

PROJECTS

MAGAZINE | APRIL MAY 2021

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PAS pump boasts dry prime capabilities enabling user to start pumping immediately with a flip of the switch

Construction
News

INSIDE STORY:

Apartment properties act guarantees ownership of units in Kenya.

Title deeds to be issued afresh.

Land prices fall in wake of Covid-19 pandemic.

Ceiling Types In Kenya.

Bathrooms and Fittings.

Building a house with a whole-home audio system.



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TAJI RESIDENCE



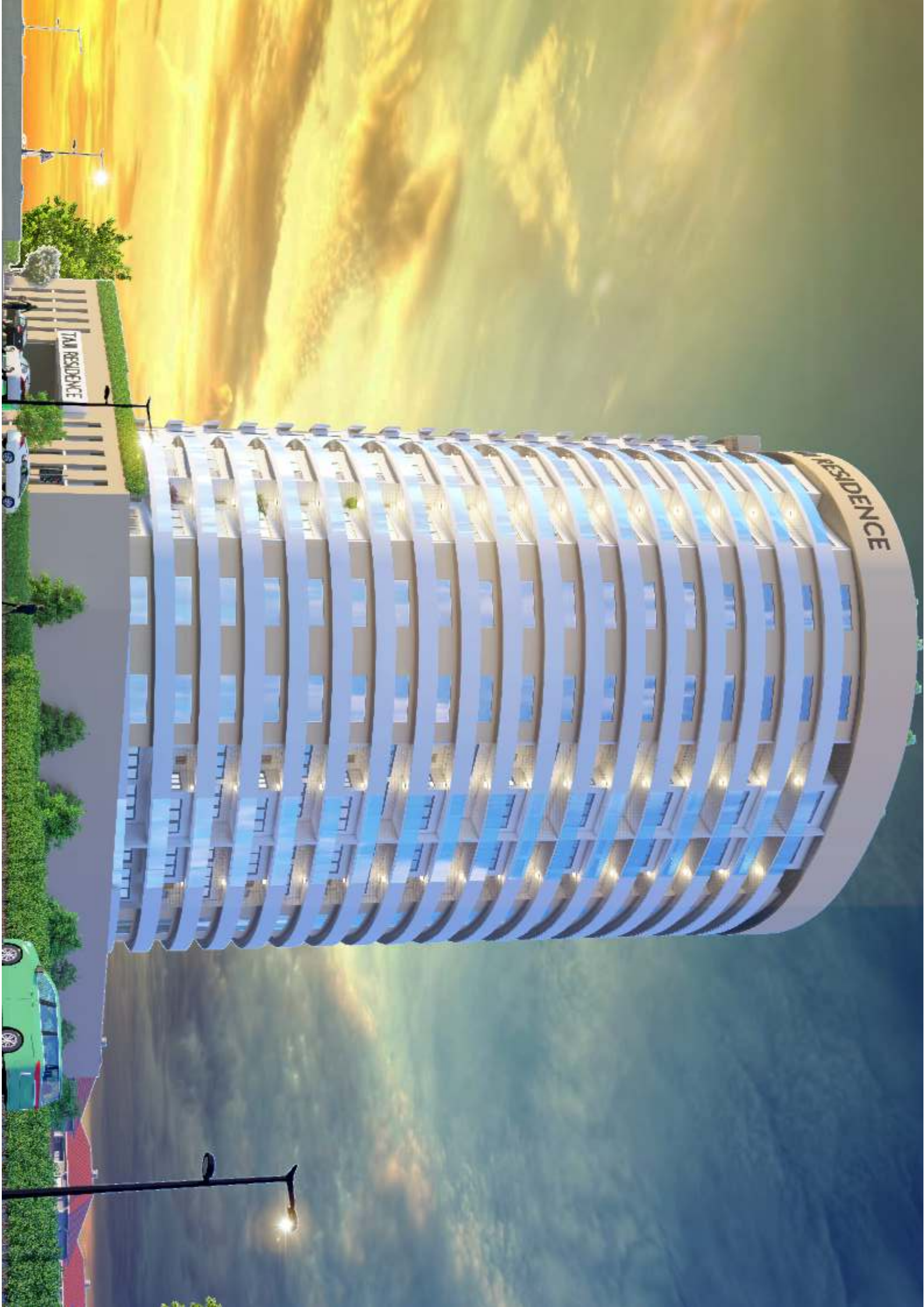
Taji residences a true attribute of urban living superbly presented masterpiece set within the tranquility of the suburbs adding heightened vibrancy and energy to Kilimani. Ideally situated in Kilimani, off Lenana road near Osteria, minutes' drive away from Yaya center.

This meticulously planned development of beautifully inspired apartments enriches an aura of simplicity with a homely feel allowing one to enjoy the niceties of life within a serene location.

This development has an unrivaled collection of impeccable apartments crowned by superbly crafted 3 bedroom duplexes with D SQ and luxury 3 bedroom apartments epitomizing a haven of tranquility and intricately chosen finishes resulting in a breathtaking beautiful interior that encapsulate the exterior.

Taji is considered as one of the highest rates of capital gain and rental returns as its unrivalled nature progressively changes the face of the entire area potentially giving the area great growth.





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Please see below summary of the offering:

Unit Type	Size range	Price range
3 bed duplex plus Dsq	244sq.m	Kshs. 19M
3-bedroom Conventional plus Dsq	195.8sq.m	Kshs. 17.5M



This modern facility consists of state of the art facilities like:

1. A swimming pool
2. A Gym
3. A beautiful rooftop terrace
4. Borehole water supply
5. Lifts
6. Ample Parking
7. Stand by Generator



Apartment properties act guarantees ownership of units in Kenya

Sectional Properties Act 2020 guarantees ownership of units.



An apartment unit with balcony.

The Sectional Properties Amendment Bill, 2020, which was signed into law in December, repeals the Sectional Properties Act of 1987 by providing for the division of buildings into units owned by individual owners, among other revolutionary provisions.

The Sectional Properties Act 2020 also provides for the issuance of title deeds for common property, which will be jointly owned by the owners of the individual units.

In a major win for apartment owners in Kenya, the long overdue Sectional Properties Act 2020 has been signed into law – meaning that individual buyers will now be allowed to acquire sectional titles for their units.

Under the new law, developers will be required to register each of the apartment plans for all housing units shown on the plans to correlate both the existing structures as well as the approved building plans.

The new law, for example, bars property developers from putting up additional units on the same plot where already sold blocks of apartments stand. This will prevent incidents where developers dupe buyers about the

availability of open spaces only for them to later build homes on the spaces.

Home owners will be issued with certificates specifying their share in the common property – meaning such property cannot be auctioned without their consent.

According to the mover of the Bill, Kitui South MP Rachael Nyamai, the apartment plans will be the basis for the sectional titles and will ensure that only existing structures are registered.

“It is so easy to see an apartment being described with all the good quality features only for you to find that in real life it is a different structure not befitting an apartment,” Dr Nyamai said.

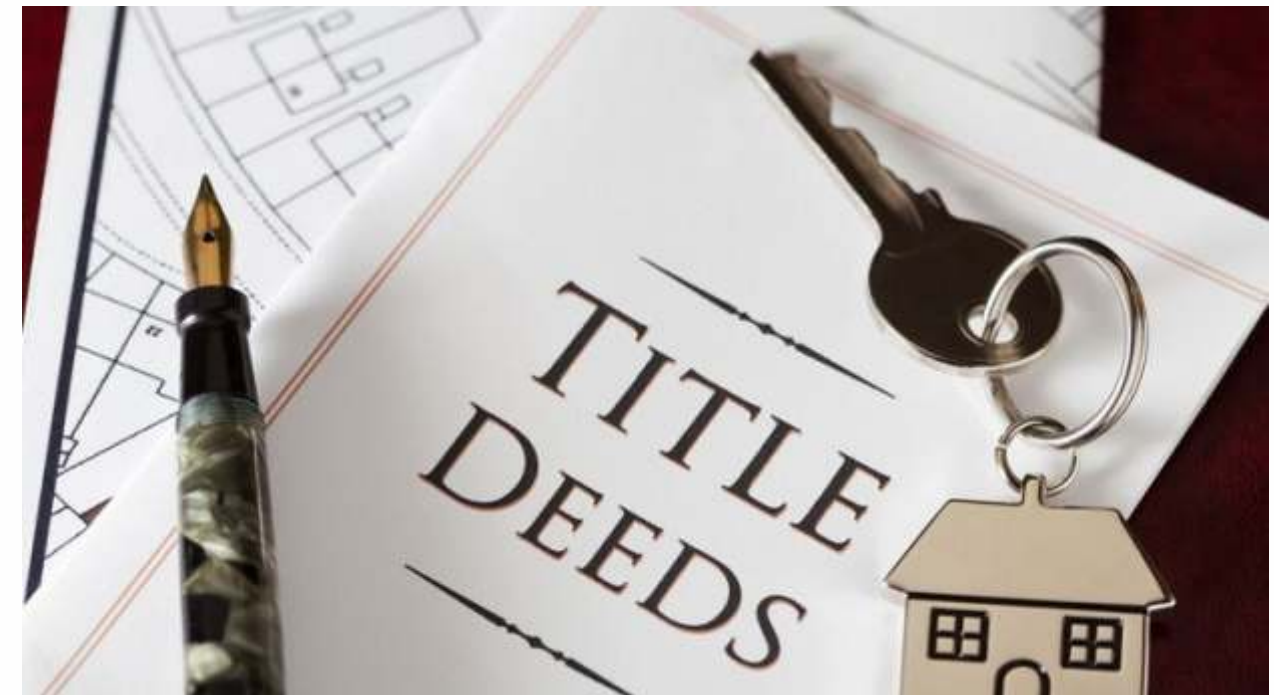
She added that the new regulations will incentivise acquisition of apartments as owners will be assured of absolute ownership of their property through the issuance of sectional titles.

Previously, buyers could not acquire title deeds for their apartments as the developer retained the original title even after selling the units as it was legally impossible to sub-divide common property.

This exposed investors to the risk of fraud and loss of property in instances where developers would build on land whose title was held by money lending entities.



Title deeds to be issued afresh.



Landowners will need to apply for replacement of title documents.

Title deeds verify land ownership

Kenya is transitioning to a new lands registration system that will see title deeds issued afresh under a new digital lands register, effectively invalidating all titles dispensed under old land registration statutes.

Since the passing of the Land Registration Act 2012, processing of title deeds has been ongoing under the transitional provision with the documents bearing the titles of both the repealed and the new statute.

The rollout of the so-called digital land information management system is aimed at operationalising the Land Registration Act 2012 – which repealed the Indian Transfer of Property Act, 1882, the Government Lands Act (Cap. 280), the Registration of Titles Act (Cap. 281), the Land Titles Act (Cap. 282) and the Registered Land Act (Cap. 300) which were prone to fraudulent alterations.

Digitization of land records will see the Lands ministry closing all the existing lands registers and asking registered landowners to apply for replacement of title deeds from the closed registers.

Lands Cabinet Secretary Farida Karoney recently said registration of land under different statutes is a complex affair that is open to manipulation by land fraudsters hence the need to centralise the service.

“The confusion occasioned by the different regimes has become a breeding ground for fraud, delays in service delivery, centralisation of land services and threats to the right to property,” Ms Karoney said.

Application requirements
Registered landowners will be required to present the original title deed and their identification documents for verification. The old deeds will be surrendered to the registrar when new ones are issued.

The ministry is however silent on the conversion of title deeds of contested



The government has assured landowners that cancellation and replacement of the titles will shift the parcels to the new regime while retaining the ownership, size and other details of the respective title.

Upon the closure of the old registers, the ministry will no longer use the traditional deed plans as registration instruments and will instead rely on the Registry Index Maps (RIMs) – which are generated from survey plans with fixed boundaries.

Titles held as surety by third parties such as lending institutions, courts, and hospitals will be replaced upon the application by the land owner. Land under caveat will be migrated automatically.

The RIM shows all land parcels within an area as opposed to the traditional deed plan that only indicates details of one specific parcel of land, thus minimising fraud by making it easy to detect alterations.

“Both the RIMs and the survey plans will be accessible to landowners on request for verification of boundary details at the Survey of Kenya Headquarters, Ruaraka,” the CS said.

New parcel numbers
With about 11 million title deeds due for conversion, the ministry says the shift will be done in phases starting with Nairobi where 5,000 new titles have been issued.

One of the outstanding changes under the new regime is the alteration of parcel numbers. In Nairobi, for example, the parcel of land identified as L.R. No. 209/7229 is now Parcel Number 1 in Nairobi/Block1 while L.R. No. 4393/12 in Nairobi/Block2 is now Parcel Number 1 in Nairobi/Block2.

The process of migrating 29 out of the 250 blocks that make up the city is currently underway, with the conversion expected to continue until end of next year.

“We are doing it gradually because we do not want the process to be overwhelming.

Migrating all those titles is not easy so you have to phase it out,” Ms Karoney said.

The new title deeds will be issued afresh free of charge.

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Lee Kinyanjui's new plan to make Nakuru have a new look



Builders will be forced to adopt sustainable construction designs.

Sustainable building materials usually cause less pollution.

Nakuru County has laid out plans for the adoption of new regulations to promote construction of green buildings within the town's central business district to boost sustainability in the construction industry.

According to Governor Lee Kinyanjui, the county will develop policies and regulatory frameworks to compel investors putting up commercial buildings in the town to adopt sustainable construction designs.

In a move that mirrors Singapore's highly successful green building initiative, Nakuru is seeking to make it mandatory for builders to comply with green construction rules as the town gears up for city status.

Mr Kinyanjui, who was speaking during the ground-breaking of a Sh900 million building

that will host county government offices, said green buildings are ideal for the county as they save water and electricity resources in daily operations of their occupants.

“The building will be compliant to the needs of persons with disabilities and has factored in the provision of water harvesting, and lighting to reduce costs incurred in electricity and water bills,” he said.

The 7-storey building expected to be completed in 24 months features, among other things, solar panels on roof spaces and automated low-energy illuminating work spaces.

Sustainable building regulations
Prospective owners of commercial buildings will also be required to include basement parking in their designs to help ease traffic congestion in the fast-growing central business district.

If the planned push for green construction materialises, property developers will be required to comply with the sustainable building regulations and must install water



harvesting systems, green energy systems, light sensors, energy-saving elevators and escalators, and energy efficient air-conditioning units. Since 2005, the island country and city has greened more than 40 per cent of its buildings by floor area as of December 2020, and is on track to achieving its 80 per cent target by 2030.

“We have partnered with UN Habitat in a move to implement planning in our towns to make Nakuru a model city globally... (On Feb. 2), I signed an MOU that will guide infrastructure development, waste management and creation of inclusive cities among other factors,” Mr Kinyanjui said earlier this month.

Singapore, which calls itself the Garden City, is the only country that has made it mandatory for buildings of 5,000 square metres and above to achieve minimum standards for environmental sustainability.

Model of construction

The Nakuru County's plan comes a time when property developers in Kenya have willingly begun constructing green buildings that incorporate resource-efficient design features and technology.

The country has emerged as a model of green construction for property developers across the Asia-Pacific region – a commendable feat in an area that is urbanising faster than any other in the world.

In November last year, the Promenade, a Grade-A commercial building located in Westlands, for example, received its final EDGE certification from the Green Business Certification Inc.

The building has higher thermal performance glass, LED lighting, occupancy sensors and water-efficient plumbing features that will reduce its water and energy consumption. This trend is expected to increase in the medium term as more developers incorporate energy efficient features and technologies in the design of their buildings to cut operational costs.



Land valuation in Kenya. All what you need to know

Private firms have been granted permission to conduct valuation for stamp duty.

Valuation helps to determine the market value of land.

Land valuation is the process of analysing a property to determine its market value for the purposes of calculating taxes due to the government of Kenya or to enable leasing, sale or acquisition of property.

Who does property valuation?

The officials determine the market value of land to ensure revenue due to the State is collected and that public property is sold or acquired in a manner that protects the fiscal interests of the government.

Land valuation for Stamp Duty, Ground Rent, and Rates in Kenya was the preserve of values from the Valuation Department in the Ministry of Physical Planning.

To meet the rising demand for land valuation services, the government has amended Section 10A of the Stamp Duty Act, Cap 480 to allow private values to undertake valuation process for Stamp Duty.

A list of values who have been accredited to undertake land valuation for Stamp Duty has been published on the website of the Lands ministry for the public's perusal.

“This reform was necessitated by the need to enhance efficiency and generally reduce the turnaround time for return of valuation figures,” Lands CS Farida Karoney said last week.

Being the 'landlord' or lessor of all leasehold properties, the government charges rent for leasing out its property. Ground rent is calculated based on the approved user and location of a property. Commercial plots within CBDs, for example, fetch higher rents compared to residential properties in the estates.

The government does not charge any fees for valuation for Stamp Duty but those who elect private values will incur valuation costs as provided in the Values Act.

Land valuation process in Kenya

Values are often hired when buying or selling property. They also come in handy when lenders are advancing loans against title deeds, compensation in cases of disputes, for court





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sureties, book value and during the determination of land rates.

Land valuation is also done before the State moves to buy private property through compulsory acquisition. Valuation reports help to protect the monetary interests of landlords whose property has been acquired by the government for construction of roads, dams, or other public infrastructure.

Some banks employ in-house values, or use internal algorithms or desktop assessments. However, in most cases, valuation is outsourced to independent values who are recognised on the lender's panel.

How is land valuation done?

Values use a few of the recent comparable sales to get a rough figure of the land in question, and then make adjustments to the figure based on the significant variances found amongst the properties.

A direct comparison with recent comparable sales is the basis of most residential land valuations. However, values also take into account features such as the size; topography and layout of the block; ease of access to the land; planning restrictions; and the property's location and level of amenity.

Land valuation fees in Kenya

The fees charged by private values are provided under the Scale of Fees, Values Act Cap. 532 of the laws of Kenya. The values (Forms & Fees) (Amendment) Rules, 2011 states the following: –

- 1.) Urban, Rating and Agriculture Valuation
 First Kshs. 2,000,000 at 1.0 per cent
 Residue at 0.25 per cent
- 2.) Compulsory Acquisition Valuation
 First Kshs. 2,000,000 at 2.0 per cent
 Residue at 0.5 per cent
- 3.) Rental Valuation
 First Kshs. 400,000 per annum at 10 per cent
 Residue at 5 per cent.
- 4.) Minimum Valuation Fees
 Kshs.15, 000 for any valuation.
- 7.) Consultancy
 A minimum of Kshs. 5,000 per hour where such consultancy does not involve carrying out a valuation and compilation of a valuation report and advising on the value of the property.

8. Travelling Expenses and disbursements:

These shall be based on the costs incurred in undertaking the valuation.



Land prices fall in wake of Covid-19 pandemic



Kiambu land prices fell 11.4 per cent in 2020.

Investors have bought huge parcels of land for subdivision.

Land prices in Nairobi's satellite towns fell 1.1 per cent in 2020 compared to a 6.93 per cent growth in 2019 – injecting some common sense back to an overheated market, according to the latest figures by property firm HassConsult.

The Hass Property Index shows Kiambu town had the sharpest correction of 11.4 per cent, followed by Ruiru and Limuru, where prices fell by 6.0, and 3.0 per cent respectively in the last 12 months after years of speculative land buying events.

Syokimau, a hot property market outside Nairobi, posted a 2.6 per cent drop in land value.

In the past ten years, real estate investors have flocked to Kiambu County – attracted by massive infrastructure projects – acquiring huge parcels of land cheaply for subdivision and further speculation.

“However, land prices in the county are moving towards a maximum of what the development market can bear,” HassConsult's Head of Development Consulting and Research Sakina Hassanali said on Wednesday.

READ: Nakuru land prices jump 9,900pc in just four years

The report further highlighted that land prices in Nairobi suburbs fell 2.56 per cent last year compared to a 1.69 per cent growth in 2019 as the apartment market contracted due to coronavirus-induced economic hardships.

Parklands area posted the highest annual price



drop in land prices at 7.35 per cent followed by Riverside at 7.2 per cent. Both areas are dominated by a huge number of apartments.

The analysis suggested that a quick bounce back in the city land prices was unlikely, with a sluggish recovery more realistic in the mid-term future as the economy picks up.

“Until we see a revival of the apartment market which at the end of the day is a function of economic growth, land prices in the inner city will remain stagnant,” Ms Hassanali said.

READ: Marsabit land prices hit Sh80m mark as builders flock to town

Upper Hill, however, remains Nairobi's most expensive suburb with an acre going for Sh509,900,000 – a 5.4 per cent drop compared to the asking prices of 2019. It is followed by Westlands where an acre goes for Sh420,200,000, and Kilimani at Sh413,800,000.

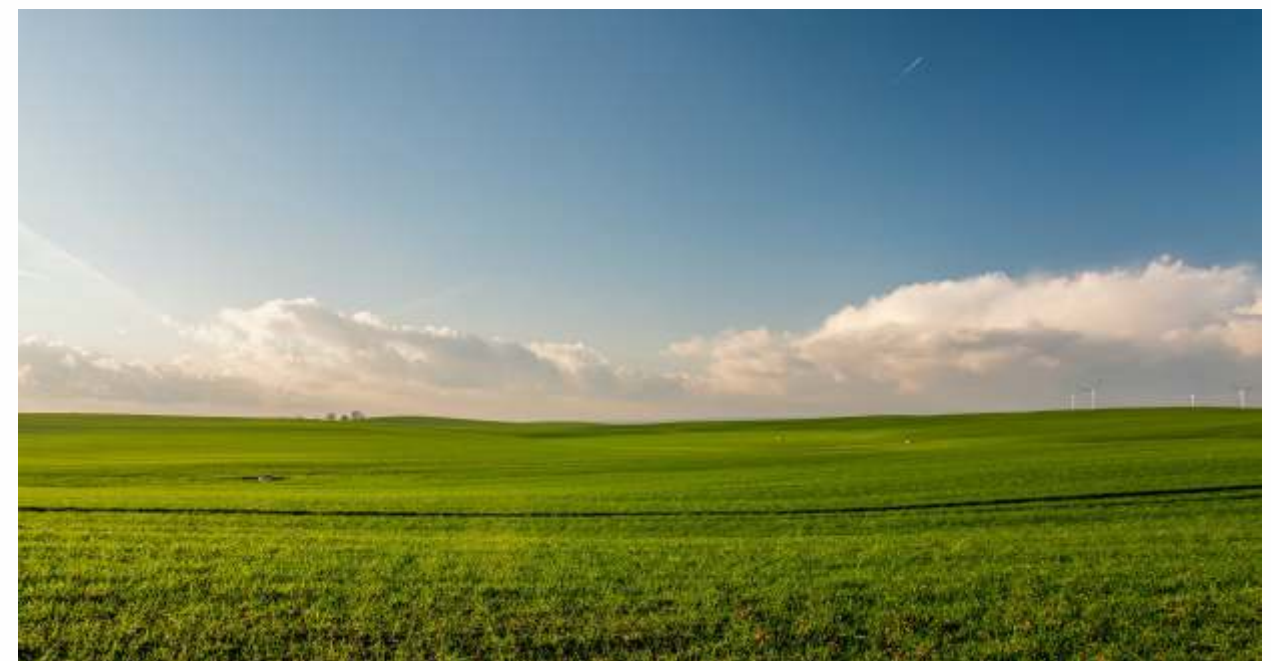
Land prices in Westlands and Kilimani fell by 0.5 per cent and 2.9 per cent respectively.

Some realtors are offering discounts as a means to encourage people to buy land during the pandemic. Others are allowing buyers to pay in instalments that suit their pockets.

Buying guide

In 2020, the most expensive suburb of Nairobi was Upper Hill, with a price of Sh509,900,000 per acre, followed by Westlands at Sh420,200,000, and Kilimani at Sh413,800,000. In the same period, Nairobi's cheapest suburb was Karen with an estimated price of Sh62,300,000 per acre, followed by Lang'ata at Sh63,700,000 and Donholm at Sh70,800,000. Ruaka remained Nairobi's most expensive satellite town with an acre going for Sh90,000,000, many miles ahead of Kiambu town at Sh38,600,000 and Mlolongo at Sh28,600,000.

On the other hand, Kiserian was the cheapest satellite town at Sh7,700,000 per acre, followed by Kitengela at Sh12,600,000 and Athi River at Sh13,900,000.






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Hydro Build Ltd company profile.



Authority, Nairobi City County (formerly Nairobi City Council) and other professional bodies. It has enjoyed a lot from these institutions and has a good working relationship with them. Further to the above, the firm endeavors to produce work of high quality and lays a lot of emphasis on good craftsmanship. Our clients can bear us witness on this.

Toner holdings limited apartments - (completion date July 2016)

Hydro Build Ltd is a Plumbing Mechanical Services delivery firm established in 2012 in Nairobi Kenya with six employees. However, the company has continually grown and currently has a human resource of more than forty both skilled and semi-skilled staff. The firms' strengths lie principally in Plumbing Mechanical and Industrial installations. The company is a specialist in:

- Plumbing
- Air compressing systems
- Water tanks, treatment plants and plumbing plants
- Sanitary fittings
- Fire fighting and
- General contractor

It enjoys a remarkable part in the Private and Public Sector.

The firm is registered by the National Construction Authority, Kenya Revenue



The firm operations director has a vast wealth of experience. This is by the virtue of having been a senior projects manager with one of the leading Kenya's plumbing and drainage

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INDUSTRIAL DEVELOPMENTS



INSTITUTIONAL DEVELOPMENTS



MIXED USE DEVELOPMENT



West wood office block for Jaygee Ltd at Westlands opposite Appolo center completed in December 2014.

drainage, sanitary fitting and sprinkler installations.

The list of completed mega projects goes on and on with the customers and clients preferring the company the more as time goes by. Just to mention but a few among the list we have:



Feedmill & Warehouse at Nakuru - Bidco Land O' Lakes Ltd

companies for over 10 years. This position gave him a rare privilege to handle some very major projects in the country. This made him acquire high level experience in all areas of plumbing mechanical systems. This experience in management ensures that hydro build remains competitive in the market as well as competent in undertaking its tasks.

The firm has sufficient equipment and machinery necessary to undertake any projects depending on the magnitude.

The company takes pride in a number of successfully completed projects. These includes and not limited to the mentioned below with Purple Haze being one of the recently undertaken.

The company was involved in plumbing,



Proposed Development of Capital M Apartments for Fedha Plaza

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CEILING TYPES IN KENYA.

A house ceiling is the part viewed from the building interior upwards under the roofing material.

In recent years, new ceiling materials have emerged such as the uPVC, copper and vinyl suspended ceilings.

The budget, aesthetic taste of the house owner/user and the usage of the room will determine the type of ceiling to be used. Hospitals, offices, schools and residential houses have each a different type of ceiling.

Soft Board ceiling.



uPVC ceiling.



These are very common in Kenya though they are slowly being replaced by the uPVC ceilings. They cost approx. kes 700 per m2 while the labour is around kes 200 per m2. They use more timber support joists compared to uPVC ceilings. Their advantage is that they are faster to fix hence saving on labour costs.

They get frequently damaged by leaking water from the roofs hence require frequent repair. They come in various embedded patterns and are mostly white in colour.

This is relatively new in Kenya. It offers the lowest costs, going for around kes 450 per m2 for the ceiling and kes 300 per m2 for the labour to fix the ceiling.

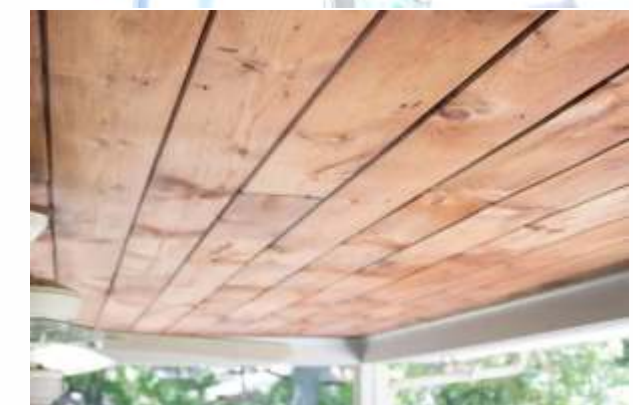
Its labour intensive so there will be a slight increase in labour costs. It uses less timber support joists since it comes in form of interlocking strips which join each other.

Its water proof nature is a huge advantage since most roofs are prone to leaking at one point in their life.

They come in a wide array of colours.



T n G ceiling.



These are made from tongue and groove hardwood timber. They cost approx. kes 1200 per m2 plus kes 300 per m2 for labour. They are labour intensive so the labour costs will be high.

They are mostly varnished to bring out the natural hardwood finish which makes the rooms warm and cosy. They are very common in high end homes in up market suburbs such as Karen and Muthaiga.

They bring out the Feng Shui aspect of comfortability and health within the interiors since they are natural.

These are mostly used in offices and banking halls where the floor to ceiling height is high enough, at least higher than 3m, to allow for the ceilings to be suspended.



Gypsum ceilings.



These are mostly used in kitchens or areas which have high risk of fires since they are fire proof. These cost approx. kes 1000 per m2 plus kes 300 per m2 for labour.



Suspended ceilings.



3D MAPPING AND 3D MODELLING MARKET - GROWTH, TRENDS, COVID-19 IMPACT, AND FORECASTS (2021 - 2026)



billion in 2020 and is expected to register a CAGR of 20.9% over the forecast period 2021 to 2026.

Increasing adoption of 3D technology across multiple industry verticals for catering to the growing demand for emerging applications, ranging from shape analysis, 3D mapping, and 3D modeling, among others, has given rise to the development of 3D mapping and 3D modeling software that can gauge shapes in real-time.

The 3D-enabling devices, such as cameras, sensors, scanners, global position system (GPS) satellite components, and other 3D content acquisition, create huge potential across the market.

Moreover, with significant investments ongoing for 3D maps applications to be integrated with smartphones, market players, such as Samsung, Nokia, and other OEMs, are entering this market. Online web services providers, such as Amazon Inc. and Microsoft Corp., among

The 3D Mapping and 3D Modeling Market is segmented by Type (3D Mapping, 3D Modeling), by Application (Projection Mapping, Texture Mapping, Maps and Navigation, Other Applications), by End User (Entertainment and Media, Automotive, Healthcare, Building and Construction, Defense, Transportation, Other End-user Verticals), and by Geography.

Market Overview

The 3D Mapping and 3D Modeling Market was valued at USD 13.49





others, have also started offering 3D maps on their platforms. For instance, Parrot, a prominent player catering in wireless devices for mobile phones, has positioned its consumer drones for 3D modeling, mapping, and agricultural uses.

Amid the ongoing outbreak of COVID-19 across the world, the healthcare sector is increasingly adopting robots that use 3D mapping and modeling technology. For instance, The Milagrow Humanoid ELF, an India-based robotics company, mentioned of testing Ai-powered robots iMap9 and Humanoid ELF in the COVID-19 ward of AIIMS. The iMap9 is a floor disinfecting robot that can navigate and sanitize the floors without any human intervention. It used 3D mapping technology for floor cleaning.

Scope of the Report

3D Mapping & Modelling technologies are one of the fastest ways to build 3D environments in a highly demanding market. 3D mapping



solutions quickly create 3D maps of the surroundings, with utmost clarity and accuracy, ready to plug into professional visualization operations. The study offers a detailed analysis of solutions provided by the vendors for both 3D mapping and 3D modeling for their application in a wide range of end-user industries, globally.

Key Market Trends

Building and Construction to Witness Significant Growth

Due to fast-paced infrastructural development in various developing regions across the world, there seems to be a constant up-gradation when it comes to building designs and architectural requirements.

Moreover, the architectural industry has been growing considerably, except for current temporary setback in the context of COVID pandemic, with an increasing number of new architectural firms entering the market with innovative designs and software thereby providing better services such as enhancement in urban planning which is expected to increase the demand for upgraded design technology involving 3D models, and high-end designing software.

3D mapping helps in geolocation and making building models of construction sites, buildings, and structures that allow architects to design, plan, and manage site logistics. For instance,

Zmapping, a London-based company, provides 3D models to create some of the most detailed and accurate context 3D city models for architects, local authorities, and master planners.

Rapid urbanization is resulting in the increased development of infrastructure, thereby resulting in increased demand for 3D technologies. The development of smart cities in India and China is expected to boost the need for 3D mapping and modeling software.

North America to Hold Significant Share

Various vendors in the autonomous driving market are gaining investments, which is expected to drive the demand for these solutions. For instance, Nuro, a company based in Mountain View, California, announced that it had raised USD 940 million in financing from the SoftBank Vision Fund. The company announced that it would use the new financing to expand its delivery service to new geographies, for the addition of new partners, scale its fleet, extend and mature its self-driving technology, and significantly grow its team.

The US media and entertainment industry is considered to have a significant share in the world. The rising number of 3D movies and animated movies, which is one of the major users of this technology and the rising adoption of 3D gaming across the region, is continuously increasing the demand for the 3D mapping and 3D modeling market.

According to a recent survey of construction stakeholders in the United States, conducted by the International Trade Administration, United States, it is estimated that the country has witnessed a 14% gain in the number of companies willing to build 60% of their projects as green projects by the end of 2018. This is expected to create a scope for the market.

Competitive Landscape

The 3D Mapping and Modeling market is fragmented in nature and consists of several major players. In terms of market share, few of the major players currently dominate the market. Major players include Autodesk Inc.,

Saab AB, Golden Software LLC, among others.

April 2020 - Autodesk released 3Ds Max 2021 version. The latest version from the company focuses on rendering and textures by leveraging the improvements in performance. The version also added support for python 3, scriptable baking, and more focus on CAD-related workflows and interoperability with Autodesk's CAD tools such as AutoCAD and Revit. December 2020 - Autodesk announced a release of Maya 2020. The new version is featured with new animation, rendering, effects, modelling, and rigging advancements to empower artists throughout the production pipeline.

What's the Difference Between 3D Modeling and 3D Mapping?

If you've ever wondered what the difference is between 3D modeling and 3D mapping, you're not alone. There is some overlap between the two in technology and solutions. We asked the experts at Pix4D to explain the difference.

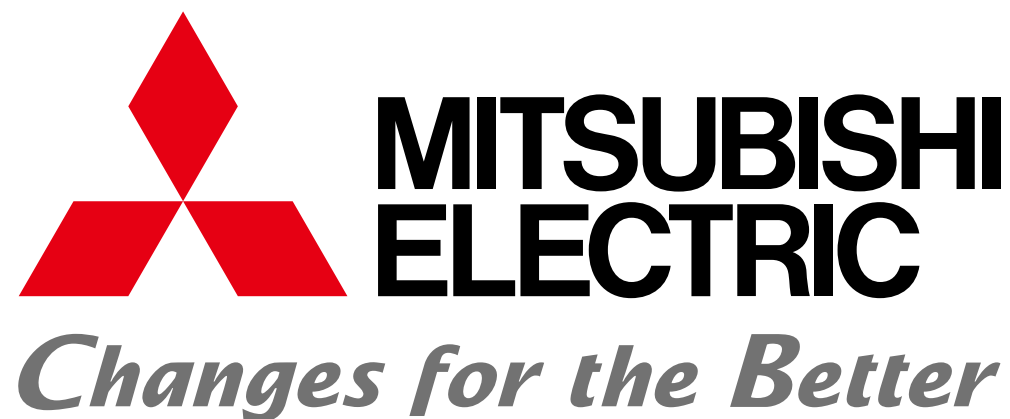
Pix4D is one of the leading providers of photogrammetry solutions for drones, creating both 2D and 3D information from images. Dr. Christoph Strecha, Pix4D's founder and CEO, says that the difference is in how the data is used. "There is no difference scientifically," explains Strecha. "A map is really 2D, something flat – but with modeling, the result is not a 2D map but a triangulated model where you can also see facades."

3D Mapping

While the map is flat, most drone technology companies call it 3D mapping – because creating an accurate map from aerial images gives a result that doesn't look anything like the kind of map you buy in a gas station. Instead, it's a precise picture of terrain – including all of the buildings and natural components of the terrain. It can give a sense of size and depth. It's often combined with other information, such as thermographic data or industry specific data (think agriculture crop counting systems) to make the map an actionable tool.

Data solutions use photogrammetry (the science of taking measurements from pictures)

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and orthomosaics to create 3D maps. Orthomosaics is a combination of processes. Ortho-rectifying or creating an orthophoto means adjusting an image for topographic relief, lens distortion, and camera tilt: allowing it to be used for true measurement. “Mosaics” is stitching together multiple images into one. The resulting maps – now highly accurate – can be used for a wide range of industrial applications, such as construction, surveying, urban planning, and land management.

3D Modeling

Strecha says that more and more clients now want to go beyond mapping into 3D modeling. “Even in traditional surveying and mapping, the needs are changing,” says Strecha. “On the professional side, there is more and more interest in 3D modeling.” Strecha uses the example of the ubiquitous Google maps – once strictly 2D but now giving users the experience of walking down a neighborhood street, viewing the houses.

While the equipment required is the same for both processes, drone operators who want a 3D model as a

result will need to provide more oblique shots, providing images of the facades. With those, modeling software can create realistic 3D models or fly-through videos.

3D modeling can be used for commercial purposes like real estate; or, like the image at the top of the page, to create more informative maps.

Applications

There is good news for the drone operator: processing software and platforms can do all the work, building maps or models from the images they provide. The operator may just need to make their client aware of what’s available. While agronomists may still find 3D maps most useful, construction, geospatial or real estate applications are finding more benefit from 3D modeling.



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Bathrooms and Fittings



What are bathroom fittings?

Bathroom fittings are, by their very definition, the things that are fitted in addition to the main parts of your room (known as the fixtures).

Bathroom fixtures are recognised as permanent elements which are either plumbed or wired in, and only really movable or detachable when you look to renovate again in the future. As such, most fixtures have an expected "lifetime" of up to 25 years in some cases. The distinction is more of a legal one, when buying a property, with fixtures being left by the outgoing occupants, whilst the fittings are normally taken. Although, the lines are often very blurred when it comes to this type of definition, outgoing homeowners may very well leave all sorts of fittings, but actually remove some of the fixtures!

If you are renting a home, normally all of the items in the bathroom will be classified as fixtures, which belong to the landlord. On the continent, in countries like Germany where the rate of home ownership is much lower, it is often expected that a new tenant actually supplies elements such as toilets and basins.

Examples of bathroom fixtures:

- Bath
- Toilet
- Basin or sink
- Shower

- Taps
- Fitted furniture

Examples of bathroom fittings:

- Toilet seat
- Shower curtains
- Toilet roll holder
- Soap dispenser
- Freestanding or wall mounted bathroom furniture
- Basin or bath waste
- Detachable shelves

Let's look at some of these bathroom fittings in greater detail.

Toilet seats

One of the most common replacements in a bathroom, the toilet seat undergoes a fair bit of wear and tear in its time, so it's hardly surprising it is one of the most popular bathroom fittings.

Handy hint: A common question, we get asked is "Are toilet seats a standard size?", which you can find out by reading our blog post.

Toilet seats are mainly made using thermoplastic or thermoset, both hardwearing, durable materials that are resistant to stains and scratches. Although, if you prefer that more authentic look, you can still get solid wood or wood effect seats in a whole range of colours.

Most toilet seats come with soft close hinges which help prevent wear and tear and keep little fingers from getting trapped. Plus, you can also buy seats which detach easily, for simple cleaning (and, as we all know, toilet seats need



plenty of cleaning!). Make sure you check your toilet seat has these features before buying.

Shower curtains

Whilst shower screens are fast becoming the contemporary way to keep water firmly in its place, many people still prefer shower curtains or simply require them as a like for like replacement.

Ensure the design matches with the rest of your decor, and also wash frequently to ensure mould doesn't grow (it helps to have at least 2 different sets).

Bathroom accessories

When choosing your bathroom accessories, it pays to have a firm idea on the kind of elements you require. A toilet roll holder and towel rail are pretty much a given, but will you need additional shelving space? How about a mirror cabinet or somewhere for your

soap, if space is limited around your basin?

The overall style of your bathroom will ultimately dictate what type of bathroom fittings you choose. A contemporary design will require more modern, minimalist designs, whereas a traditional decor could mean more intricately detailed accessories with ceramic inlays. Whatever you do, make sure your accessories are coordinated with matching bathroom accessory ranges.

Freestanding or wall mounted bathroom furniture

Bathroom fittings can cover quite a number of different furniture items, from small things such as mirror cabinets, to larger elements such as wall cabinets or drawer units.

If an item of furniture can be easily detached and moved, it is one of your bathroom fittings. However, items such as vanity units and fitted furniture are more likely to be classified as bathroom fixtures, as it is unlikely you will go to great lengths to remove them, unless you think it's time for a change.



Building a house with a whole-home audio system



Why it pays to plan your system before you build

Building a new house? The pre-construction phase is the perfect time to plan your whole-home audio system. Our corporate sales account manager Mark knew he wanted in-ceiling and outdoor speakers throughout his home. So when



he set out to build his new house last year, he planned and built his audio system right along with it.

Here's a look at Mark's construction to show you how to plan your own system before you build.

Step 1 – Decide where you want music

A lot of people wait until their new house is built to decide where they want to put speakers. But if you plan before construction starts, you



can choose the perfect locations for all your speakers. And it's a whole lot easier to run wires to them before the walls are in place!

After finalizing the blueprints for his house, Mark and his wife Brittany began planning their system. "We wanted to agree on where we wanted sound, how we wanted to control it, and then wire everything accordingly," Mark said.



The Polk MC-60 in-ceiling speakers that Mark chose are a Crutchfield customer favorite for sound quality and affordability.

They decided on one pair of Polk MC60 in-ceiling speakers in the basement, one pair on the front porch, and one on the screened back porch.



And for the master bathroom, they chose a stereo input speaker — a space-saving way to get two-channel sound from a single speaker. For the back patio and out front by the garage, they chose two pairs of Polk Atrium6 outdoor speakers. "I like them because they have big woofers for more punch," Mark said of his outdoor speakers, adding that it's great to have tunes pumping by the basketball court and out back.

Step 2 – Choose gear to power and control your system

In-ceiling and outdoor speakers need power. So you'll need one or more amplifiers to hook them up. Mark chose a single 12-channel AudioSource amp that could direct power to all six of his in-ceiling and outdoor speaker locations.

Mark's 12-channel AudioSource amplifier can power up to six pairs of speakers simultaneously.

Now that he had his speakers and amp picked out, Mark needed a preamplifier to add music sources to his system. He wanted to play Spotify, Pandora, and internet radio stations throughout the house from his phone. So he chose the Yamaha WXC-50 streaming preamp.

The WXC-50 uses Yamaha's MusicCast wireless multi-room audio platform to stream music through all of Mark's in-ceiling and outdoor speakers. "I've always been partial to Yamaha for sound quality and reliability," he said. He also mentioned that the MusicCast app is easy to use.

Mark also has MusicCast equipped Yamaha receivers in his home theater and basement surround sound setups, so he can use the MusicCast app to control everything at once.

Step 3 – Decide where your control center will go

Next, Mark had to decide where to put the amp and preamp. "We decided to put the gear in the basement so it was out of sight, and away from the kids," he explained. They had planned to build a closet under the basement stairs, which would be the perfect location for a rack to house the control gear.

The gear for powering Mark's whole-home audio system is tucked away in a closet.

Step 4 – Run wire and install speaker brackets and volume controls before drywall goes up

Before walls go up, run all the wire you think you might ever need! Once the framework for his new home was in place, Mark ran more than 1,000 feet of speaker wire to the speaker installation locations, all leading to the basement closet where he would later install his amp.

Mark installed his volume control boxes prior to putting up drywall. Though Mark wanted to control the system with his phone, he decided to run his speaker wire through volume control boxes in each room. "We wanted volume controls in case the internet ever went out," he said. "It's not the best in rural America."

Mark also installed preconstruction brackets for the ceiling speakers. These brackets help pinpoint the exact location for each speaker and make installation easier. They have wings that can be attached to the framework with screws, staples, or nails.

Preconstruction brackets simplify your in-ceiling speaker installation. Here's Mark pulling speaker wire through a bracket in his basement.

Once the wire runs were complete and the brackets and volume control boxes were in place, the drywall went up. Then Mark installed the speakers and volume controllers.

The finished product

When we visited Mark after the house was finished, he had music playing everywhere. "I'm really happy with how everything sounds," Mark said. "For get-togethers, it's nice to have music playing throughout my house that's easy to control."



ARCHITECTURAL DRAINAGE SOLUTIONS

Stormtech are the specialists in architectural drainage solutions with a narrow profile grate for outdoor landscaping and pool designs. Stormtech specialises in architectural drainage solutions with a narrow profile grate for outdoor landscaping and pool designs. Established in 1989, Stormtech is the inventor of the original Slot Drain and the Special Assembly drainage system for which they won a DesignMark at the 2004 Australian Design Awards.

The range of Stormtech drainage systems is suitable for residential, commercial and industrial purposes. Aesthetically pleasing, they provide extreme efficiency and ease of access in high traffic areas and are pedestrian, bicycle and wheelchair safe. Manufactured in Australia, they are available from class A (pedestrian) to class F (airport grade).

All Stormtech grates are made of quality stainless steel manufactured in Australia. The system connects directly with all standard plumbing fittings and has a Watermark Standards Australia International certification.



Key Considerations for Your Outdoor Drainage Project

Poor drainage design and surface grading can exacerbate surface runoff (an environmental hazard) and cause substantial damage to landscaped areas.

Moreover, poor drainage flow, resultant from substandard drainage design and placement, remains the chief cause of ponding, which can degrade impervious surfaces and cause serious structural damage to any property. Here are some of the key considerations for your outdoor drainage project to help architects, specifiers, builders and skilled DIY practitioners select and implement the best drainage solutions.

1. Drainage Layout & Availability

One of the chief considerations for outdoor drainage sites is their access to existing plumbing and drainage systems.

The advantage of new building sites is that most allow for drainage systems to be established in order to meet the 'lay of the land',



ensuring maximised water flow and adherence to best practice water-sensitive design principles (WSUD). However, older properties may offer fewer possibilities for alteration, and may be better suited to more traditional drainage arrangements.

Building surfaces (such as earth, stone or concrete) will also impact one's ability to move or increase the number of available drains.

2. Use of Outdoor Area

If your drainage area is heavily trafficked or used for vehicular access/parking, it is critical to ensure your drainage solution can bear the weight of these excessive loads.

Many drainage solutions offer superior load ratings to ensure they can withstand these load forces and avoid buckling even under constant load pressures.

3. Environmental Concerns

Australia's unique environmental challenges will greatly impact on the type of drainage materials and grating required for your outdoor area.

Key external variables such as exposure to airborne salinity (i.e. proximity to seashore), tree debris (e.g. leaves and seeds), exposure to urban pollutants (e.g. PAHs and corrosive chemicals) and even weather (dry arid versus wet tropical) conditions will all have a significant impact on the type of drainage you require and the materials best suited to withstand these unique environmental conditions.

Boasting an unrivaled depth of experience with linear drainage solutions, Stormtech welcomes questions about product selection and compliance, and can advise prospective clients on the most suitable drainage product for your building project.

Our skilled specialists work closely with specifiers, architects and builders to offer tailored drainage solutions, including bespoke drawings and plans for customised drainage designs. We work proactively with plumbing advisory services to ensure drainage is not only fit for purpose, but meets stringent Building Code of Australia (BCA) compliance measures.

The Emerging Female Architects of East Africa



Victoria Heilman, Emma Miloyo, Devothe Mukeshimana, Assumpta Nnaggenda-Musana, Maliam Mdoko. Illustrations by Dev Aswala.

The East Africa region—which includes the countries of Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Seychelles, Somalia, Tanzania and Uganda—is currently in the middle of a construction boom that is transforming the region’s built environment. According to Deloitte’s 2018 African Construction Report, the total number of building projects in East Africa rocketed up by 96-percent between 2017 and 2018, with a substantial increase of 167-percent in the total value of projects. The report also notes that China is directly funding 25.9-percent of the construction projects in the region, far outweighing investment from the various East African governments, which valued at 12.9-percent. How will this new wave of fast-paced development reshape the landscape of East African countries in the decades to come? Since last November I have been living and working in southern Tanzania on a construction research project that looks into the effect of housing on family health. During a stay in Dar es Salaam, I caught up with Victoria Heilman, an inspiring architect leading a sustainable and ethical building movement in Tanzania while lobbying the government for construction industry reform. Inspired by our conversation, I went in search of other women from across East Africa, at different stages in their careers, who are making their mark on the future of the

region’s built environment.



Victoria Heilman, VK Green Architects, Tanzania

Victoria Heilman is a Tanzanian architect and educator who recently stepped back from teaching at Ardhi University in Dar es Salaam to focus on her own firm, VK Green Architects Ltd, and the nonprofit she co-founded, Tanzanian Women Architects for Humanity (TAWAH).

“I landed in architecture without knowing what it really was,” Heilman recalls, “then during my master’s degree in the States I worked with Habitat for Humanity on a number of projects. When I came back to Tanzania, I found the same organization also existed here, so I worked with them on socially oriented projects in Zanzibar and Tanga. The most interesting part about architecture for me is to be out in the field working with people who need architectural expertise, but do not have high-end requirements.”



Pongwe Classrooms Project by TAWAH.

When Habitat for Humanity Tanzania changed their operational model from fieldwork to loan-based financing, Heilman took the initiative, alongside three female colleagues, to found TAWAH. “Our ambition is to keep the work Habitat for Humanity was doing alive in Tanzania,” she explains. “We mobilize women in architecture and engineering to go out there and meet marginalized groups. We want to make an impact on these communities while involving people in the process. For example, while working out in Arusha, I learned that Massai women also have relevant knowledge of architecture to share with us which we did not learn in class.”

“The most interesting part about architecture for me is being out in the field working with people who need architectural expertise, but do not have high-end requirements.”

—Victoria Heilman

Heilman holds a PhD in sustainable building practice with a focus on Tanzania and utilizes her research knowledge to push for legislative reform in the country’s construction industry. Her involvement with industry decision-makers soon led her to realize that the construction sector was not being driven by design, but instead by other factors, such as material supply. She explains, “here in Tanzania, architects have to bank on what suppliers tell them about a product, as there aren’t the building codes in place”. Heilman is currently lobbying for the integration of green and passive design concepts in a new Tanzanian building code, which is currently paused awaiting ministerial review. “I don’t want to see Tanzania left behind,” she urges, “Kenya has [a building code], Rwanda has one, and Uganda has one even though it doesn’t contain too many green

or sustainable design concepts. As an architect, I feel we can influence policy to get to the root of where things are going wrong. The code will help to validate or dispel these claims and prevent material suppliers ‘greenwashing’ the industry.”



TAWAH’s Women in Construction Mentorship Program Launch 2019.

At work in her office in Dar es Salaam, Heilman aims to integrate sustainable concepts into every design proposal. She explains, “my main goal is to try and show how basic technologies and passive design can result in energy savings. We are currently working on a 7-story office building in Mwanza for the National Audit of Tanzania. We studied orientation and sun patterns to make sure we had maximum shading as a baseline, which will save on in-use costs such as air conditioning. Our energy analysis enabled us to see how the sun will affect the building over time, so we could use this information in our design process.” It can be argued that sustainable design concepts and passive techniques have yet to hit the mainstream construction industry in many East African countries, which Heilman suggests is partly due to the translation from design thinking into practice and lack of client uptake and long-term vision. “There are a lot of innovative ideas here in Tanzania and architects who are real specialists in their fields, but I do not see real change yet. Since the 1990s, concepts that don’t really work in hot, tropical climates are still being imported from the West, such as curtain glazing. With the young generation coming through, I worry there is still a mentality of ‘get something from outside and bring it here,’ and unfortunately architects still think homegrown knowledge is not good enough.”

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Emma Miloyo. Illustration by Dev Aswala.

Aswala.

Emma Miloyo, Design Source, Kenya
Emma Miloyo, the first female president of the Architectural Association of Kenya (AAK), studied architecture at Jomo Kenyatta University of Agriculture and Technology outside Nairobi. Twelve years ago she co-founded a corporate firm with her husband called Design Source, specializing in hospitality, commercial and energy projects across East Africa.

“At Design Source, we work on the principle that architecture isn’t only shelter, but that it should inspire and evoke emotion,” says Miloyo. “We make an extra effort to think about how our buildings interact with the end-user and their context. Our buildings shouldn’t just be buildings, they should make people walk past and take a second glance.”

Her Nairobi-based office puts Miloyo at the epicenter of the East African construction explosion—according to Deloitte’s 2018 African Construction Report, Kenya has the largest number of projects in the region, with an estimated overall project value of \$38.2 million. “It’s the fad now, everybody’s putting up a highway or a railway line or something, and it’s having a huge impact on how cities develop. In *Habitat Nairobi* by Design Source



external view.

Nairobi, we are witnessing the urban sprawl that comes along with such fast expansion”, explains Miloyo. “In many projects, the focus is vehicular movement and developers are not thinking about the human scale, which has a huge impact on the projects’ future success. You see this again and again, especially in projects by Chinese developers and clients, both here in Kenya and across East Africa. Projects are not being designed for longevity or in our local materials and styles.”

Habitat Nairobi by Design Source pool



view.

At Design Source, Miloyo and her design team favor the use of homegrown materials and techniques in their buildings. Like Heilman, she sees similarities between sustainable design and concepts in traditional African construction. “We Africans stumbled on these concepts in our traditions: you build models around you and build with your hands, we didn’t have to think too much about heating and cooling systems. We must not lose the basic principles we have inherited, and keep these ideas alive in new African buildings.”

“To realize architecture, you have to have a lot of emotional intelligence. You’re leading teams, you’re conducting an orchestra, and there are all

these dynamics. So you’re realizing that it is a lot about drawing, but that in fact the major part of it is how you interact with people.”

—Emma Miloyo

As her career has progressed, Miloyo has often found herself in positions of leadership, both managing construction teams and now as president of the AAK. She warmly tells me that her journey has been one with many challenges along the way. “Something they don’t teach you in school is that architecture needs to respond to people’s needs and how to manage that respectfully. In trying to meet the client and end user’s needs, the solution is never all about you, and as an architect, you need to be very responsive. Very few architects can get away with anything else, only starchitects like Zaha Hadid and the rest can say, ‘this is who I am and this is what I do,’ and people come to them for that kind of work. To realize architecture, you have to have a lot of emotional intelligence. You’re leading teams, you’re conducting an orchestra, and there are all these dynamics. So you realize that while architecture is a lot about drawing, the major part of it is in fact how you interact with people.”



Devothe Mukeshimana. Illustration by Dev Aswala.

Devothe Mukeshimana, Journeyman International, Rwanda

Devothe Mukeshimana is part of the first cohort of East African architects who graduated from the new faculty building at the University of Rwanda School of Architecture

and Environmental Design, completed in 2018. During her studies, Mukeshimana focussed on sustainable materials, energy efficiency, and low-cost construction, and hopes that since graduating earlier this year, these ideas will continue to drive her practice.



Dream Village Center Rwanda by Devothe Mukeshimana and Patrice Uwizeyimana internal view.

As in Heilman’s career development, the presence of the voluntary sector in East Africa has shaped Mukeshimana’s skill-set and social approach to design. Mukeshimana worked as a student assistant on the IMBUGA city walk, a masterplan for the pedestrianization of a key street in Kigali and as an intern at Journeyman International (JI), where alongside Patrice Uwizeyimana, they proposed a new design for a vocational training facility for victims of HIV at a site in Muyumbo, near the Rwandan capital.

“The most challenging part as a young female in architecture so far is that in my country you can’t find professional women architects who can motivate us, advise us and inspire us in our career.” Devothe Mukeshimana

“The most interesting thing for me about working in East Africa right now is the inspiration that comes from collaborating with people with different skills, experience and diverse backgrounds and learning from each other,” explains Mukeshimana.

“After completing secondary school, I was confused between architecture and engineering because most of the people around me did not know much about architecture due to it being a new faculty at the University of Rwanda. For me what matters most is learning to use my architectural skills to serve society.” Now her studies are complete, Mukeshimana plans to

continue at JI to further develop her practice and help design sustainable and low-cost projects in Rwanda.



Assumpta Nnaggenda-Musana.
Illustration by Dev Aswala.

Assumpta Nnaggenda-Musana, TECO, Uganda
Assumpta Nnaggenda-Musana balances running a design studio and teaching at Makerere University Department of Architecture and Physical Planning in her home city of Kampala, Uganda. As a student, she drew inspiration from her international education, studying for her Architecture degree at Kharkov State University in the Ukraine then later moving to Stockholm, Sweden, to complete her PhD at KTH. In 2008, Nnaggenda-Musana became the first Ugandan woman to receive a PhD in Architecture.
Her current academic interests stem from her PhD research, which explored urban housing formations in Kampala. “In my PhD, I was looking into how Kampala could be densified, yet allow low-income groups to go about their day to day business, for example integrating indoor and outdoor living. My prototypes included two- to three-story buildings as part of an overall upgrading strategy,” explains Nnaggenda-Musana. “Today, my research is focused on low-income housing and settlements in Kampala, and I have also begun to take an interest in gender issues, which I see as being indivisible from life in the home.”
Studying for her PhD revealed new perspectives on housing informality to Nnaggenda-Musana. At the time, the mainstream approach she had witnessed in Kampala was to ‘wipe the slate clean’ and rebuild informal housing from scratch, which had led to many housing projects

being rejected by their occupants. “There are many positive aspects to the architecture of these informal settlements that are often disregarded in formal urban planning and should be celebrated,” she tells me. “In Kampala, the majority of housing projects have been built on Western models, which cannot be directly translated to African cities.”



Nnaggenda-Musana checks works on site.

The crossover of her research and studio time has arguably shaped Nnaggenda-Musana’s approach to built projects. “Teaching African traditional architecture, I would say that I enjoy buildings which do not rely on artificial environmental control, such as air conditioning, but work with the climate,” she explains. “When working on urban planning projects, I generally advocate mixed-use development. Kampala could be a ‘garden city,’ full of biodiversity, where people live closer to their workplaces.”
In response to the time pressures of balancing teaching, research and practice, Nnaggenda-Musana joined Technology Consults (TECO), a practice initiated by former lecturers at Makerere. TECO allows academic staff to work together while offering students valuable experience working on live projects. Currently, TECO are working on two master planning projects: a development plan for Mengo Hospital and the establishment of a “Free Trade Zone” around Entebbe Airport. Established by Albert Ruskin Cook in 1897, Mengo Hospital is the oldest hospital in Uganda, which is said to have housed Africa’s first X-ray machine. The masterplan designed by TECO alongside around twenty architecture students proposes to redevelop the site based upon principles of sustainable design and social cohesion between different medical departments. The historic colonial buildings will be retained as part of the project and a museum is also proposed on the

site to celebrate its unique architecture. “I always tell my female students to be assertive, especially when doing site visits, and to shape your own place in the industry” —Assumpta Nnaggenda-Musana
When asked what the biggest challenge she faces working as an architect in Uganda today, Nnaggenda-Musana responds, “the hardest thing to overcome is that the profession has been historically seen as a male speciality. I notice it when, as a female architect here, you say something on site or in the workplace, and the men do not give you the right audience. Getting accepted is a challenge even today. But I think that this makes female architects resilient. I always tell my female students to be assertive, especially when doing site visits, and to shape their own place in the industry.”



Maliam Mdoko. Illustration by Dev Aswala.

Maliam Mdoko, Press Trust, Malawi
Maliam Mdoko is Projects Manager at the Press Trust, Malawi’s foremost local charitable institution that works on buildings offering public benefit, such as in the education, health, social welfare and housing sectors. She worked her way up at the organization after being hired as a Project Officer in 2010. While Malawi isn’t strictly in East Africa, it is experiencing a comparable expansion of the construction industry that can be seen in the rest of the region.

“For me, architecture is beyond a profession, it’s a calling,” says Mdoko. “As an architect, I take every day as an opportunity to make the world a better place. I try to embrace each day with an open mind and I’m always eager to meet new challenges and new opportunities. Architecture to me is a tool to soothe my mental capacity and create solutions for society in a way that leaves a positive footprint. My profession has helped me to meet and serve different cadres of people from decision makers to grassroots communities.”
“As an architect, I take every day as an opportunity to make the world a better place. I try to embrace each day with an open mind and I’m always eager to meet new challenges and new opportunities.” —Maliam Mdoko
After Mdoko graduated in 2004, she joined a local architecture practice called Kanjere and Associates, where she worked until after her professional practice exams. At Kanjere and Associates she was exposed to major public infrastructure projects across Malawi, working with clients such as the Malawi Government, World Bank, DFID, and the European Union. It was here Mdoko first adopted a supervisory role in infrastructure projects, and began managing disciplinary teams.



“To complete a public infrastructure project such as a health facility, I have to work with decision makers in the line ministry and central government and the municipal authorities’ level, traditional leaders and other local government structures,” she explains. “This exposure has helped me to sharpen my interpersonal skills and has also exposed me to different cultures.”

Mkodo takes challenges in her stride. “Challenges in an architectural career, and life in general, are inevitable. But with the right knowledge, skills, capabilities, and of course the right attitude, challenges should be considered to be opportunities to grow, to be creative and

innovative. If well-handled, challenges help you to be appreciated by the public as well as fellow professionals, and can open new doors for career development or advancement. I can look back with pride that I have supervised projects and handled challenging dynamics effectively because I chose to tackle issues head on and give a positive vibe, rather than being dragged down by stereotypes.”

“Architecture is a beautiful profession, yet challenging one. I encourage younger women not to limit their dreams by the trends they see today where the construction industry is largely male-dominated and viewed as the most corrupt industry.” Maliam Mdoko
Currently Mdoko balances projects supported by the Press Trust and architectural work for private clients; She is also outspoken regarding anti-corruption initiatives in the construction industry. “Malawi is a developing country with a lot of socio-economic needs as it aspires for growth,” she explains. “Like other countries in Africa, and around the world, we have capable architects who can change the built environment, who are striving to create safe and better living spaces. However, we need a space to do this with no political interference. I want to see a corruption-free construction industry, where people respect and appreciate the architectural profession.”



Mdoko supervising construction works.

In the next twenty years, Mdoko dreams of a different Malawi, one more advanced from what she sees today in terms of infrastructure development. “I see a Malawi where every developer would want to involve an architect in their projects,” Mdoko tells me. “We are now living in a global village and coupled with the ever-changing technology, I see increasing competition among architects. This should be

viewed positively as it provides room for professional growth and development.”

Learning from experience
I asked each architect what advice they would like to pass on from their own experiences to younger women starting out in the field. “As a woman, you need to exhibit extra skills to be accepted,” Heilman told me, as we discussed the challenges of working in a male-dominated industry. “For example, when the work is competition-based, you are presenting to all-male panels which can pose a problem. Male client teams may not wish to take advice from a female architect when they have already made up their mind on something. It can be a challenge to make them understand things that they don't really see at that moment.”

To provide support and guidance for young women starting out in architecture, this year TAWAH launched a ‘Women in Construction’ mentorship program, to connect female mentors working in architecture and engineering professions to mentees leaving education in Tanzania. “I would like to say to young women not to give up, to work extra hard so people can see you will deliver,” says Heilman. “Find someone you can learn from and understand how the environment works”. It appears a similar program would not go amiss in other East African countries. When I asked Mukeshimana what had been the toughest thing for her to get started in the industry, she replied, “in my country you can't find professional women architects who can motivate us, advise us and inspire us in our career.”

Nnaggenda-Musana thinks the future is promising for young female architects in Uganda. “The proportion of female students that I'm teaching at the university is increasing,” she explains. “Since 1986, when the government put their focus on gender empowerment, equal opportunities have been prioritized in most workplaces. I'm happy to see women now taking up prominent roles in the industry, for example, the Ugandan Architects' Registration Board now has a woman in charge, and at regional symposiums and conferences, I now see more female architects.”

Mdoko also sees a future where architecture studios are more balanced than today and the architecture profession benefiting from a more level playing field. “Architecture is a beautiful profession and a challenging one,” she says. “I encourage younger women not to limit their dreams by the trends they see in the construction industry today, being largely male dominated and viewed as the most corrupt industry. Be focused and hold on to your dream even when the going gets tough. Most importantly, believe in yourself.”

“The way architecture is taught is one of the most powerful tools you can be given because you're learning to develop into a critical thinker, a problem solver, and by nature, you're learning that there is no right way to do something, there are many solutions.” Emma Miloyo
“It could soon be possible that women in architecture in East Africa are no longer an exception but can hold their own and even lead design table discussions,” Miloyo continues. “Around 15 years ago, only 5- to 10-percent of architecture students were female, but now we're looking at almost half, and that will have an impact. Having more women coming through is good for everybody, both for men and women. It will be interesting to see how many get absorbed into the profession and how many venture into other areas.”

Miloyo understands that whatever career young women choose to go into, an architectural education will set them up for the future job market. “I think architectural education, or the way architecture is taught, is one of the most powerful tools you can be given as you're learning to develop into a critical thinker, a problem solver, and by nature you're learning that there is no right way to do something, but instead that there are many solutions.”

“Due to the East African construction boom, this is the moment for young women, and when everyone sits at the table, it's good for everybody. Of course, there'll be some resistance along the way, but you have to keep soldiering on, and I think the sky's the limit in terms of what you can do.”



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What Are the Benefits of Acoustic Room Dividers?

Soundproof partitions can instantly transform a space and make it more comfortable, a lot less noisy and more visually appealing and organized. You can make an office, restaurant or any room look more clean and modern, all while reducing noise distractions and improving privacy. Here are the benefits of noise partitions, and reasons to consider adding them to your business, workplace or home:

Reduces sound: Imagine a call center in a building without partitions. Noise would bounce off hard surfaces everywhere, and it would be tough to concentrate. Consider a study of 259 office workers. According to the study, sound and temperature were the top factors affecting office productivity. Workers reported conversations, ringing phones and machines as the most annoying noises, and these noises had a significant impact on all survey participants. Acoustic partitions reduce background noise, which, in turn, improves productivity.

Improves acoustic quality: Noise partitions improve sound and speech intelligibility within a space. With less noise, you can hear better and therefore communicate better to reach your goals.

Increases privacy: It can be hard to focus when employees hear and see co-workers goofing off nearby. Acoustic partitions create a private, self-controlled space where employees can comfortably work distraction-free. A sense of independence is a benefit for employees. Acoustic partitions can also

increase privacy in restaurants to create an enjoyable and intimate dining experience for customers.

Installing sound-absorbing built-in ceilings in the classroom and laying carpets on the floor will give you good acoustics and reduce much reverberation time. This method is more economical for the construction of new classrooms and the renovation of existing classrooms.

For small and medium classrooms, if using a built-in ceiling whose $NRC > 0.75$, its reverberation time is acceptable. Carpet has a certain absorption effect on high frequency noise, but mainly used to reduce the noise made by students. Unfortunately, this method has no effect on controlling the reverberation of the wall. However, if you deliberately arrange furniture such as cabinets and bookcases to divide the large and flat walls, it can also reduce the echo.

The best design for a lecture-style classroom is to move some of the sound-absorbing material from the ceiling to the wall, keep the center of the ceiling hard. To ensure that the teacher's words are reflected to the back of the classroom. This semi-absorbent, semi-reflective ceiling looks complicated, it can be built using standard compartments. You only need simply place the acoustic ceiling panel around the ceiling, and install gypsum board on the roof.

If you need to reflect more sound to the back of the classroom, the reflective surface of the ceiling can be set according to the position of the teacher at the front. This part of the reflective surface must be made of a sturdy material such as splint or gypsum board, and can be painted to harmonize with the entire house. Putting sound-absorbing materials into the wall also reduces reflections and eliminates echo.



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