



# **Modern Construction Techniques**

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Modern construction techniques are changing the way we build, making projects faster, more efficient, and more sustainable. This presentation will explore some of the most impactful trends in construction today.



# Pre-engineered/Precast Flat Panel System

## Factory Production

Panels are manufactured off-site, enhancing quality control and minimizing weather delays.

## Rapid Assembly

On-site assembly is quick, reducing project timelines.

## Cost-Effectiveness

Reduced labor costs and waste contribute to cost savings.





# **Insulating Concrete Formwork (ICF) Technique**

Insulating Concrete Formwork (ICF) is a construction method that uses lightweight formwork made of insulating material to support concrete walls while they are being cast in place and then uses the formwork as insulation.



## **Energy Efficiency**

Excellent insulation reduces energy consumption

## **Durability**

High strength and resistance to damage ensure longevity

## **Soundproofing**

ICF provides superior sound insulation.



# Augmented Reality- Assisted Building

## ➤ Design Visualization

AR allows for better visualization of designs.

## ➤ Improved Accuracy

Reduces errors and improves precision in construction.

## ➤ Enhanced Collaboration

Facilitates better communication amongst teams.



## **Raised Access Flooring**

A Raised Access Floor is one that sits above the existing flooring. The space between the two flooring surfaces is meant to be used for running wires and cables as well as to allow ventilation.



## **Flexibility**

Easily accessible for maintenance and upgrades.

## **Improved Aesthetics**

Provides a clean and organized workspace.

## **Cable Management**

Efficient organization and routing of cables.

## **Environmental Control**

Enhanced HVAC system efficiency.





# 3D Volumetric Construction

## ➤ **Design**

3D modeling and design optimization.

## ➤ **Printing**

Layer-by-layer construction using 3D printers.

## ➤ **Assembly**

On-site assembly of printed modules.

# Hybrid Concrete Construction

Hybrid concrete construction is a method of construction which integrates precast concrete and cast in-situ concrete to make best advantage of their different inherent qualities. The accuracy, speed and high-quality finish of precast components can be combined with the economy and flexibility of cast in-situ concrete.



Material	Advantages
Concrete	Strength, durability
Steel	Flexibility, high strength-to-weight ratio
Timber	Sustainability, aesthetics



Image courtesy - John Doyle





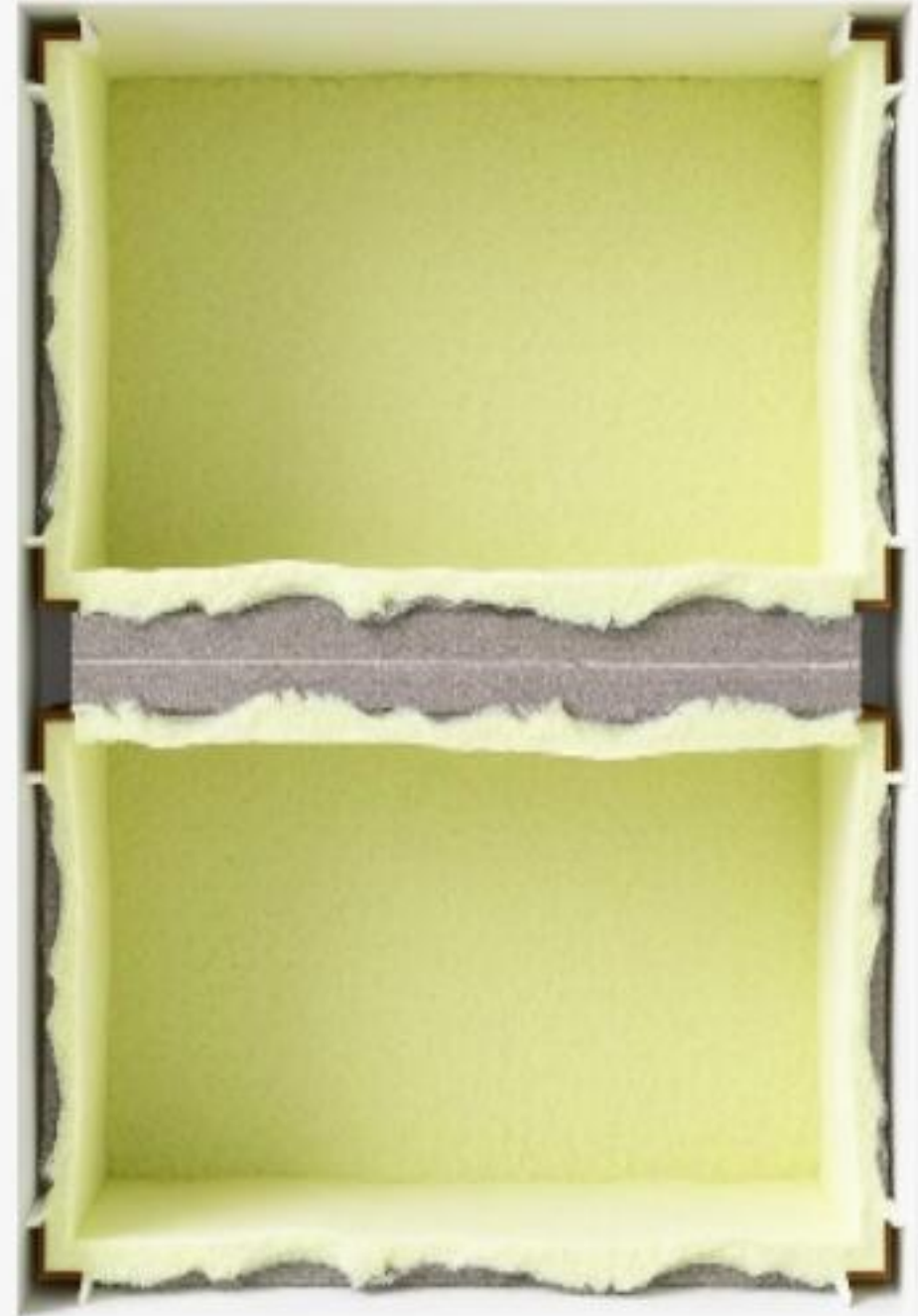
# **Thin Joint blockwork**

Thin joint blockwork is a construction technique that optimizes the process by using less mortar between layers of concrete blocks. This speeds up the wall-building process and results in stronger, more thermally efficient walls. Using a high-strength, quick-setting adhesive mortar means that buildings can be weather-tight sooner, enabling interior work to start earlier. A thin joint masonry is an excellent option for residential construction, where speed and energy efficiency are key considerations.



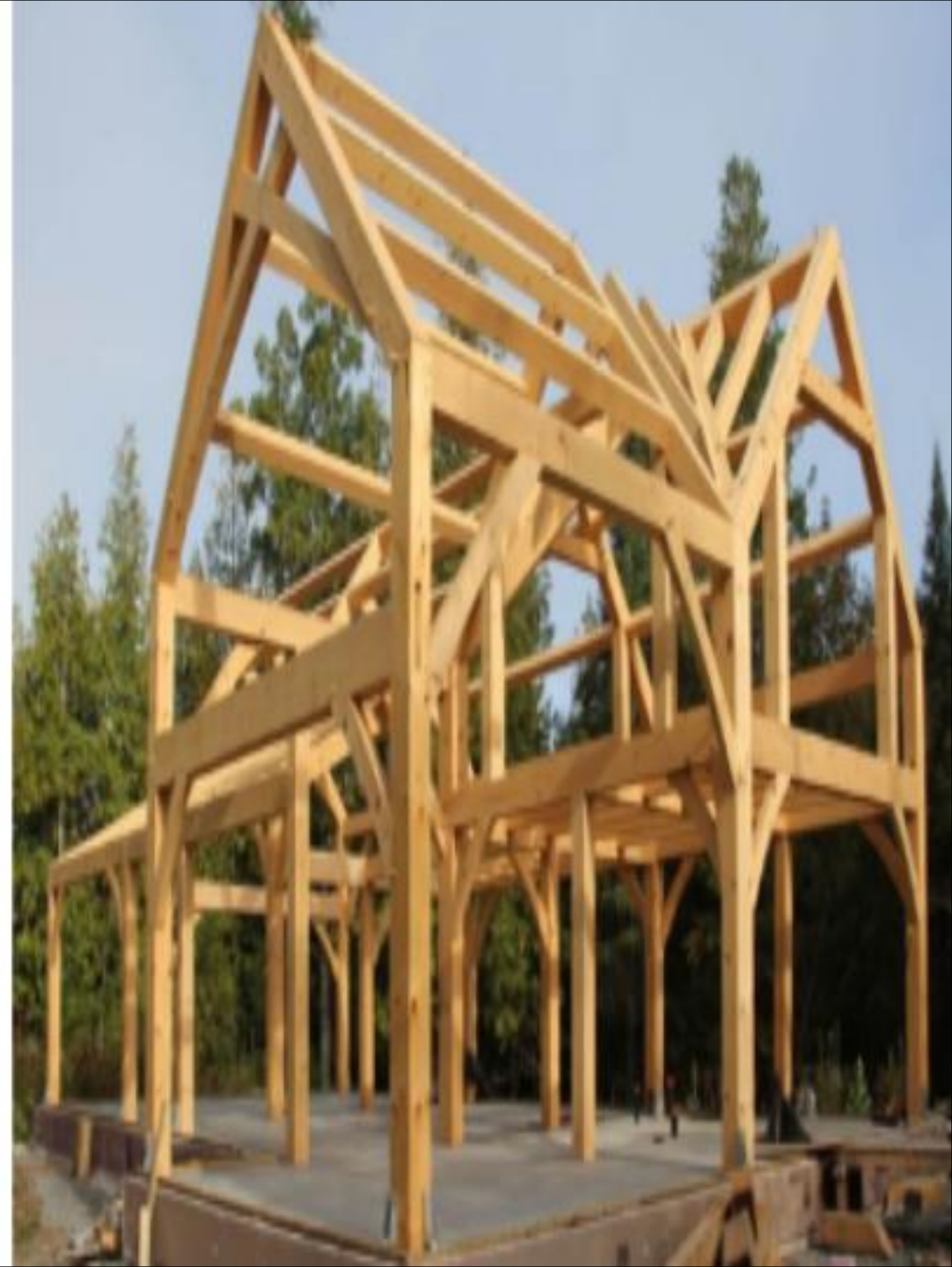
# **Twin-Wall Technology**

Twin-wall technology combines the benefits of precast and in-situ concrete. This method involves using two precast concrete panels separated by a void, later filled with concrete on-site. The result is a highly durable and structurally efficient wall system that can be erected quickly. This technology suits multi-story buildings, including residential, commercial, and educational facilities.



# Timber Frames

Timber frames use engineered wood products to create solid and aesthetically pleasing structures. This method can reduce a building's carbon footprint, as wood is a renewable resource that stores carbon dioxide. Additionally, timber frame construction can be quicker than traditional methods, as much of the work can be completed off-site.



# Futuristic Technologies that are changing Construction

- ❖ Self-healing concrete
- ❖ Transparent aluminium
- ❖ Aerogel insulation
- ❖ Robotic swarm construction
- ❖ Smart roads
- ❖ Bamboo cities
- ❖ Smart bricks
- ❖ Vertical cities
- ❖ Pollution fighting buildings



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THANKS

