following his appointment to the NCA Board.



A team of engineers led by EBK Registrar Eng. Margaret Ogai (right) visited a building in Kiambu that had been reported to be sinking.



IQSK President Jennifer Musyimi (left) and IEK First Vice President Eng. Grace Kagonda speak at Marbella Karen Place during an informal tour by construction professionals in May.



BORAQS Registrar QS George Omondi speaks at a seminar on Achieving a Sustainable Built Environment at the Safari Park Hotel in Nairobi in May.



Tononoka Group held a successful golf day at the Sigona Golf Club in May. Group Brand Manager David Kioko is seen here with a participant.



HF Group CEO Robert Kibaara (left) and the Jua Kali Contractors Federation of Kenya Chairman Joseph Muhia (right) after signing a partnership in April.

NHC CALLS ON PROFESSIONALS TO SUPPORT GOVERNMENT IN AFFORDABLE HOUSING



NHC Board Chairman Yusuf Chanzu

NATIONAL Housing Corporation (NHC) Chairman Hon. Yusuf Chanzu has asked construction professionals to support the government's affordable housing programme saying the state needed collaboration with them to realize the agenda. Hon. Chanzu said the NHC was also involved in augmenting the government's effort through its EPS production facility in Mlolongo, Machakos County.

"There are workers who live in Nairobi and after working for 25 years, they retire and hand over keys to the landlord," he said stressing the need for home ownership. The Chairman was speaking at Marbella Karen Place, a mixed-use development by veteran architect Dr. James Kimathi during an informal tour of the new building organized specifically for construction industry consultants. Tens of professionals attended the event graced by who-is-who in Kenya's built environment.

Among the guests were a team from the Architectural Association of Kenya (AAK) comprising newly-elected President Florence Nyole, Chief Executive Jacob Mwangi and some Executive Committee members, IQSK President Jennifer Musyimi, 1st Vice President of Institution of Engineers of Kenya (IEK) Eng. Grace Kagonda and BORAQS Registrar Qs. George Omondi. Others included former AAK Chairman Lee Karuri, former IEK President Eng. Nathaniel Matalanga and Symbion Kenya Managing Director Mutua Mutuku.

Dr Kimathi urged the professionals to take up space in the new facility and invited associations to hold their CPD and other events in the building.

AAK HOLDS HEALTHY HOMES DIALOGUE

THE Architectural Association of Kenya (AAK) recently held a session on healthy and affordable housing practices where valuable discussions were held on legislative reform, enhancement of industry skills and collaborative efforts in implementing the "Healthy Homes Guidelines & Checklist" framework. The "Healthy Homes Guidelines and Checklist" provides a list of 15 factors to consider in order to create a healthy house as well as a matrix that can be filled out and tallied to determine the health of a particular home. They offer architectural guidelines that will make all types of houses, even those in informal settlements, resistant to COVID-19 and future pandemics.

The AAK and Habitat for Humanity International (HHI) have been working together to promote innovations in shelter and healthy housing practices through joint research and information sharing. They launched the guidelines last November. HHI supports AAK in disseminating information on healthy and affordable housing practices to stakeholders.



A panelist during the discussions

DAVIS & SHIRTLIFF OPENS NEW BRANCHES IN EXPANSION BLITZ

DAVIS & SHIRTLIFF (D&S) has continued to expand its reach across the region with at least five new branches opening in the last few months.

D&S Rwanda under Country Manager James Ngugi has refurbished D&S Kigali and opened a branch in Remera. D&S Tanzania under MD Ben Munyao has opened new branches in Kibaha and Morogoro. D&S Kenya under Executive Margaret Kuchio has opened in Vipingo and Kangundo Road, Nairobi.

Substantial investment has been made in the branch network, which now comprises 90 branches across the region. Davis & Shirliff Group is the leading supplier of water related equipment in the East African region. Founded in 1946, its activities are focused on seven principal product sectors - Water Pumps, Boreholes, Swimming Pools, Water Treatment, Generators, Solar Equipment and Irrigation. The group is Kenyan based and operates through a network of Kenyan branches as well as regional subsidiaries in Uganda, Tanzania, Zambia, Rwanda, South Sudan, DRC, Zimbabwe and a partnership in Ethiopia.



Managing Director Edward Davis (2nd left) with D&S Rwanda team.

CBD EXIT AND EXTRA LANES PLANNED FOR NAIROBI EXPRESSWAY AS TRAFFIC INCREASES



A section of the Nairobi Expressway near the Museum Exit/Entry

The Kenya National Highways Authority (KeNHA) and the Moja Expressway Company have announced plans to construct additional lanes on the Nairobi Expressway to accommodate growing traffic.

In a statement, the two entities said the upgrades would include additional lanes at the Museum Hill exit and JKIA entrance and the construction of a new Haile Selassie toll station exit to facilitate a seamless flow of traffic into the CBD.

KeNHA and Moja Expressway have invited public participation in the project.

Centric Africa Limited has been appointed to prepare the environmental and social impact assessment for the upgrade.

"KeNHA plans to hold public consultations meeting in conformity to the provisions of the constitution of Kenya and Environment Management and Coordination Act (EMCA) Cap 387," the entities said.

The news will come as a relief to Nairobi residents who will now have easier access to the city centre.

Last year, then Infrastructure Principal Secretary Paul Maringa told Members of Parliament that the expressway would be redesigned to allow motorists from Westlands to exit at Nyayo House while those from the airport would exit at the Haile Selassie Avenue roundabout or the Green Park bus terminus. The new design was to be completed within six months.

In March this year, Nairobi Governor Johnson Sakaja approved the construction of an exit for the Nairobi Expressway into the CBD at Uhuru Park

The 27km Nairobi Expressway has 10 interchanges. It was launched last year by the President Uhuru Kenyatta. According to Moja Expressway officials, the road had reached traffic of 10 million vehicles by February, only seven months after the launch..

MODERN HEALTHCARE FACILITIES

THE TENWEK CARDIOTHORACIC CENTER



Tenwek Hospital is a 402-bed Teaching and Referral Hospital situated in Bomet Township, Bomet County. It was founded in 1937 by the World Gospel Mission (WGM) of the United States of America in partnership with the Africa Gospel Church (AGC) in Kenya.

The hospital is renowned for its high quality and affordable healthcare services. In its quest for continued improvement, Tenwek is constructing an ultra-modern cardiothoracic centre.



Arch. Julius Kibwage, Project Director

Since its inception, Tenwek Hospital has had a significant impact on the healthcare space not only in Kenya but also across sub-Saharan Africa. Over the years, the hospital has grown to become a specialty hospital offering a variety of health services.

Tenwek Hospital serves over a million people in the vast Southwest region of Kenya and the country at large. “We also see patients from outside the country, that is, East, Central, and West of Africa”, says Shem Tangus, Chief Executive. The hospital offers a broad range of services that include Inpatient, Outpatient, Diagnostic, Medical Outreach, Training and Research.

The new Cardiothoracic and Emergency Centre

Tenwek Hospital is uniquely positioned as a center of excellence in cardiothoracic care for patients with heart diseases in the Sub-Saharan Africa region. According to Mr Tangus, the hospital is currently performing more open-

heart surgical procedures than any other hospital in the region at a fraction of the cost it would take to perform the same procedures in countries outside Africa, says Mr Tangus. “We are caring primarily for patients with rheumatic heart disease and patients with congenital heart disease.”

Tenwek Hospital Board and Management have embarked on expanding and modernizing these services through the construction of an ultra-modern Cardiothoracic Centre.

The Hospital envisions a high-level center where it will offer training to cardiothoracic surgeons, cardiologists, perfusionists, cardiac nurse anesthetists, cardiac critical care nurses, echocardiographers, cardiac rehabilitation therapists, and specially trained chaplains. After the Tenwek Cardiothoracic site is fully established, the hospital anticipates fostering other sites throughout the region that can use the Tenwek model as a starting point for new cardiothoracic units.

Project Consultants

Leading architectural studio Triad Architects in collaboration with HFG Architecture of Kansas USA were commissioned to design the Cardiothoracic Center for Tenwek Hospital.

The Project

The 4-storey building with 2 basements is an ultramodern 176-bed self-contained surgical center located 300m west of the main Tenwek Hospital campus. The building is composed of 2 blocks forming 2 wings connected by a central core with 3 hospital lifts and a W-shaped ramp. Each wing has adequate provision of staircases for fire escape within a 30m running distance.



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The hospital comprises:

- an out-patient center on ground level with examination rooms, a pharmacy, a lab, a blood bank, CT and X-ray machines on ground level
- an endoscopy suite on 2nd floor with 4No. theatres, a 16-bed recovery room
- a training center on 2nd floor with classrooms
- a conference hall, and offices on 2nd floor
- the heart surgery suite on 3rd floor with 6No. cardiothoracic theatres, 1No. hybrid theater, an 8-bed preoperative holding area and a 32-bed post anesthesia care center
- the general wards accommodating 80No. beds distributed in the 4 No. floors.

The patient wards have large floor to ceiling windows to provide adequate views to the undulating green hills beyond Tenwek valley. This also creates a pleasurable light atmosphere which enhances quick healing. Running through all floors is a chapel. It is defined by 2 thick curved concrete walls whose concept mimics a candle flame in the night when interior lights are on. This symbolizes the metaphor of Christ being the light of the world.

To increase resiliency during frequent power interruptions, the hospital features a mechanically assisted natural ventilation system (the surgical ward and many patient areas feature full humidity and temperature control) and supplemental ramps that facilitate the uninterrupted movement of patients. Other sustainable innovations include solar panels positioned on a low-slope standing seam roof, the use of hollow core concrete blocks produced on site, and the collection and reuse of rainwater for on-site laundry.

The Project Team

Tenwek Hospital; Samaritan Purse (SP); HFG Architecture; Triad Architects; Ark Construction Limited; Professional Engineering Consultants; Engplan Consulting Engineers; Loadline Engineering Services; Mehta Electricals Limited; Schindler Limited; Plumbing Systems Limited; Eurogas and Technical Services Limited; New World Stainless Steel Ltd.; Air Design Ltd; Prime Aluminium Limited; Illumina Africa Ltd.; Ideal Ceramics Limited; Kingbell International Technology Development.



MARBELLA KAREN PLACE, NAIROBI

Marbella Karen Place is a modern office and conference facility nestled in the heart of Karen in a leafy and quiet neighbourhood.

Designed and owned by veteran architect Dr. James Kimathi, founder of K&M Archplans, the development is consistent with other K&M Archplans' designs – creative and unique – offering great spaces for a variety of uses.

The structure includes subterranean parking, a ground floor, a first floor, a second story, an attic floor, a sub-attic level, and a roof terrace. The ground floor contains two conference facilities totaling 575m². The first level houses a conference hall as well as a co-working/innovation space. The entire lettable area is 698m². The second floor has four distinct office spaces totaling 791m². There are four apartment and office spaces on the sub-attic floor's eastern wing. K&M Archplans' offices are located in the western wing. The attic floor is made up of office and cafeteria areas

with a total lettable area of 354m². The common roof terrace is one of the building's intriguing breakout places, with 309m² of usable space. It can hold various outdoor functions such as cocktails.

Salient features

The building's location off Karen Road is excellent. Not only is it serene, it is also secure and easily accessible. Major shopping, educational, health, entertainment and other services are within five minutes of the development. There is ample basement and surface parking as well as sufficient water supply and a back-up power generator.

Green aspects

Marbella Karen Park makes extensive use of recycling and uses efficient water technologies to conserve and reuse water. A biodigester for waste management is also installed. Other features include solar energy harnessing and use of an energy-efficient window system.



The building has unique features including this atrium.



A lit stairway

Other works by Dr James Kimathi include Lavington United Church, Rock City Shopping Mall Mwanza, Tanzania Parliament, Kenya Parliament (debating chamber) and Tanzania Ports Authority Headquarters in Dar es Salaam, among many other stunning projects.

Project Team

Consultants

Architect: K&M Archplans

Quantity Surveyors – Consting Consult

Civil & Structural Engineers – Xenocoon Consulting Engineers

Electrical/Mechanical Engineers – Mecoy Consultants

Interior Design – Coco Couture Interiors Ltd

Construction Team

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Arch. Dr. James Kimathi addresses guests at the Marbella Karen Place in May.



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“ARCHITECTURAL MODELS ARE MY FORTE”

Bernard Bhonuke’s life revolves around architectural models. His greatest sense of achievement is to see a project whose model he created come to life. We sought to find out what his job entails.



Bernard shows off his models at an architect’s offices.

How did you become interested in the business of architectural model making?

I joined a firm and they were the only model makers in town. I was so passionate and creative so I loved that art.

When did you establish your business, Fine Models? Previously, were you employed?

I work on contract basis; previously I worked with Dimensions

Architects, Details 2 Detail Architects, and K&M Archplans Ltd.

What qualifications does one need to have to be a model maker?

The qualifications are to know how to interpret architectural drawings and also how to use the scale rule.

How easy, difficult is it to create models?

Well, it is very tedious work and needs total concentration. Sometimes, the client makes changes.

What materials are used for the models?

We have various materials, such as mounting board, straw board, Perspex or transparencies, pastel papers, balsa wood and forex board, to mention but a few.

What are some of the most exciting projects for which you have created models?

I have done Tanzania Parliament, Kenya Parliament interiors, Tanzania Ports Authority Headquarters, Meru County Assembly, Ultra Modern Rock City Shopping Mall in Mwanza, New Sanctuary for Lavington United Church to mention some.

How do you feel when you see a project you have been involved in come to fruition?

It’s a great feeling of accomplishment when I see my models become real buildings.

How do you get your jobs?

Mostly it is referrals.

What would you tell younger people who would wish to take up this work?

Be passionate, determined, focused, diligent, disciplined and also clean in your workmanship.



BEHIND AWARD-WINNING CONTRACTOR MWEMBE & MWEMBE ASSOCIATES LTD



The directors of Mwembe & Mwembe Ltd, Eng. Jacton Mwembe and QS Olivia Mwembe, at their company's yard.

When you keep doing the right thing, you will be recognized. This has been the guiding mantra for Mwembe & Mwembe Associates Limited, a multidisciplinary construction company that was recently feted at NCA's Construction Excellence Awards.

When Mwembe & Mwembe Associates Limited, a building and civil engineering contractor, was named Best Contractor of the Year (Women Category) at the National Construction Authority's Construction Excellence Awards 2023, the directors were pleasantly surprised.

Although they submitted their application for consideration fairly confident that their organization's operations were professional and fully compliant with all regulations and therefore stood a good chance of winning, the announcement still caught them off-guard.

"There were many competitors, some of whom were more established and appeared to be doing better than us", says QS Olivia Mwembe, a director of the firm. "It humbled us and gave us strength knowing that we are doing the right thing."

Her co-director, Engineer Jacton Mwembe agrees. "When the industry and especially a regulator recognizes your work and processes, the public has more confidence in your organization," he says adding that the award was a major morale booster and encouraged them to do even more.

The couple established Mwembe & Mwembe in 2012 but the firm was not active until the year 2015. Since then, it has



The directors display their award at the 2023 Construction Excellence Awards. Looking on and holding their dummy cheque is National Construction Authority Executive Director, Eng. Maurice Akech.

grown fairly quickly, scaling NCA's contractor hierarchies to become NCA 1 for Building Works and NCA 5 for Roadworks.

Both are construction industry professionals with substantial experience in the industry. Olivia is a registered Quantity Surveyor who graduated with a Bachelor of Arts degree in Building Economics from the University of Nairobi in 2006. She worked in a well-known quantity surveying firm before joining University of Nairobi as a Master's Degree student and becoming part of the institution's academic staff. "I started as a Graduate Assistant at the Department of Real Estate, Construction Management and Quantity Surveying before rising to become a Tutorial Fellow and later Lecturer in the same Department. She is currently pursuing a Doctorate Degree at the institution. Olivia now juggles management of Mwembe and Mwembe Ltd with teaching at the University while at the same time pursuing advanced studies and playing her rightful role in the family.

She is a corporate member of the Institution of Quantity Surveyors of Kenya (IQSK) and the Architectural Association of Kenya (AAK). She has also served as a board member of the Board of Registration of Quantity Surveyors and Architects (BORAQS).

Jacton, the immediate former Registrar for the Engineers Chapter of AAK and currently its Secretary, is a 2005 graduate of the University of Nairobi. He has extensive experience in civil engineering, having started as a field officer at the Nairobi Water and Sewerage Company (NAWASCO). He went on to work on major projects including Sondu Miriu HEP, the new container terminal in



Mombasa, Lappset Corridor, and Olkaria Geothermal Plant.

He is a member of the Engineers Board of Kenya (EBK), the Institution of Engineers of Kenya (IEK) as well as the AAK (Engineer's Chapter).

Humble Beginnings

Mwembe and Mwembe's first job was a project management engagement at Ololo Lodge in Kajiado County. The lodge was undertaking extensive renovations including civil works.

"The experience we got from that served as a stepping stone to future jobs and provided valuable lessons in managing people and client relations," remembers Jacton. He recalls facing several challenges on the project including site access, supervision of workers, and cash flow since they were just beginning.

Today, Mwembe and Mwembe Associates Limited has accumulated a strong portfolio of projects ranging from residential and commercial to religious, educational, and office projects. "We have also adopted the Design & Build approach where we take charge of all construction processes and deliver the complete project", says Olivia. Where they don't have internal capacity, for example, architects, they engage competent professionals to be part of the delivery team.

Some of the projects the company has worked on include Lavington SDA Church, Tom Mboya University College, Forum for African Women

Kenya Union of Savings and Credit Cooperatives (KUSCCO) housing project in Kajiado County, one of the projects Mwembe & Mwembe Associates Limited were involved in.

Educationalists (FAWE) offices, Kenya Union of Savings & Credit Cooperatives (KUSCCO) commercial centre project and numerous residential projects in Nairobi, Kisumu, Migori, Homa Bay and Nyamira counties.

Lately, the company has been undertaking jobs for international organizations such as The United Nations Office for Project Services (UNOPS). According to the directors, these kinds of jobs are a boon for the company especially since they are straightforward and involve no lobbying or underhand dealings.

Are these jobs hard to get? “At first we thought so”, says Olivia. “But we later realized that all one needs is to submit their bid in a professional manner and price competitively. If qualified, you’ll get the job. There are no other considerations.” The same cannot be said of working with central government and counties where even payment can be a frustrating experience. “For instance, we are still pursuing payment from a certain county two years after completing the work”, reveals Olivia.

Industry

In recent months, the Kenyan media has been awash with cases of buildings coming down over lack of structural integrity. Several lives have been lost and many injuries sustained. In addition, millions of shillings have been lost by the affected developers.

Qs Olivia sees greed as one of the biggest problems facing the construction industry in Kenya today. “Greed has led to corruption and corruption has resulted in shortcuts where people want to make big profits at any cost”, she says. She however notes that the problem is not limited to the construction industry. “It is a Kenyan problem”, she observes. “Another problem I have noted is human resource. The construction industry is skilled labour-driven. We have thousands of skilled people who are used by contractors. However, we find that often, they don’t do what is required of them, a situation that leads to project delays and budget overruns.”

Jacton stresses this point. “You can only do a design on paper as a professional”, he says. “The implementor is the



“Greed has led to corruption and corruption has resulted in shortcuts where people want to make big profits at any cost.” - QS Olivia Mwembe



“Manufacturers should also give performance guarantees on their products just as contractors give performance bonds on their work.” - Eng. Jacton Mwembe

one to ensure that the work is done according to the prescribed standards.” He says adequate training is key so that the workers carry out tasks based on knowledge and not necessarily the experience they might have acquired on the job.

Another challenge that Jacton highlights is the failure to enforce building regulations. “The reason for this is corruption”, he says. “That’s why you end up with collapsing buildings yet these incidents could have been prevented.”

Jacton also points a finger at manufacturers. “Some of them produce substandard building materials, be it steel, cement, machine-cut stones and so on. When these materials are used on site without proper evaluation, then you end up with problems.” He suggests that manufacturers should also give performance guarantees on their products just as contractors give performance bonds on their work.

“Another problem we have in the industry is that many of those who come into the industry are not professionals in this area,” notes Eng. Mwembe. “In Medicine, we have doctors and in Legal Practice, there are lawyers. You cannot get into those professions if you are not qualified. But in the construction industry, as long as you have money, you can have a construction firm.”

Future

Mwembe and Mwembe Ltd Directors have big dreams for the organization. “We would like to go regional – Africa and beyond”, says Olivia. “We would also like to be Best Contractor, not just for award purposes but as a benchmark for others.”

“We also envision Mwembe and Mwembe Ltd being in a position to provide skilled workers to the construction industry,” adds Jacton. “In addition, we would like to venture into project development as opposed to the current situation where we are executing projects for clients.”

TRIDENT PLUMBERS LIMITED: 35 YEARS OF PLUMBING & MECHANICAL SERVICES



This year, Trident Plumbers Limited is celebrating 35 years since inception. We look at the company's journey to becoming one of the top-rated plumbing and mechanical services contractors.



At the helm: Mr. Devshi Kerai C.E.O, Trident Plumbers Limited

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and adaptive to new technology and new ways of doing things. The founders of the company are still guiding the company and providing leadership today.

Trident Plumbers understands that close cooperation with all parties involved in a project is crucial in order for the work to be completed on time, within budget and as expected in terms of quality, the reason quality is a core principle and practice in all projects they undertake.

Registered with the National Construction Authority (NCA) as Category 1 contractor, Trident Plumbers Ltd boasts state-of-the-art equipment as well as highly trained and specialized personnel. As a result, the company has been able to undertake a large number of projects ranging from multi-storey buildings, residential buildings, hotels, schools and colleges to factories and apartments. Others include hospitals, laboratories, warehouses and social buildings. The company has also carried out external water reticulation, external drainage, and installation of all types of firefighting systems including sprinklers.

From only 30 employees in 1990, Trident Plumbers Limited has seen steady growth and consequently continue to add employment opportunities into the economy, with hundreds of employees on its payroll.

Some of the major projects Trident Plumbers has

accomplished include The Aga Khan Hospital, Standard Chartered Bank Headquarters, Fortis Tower, Parliament, Kenya Airways Pride Centre, Jomo Kenyatta International Airport, ICRC Regional Hub, AAR Hospital, Two Rivers Mall and Morningside Office Park among many others.

Trident Plumbers makes every effort to understand the client's requirements, build interactive rapport and provide quality materials backed by excellent workmanship and timely delivery. These qualities clearly set them apart from their competitors in the industry.

However, like any other business, the company is faced with various challenges that include increased prices of materials, delayed contracts agreement, delayed payments and inadequate skilled labour in the market. The company sometimes also has to contend with local substandard material that compels it to sometimes make overseas sourcing, hence raising operational costs.

Notwithstanding these challenges, Trident Plumbers Limited is focused on delivery and keeping its clients and business associates happy with its quality of service. The company appreciates that this is the only way it can continue having an edge over competition and remaining the natural go-to plumbing and mechanical services contractor.



AAR Hospital, Kiambu Road (Image: Pharos Architects)



Standard Chartered Bank Headquarters Nairobi (Image: Coolplus Technical Services)

ARCHTRON SYSTEMS: AN ARCHITECTURE FIRM'S JOURNEY TO THE BIG LEAGUE

Archtron Systems started out from a simple desk and a big vision. Today, the firm plays in the big league as Principal Architect Joel Ng'ang'a told Construction Kenya Showcase.

Archtron Systems is an architecture, planning and interior design firm based in Nairobi.

Established in 2011 by Arch. Joel Ng'ang'a, the firm has experienced rapid growth driven by trust among its clients owing to professionalism and competence.

"Most of our work now comes from referrals and repeat clients", says the 2008 University of Nairobi graduate.

Arch. Ng'ang'a's entry into the world of architecture was through an opening at Apt Designs, where he worked after completing his university studies. In 2010, he sat his professional examinations and was licensed in 2011.

It was at this point that he decided to venture out on his own. "I had already received some enquiries to do residential here and there hence my decision to break out on my own", says Arch. Ng'ang'a.

But like many success stories, Archtron had humble beginnings.

"When I started out, it was from a desk in an engineer friend's office", reveals the Principal Architect. He says the engineer allowed him to operate from his offices for about two years, paying no rent but only helping foot a few utility

bills. "I then moved out to a small office in Hurlingham Plaza before eventually shifting to the current offices."

As the firm grew continued to grow, Arch. Ng'ang'a decided it was time to get help. From 2015, he began recruitment. Archtron Systems now consists of two other architects and two technicians.

Today, the firm boasts a wide range of projects in its portfolio, including residential, commercial, hospitality, educational, health, and even religious buildings.

Projects

Under Health, Archtron Systems has done extensive work for St. Theresa Mission Hospital Kiirua in Meru. The hospital, that had been running for decades, required major upgrade and execution of a master plan to Level 5 status. Archtron Systems was hired to spearhead the transformation, which included building of a new maternity ward, general and pediatric wards, ICU and HDU facilities. "We now working on a nursing school", says Arch. Ng'ang'a. "Designs are already approved and we are just waiting for donor funding to come through." Archtron has also completed satellite clinics for hospitals in various locations across the country.

In hospitality, the firm did The Nest Boutique in Naivasha. "We currently have an ongoing project in the same area

Archtron Systems' founder Joel Ng'ang'a at one of his projects in Nairobi



and a similar project in South B", discloses Arch. Ng'ang'a. While under Apt Designs, Arch. Ng'ang'a was the Project Architect at The Heritage Resort in Naivasha.

The firm has completed numerous residential projects in the country. In Nairobi, Archtron is currently engaged in Alba Garden, a high-end residential apartment complex in Kilimani consisting of 288 units. Other areas where

Archtron has done projects include Runda, Karen and Kileleshwa. "In Kileleshwa, our first apartment project was the Emilia Serviced Apartments in 2013", says Arch. Ng'ang'a. The firm has also completed apartments off the Southern bypass in Karen area.

In Naivasha, Archtron did the La Casa Homes and Unique Homes. Besides, the firm has been engaged in many private

residential projects including in rural areas.

Other projects include commercial developments in Eldoret and Naivasha as well as several retail spaces.

In Education, Archtron did the Kinderville School in Syokimau, a new campus for High Peak Junior Academy in Naivasha and lecture halls at the Cooperative University of Kenya in Nairobi.

New Horizons

Many established architects in Kenya have ventured out of the country and successfully executed projects. Arch. Ng'ang'a is no exception. His first involvement with such work was a short stint in South Sudan with Caritas, an international NGO.

Archtron Systems has now consulted in DR Congo, where Arch. Ng'ang'a has done substantial work in Lubumbashi, the country's second largest city.

Consortiums

Although most of Archtron's work is through word of mouth, the firm does bid for projects as part of a consortium, says Arch. Ng'ang'a. To this end, some of the jobs, especially the hospitals, have been through such partnerships. "We are currently working on something in Nyamira and Kitale. We are also pursuing something in Kilifi." The firm is interested in affordable housing projects, which both the previous and current governments have listed as priority areas.

Industry

As a professional with more than a decade of experience, Arch. Ng'ang'a has certain observations on the industry in Kenya. Like many, he's alarmed by structural failure of buildings that has left scores dead and injured in recent years. He decries the lack of professional involvement

in these projects. "I personally would not get involved in a project unless it was clear to the developer that I would have to be involved in the project throughout its lifespan," says the architect. He notes that apart from the consequences of lack of supervision, professional reputation is normally at stake.

On architectural practice, Arch. Ng'ang'a says regulation is weak, leading to proliferation of quacks. "AAK and BORAQS need to do more." He also cites an example of professional fees noting that although the charges are clearly prescribed, some clients are not willing to pay these amounts. In other cases, some professionals also deliberately undercharge. The architect says he knows at least one large firm that charged 1.8% of the project's value. Asked how they would make up for this undercharge, Arch. Ng'ang'a figures that they probably reckon they will recoup from having several projects. The architect has a radical proposal to curb this menace: "Perhaps clients should pay us through our associations!"

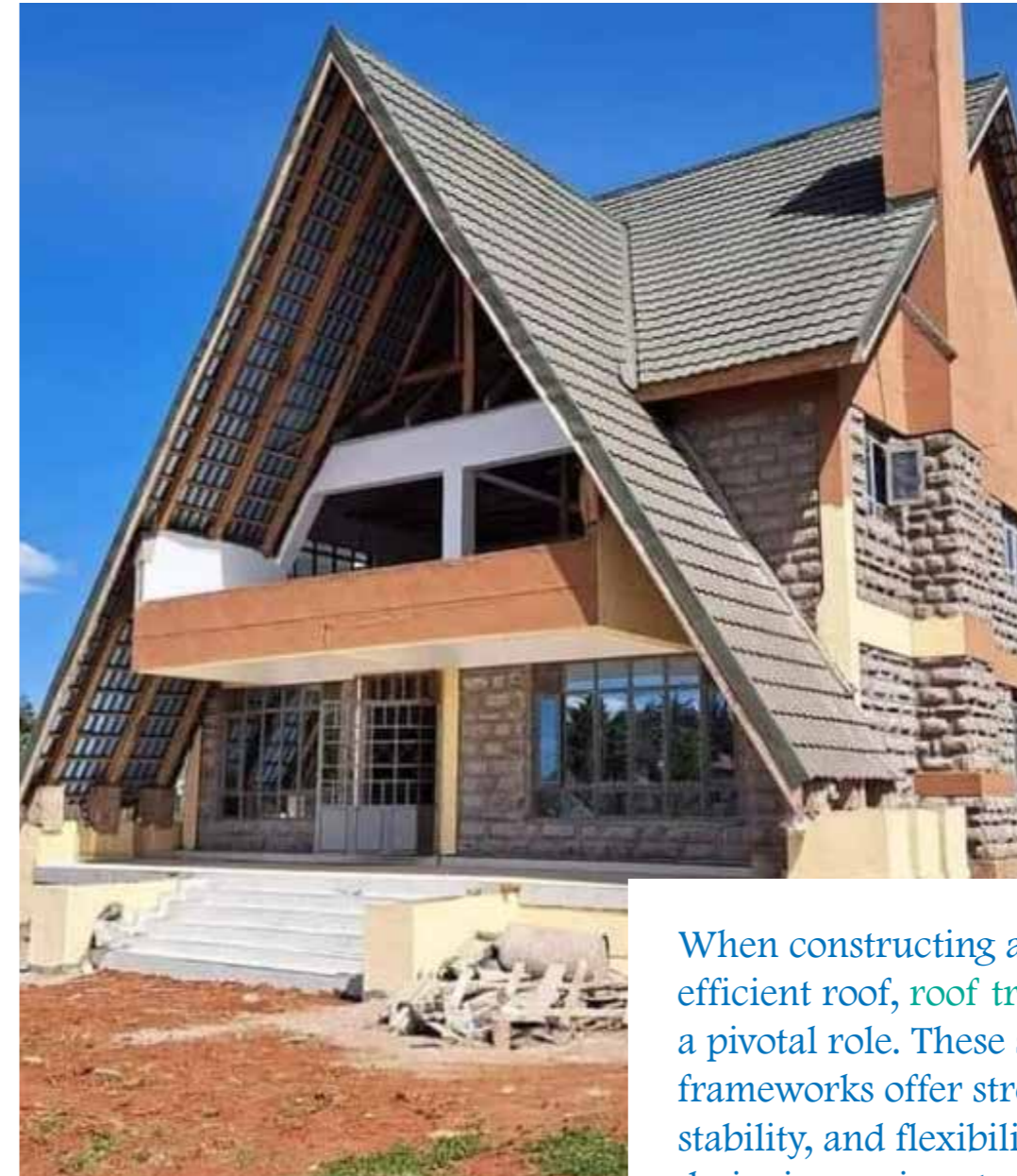
The issue of training and quality of graduates coming into the profession is also a concern in recent years. Arch. Ng'ang'a concedes that university graduates tend to take much longer to learn the ropes, a phenomenon that he partly attributes to an attitude problem. "You find that diploma holders are more enthusiastic and willing to prove themselves at work."

Future

Arch. Ng'ang'a says although he is aware that a number of his fellow professionals have tried to venture into other areas like real estate development, some with unpleasant consequences, he is not ready to go that route yet. For now, Archtron Systems intends to continue on its growth projectory, offering clients the best possible architectural services.

THE ABC OF ROOF TRUSSES

SIMPLIFYING THE ROOFING PUZZLE



An elegant A-Frame house in Iten (Image courtesy of Tuko News).

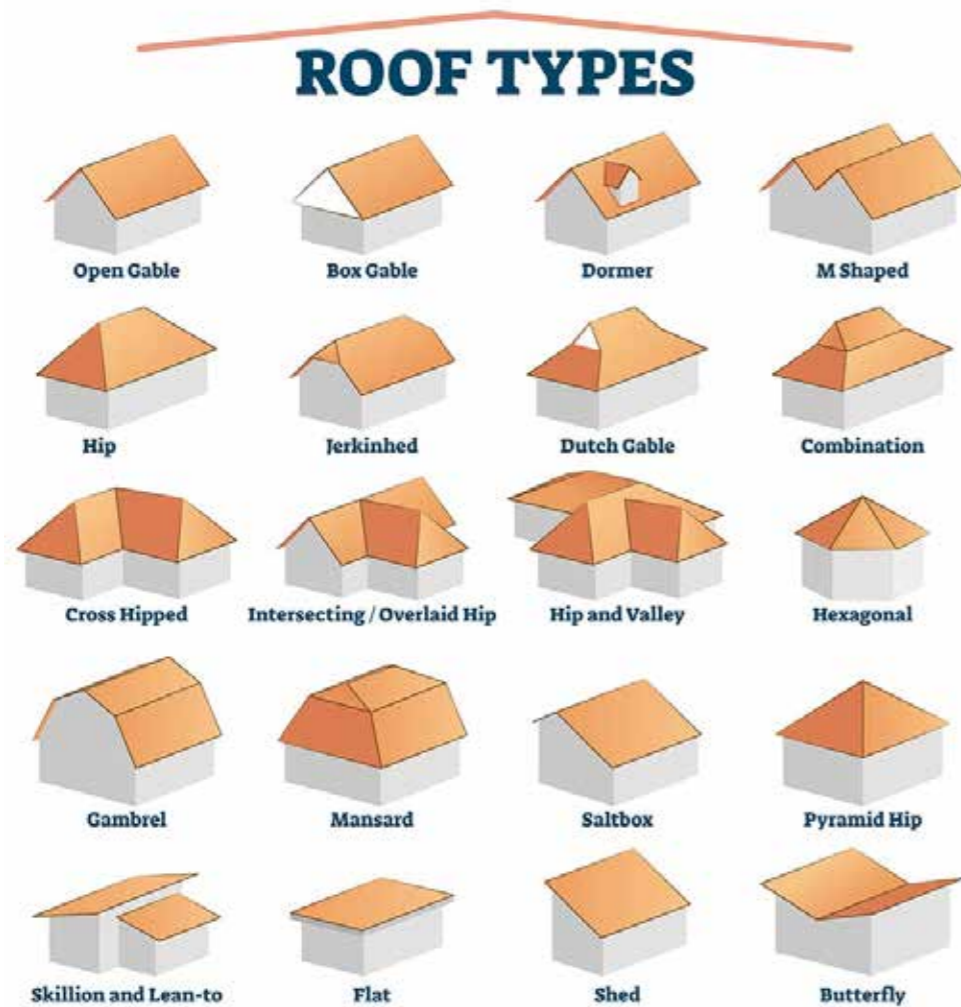
When constructing a sturdy and efficient roof, roof trusses play a pivotal role. These structural frameworks offer strength, stability, and flexibility in designing various types of roofs. In this article, UDDI BENKIFF unravels roof trusses, exploring their function, different types, and the benefits they bring to the world of roofing.



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The Role of Roof Trusses in Roofing Systems

Roof trusses serve as the backbone of roofing systems, providing structural support and distributing the weight of the roof to the walls or supporting beams. They form a framework that allows for the efficient transfer of loads, ensuring the stability and integrity of the roof.

Roof trusses consist of key components, including top and bottom chords, webs, struts, and connection plates or web cleats. The top and bottom chords are the horizontal members that span the length of the truss, while the webs are the diagonal or vertical members that connect the chords. Connection plates hold the truss members together securely.

Types of Roof Trusses

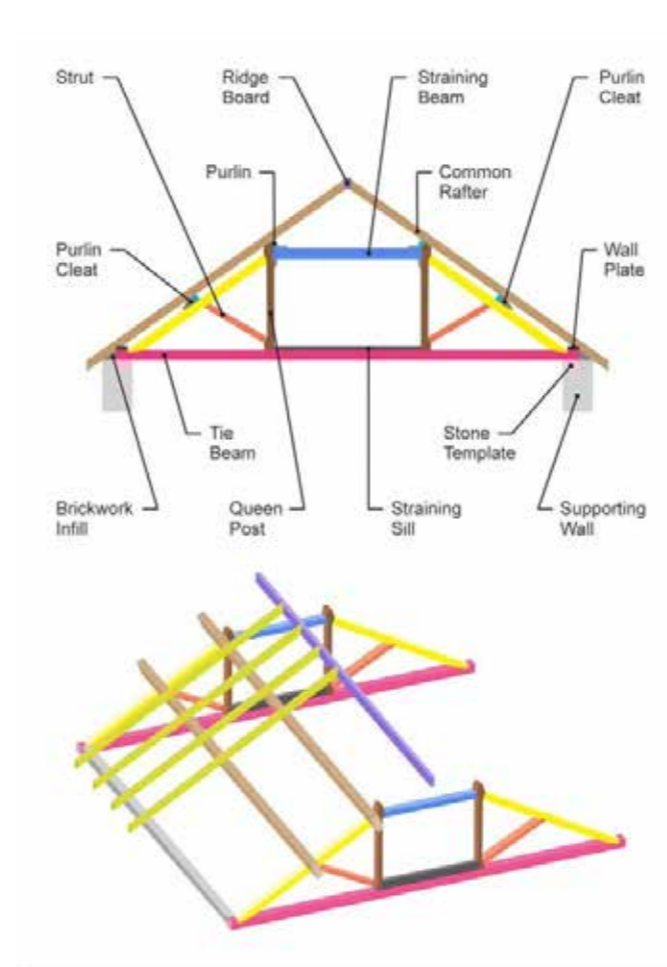
Different types of trusses feature unique shapes, chord sizes, and roof pitches, depending on the desired effect.

Kenya’s residential housing sector still gravitates towards traditional hip and gable roof systems. However, we are starting to see bolder and more contemporary truss combinations appear, such as the combination-type A-frame house shown on the opposite page.

Some of the most common truss types in the Kenyan context include:

Hip Trusses: All Sides Covered

Hip trusses are specifically designed for roofs with multiple sloping sides, such as hip roofs. They feature sloping top chords that connect to a central peak, with shorter webs extending from the peak to the eaves. Hip trusses provide excellent stability and support for roofs with complex configurations. It provides aesthetic appeal, versatility, and increased attic space.



Gable Truss

The gable roof is a common and recognizable triangular roof design. It offers efficient water drainage, good ventilation, and ample attic storage space. However, it may require additional bracing in areas prone to high winds.

Combination roofs can also feature both gable and hip roof systems in a single contemporary design.

Gambrel Trusses: Classic Barn Aesthetics

Gambrel trusses also known as Dutch roofs are commonly associated with barn-style roofs. They feature a symmetrical double-sloped design, with steeper upper slopes and shallower lower slopes. Gambrel trusses maximize usable space in the upper portion of the roof, creating a distinctive and aesthetically pleasing appearance.

Dormer Roof

Dormer roofs feature small structures projecting from sloping roofs, allowing for windows and additional attic headroom. They enhance aesthetics, add functionality, and can transform cramped attics into livable spaces. Integrating dormers into the existing roof structure requires careful planning and may increase project costs.

What to Consider When Choosing a Truss System

The roof truss is a key component of any structure, whether commercial or residential. It can impact the overall structural stability, cost, and final aesthetic greatly. Here are some key factors to consider when choosing a truss system.

Design and Architectural Requirements

The design and architectural style of the building are essential factors to consider when selecting a roofing truss system. For example, attics are becoming quite popular within the sub-Saharan context.

Each roof type requires a different truss configuration for load distribution. It is crucial to work closely with an architect or structural engineer to determine the appropriate truss design that aligns with the desired aesthetics and meets the building’s specific requirements.

Structural Integrity and Load-Bearing Capacity

The roofing truss system must be able to support the weight of the roof covering, withstand anticipated loads (such as rainfall, wind, or even live loading), eliminate ponding, and distribute the loads evenly to the supporting walls or columns.

Factors such as truss material, size, spacing, and bracing play a significant role in determining load-bearing capacity. A structural engineer will help to ensure that the chosen truss system meets the required structural standards and local building codes.

Cost and Efficiency

It is essential to balance the cost of the roofing truss system with its performance and longevity. Factors such as material costs, installation complexity and requirements, and long-term maintenance should be taken into account. Typically, combination roof systems are the costliest but also offer the widest aesthetic variety.

Construction Time and Ease of Installation

The ease of installation and speed of erecting the roofing truss system can significantly impact project schedules. Prefabricated truss systems, which are pre-engineered and manufactured off-site, can often streamline the installation process and reduce construction time. On the other hand, custom-designed truss systems require longer lead times.

Space Optimization

The open web design of roof trusses provides ample space for utilities such as electrical wiring, plumbing, and HVAC systems. This space optimization contributes to efficient building designs and facilitates easy installation and maintenance of services.

Innovations in Roof Truss Technology

Roof trusses have evolved from the typical configurations and materials to more complex arrangements, lighter and more sustainable materials, and even from the normal wooden trusses. Here are a few innovations that we expect to be popularised in Kenya in the next decade.

Sustainable Materials

Sustainability is usually taken under an environmental context, where we aim to cut down fewer trees, promote reusability, and limit the amount of maintenance needed in the future.

Environmentally friendly materials include engineered wood products, such as laminated veneer lumber (LVL) and glued-laminated timber (glulam), which offer an eco-friendly alternative to traditional timber trusses. These

materials are sourced from responsibly managed forests and have excellent strength-to-weight ratios, making them ideal for roof truss applications.

In terms of maintenance, prefabricated lightweight steel trusses are taking shape in both the local commercial and residential categories. Lightweight steel trusses offer a viable alternative where a quick, accurate, and maintenance-free truss build is desirable.

Energy Efficiency

In countries that experience winter, roof trusses can be designed to accommodate insulation materials. Closer to home, energy efficiency translates more to keeping the temperatures constant and optimal. Thus, the truss configuration can be designed to match this requirement, for example, by choosing the right orientation relative to the sun.

Advanced Modular and Industrial Manufacturing Techniques

Technological advancements in manufacturing have revolutionized the production of roof trusses. Computer-aided design (CAD) software and automated manufacturing processes enable precise truss fabrication, reducing errors and ensuring consistent quality.

With automation, unique truss configurations can be accomplished without compromising the integrity of the architectural and structural limitations.

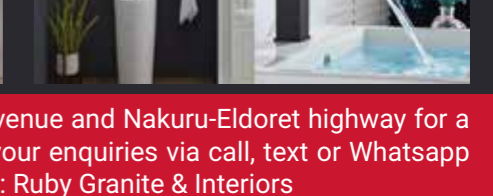
The Future of Roof Trusses in Kenya

As construction practices and design trends continue to evolve, roof trusses will adapt to meet the demands of modern architecture. The shifting tastes and desires in the local Kenyan market coupled with increased expertise and experimentation will lead to bolder, more unconventional designs. Advanced materials, sustainable practices, futuristic planning, and digital technologies will shape the future of roof truss design and make roofing systems more practical and durable.



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6 REASONS WHY QUANTITY SURVEYORS ARE ESSENTIAL IN YOUR PROJECTS

QUANTITY SURVEYORS play a vital role in construction projects for several reasons:

1 Cost Management: Quantity surveyors are experts in cost management and estimation. They prepare accurate and detailed cost estimates for the entire project, including materials, labour, equipment, and other expenses. Their expertise ensures that the project stays within budget and that financial resources are allocated effectively.

2 Tendering and Contracts: Quantity surveyors assist in the tendering process by preparing and analyzing tender documents, evaluating bids, and negotiating contracts with subcontractors and suppliers. They ensure that the project procures goods and services at competitive prices and in compliance with legal and contractual requirements.

3 Value Engineering: Quantity surveyors contribute to value engineering efforts, which

aim to optimize project value while minimizing costs. They assess different design and construction alternatives, analyze their cost implications, and recommend value-enhancing solutions. This helps in achieving the desired project outcomes while balancing budgetary considerations.

4 Cost Control and Monitoring: Throughout the construction process, quantity surveyors monitor costs, track expenditures, and compare them against the budget. They identify cost overruns or potential deviations and take appropriate measures to control and mitigate them. By closely managing costs, they help maintain financial discipline and ensure project profitability.

5 Variations and Change Management: Construction projects often encounter changes and variations due to design modifications, unforeseen conditions, or client requests. Quantity surveyors play a key role

in assessing the impact of these changes on costs, timeframes, and resources. They provide cost advice, negotiate changes with stakeholders, and update project documentation accordingly.

6 Final Account Settlement: At the end of the project, quantity surveyors assist in the settlement of the final account. They ensure that all contractual obligations are fulfilled, review and validate variations, and prepare the final payment certificates for subcontractors and suppliers. This process helps in achieving a fair and transparent settlement of accounts.

Overall, quantity surveyors bring expertise in cost management, procurement, and contract administration to construction projects. Their involvement ensures effective financial control, accurate cost forecasting, and proper allocation of resources, contributing to the successful delivery of projects within budgetary constraints.

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