



Architecture continuum

SAMANTHA JOSEPH

THE words 'sustainable', 'green', 'environmentally friendly', 'energy efficient' and their ilk have become familiar friends when it comes to describing everything from milk cartons to skyscrapers. To say that it is only media hype would be trivialising the underlying issues that have caused the environment and long-term planning to be championed with such gusto, namely the slow dying of our beloved planet and the depletion of resources big and small.

In the overall picture, every industry plays a significant role in putting greener practices at the forefront, but architecture plays a much more visible role – thanks to the products of successful architecture lasting decades and being far more conspicuous in form. But in Malaysia itself, how much of an effort has gone into creating structures that are sustainable or environmentally friendly?

When Menara Mesiniaga, the bioclimatic building designed by architect Ken Yeang, was completed in 1992, it was considered a revolutionary piece of architecture. The 14 and a half storey structure was one of the first intelligent buildings in Malaysia, and utilised clever design to take advantage of natural sunlight and reduce the use of air conditioning.

While it still stands proudly along Jalan SS 16/1, it does not seem to have spawned a new wave of sustainable or bioclimatic buildings throughout the Klang Valley in the following years. While there have been a few corporations that have taken up the sustainability mantle, for example some buildings have a façade constructed that reduces the heat of direct sunlight while allowing for a base where plants can grow, creating a 'green face', little commercial architecture has incorporated much, or



even any, of its aspects.

Yet there is no escaping the fact that sustainable architecture is in our future.

Thanks to the rapidity of urbanisation and industrialisation in many states, environmental deterioration is ongoing and the need for developmental planning is stronger now than ever before. Not only that, but our precious natural resources, especially our trees that produce timber and plywood, are quickly running out, leaving us with no alternatives except those that we can create ourselves. And if we are to create replacements for construction materials, why not create those that are environmentally friendly? For example, in place of traditional lumber, a composite of wood fibres and waste plastics that is more durable and rot-resistant can be used, or using recycled steel beams made from scrap that would save energy instead of wood beams.

There are several examples of these materials and ideas in practice. In the

realm of residential housing, there are two houses that claim to be built on sustainable principles from its construction upwards. One of them, the Factor 10 House, is so named because it only produces one tenth of the waste of the average American household. It has a green roof – not literally, as the house is actually an attractive red – also known as a planted roof, usually a mat of succulents that absorb runoff water and reduce greenhouse emissions, and a solar chimney that warms and cools the house with fans rather than the more energy-inefficient heaters or air conditioners.

The rather futuristically named Z6 House was an attempt by its architects to create a house built using nearly every green building technique in the book, resulting in only 10 per cent of normal construction waste produced. The Z6 House uses photovoltaic panels and solar water heating to reduce household energy wastage, and in construction, used recycled materials for beams and

corks instead of wood for flooring. Both houses utilised modular construction methods, where parts of the structure are prefabricated in a factory and assembled on site, reducing the amount of physical and energy wastes.

While these are admittedly exceptions to the common rule, even in developed countries, there are architectural firms that cater to the sustainable crowd by offering sustainable architecture services. American firms like organicArchitect, Perkins + Will, and Archterra, and construction companies like the Turner Construction Company hinge their appeal on the 'green'-ness of their practices.

LOCAL APPLICATIONS

According to Associate Professor Meor Mohammad Fared, Head of University Putra Malaysia's Department of Architecture, the idea of sustainable architecture is not something that is new. In fact, it has been around for ages, but it is only now that we have become conscious of the importance of maintaining and creating sustainable structures. "Our forefathers applied sustainable design in the construction of their wooden homes," he points out. "They used natural ventilation, easily available resources, and utilised direct sunlight when they built their homes."

Right now, sustainable aspects of design are being taught in universities that offer architectural studies, and it is a hot topic among research students. The idea that these students may form the basis of common practices in the future is an uplifting one, especially considering our undeniably diminishing resources. Associate Professor Meor admits that issues of sustainability will make and is making a huge impact on the architecture industry. He points out the possible use of nanotechnology to create an environmentally-friendly alternative to concrete, and also the

increased regulation and management of our timber industry.

The words 'sustainable' and 'environmentally-friendly' seem to have become interchangeable in the media. And on the surface there seems to be little difference between the two, as they both require architects to be mindful of their designs, and perhaps create something that does not use much air conditioning.

Yet a building can be sustainable without being environmentally friendly. Let's say a house is designed to take advantage of natural sunlight (reducing the use of artificial lighting and energy waste), shields from hotter temperatures (reducing the use of artificial coolants) and has solar panels on the roof, but is made from rainforest timber shipped from Borneo and copious amounts of concrete. The resulting structure would then be sustainable, because it can sustain itself without excessive outside energy, but it would not be environmentally friendly.

The question arises then that is it better to be sustainable or environmentally friendly? Is it always possible to apply both?

This is a conundrum that the current generation of architects have to face. Fortunately there is some form of regulation through the GBI, where buildings are rated based on energy efficiency, indoor environmental quality, innovation, sustainable site planning and management, water efficiency, and materials and resources. Even the number of experts in green building is set to increase, with the involvement of the Malaysia Green Building Confederation that provides training courses for GBI certification.

Sustainable, environmentally friendly architectural practices are integral to the developmental future of our country, and it is definitely something that those looking for a specialisation in the industry should consider.