

# SHAPE OF YOU

NEW TRENDS AND EMERGING INNOVATIONS ARE TRANSFORMING THE WAY WE DESIGN AND BUILD STRUCTURES THAT ARE NOT JUST FUNCTIONAL BUT ALSO BEAUTIFUL, SUSTAINABLE, AND RESILIENT, WRITES **SOURABH BANSAL**.

The construction industry is one of the oldest and most critical sectors in the global economy, responsible for creating the buildings and infrastructure that we rely on every day. Despite its long history, the industry is currently undergoing a massive transformation, driven by new technologies, materials, and methods that are changing the way we design and construct structures.

These advancements are not only making construction faster and more efficient but also more sustainable and environmentally friendly. From modular construction to smart buildings, to sustainable materials, the industry is embracing new innovations that promise to shape the future of construction in exciting and impactful ways.

Some of the innovations and new technologies that are impacting the way buildings are constructed are:

**3D Printing:** 3D printing has already made an impact in the construction industry. It helps builders create complex shapes and structures that would be difficult or impossible to achieve with traditional construction methods. It also reduces waste and allowing more efficient use of materials.

**Modular Construction:** Modular construction involves building components of a structure in a factory, and assembling them on-site. This method can significantly reduce construction time and costs while maintaining quality and safety standards. It allows more flexibility in design and can make buildings easier to adapt and modify in the future.

**Smart Buildings:** With the rise of the Internet of Things (IoT), buildings are becoming increasingly connected and intelligent. Smart buildings allow for effi-

cient use of energy, improved security and safety features, and better control over building systems like lighting and HVAC. As the technology continues to evolve, we can expect to see even more advanced features and capabilities.

**Sustainable Materials:** Keeping the environmental challenges in mind, the construction industry is increasingly turning towards the use of sustainable materials like construction chemicals, recycled steel, and engineered wood. These materials are renewable, recyclable, and often have a lower carbon footprint than traditional building materials. Additionally, they can offer unique aesthetic and structural advantages.

**Augmented Reality:** Augmented reality (AR) is being used in the construction industry to improve design and visualization. By creating virtual models of buildings, architects and builders can better understand how different elements will fit together and identify potential issues before construction even begins. This can save time, reduce costs, and improve the overall quality of the finished product.

**Use of robotics and automation:** Robotic technology can be used for tasks like bricklaying, demolition, and even painting. This can help reduce the need for human labour, increase efficiency, and improve safety on construction sites. Additionally, automation can help improve quality control by reducing the likelihood of human error.

**AAC Blocks and Wall Panels – Next Generation Wall Construction Technologies**

One material that has been gaining popularity in the construction industry is AAC (Autoclaved Aerated Concrete) blocks. AAC blocks are made from a mix-



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**SOURABH BANSAL,**

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ture of fly ash, cement, lime, and water, with aluminium powder added to create a cellular structure. The resulting blocks are lightweight, durable, and provide excellent insulation. They also have a high fire resistance and are resistant to pests and mould.

Thanks to their advantages over traditional red clay bricks, AAC blocks are becoming increasingly popular. They are large sized (equivalent to 10 bricks), yet easy to handle and install, making construction faster and more efficient. They also have a high strength-to-weight ratio, meaning they can support heavier loads as compared to traditional bricks. Additionally, they have excellent thermal insulation properties, which can help reduce electricity consumption in homes by up to 30 per cent.

The next significant breakthrough in wall construction technology is AAC Wall Panels. These corrosion-protected steel-reinforced, full-height panels possess all the excellent features of AAC blocks, and additionally further speed up the construction owing to their large size.

### **Data drive construction**

The construction industry is also seeing an increased focus on data and analytics. By collecting and analyzing data on everything – from construction processes to building performance – builders and designers can make more informed decisions that improve efficiency, reduce costs, and enhance sustainability.

This trend is also driving the development of new technologies and tools, such as Building Information Modelling (BIM) software, which allows for better visualization and management of construction projects. As the industry continues to embrace data and analytics, we can expect to see even more innovation and progress in the years to come.

In conclusion, the future of the construction industry is shaping up to be both exciting and promising, and with new trends and innovations emerging, it will transform the way we design and build structures, that are not just functional, but also beautiful, sustainable, and resilient.



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