

# **Overview**

**6D-BuildTech Space Frame**

**and**

**6D-BuildTech Wall System**

**Precision Precast Building Systems**



## The 6D-BuildTech Space Frame System

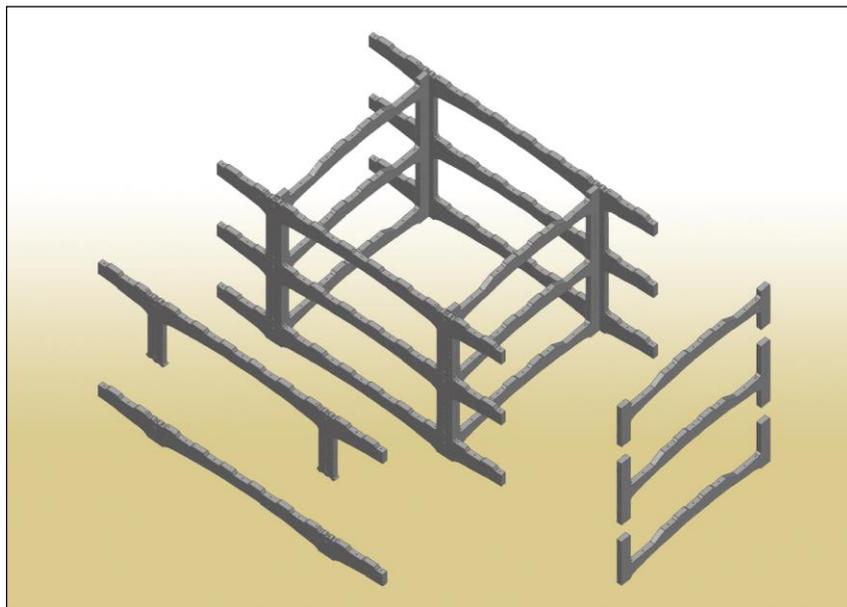
### Summary

The patented 6D-BuildTech Space Frame System uses engineered and manufactured structural components that interlock or easily connect to form high quality, durable, and beautiful finished buildings. With the 6D-BuildTech system, rapid assembly of these structural components replaces the labour intensive build on-site approaches to deliver a finished structure faster, safer and at lower cost. In addition, this system is designed with green principles in mind to minimize the impact on the environment.

Structures built employing this system utilize highly configurable blocks that include the framework, roofs, floors, and exterior walls. Structures can be built in time frames not achievable using conventional construction methods.

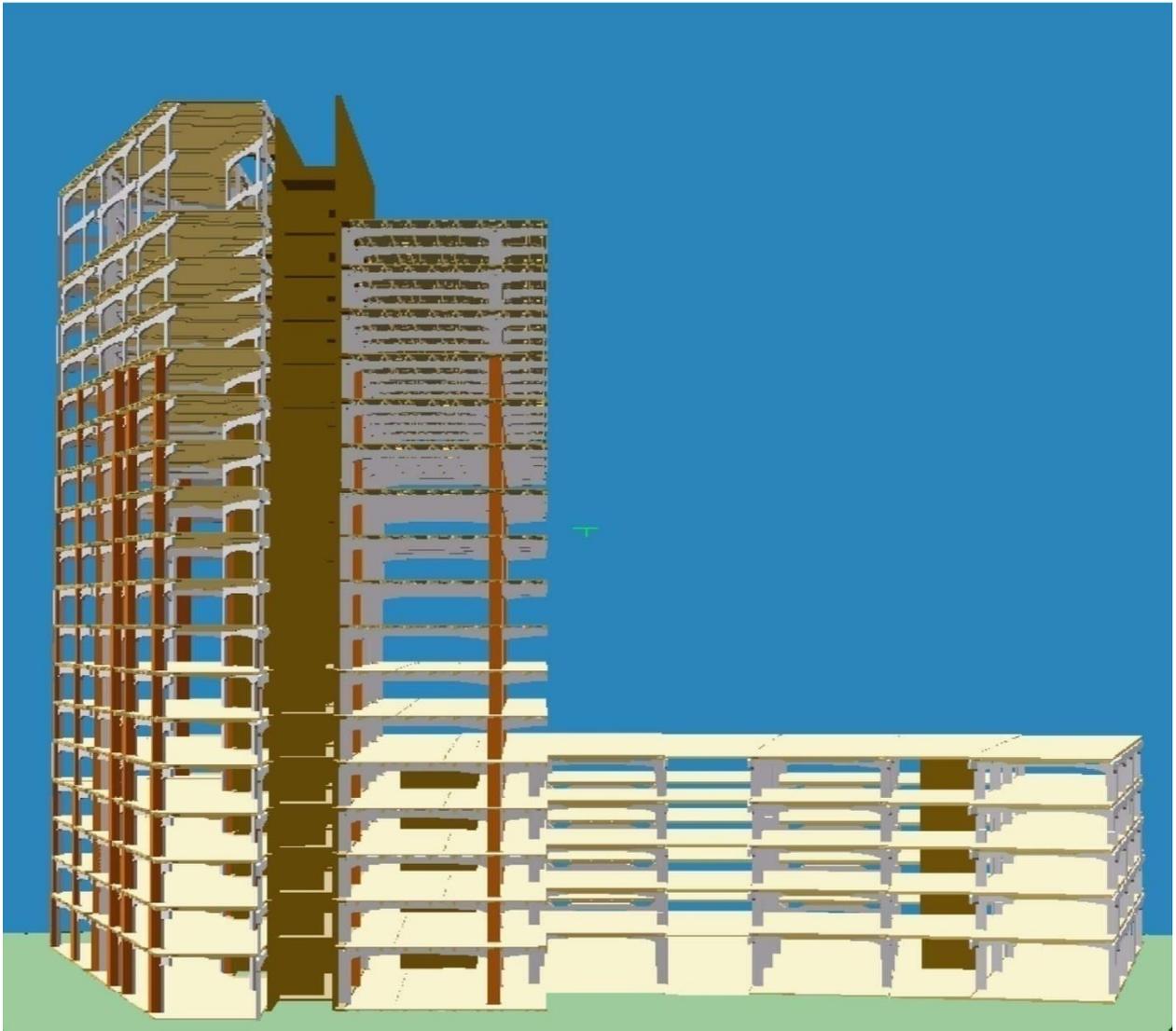
The design and manufacturing of the blocks make them aesthetically appealing (symmetric angles, terraces, cantilevered porches, etc.), more durable than conventional buildings and less expensive to maintain and insure.

The 6D-BuildTech Open Frame System is the only precast system capable of building 100-story structures.



**6D-BuildTech Space Frame Module**

## 6D-BuildTech Space Frame Example



## Stability – 6D-BuildTech Moment Joint

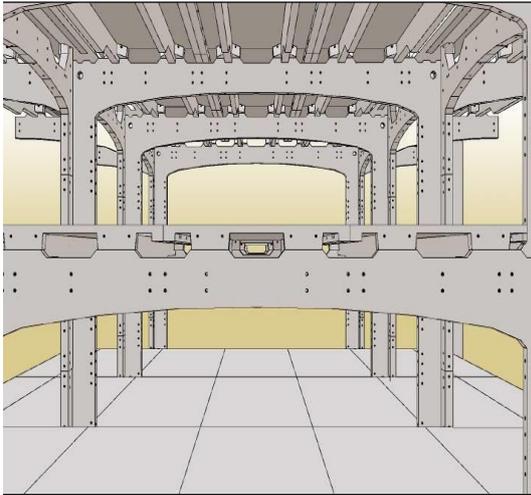
Bolted semi-rigid moment joints vs. pinned joints used in conventional precast systems provide rigidity sufficient for multi-story, split level and terraced designs of unlimited variety.



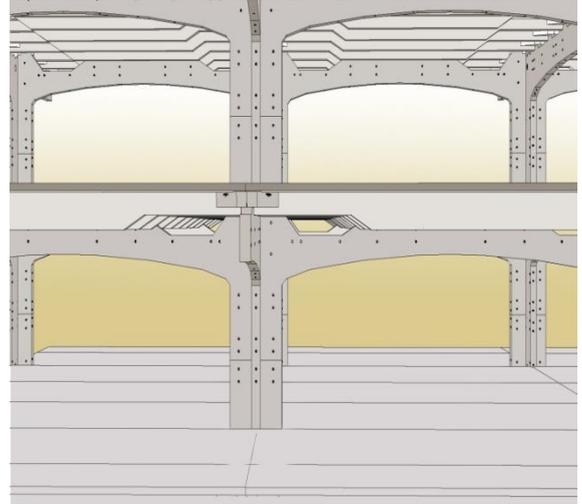
## 6D-BuildTech Reduces Total Life-cycle Costs v. Cast-in-situ

While its structural characteristics are comparable to cast-in-situ systems, the 6D-BuildTech approach reduces overall life-cycle costs in a number of ways:

- 6D-BuildTech's open frame system offers options for readily accessible chase areas for Mechanical, Electrical and Plumbing (MEP). This can make both initial installation and maintenance of MEP easier and lower cost than other systems.
- Because all dimensions are modular, components of interior construction (e.g., partitions, plumbing runs, HVAC units and duct runs, etc.) can all be largely prefabricated for finish-out of space. This allows space to be readied for occupancy in a fraction of the time required for construction, which puts more money in the owner's pocket.
- This system can also integrate with a water collection system to provide landscape irrigation, further reducing the cost of ownership.
- 6D-BuildTech is structurally and architecturally engineered. When assembled, this delivers a stronger finished building with fewer maintenance issues.



Accessible chase areas through frame block

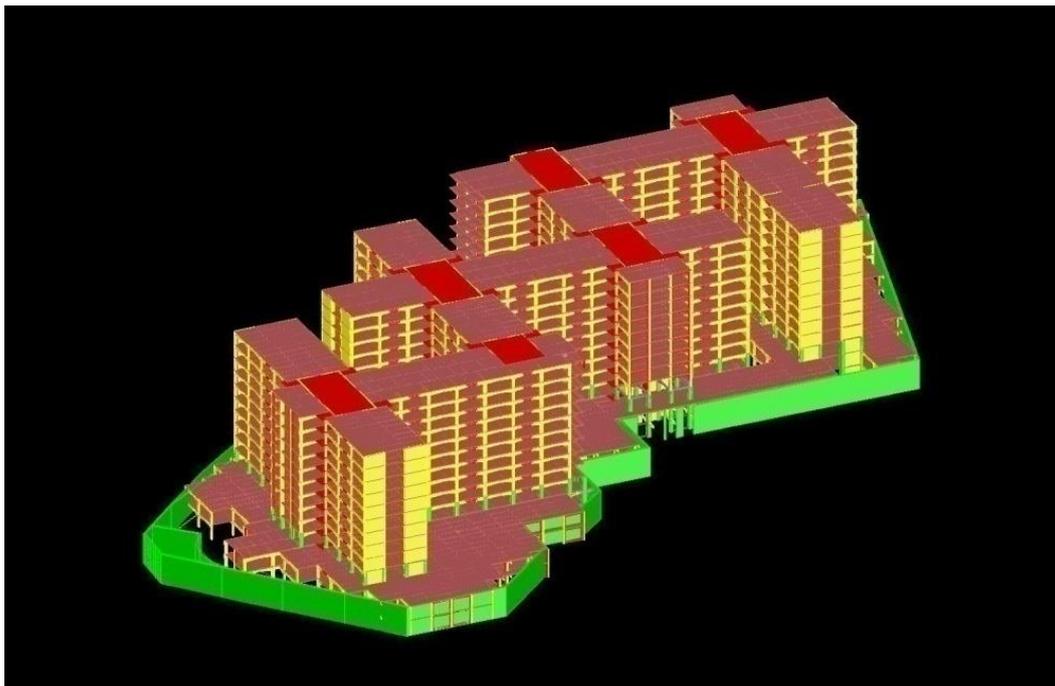


Accessible chase areas through spacer block

## 6D-BuildTech Space Frame Advantages v. Cast-In-Situ

- Precast parts with the threaded rod connectivity of steel
- Eliminates steel imbed plate connections
- Modular dimensions that allow parts to be interchangeable. Eliminates custom design and manufacture of each part
- 10% to 30% less materials - concrete and steel
- 60-70% less labour
- 75% + faster assembly - site work erection vs. construction (assuming 1000m2 footprint)
- Captures quality and labour efficiency in a controlled factory setting
- Excellent buildability – speed, safety & cleanliness
- Eliminates waste
- Environmentally compliant - sustainable
- Flexible – towers up to 100 stories

**Dubai Silicon Oasis Residential Apartments (planned)**



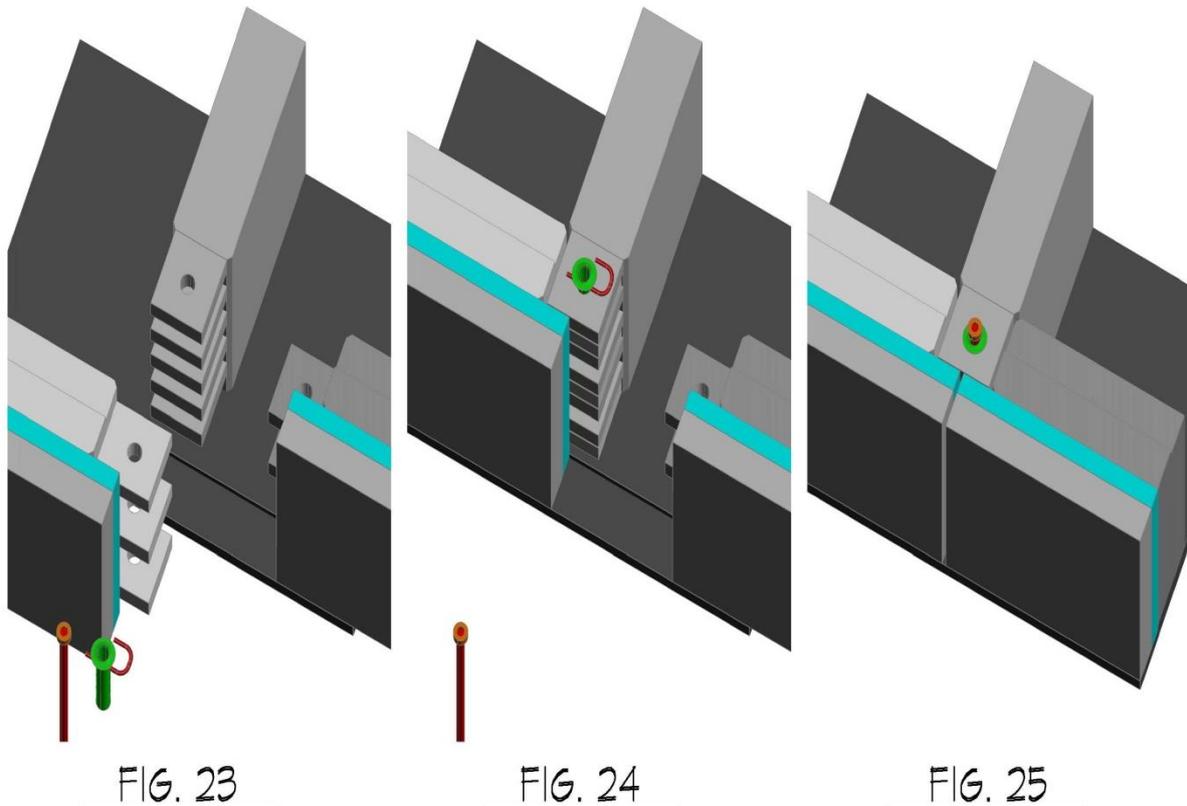
## The 6D-BuildTech Wall System

### Summary

The 6D-BuildTech Wall System employs a basic finger joint pattern that enables the construction of joints to connect to intersecting wall blocks at the ends or along the length of a wall panel. A pair of wall panels is immediately stable once a joining pin has been installed.

This system combines the speed of the sleeve and bolted joint construction inherent in the 6D-BuildTech Open Frame System with the redundancy and strength of a finger joint detail that is common to fine woodworking, such as furniture and cabinet construction.

The 6D-BuildTech Wall System Integrates with the LB Space Frame System.



**6D-BuildTech Wall System finger joint connection.**

## Embedded Features

Door and window openings are precast into each block, and reinforcing steel, to resist the stresses that develop around each opening, is engineered in response to the calculated loads in a proposed assembly. Electrical conduit and other service features such as plumbing and air conditioning routing can be cast into basic wall and floor panel components.

## Superior Insulation

6D-BuildTech Wall System allows for continuous insulation coverage eliminating thermal bridges present in other insulated precast wall systems on the market.

A 6D-BuildTech insulated wall panel has an R rating of 7.7 compared with a value of 0.64 for a 20cm CIS concrete wall and a value of 1.11 for a 20cm traditional block in-fill wall.

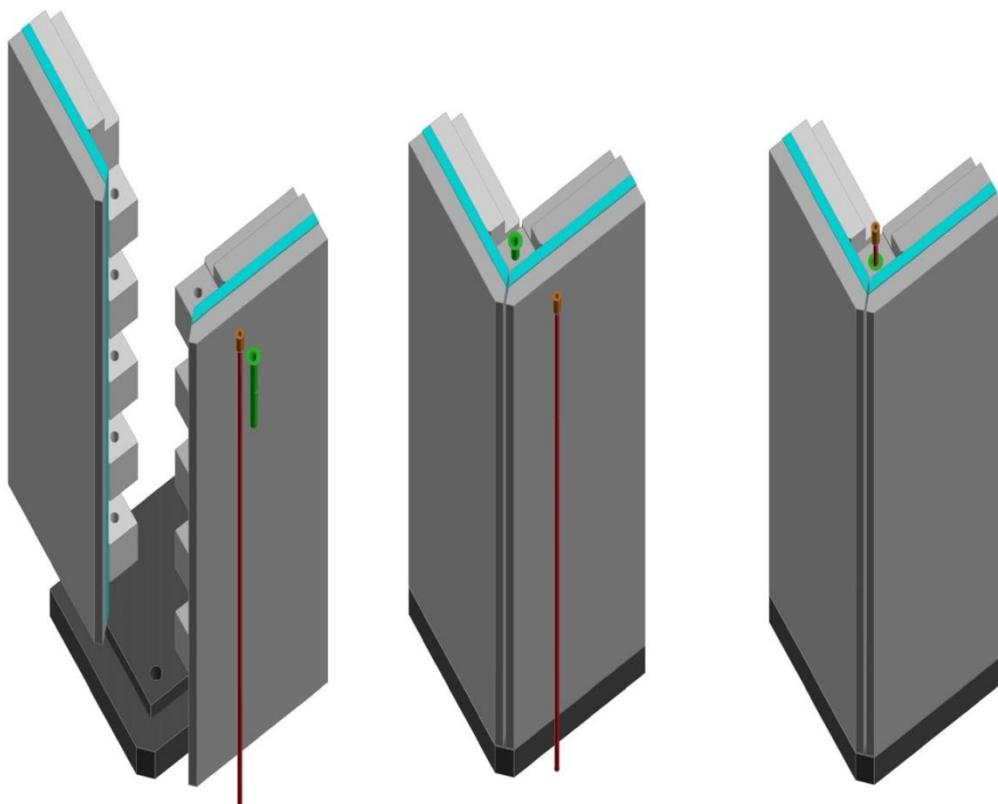


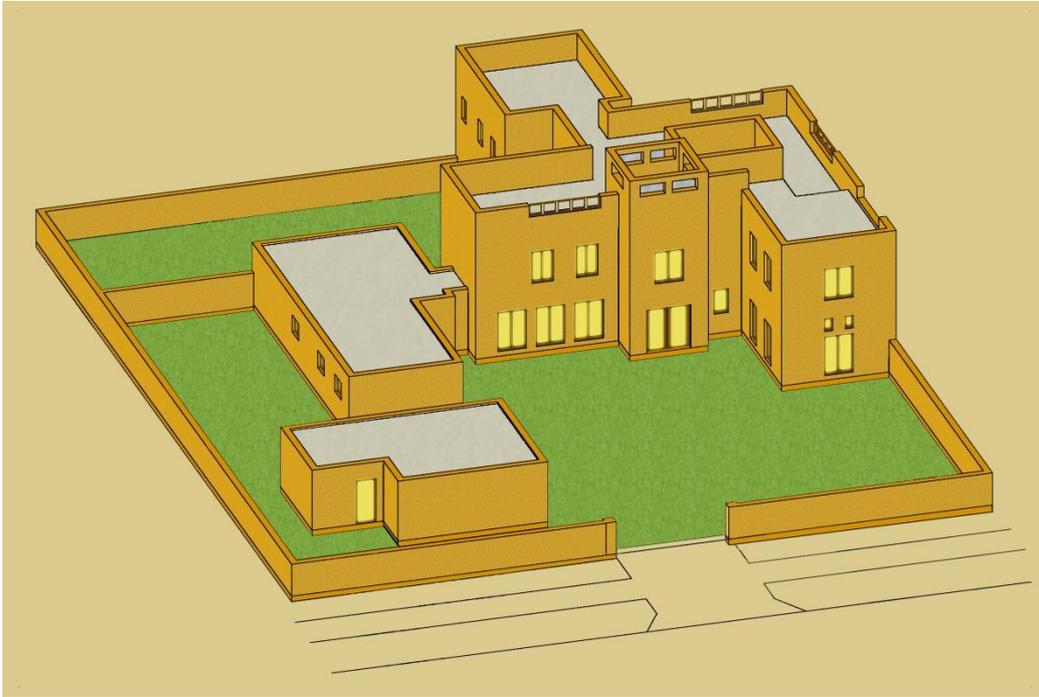
FIG. 11

FIG. 12

FIG. 13

**6D-BuildTech Wall System continuous insulation at wall panel joint.**

## 6D-BuildTech Wall System Villa Examples



## 6D-BuildTech Wall System advantages v. Cast-In-Situ

- Finger joint stability during assembly – self shoring
- Eliminates steel imbed plate connections
- Continuous insulation - 100% insulated building envelope
- 15% to 20% less materials - concrete and steel
- 60-70% less labor
- Faster assembly – 80-90% faster than CIS construction
- Eliminates shoring and drastically reduces on-site formwork
- Captures quality and labor efficiency in a controlled factory setting
- Excellent buildability – speed, safety & cleanliness
- Eliminates waste
- Environmentally compliant – sustainable
- Flexible – villas and townhouses up to 12 stories
- MEP conduits and door & window frames can be added at manufacturing