

# BUILDERS MAGAZINE

**BM OCTOBER NOVEMBER 2022**

Amazon Consultants Ltd is a leading Kenyan Quantity Surveying and Project Management firm founded in 1998 as a partnership and later incorporated in 2007. The Directors are supported by a team of well-trained Quantity Surveyors, Project Managers and dedicated support staff.



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# Future cities could be 3D printed - using concrete made with recycled glass



3D printed concrete may lead to a shift in architecture and construction. Because it can be used to produce new shapes and forms that current technologies struggle with, it may change the centuries-old processes and procedures that are still used to construct buildings, resulting in lower costs and saved time.

However, concrete has a significant environmental impact. Vast quantities of natural sand are currently used to meet the world's insatiable appetite for concrete, at great cost to the environment. In general, the construction industry struggles with sustainability. It creates around 35% of all landfill waste globally.

Our new research suggests a way to curb this impact. We have trialled using recycled glass as a component of concrete for 3D printing.

Concrete is made of a mix of cement, water, and

aggregates such as sand. We trialled replacing up to 100% of the aggregate in the mix with glass. Simply put, glass is produced from sand, is easy to recycle, and can be used to make concrete without any complex processing.

Demand from the construction industry could also help ensure glass is recycled. In 2018 in the US only a quarter of glass was recycled, with more than half going to landfill.

**Building better**  
We used brown soda-lime beverage glass obtained from a local recycling company. The glass bottles were first crushed using a crushing machine and then the crushed pieces were washed, dried, milled, and sieved. The resulting particles were smaller than a millimetre square.

The crushed glass was then used to make concrete in the same way that sand would be. We used this



concrete to 3D print wall elements and prefabricated building blocks that could be fitted together to make a whole building.

The presence of glass does not only solve the problem of waste but also contributes to the development of a concrete with superior properties than that containing natural sand.

The thermal conductivity of soda-lime glass – the most common type of glass, which you find in windows and bottles – is more than three times lower than that of quartz aggregate, which is used extensively in concrete. This means that concrete containing recycled glass has better insulation properties. They could substantially decrease the costs required for cooling or heating during summer or winter.

#### Improving sustainability

A building envelope prefabricated using the 3D printing process. Mehdi Chougan, author provided A building envelope prefabricated using the 3D printing process. Mehdi Chougan, author provided We also made other changes to the concrete mixture in order to make it more sustainable as a building material, including replacing some of the Portland cement with limestone powder.

Portland cement is a key component of concrete, used to bind the other ingredients together into a mix that will harden. However, the production of ordinary Portland cement leads to the release of

significant amounts of carbon dioxide as well as other greenhouse gases. The cement production industry accounts for around 8% of all carbon dioxide emissions in the environment.

Limestone is less hazardous and has less environmental impact during the its production process than Portland cement. It can be used instead of ordinary Portland cement in concrete for 3D printing without a reduction in the quality of the printing mixture.

We also added lightweight fillers, made from tiny hollow thermoplastic spheres, to reduce the density of the concrete. This changed the thermal conductivity of the concrete, reducing it by up to 40% when compared with other concrete used for 3D printing. This further improved the insulation properties of the concrete, and reduced the amount of raw material required.

Using 3D printing technology, we can simply develop a wall structure on a computer, convert it to simple code and send it to a 3D printer to be constructed. 3D printers can operate for 24 hours a day, decrease the amount of waste produced, as well as increase the safety of construction workers.

Our research shows that an ultra-lightweight, well insulated 3D building is possible – something that could be a vital step on our mission towards net-zero.

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#### Contributions

The editors welcome news items, press releases, articles and photographs relating to the Construction Industry. These will be considered and, if accepted, published. No responsibility will be accepted should contributions be lost, damaged or incorrectly printed.

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# NEELCON CONSTRUCTION SERVICES LTD COMPANY PROFILE

Neelcon construction services ltd is a professional construction company founded in 1991 by the director Naran Hirani. The company became a limited liability in 2000. Since then they have completed various projects all around the region, with other projects in Uganda and Tanzania; working around the region to deliver value based engineering services.



Skyward Express

The company adheres and ensures that works on site and in the office are carried out as per regulation and with Covid compliance. With the Covid -19 Pandemic, Neelcon began and maintained the development of guidelines for construction sites to prevent spread of the virus.

To assist their clients to get the best value for money, they employ qualified and experienced staff.



No matter the scale, scope and magnitude of the project they are undertaking, the same standard of excellence is always applied. This implies that, whether, we are building a big project like a multi-million shilling lodge in the Serengeti, a big shopping centre in Kisumu or a smaller project like a tennis court for the High commissioner they aim for excellence. At the heart of their projects, they use modern software including Quickbooks, CAD and Primavera's Suretrak Project Manager to effectively and efficiently plan, design, construct, and manage projects. With the director's professional experience in value engineering, they go a long way to help the client get the best value for their project and make construction projects successful.

The company continuously strives to help their customers with all their foundation needs because they believe that a solid and sustainable foundation is the most important part of the building process. "With increasing global demand for eco-friendly and energy efficient living spaces, we Neelcon construction services has made a commitment to local communities and the environment to do our part in promoting



sustainability in new building construction. This in turn enables us to offer the highest quality residential and commercial construction services."

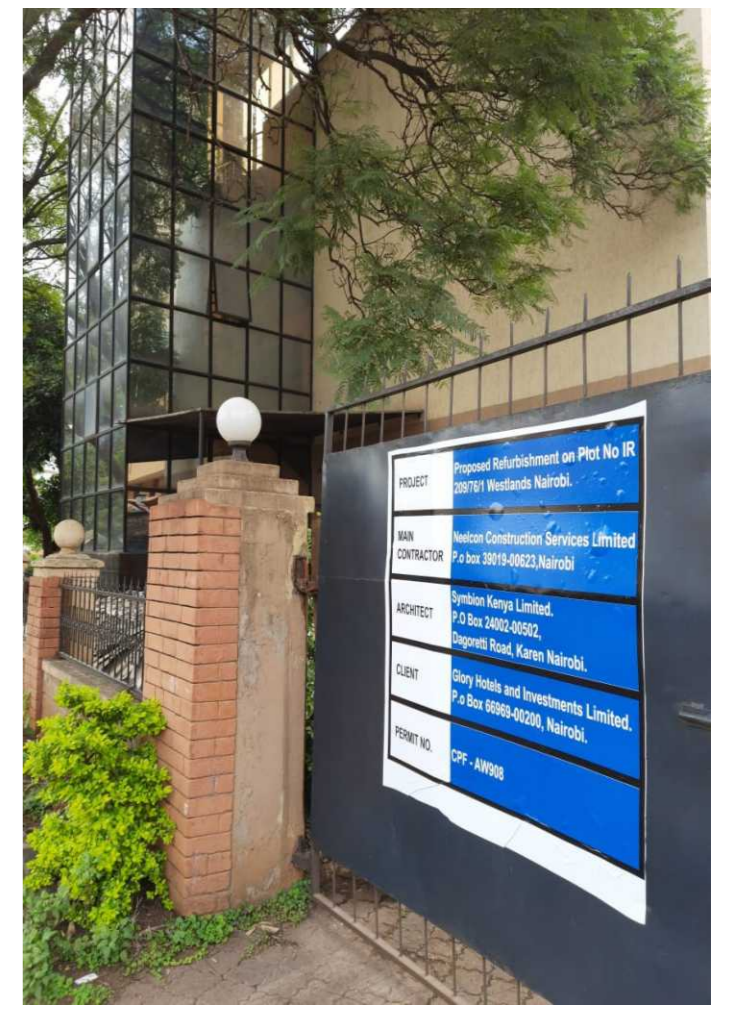
The company ensures that wherever applicable environmental status as per NE-MA and UNEP is maintained. In addition the materials and wastages are carefully handled.

Our company runs under and adheres to the state rule and regulations that governs and authorizes the existence of such a construction company. Our long existence in the construction industry together with our expertise personnel, we have delivered quality and economical construction services to our clients.

Regarding Safety measures our company has employed trained safety personnel to ensure required standards are met.

Some of the ongoing and currently completed projects includes and not limited to:

1. Pride Inn Hotel – Renovation works with a contract value of 83.5 Million



2. Moi Teaching and Referral Hospital – Eldoret



Linac Machine in a radio - active bunker

The company has a well structured organizational team headed by Eng. Naran Hirani as the Managing Director. He works with a team of professionals so as to deliver effective and efficient timely service to the clients. These key personnel include the Accounts Officer, Secretary, Alt. Director, Purchases Personnel, Projects Manager, Site Agent, Logistics/Haulage, Subcontractors, Site Engineer, Site Stores, Fabrication Crane Electrical and Site Liason Personnel and a Site Supervisor with whom the Masonry, Carpentry, Steel Fixing, Concreting/Control and Finishers departments are under.

The company ensures that wherever applicable environmental status as per NEMA and UNEP is maintained. In addition the materials and wastages are carefully handled, cutting of trees is strictly stressed and fines are levied in case of defaulters.

The company has the infrastructure to carry out works in remote areas and well is equipped with

necessary tools and equipments; radio communication, GPS surveying equipments, satellite phones and other rugged machinery.

The company has recently acquired land in Mara with plans to build a luxurious resort.

The directors experiences whilst at Laxmanbhai Construction including prestigious hotel projects such as White Sands Mombasa and the Nairobi Serena hotels helps in achieving International Standard workmanship, timely completion with value based services.

Having come to an understanding that we serve the humanity, our company undertakes charity and social activities as a way of giving back to the society. The company is fully in support of charity and social cause and is actively participating in this. To name a few following activities have been undertaken.

1. Building of cattle concrete trenches in Maasai land ( Kajiado and Ol Tukai areas)
2. Building an orphanage for Nairobi Muslim Women's group at Cost to cost basis in Karen. This is still ongoing and the consultants are M/S Ali Seif Associates.
3. The company regularly pays fees for needy children in various schools of remote areas.
4. Distribution of food and clothes are regularly carried out at orphanage homes in Nyeri. (Superior Saj Welfare group)

Total cost on above activities from last one is about Ksh285, 000.



Cattle trench in Masai land



Employees get together in the 2.5 acre yard



Orphanage for muslim women welfare group. Built at cost to cost

The director Naran Hirani is socially involved in many organizations and is an active committee member in many of them including Lions Club and Wild Life club.



Despite constructing residential and commercial projects, we also undertake institutional projects, shopping malls, hotel and lodges. For instance:



ii. Aberdare conference hall





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# World's tallest timber apartment complex to be built in Zanzibar



whole of Africa and a global environmental milestone, being the first timber structure worldwide of such proportions.

Designed in a playful beehive style with ocean views, the mixed-use apartment and commercial building was unveiled to the public in Muscat, Oman on 1 October.

Dutch-born architect Leander Moons, who was responsible for the concept, said: "Burj Zanzibar is not just an outstanding building but a new ecosystem for the future of living."

The residential tower with 266 residences is to be located in Fumba Town, the East African eco-town developed by CPS.

Categorised as a strategic investment and fully supported by the Zanzibar government, the growing city near the capital stretches along a 1.5-kilometre seashore on the southwest coast.



"Burj Zanzibar will be the highlight and natural continuation of our efforts to provide sustainable housing in Africa, thereby empowering local employment and businesses," elaborated CPS CEO Sebastian Dietzold in Muscat.

With turquoise seas, white sandy beaches and a Unesco-protected historic Stone Town, Zanzibar recorded 15% annual growth in tourism in recent years and 6.8% economic growth. Earlier this year, the semi-autonomous archipelago 35 kilometres off the coast of Tanzania also launched an initiative to attract African tech companies with a view to turning the island into a leading hub for Africa's technology firms.

German-led engineering firm CPS is building the world's tallest green building - a 28-storey apartment tower designed in hybrid timber technology. Named Burj Zanzibar, the high-rise is designed to stand 96 metres tall and would be Africa's first sustainable high-rise.

CPS states that the building would represent an iconic landmark not only for the island but for the



# Green buildings can boost productivity, wellbeing and health of workers



## Timber technology

Timber is the oldest building material in the world. Timber technology is currently experiencing a renaissance because of its environmental benefits and longevity. "New timber products such as cross-laminated timber (CLT) and glulam are considered the building material of the future," according to CPS, adding that one cubic metre of wood binds half a ton of carbon dioxide, whereas conventional concrete construction is responsible for 25% of CO2 emissions.

Once realised, Burj Zanzibar would be the highest timber building in the world and Africa's first high-rise ever using timber technology. A few weeks ago the 86.6-metre Ascent Tower in Milwaukee, US, was certified as the world's tallest timber hybrid building by the Council on Tall Buildings and Urban Habitat (CTBUH). Africa's highest conventional skyscraper is a 385-metre office tower named Iconic Tower in Egypt, still under construction.

Tanzania's top skyscraper is the 157-metre Ports Authority building in Dar es Salaam, while the world's tallest conventional building is Burj Khalifa in Dubai with 828 metres.

## Local materials, playful architecture

Burj Zanzibar is planned as a hybrid timber tower. A steel-reinforced concrete core is designed to meet all required fire and life safety standards. The project is to be executed by a consortium of

specialists from Switzerland, Austria, Germany, South Africa, Tanzania and the US. Green roof gardens and planted balconies further reduce the carbon footprint of the building.

"Burj Zanzibar will be a widely visible new landmark for Zanzibar and beyond, not only because of its appearance but because of its construction method," said architect Leander Moons during the launch event.

Set to promote locally-available wood as a building material, Tanzania and its vast land resources for agroforestry would also benefit from the ambitious green mega tower, said CPS. A large forest development in central Tanzania near Iringa already covers twice the size of New York; "an enlarged forest industry could create hundreds of thousands of jobs in the East African country," said CPS director Dietzold.

The playful architectural style – reminiscent of a beehive with honeycombs – was designed to combine modern urban trends with local culture. "Panorama windows, closed-in green loggias and a modular layout will enhance the green nature of the tower and allow for flexible apartment floor plans, tailor-made for any cultural preferences," explained Moons. Residents can have their outdoor garden even on the top floor.

The building comprises a mix of studio, one- and two-bedroom apartments and deluxe penthouses.

Most people now recognise the energy savings benefits of green buildings. These buildings use less water, energy and other natural resources. In some cases, they can increase biodiversity, produce their own energy and reduce the urban heat island effect.

Recent research shows that green buildings can also improve the health and productivity of those who live or work inside them. In some cases, green buildings can have the same benefits as spending time in nature, which can benefit people living in cold climates.

Green buildings cost 5-10% more than conventional buildings. Some planners might worry about the added design and construction costs of a green building. But detailed analyses show that the small increase in building costs has noticeable benefits on the health and wellness of those working or living inside the building — or nearby.

Energy savings  
Buildings with green roofs, green walls, green interior decoration or those surrounded by green

infrastructure are all considered to be green buildings. These buildings usually contain algae, grass, herbs, vegetables or other leafy green or micro-green plants on their interior or exterior surfaces.

Covering the roof of an uninsulated building with plants reduces the amount of energy used in heating by up to 5% in the winter, and the cooling energy by as much as 33% in summer, which saves money. It also reduces daytime indoor temperature fluctuations in the absence of air conditioning.

Cities often have warmer air temperatures than the rural areas around them because their dark surfaces absorb the sun's rays and radiate the heat. Green buildings can help reduce this urban heat island effect.



Computer modelling has shown that summer temperatures can be reduced by 2°C if 7% of an urban rooftop is green. Even in relatively colder cities like Toronto or New York, covering 50% of the roof with plants could reduce the local temperature by about 1°C in the summer.

This dip in temperature comes with numerous benefits. Studies show people working or living in areas with high proportions of green roofs have better mental health, heal more quickly after an

illness and are more productive at work.

#### Improved air quality

Indoor air pollution is one of the top five environmental risks to public health, according to the US Environmental Protection Agency. High levels of sulfur dioxide, nitrogen dioxide, PM10 (particulate matter with a diameter of 10 microns or less) and airborne microbes can contribute to serious respiratory illness.

A 20% increase in the surface area of green roofs and walls in downtown Toronto could meaningfully reduce the air levels of nitrogen dioxide, ozone, sulfur dioxide and PM10, and generate a savings of \$190,000 annually in terms of pollution removal.

One study showed that there were fewer mould

spores and microbes in a room where houseplants covered one-third of the floor space compared to a room with no house plants. Plants also increase indoor humidity levels in dry climates, reducing the likelihood of dry eyes, itchy or scratchy throat or chapped lips.

#### Faster recoveries

Recent research has also shown that plants can help hospitalised patients heal faster.

A report by the Green Building Council of Australia found that hospitals with green infrastructure, such as an ornamental green wall, plants on every balcony and large trees around the building, reduced average hospital stays by 8.5%, sped up recovery time by 15%, reduced the rate of secondary infections by 11% and lowered the need of pain medication by 22%.

Not only do buildings with plants help patients heal faster, but they also energise the doctors, nurses and other staff who work there, and provide aesthetic, acoustic and air quality benefits.

Some studies have found that when patients could see trees, gardens and other nature from their hospital beds, they had faster recovery times and



needed less medication. (Jeff Hitchcock/wikimedia), CC BY  
Some studies have found that when patients could see trees, gardens and other nature from their hospital beds, they had faster recovery times and needed less medication. (Jeff Hitchcock/wikimedia), CC BY  
Lower emissions

Interior spaces with green walls, vertical gardens or potted plants can reduce noise levels, which helps occupants concentrate on their work. Outdoor permeable surfaces, such as soil, rock wool and vermiculite, and plants on buildings' roofs and courtyards reduce echos.

Green workplaces meet all the criteria of the "triple bottom line", summarised as "people, planet and profit". These improve the health and



well-being of people, improve energy efficiency and boost productivity.

Green infrastructure has clear climate benefits too. A study by the Green Building Council of Australia found that by adding green walls, roofs and other low-energy interventions, such as using LED lights, adding more windows to increase the amount of daylight and modifying ventilation systems to recover heat rather than expelling it outside, a green certified building produces 62% fewer greenhouse gas emissions than an average Australian building.

It's high time green buildings became the norm to improve well-being, air quality and carbon emissions.





# US Firm to Set Up Sh6.4bn Solar Park in Kisumu

Ergon Solair PBC USA is set to begin construction of a 40MW solar park in Kisumu after receiving all the requisite approvals from the Kenyan government.

Through its partner Ergon Solair Africa Ltd., the American solar developer will spend Sh6.4 billion to set up the power plant on a 249-acre piece of land at Kibos.

approvals from the State and that the investors were at liberty to launch works for the project whose feasibility studies were done in 2014.

“I am pleased to announce to you that the proposed Solar One Limited plant at Kibos has received all government approvals and the project implementation can now commence immediately,” Mr Kenyatta said.



In April 2020, Ergon Solair Africa won regulatory consent to build a 40MW photovoltaic (PV) park in Kisumu backed by a \$0.075 per kWh feed-in tariff (FiT).

The approval, which was granted by the Energy Regulatory Commission of Kenya (EPRA), covered the Kisumu Solar One project that was to go live in Dec. 2023.

However, despite the consent, the project failed to take off as the investors did not agree on the finer details of a power purchase agreement with Kenya Power.

On Tuesday, however, President Uhuru Kenyatta said the project had finally received all the

Ergon Solair Africa had earlier said the Kisumu Solar One Park would generate 105.3 MWh of electricity during its first year of operation.

The plant will be linked to the national grid via a neighbouring 220 kV substation.

“We have agreed with those from Solar One that Kenya can no longer afford to pay this high cost, and high tariffs some of our producers of electricity continue to demand from us,” Mr Kenyatta said.

Kenya is endowed with yearlong supply of ample sunshine which makes it easy to operate both small-scale and large-scale solar power systems within the country.

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# Greenwood City Mall

Kenya has witnessed a surge in the number of investors who are putting their money in high end malls across the country. Fusion Capital, a private equity firm, is constructing a Ksh2 billion mall in Meru that is going to be the first and only mall in the county.



Greenwood City Mall is a project owned by Fusion Capital and is under the Meru Greenwood Park. The project will consist of a state of the art shopping mall, apartments and office blocks which are being constructed under the land that was occupied by the Pig and Whistle hotel as reported by Nation. The hotel which was the oldest in Meru town and once served as the home of the first

colonial district commissioner was demolished to pave way for the construction of the project. Meru Greenwood Park involves a four storey mall covering 25,000 square meters, Grade A office blocks, 50 two and three bedroom apartments and a 240 slot public parking space situated in the seven acres piece of land located along River Kathita.



Construction of the mall began in 2016 when Fusion Capital raised its first Ksh430 million through the Development Real Estate Investment Trust (D-REIT) that saw it achieve 38 percent subscription target against the minimum target of 50 percent. This led to the delay of its construction and pushed the owners to drop D-REIT in favor of private funding for the development.

In June 2021, Fusion Capital announced that it had secured a Ksh800 million funding from private investors that will see the mall being completed in the first quarter of 2022. The company revealed that the money was raised from local and

international investors mostly from the United Kingdom and Finland.

The project, which is 61 percent complete, consists of a supermarket, restaurant, apartment, shops, banking halls and children arcade.

“This is a follow-on investment from the original investment of about Sh463.5 million (\$4.3 million), hence total funding of about Sh1.2 billion (\$12 million),” Fusion Capital chief executive officer Daniel Kamau said.



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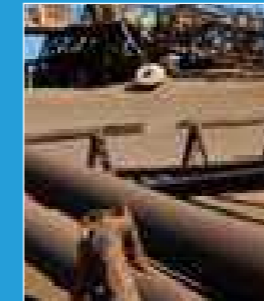


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Syldon and Partners is a wholly Kenya owned limited liability firm established in May, 2000 in Kenya to undertake consultancy services in design, installation and maintenance of Electrical, Mechanical Services and Management Information Systems (MIS), Civil and Structural works.

There are two directors, Eng. G.N. Olando – Managing Director in charge of all Electrical Services and general management of the firm. Eng. Calleb Olali is Director in-charge of mechanical services. Other core staff members include Assistant Electrical Engineer John Ruddy Munda and Assistant Mechanical Engineer Felix Ollando.

Eng. H.S Roopra, Eng. Peter Chege are associates of the firm and backstops Eng. Olando and Eng. Olali in all electrical and mechanical assignments respectively. Eng. Victor Ongewa and Eng. Cyrus Njungu are associates in-charge of power sub-stations and transmission/distribution lines respectively.



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▶ Everite Building Products, is an appointed licensee by the Xella Group to manufacturer Hebel Autoclaved Aerated Concrete (AAC). Everite Building Products is the only manufacturer of AAC in Africa.

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Since commissioning the AAC plant in 2017, Everite Building Products has enjoyed considerable success in specification of the product to landmark projects in South Africa.



# Small Sleeper Sofas That Will Transform Your Tiny Living Room

If you're frustrated with rearranging your living room with blow-up mattresses for guests or searching tirelessly for a sofa that can also work as your own bed, a snug sleeper sofa is your best option. When you're in a tiny apartment, it might seem impossible to find chic furniture that can comfortably fit inside the room without feeling

closed in. Faced with this conundrum, we set out to find the very best small space-friendly sleeper sofas and loveseats out there (not to mention, sleeper chairs) that are guaranteed to make your living room feel like a cozy bedroom.



These snug seats transform any room into a guest room with little to no effort. To make things even more functional, many are less than six feet long and a few even come in at under four feet. Your friends will feel right at home, but it won't seem like there's a bus-sized sofa in your tiny place. so you'll be able to find comfy picks even if you're on a budget. In short, hosting family and friends just got easier. Kick up your feet and relax for the best sleeper sofas, ahead!

Plush and uber-compact at just 57 inches, this loveseat pulls out into a twin-size bed, and even comes with a lifetime warranty on the frame should you need to replace anything. "Excellent quality and a great way to solve a problem in an L-shaped room," one reviewer confirms.



# Tips on Upgrading a New House Plan

Whether you want a chef-inspired kitchen or a relaxing master bath, you can search through thousands of plan options to give yourself the upgrade you deserve when you build. Plus, we offer information on some of our favorite products for every space. Check them out for yourself! Before you start planning for your finishes, though, here are a few of the major spaces and top features that homeowners tend to splurge on when selecting a house.

Finding an awesome house plan is great, but upgrading your house plan to your exact idea of perfection is even better! Choosing every finishing detail and all of your favorite features really makes a house your own. Just think about all the fun you can have selecting finishes to complement your dream home.

## Upgrading the Kitchen

The kitchen makes a statement both in functionality and style. Whether you want a country kitchen in a chic farmhouse or a sleek modern layout in a contemporary home, our house plans offer all the possibilities. The key is to find fixtures and features that match your home's style while also providing uniquely amazing components.



Some of our favorite areas to explore while upgrading your kitchen center around the cooking

spaces. An impressive gas cooking range and a modern oven are some relatively simple ways to add value to your house. Many homeowners also love the look of refined finishes like quartz countertops and beautiful cabinetry.

Perhaps the most fun part of designing a kitchen is getting to choose your new perfect fridge. Whether it's built to blend into the cabinets, or it's a smart fridge that hooks up to your phone, explore some of the best refrigerators made by some of the most reputable companies!

Kitchens have a variety of great features to choose from. Don't let anything go unnoticed and ensure that your new kitchen stands out for the right reasons!

## A Spa Bath Like No Other

Everybody could use a spa bath. The idea of upgrading your house plan doesn't get much more tempting than when you think about a spectacularly relaxing oasis. Just imagine unwinding in a jacuzzi tub after a long day at work or with the kids. Or letting the stress melt away under a warm waterfall shower. Adding high-end finishes to the vanities can also greatly increase a home's value!



## Windows Galore

One easy way to create curb appeal is by choosing the right windows for your home. For a Craftsman plan, you may want to consider windows with

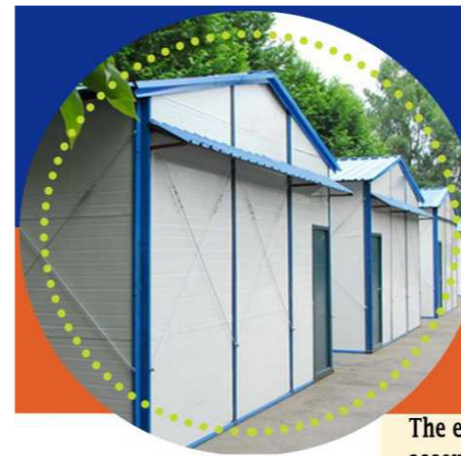
divided lights for detail, while a modern plan would be better finished with large, sleek panes. Always purchase from a reputable company to ensure that the style is durable and your home is protected.

**Doors**

Both your front door and garage doors contribute to curb appeal. Picking a unique but fitting door for your home's style will give you great property value in return. There are so many gorgeous ways to at a custom touch with your doors!

**Other Little Things That Go a Long Way**  
 There are so many ways to upgrade your house that we couldn't possibly list them all here. From crown molding and tray ceilings, to built-ins and centerpiece fireplaces, to even an outdoor kitchen or entertainment space... use your imagination! We know that you will love making every inch of your home custom and enjoyable.

Your home is a unique expression of you!



# PREFAB HOUSE AND EPS PANEL



The expanded polystyrene (EPS) technology involves construction of houses by assembling ready-made EPS foam, sandwiched between a galvanized steel wire mesh that is plastered on both sides with concrete



Prefabricated homes, often referred to as prefab homes or simply prefab, are specialist dwelling types of prefabricated building, which are manufactured off-site in advance, usually in standard sections that can be easily shipped and assembled. CUMA Refrigeration EA. Ltd Houyse are ideal for;

- HOSPITAL
- WAREHOUSES
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# The green roof tile

Welcome to the future of roofing – a technological breakthrough from Harvey Roofing Products: the Harvey EcoTile<sup>®</sup>.

Harvey EcoTile<sup>®</sup> is a mineral composite roof tile. By utilising 98% waste material, Harvey EcoTile<sup>®</sup> is 100% recyclable yet provides superior functional benefits to other roofing options.

Harvey EcoTile's<sup>®</sup> technological design advantage ensures an interlocking, lightweight tile that is low on maintenance, weatherproof and virtually unbreakable in normal use.

Your building's roof is one of its most important elements in function, aesthetics, surface area and investment. Increase its functional performance and green credentials with one innovative product – Harvey EcoTile<sup>®</sup>.



-  Lightweight
-  Low Maintenance
-  Durable
-  Weatherproof
-  Attractive
-  Easy to Install
-  Paintable
-  SANS 10400-T
-  Waste Material
-  100% Recyclable
-  Waterless
-  Community Projects