

GREEN SERIES



Panel homes by Joy Design Studio.



Modular homes by modularhomesva.



Steel framing by smart housing.

BY BRIAN CHUNG

# The abstract on prefabricated houses

> Busting myths about the 'Lego method' of building living quarters

THESE are a number of factors that go under the microscope by any potential house buyer or property investor. The two most common many pore over are cost and value. While property developers are aware of these, only some meet the demands and concerns given inflation, competition, better quality, more luxurious features; reasons aplenty. However, for those concerned about cost and value, who are also contemplating "greener" options, perhaps they could consider prefabricated (pre-fab) houses.

PRE-FAB HOUSES

In a nutshell, a prefabricated house is one constructed using "prefabricated parts" - manufactured in one location (often a factory) and brought to a location (usually the construction site) to be assembled. This system called prefabrication, is a subset of a building system known as "Industrialised Building System" or IBS in short.

Like any system under the IBS banner, prefabricated houses share these characteristics:

- ▶ Components and parts like walls and frames are produced in a factory.
- ▶ The component/s will be brought to the construction site to be assembled.
- ▶ The system reduces labour and time in completing a construction project.

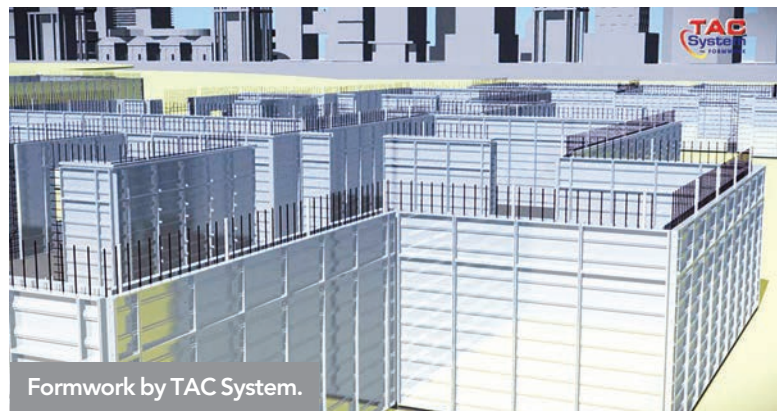
Nonetheless, even with the mentioned strong points and advantages, the prefabricated system of building hasn't won favour, especially among Asians, Malaysians in particular. That said, let's explore the many mindsets, perceptions we locals have on this amazing and "greener" system of build and bust the myths many believe in.

NOTIONS AND FABRICATIONS

▶ Myth #1: Prefabricated houses are not strong and secure.

No fact, instead false impression. Although there are not as much bricks and cement used in the construction of a prefabricated house, it does not mean that it is flimsy, weak or unsafe, neither can it be easily destroyed by wind or a storm.

In fact, prefabricated houses comprise fabricated "parts" made in a factory, which are manufactured to higher building standards than most site-built homes. Each module or part also has to withstand being lifted on to the back of a flatbed truck and being transported to the "building site". This requires the modules/parts to be solid and durable, if not more, than the same in strength as a traditional house.



Formwork by TAC System.

To back this claim, look at countries like Japan and America which have adopted prefabricated housing systems. These are countries subjected to natural disasters and stringent housing administrations and policies. Moreover, some materials used in the construction of prefabricated houses, like plasterboards (drywall) for instance, have been integrated into traditional places of dwelling and work, and have proved hardy and durable. For those who did not know, the St Regis Hotel in Kuala Lumpur integrates both traditional construction and IBS methods in its configuration; USG Boral Fire-Resistant Drywall and Ceiling System to be exact.

▶ Myth #2: Prefabricated houses are not flexible in design nor stylish.

As in how the previous myth was formed, this is based on a similar concept. The idea of prefabricated houses being pre-manufactured from moulds; components "put together" after being transported to the construction site for assembly - some say a "Lego house" comes to mind.

Critics are quick to point out the perceived rigidity of this system considering that "everything" is "pre-made", what more with the analogy of a Lego house.

Modular Today, a prefabricated house review website, states that prefabricated buildings can be customised according to the preference of the buyer/developer. This is mainly because prefabricated house parts, like dry walls and frames, are built in factories, and changes to the design template is not impossible.

The pre-fab houses of today have in fact come a long way since it was first introduced in the market.

Today, there are many different moulds that can create different parts of a house.

Flexibility of prefabrication is also further validated by another system under the IBS banner, known as the "Hybrid/ Innovative System". According to Aathaworld, a Malaysian contracting firm dealing in building materials, this innovative system combines the use of various IBS methods, including using both IBS methods with normal brickwork, to build houses. With this system, contractors have alternatives, thus reduces their dependence on traditional wall-and-serve. It also provides a gateway to use prefabrication and other forms of IBS systems of construction.

On style, doesn't each have his or her own, as in the saying: "Beauty lies in the eye of the beholder"? (Visit the St Regis in KL and take in the sights, then get back to us.)

▶ Myth #3: Prefabricated houses do not benefit developers.

This notion deals with the potential problems of executing prefabrication. Some like to call it "an excuse". As in all circumstances that require "change", new methods and ways of doing things often come with some hesitation, we'd like to

believe, only because of lack of knowledge. However, some reason it to "lack of funds".

In reality, prefabricated house building methods can benefit both big and small developers. If done right and cleverly, it can also save a lot - money, time, and the environment.

According to USG Boral (a provider of lightweight materials to builders, like plasterboard) managing director Daron Cheah, some prefabricated materials are not only strong but also lighter than bricks. "This benefits prefabrication builders as weight of the units are an important factor in determining transport and hoisting costs," Cheah adds.

Cheah also says there is huge benefits in using the hybrid system combining pre-fab with traditional brickwork.

"In a traditional concrete building, when you combine using lightweight material like drywall (plasterboards) in its construction, it helps to reduce the weight of the building on the whole and therefore reduces super structure and sub-structure costs. The speed of construction is also faster and pre-fab is less dependent on labour. To cut it short, developers can save a lot of money, of which the savings can be passed down to the home buyers, which makes the pre-fab system actually advantageous in many ways and to many parties," Cheah says.

▶ Myth #4: Prefabricated houses are hardly any "greener" than regular houses.

Unless one works with a certification body like the Green Building Index (GBI) or the Malaysia Green Building Confederation, one really can't gauge how much greener or not building a house using pre-fab

systems is from the norm. However, countries and governments which are working on lessening their carbon footprint and impact on climate change are championing these newer and "cleaner" methods of construction and building.

According to Cheah, as in every subset system under IBS, prefabrication addresses waste management and environment issues. Components in pre-fab systems like steel and earth-friendly board are sustainable and recyclable, enabling developers to manage their budgets and build their projects responsibly. In turn of recycling and better budgeting, contractors and builders can reduce the amount of materials left unused or wasted.

As every component is produced in the factory, prefabrication also helps reduce the noise levels and possible pollution at building sites. As usually found in conventional building sites where sand and debris waste are common after construction, this is not the case in pre-fab building systems. With less waste, fewer hands need to be employed and shorter time-frames are required in building. All these boil down to loads of savings - time, pollution, waste, employees, money and most significantly, our "bigger home", our planet.

GETTING SERIOUS ON GREEN

In line with the global aspiration to combat climate change and reduce GHG emissions, the Malaysian government and like-minded operators of businesses have been taking steps to make changes for the better, including implementing IBS into construction schemes included. Companies like Ajiya Berhad, Aathaworld and Gamuda are among others who have introduced alternative forms of construction and building. Works Minister Datuk Fadillah Yusof also shares that the Malaysian government has intention to promote and encourage IBS construction projects, even making it compulsory in 2018.

Just months ago, Syarikat Perumahan Negara Berhad (SPNB) officiated a centre focused on training individuals on the Ajiya Green Integrated Building Solutions (AGIBS) system. A memorandum was signed between SPNB and Ajiya adopting the AGIBS system into their construction projects, beginning with Rumah Generasi Baharu Felda as its maiden project. Once completed, it will offer 20,000 homes. Steel will be used to form the structure of the house. With AGIBS, construction industry players are expected to save on manpower, minimise construction time and reduce operating costs using eco-friendly materials and methods.



Sample wall by AGIBS.

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