

# Factory-made Homes

Conventional brick-and-mortar construction technology is giving way to modern methods. You may be able to buy a ready-made home in a few years from now | By **Pritam P Hans**

**B**uying a ready-made modular kitchen or bathroom is now par for the course for a number of Indians. But what if you could go to a store, buy a house and get it assembled on your plot? With pre-fabricated, or pre-fab, technology becoming popular, this might become a reality in a few years.

## REALTY INNOVATIONS

Timely delivery of properties is important for both builders and buyers. From the buyer's point of view, early possession of an apartment means early freedom from rent payments. If the buyer is an investor, he can start earning rental income early. Also, once its project is complete, the builder can invest the capital in new projects and earn more profits.

"Given the requirement of 26.5 million affordable housing units in India and project execution challenges and shortage of human resources, the traditional 'brick and mortar' construction is giving way to pre-fab structures and materials. Prefab technologies can be used to build homes quickly and cost-effectively, especially as traditional construction costs continue to rise. As the cost of borrowing is steep and developers are facing a liquidity crunch, time means money. Modular construction is faster and adds to the revenue stream of builders," says Sachin Sandhir, managing director,



## Economies of Scale

Prefab construction materials are 15-20% costlier than traditional ones but the overall construction and maintenance cost of prefab buildings makes them attractive.

Illustration: ASIT ROY

RICS South Asia, a self-regulatory body of real estate professionals.

Prefab technology involves use of factory-manufactured components in buildings. Some commonly used prefab materials include steel frames for structures, panels made of wood, cement, gypsum and other materials for floors, walls and ceilings, factory-made doors, windows and ventilators. In large construction projects, various modules of the structure are cast off-site in factories and then assembled on the site.

In the process, prefab materials such as wall and terrace blocks, wall panels, steel frames and plaster boards are used along with innovations such as the dry-wall technique. In prefab technology, the entire building can be designed using architecture software. Later, components such as steel frames, wall and ceiling panels and floor tiles can be custom-made.

The components are then brought to the construction site and the structure is assembled on-site. Houses using steel frames for structure can have multiple stories without pillars, beams and concrete. Alternatively,



**SACHIN SANDHIR** | Managing Director, RICS South Asia

***“ Prefab homes use latest technology and minimise defects through stringent quality checks.*”**

the main structure and outer walls can be constructed using the conventional techniques and inside partitioning and interiors done with prefab materials.

#### **STRONG FOUNDATION**

Developers have already started using prefab materials in buildings. “We are using pre-fabricated concrete panels as shear walls and roof slabs, which are assembled like Lego blocks. Apart from prefab panels, complete kitchen and bathroom units are also being assembled as separate units with complete electrical and plumbing systems. These kitchen and bathroom ‘pods’ are then fit into place,” says Nayan Raheja, executive director of Raheja Developers, a New Delhi-based builder.

“Prefab construction reduces

construction time and improves the quality of the building. Though prefab materials are 15-20% expensive than the traditional ones, higher efficiency and less wastage and labour costs can bring down the overall cost substantially for large buildings. They also eliminate the need for auxiliary activities such as plastering, electrical wiring and plumbing as these are done at the casting stage itself,” says Raheja.

The use of prefab techniques can also result in better cost efficiencies over the life span of the buildings. “By opting for pre-fabricated building solutions over traditionally constructed homes, one can achieve savings both in the short term and over the life of the structure. Usually, pre-engineered or pre-fabricated houses show better performance, as factory- or assem-

## **India Concept House**

In an attempt to offer an affordable housing solution for small cities where residential land is available for construction, pre-engineered buildings are being developed by US-based architecture firm KieranTimberlake in partnership with RICS South Asia, Sam Circle Venture, and ProjectWell.

India Concept House is a housing solution under development where the entire house will be designed and manufactured in factories and then assembled into a house at the construction site.

The concept targets an affordable cost of Rs 9,500-12,000 per square metre.

Currently, these houses are being

designed as single-storied expandable housing units in sizes ranging between 32 m<sup>2</sup> and 98 m<sup>2</sup>. Owing to its modular design, the houses can be expanded according to owners’ financial capability and changing needs over time.

A 98-m<sup>2</sup> house can be assembled and built on site in six weeks. These concept homes have been designed to suit varied climates in the country. Natural and solar-powered ventilation systems maintain interior temperature between 21 degrees Celsius to 29 degrees Celsius. It also provides for water harvesting and recycling of wastewater. Solar heaters are used for hot water supply.