PROJECTS MAGAZINE

PM MARCH APRIL 2023

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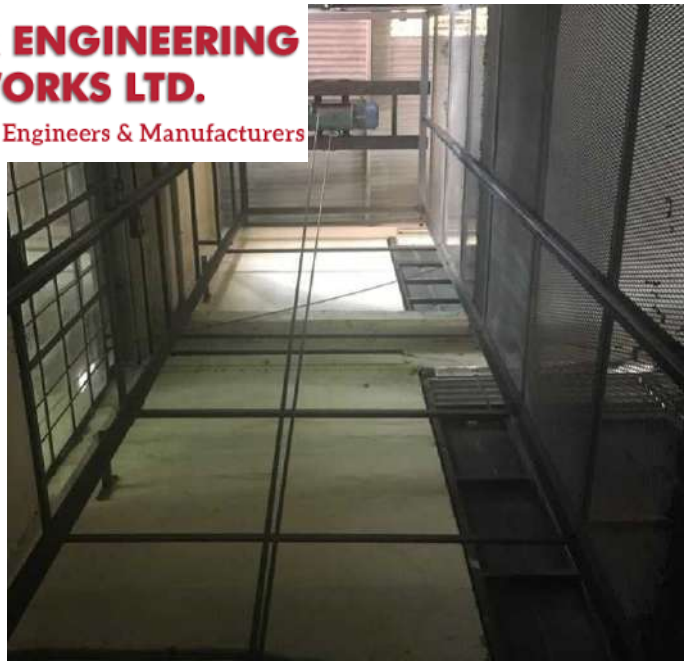

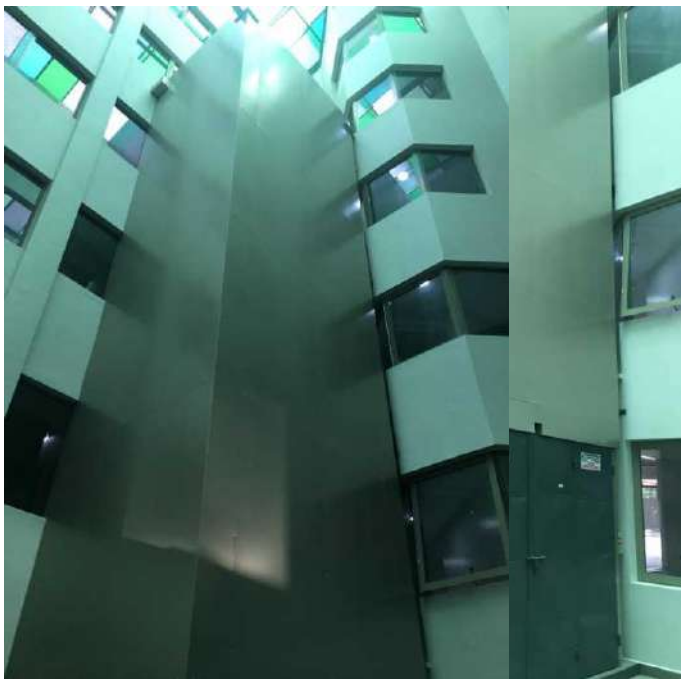

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H.E. President Ruto unveils Sh2.8bn housing unit project

President William Ruto broke the ground for a Sh2.8 billion affordable housing project in Ruiru, Kiambu County.

Ruto said that under the multi-billion shilling project, some 1,050 houses ranging from studio apartments to two and three-bedroom apartments will be constructed, each with a starting price of Sh1.5 million.

The president said the investment is timely and aligns with Kenya Kwanza's development agenda of making affordable housing accessible. "The government has over 4,000 acres of land that it intends to put up affordable housing that can accommodate 600,000 housing units," said Ruto.

The President noted that the target was to erect some 50,000 units in the populous Kiambu county and over 200,000 units across the country every year.

Kenya's push for affordable housing is creating opportunities despite barriers

In Kenya, the right to housing is embedded in the constitution, which provides that "Every person has the right to accessible and adequate housing, and to reasonable standards of sanitation."

At the start of his second term in 2018, Kenya's President Uhuru Kenyatta launched an affordable housing programme as one of the big four agenda pillars to promote long term economic development.

Kenya needs to build 250,000 units annually for at least four years to plug its cumulative housing deficit of two million units.

The lowest cost of a new house is estimated at $11,000 (KSh1.1 million), and only about 11% of Kenyans earn enough to support a mortgage.

Public and private housing developers have previously concentrated on the middle and high-income groups.

The Ngara project has generated 650 direct job opportunities for artisans in the informal sector. Use of locally available resources, labour and artisans in the housing programme could lower costs and employ thousands of Kenyans.

Construction trends in 2023. What are the construction trends in 2023?

1. Virtual and augmented reality

Virtual reality is a technology that gives you a complete immersion experience that shuts out your physical world. On the other hand, augmented reality adds digital elements to your physical world – often using the camera on a smartphone.

Basically, the difference between the two technologies is that whereas virtual reality replaces your vision, augmented reality adds to it.

The two technologies, which are without doubt among the trends to watch in 2022, are already making a huge impact on the construction industry – helping construction teams to improve designs and arrest design mistakes.

2. Concrete 3D printing

This technology is proving a game changer for the construction industry by making it possible to 3D print an entire house in less than 24 hours. This has obvious labour and materials cost-cutting benefits over the conventional building techniques.

3. Using Locally Sourced Materials

Using locally sourced materials is a sustainable building practice that has become increasingly popular in recent years. By using materials that are sourced locally, builders can significantly reduce the environmental impact of construction projects and support the local economy.

Localizing your supply chain represents a tremendous opportunity to help the environment. When you reduce shipping and storage, you also reduce emissions and energy usage. Sourcing locally not only contributes to green manufacturing, but ultimately helps you build consumer confidence.

Another benefit of using locally sourced materials is the potential for higher quality materials. Local suppliers are often more familiar with the specific environmental conditions and building requirements of the region and can provide materials that are better suited to the local climate and geography.

Some examples of locally sourced materials include locally quarried stone, timber from sustainably managed forests, and clay or earth for adobe construction. By using these materials, builders can create structures that are not only sustainable but also unique to the region and culture.

Overall, using locally sourced materials is an excellent sustainable building practice that can provide numerous benefits for both the environment and the local community. By reducing transportation emissions, supporting local businesses, and promoting unique and sustainable building practices, builders can help to create a more sustainable and resilient built environment.

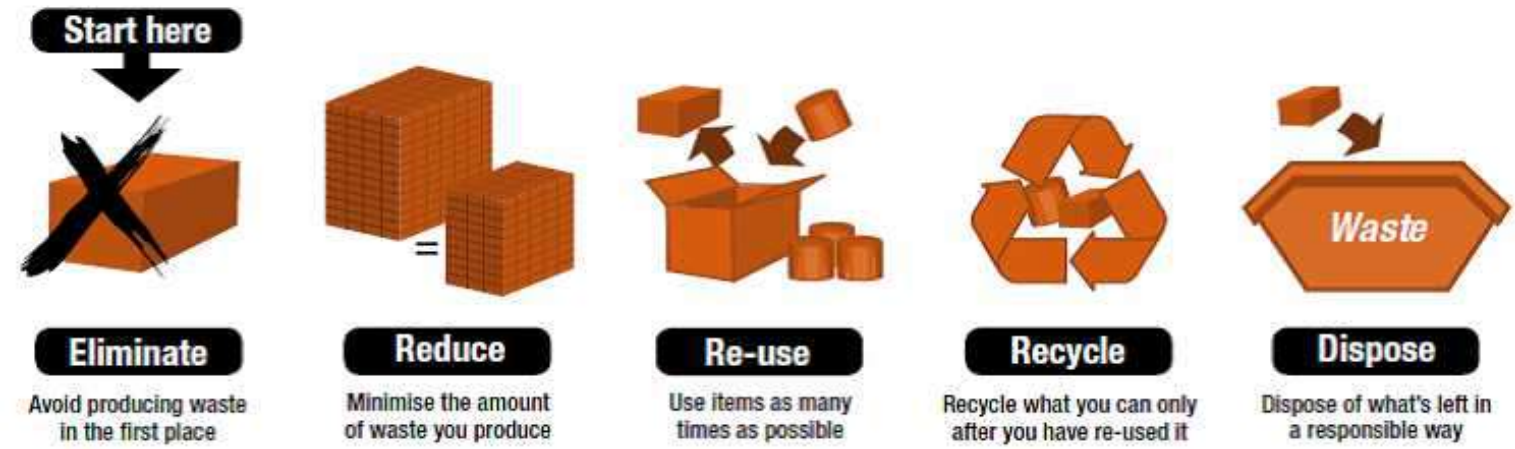
Construction Waste Management

In a construction site, there are multiple different types of materials being used at a time. Much of these materials get dumped in landfills and never used again. Rather than throwing away usable materials like concrete and structural steel into landfills, they can be recycled for other construction jobs. Carpet, flooring, and ceiling materials can also be reused and in turn, create a substantial saving opportunity for other sites. Companies that reuse materials and sustainable materials can also avoid the additional costs of disposing toxic materials from the site. The process of throwing away waste has also significantly changed. Job sites now use one trash bin for all types of waste, and use haulers with pickers to separate materials and determine what can be reused or not.

Effective construction waste management not only helps to reduce the environmental impact of construction projects but can also lead to cost savings for construction companies. By reducing waste disposal costs, avoiding fines for improper disposal, and earning certifications for environmentally sustainable practices, companies can save money and enhance their reputation in the industry.

Overall, construction waste management is an essential aspect of any construction project, and companies should prioritize effective waste management strategies to protect the environment, reduce costs, and improve sustainability in the construction industry.

Waste hierarchy: (Original source: Envirowise)



Sustainable Materials and Practices in Construction:

As environmental concerns continue to grow, the construction industry is shifting towards more sustainable building materials and practices.

Builders are exploring the use of materials like recycled steel, bamboo, and hempcrete, as well as implementing green design strategies like passive solar heating and green roofs. With these sustainable materials and techniques, construction projects can reduce their carbon footprint and increase energy efficiency.

1. Prefabricating Materials in Controlled Environments

Constructing as much of a structure in a controlled environment as possible has been proven to improve the quality of buildings and results in less trash.

Mechanical contractors have opted to use Building Information Management (BIM) systems that accurately cut sheet metal for ductwork in controlled environments rather than constructing the materials needed on site. Due to this innovation, external factors like cold or hot weather can no longer create shape-changing problems on the sheet or other damage. With precise cutting systems, it also allows contractors to use wood framing for buildings as high as five stories because the cuts are more accurate and in turn, can support more weight.

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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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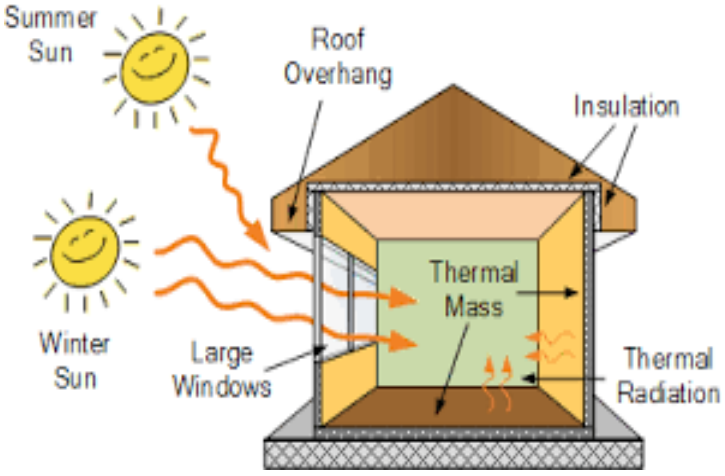
Passive Solar Design

Passive solar design is an energy-efficient building practice that maximizes the use of natural resources, such as sunlight and heat, to provide heating, cooling, and lighting in buildings. It is a sustainable building practice that has become increasingly popular in recent years due to its numerous environmental and economic benefits.

One of the primary benefits of passive solar design is its ability to reduce energy consumption and greenhouse gas emissions. By designing buildings to take advantage of natural sunlight and heat, builders can reduce the need for artificial lighting and heating systems, which can significantly reduce energy consumption and greenhouse gas emissions.



Passive solar design principles can include orientation of the building, placement and size of windows, and shading strategies to maximize the amount of sunlight that enters the building during the winter months while minimizing it in the summer.

Overall, passive solar design is an excellent sustainable building practice that can provide numerous benefits for both the environment and the building occupants. By maximizing the use of natural resources, reducing energy consumption and greenhouse gas emissions, and providing cost savings and health benefits, builders can help to create a more sustainable and resilient built environment.

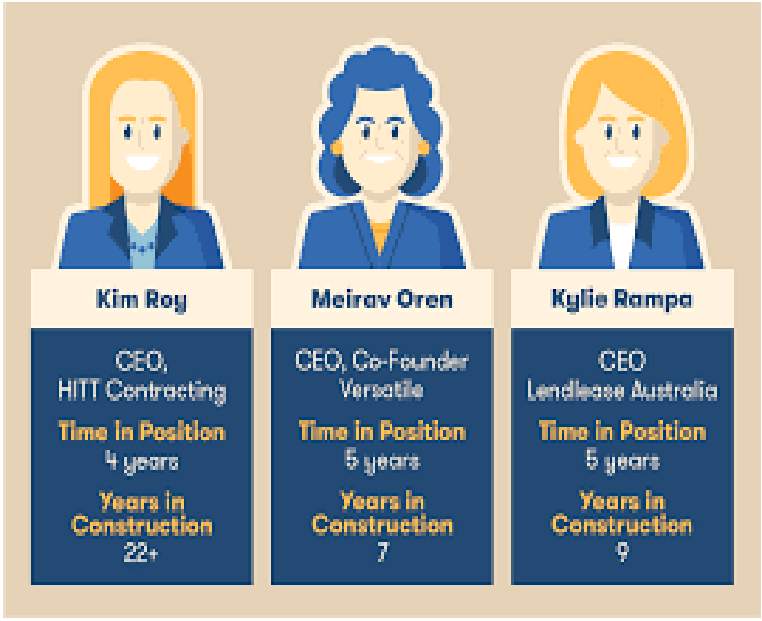
Women in Construction:

The construction industry is making strides towards promoting gender diversity and inclusivity. More women are entering the field and taking on leadership roles in construction projects. Companies are also implementing policies to promote gender equity, such as equal pay and flexible work arrangements. These efforts are helping to break down barriers and make the construction industry more accessible to women.

One way that women are making an impact in construction is by taking on leadership roles. Many women are now leading construction projects, managing teams of workers, and overseeing complex building projects. This is a significant change from just a few decades ago when women were largely excluded from leadership positions in construction.

Despite the progress that women have made in construction, there is still a long way to go. Women continue to face discrimination and harassment on construction sites, and they are often paid less than their male counterparts. Additionally, women are still underrepresented in many areas of construction, such as engineering and management.

To address these issues, many organizations are working to promote diversity and inclusion in construction. These efforts include providing training and support for women in construction, advocating for equal pay and opportunities, and working to change the culture of the industry to be more welcoming and supportive of women.



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Sustainable Design for Affordable Housing:

Sustainable building practices can be used to create affordable and energy-efficient housing for all. Builders are exploring the use of passive solar design, energy-efficient appliances, and recycled building materials to create affordable housing options that are environmentally friendly. Sustainable design strategies can also help to reduce energy costs for residents and improve their quality of life.

One of the primary goals of sustainable design for affordable housing is to reduce the environmental impact of building materials and construction processes. This includes the use of renewable energy sources such as solar and wind power, the implementation of energy-efficient building systems and materials, and the use of recycled or repurposed building materials. These practices can help to reduce greenhouse gas emissions, conserve natural resources, and promote environmental sustainability.

Sustainable design for affordable housing also involves considering the social and economic aspects of building sustainable communities. This includes providing access to public transportation and community services, creating walkable neighborhoods that promote healthy lifestyles, and incorporating green spaces and community gardens. By creating sustainable communities, we can promote social equity, reduce economic disparities, and improve the quality of life for residents.

The Future of Construction Technology:

Emerging technologies are rapidly transforming the construction industry. Drones are being used to conduct site surveys and inspections, while virtual and augmented reality tools are improving the design process. In addition, advanced robotics and automation are reducing labor costs and increasing efficiency on construction sites. These technologies are revolutionizing the way the construction industry works, and will continue to do so in the future.

One of the key areas of focus in the future of construction technology is the use of artificial intelligence (AI). AI has the potential to revolutionize the industry by enabling machines to learn and adapt to new situations. For example, AI-powered drones can be used to survey construction sites and create 3D maps, while autonomous construction vehicles can improve efficiency and safety on the job site.

Virtual reality (VR) and augmented reality (AR) are also set to play a big role in the future of construction technology. VR can be used to create 3D models of buildings, allowing designers and clients to experience the design in a more immersive way. AR, on the other hand, can be used to overlay digital information onto the real world, allowing workers to see information such as building plans and safety warnings in real-time.

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Global Construction Trends:

The construction industry is a global business, with new trends and innovations emerging around the world. Builders are exploring new technologies like 3D printing and mass timber construction, as well as incorporating sustainable design strategies like green roofs and solar panels. In addition, innovative business models like shared construction spaces and co-working sites are changing the way the industry

Global construction trends are always evolving as the world changes, and here are some current ones:

1. Sustainability:

Environmental concerns have been gaining momentum in recent years, and this has translated into a greater focus on sustainability in construction. This includes using renewable materials and energy sources, reducing waste, and designing buildings that are energy-efficient.

2. Technology:
Technology is revolutionizing the construction industry, with new tools and techniques being developed all the time. From drones and 3D printing to Building Information Modelling (BIM) and robotics, technology is transforming the way buildings are designed and constructed.

3. Urbanization:
The world's population is becoming increasingly urbanized, which means that cities need more infrastructure and housing. This has led to a boom in construction in urban areas, with more high-rise buildings and other large-scale projects being developed.

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Investing in Infrastructure:

Overall, investing in infrastructure is essential for the construction industry's growth and sustainability. It provides a critical platform for economic growth, job creation, and innovation while also addressing the challenges of the future, such as climate change and urbanization.

Governments around the world are investing in infrastructure projects to stimulate economic growth and improve public services. These projects include new highways, bridges, and airports, as well as upgrades to existing infrastructure like water and sewage systems. This increased investment is creating opportunities for the construction industry to take on large-scale projects and create jobs.

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