

By NGEH CHEE YEN

AS awareness on climate change and economic instability grows, more and more people are looking towards living simpler and more sustainable lives and opting for smaller and cheaper houses.

Last year, former Malaysian Green Building Confederation (malaysiaGBC) honorary secretary C.K. Tang said approximately 40% of new buildings in Malaysia were adopting green building initiatives by planning and designing buildings that were more energy-efficient. With this in mind, all eyes are now on our new crop of architects, who need to adapt to the wants and needs of the general population in addition to designing for a greener and more sustainable future.

### Evolution for the better

Assoc Prof Dr Zalina Shari, acting head of the Department of Architecture at Universiti Putra Malaysia, says architecture is firmly embedded in the country's economy, actively contributing to its growth and reacting in times of crisis. In an age where people are acutely aware of the economic slowdown, limited natural resources, income disparity and ecological imbalance, it becomes increasingly clear that highly individualistic architecture, or architecture that focuses more on aesthetics rather than sustainability, is no longer relevant.

She gives an example of how Malaysian housing design has changed since the 1970s in response to changing social and ecological needs. In the 1970s, house designs were based off architecture common in countries with cooler climates. With basic geometric forms, the designs offer little to no shading and have internal spaces that are poorly lit and ventilated. These designs created uncomfortable and energy-guzzling living environments.

However, in the 1990s and 2000s, responsive design, with moderate openings, generous shading from the sun and rain

# Are we teaching architects how to go green?



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(pitch roofs with large overhang), balconies and ample ventilation started becoming the norm.

There are many reasons for the changes in architectural trends. MalaysiaGBC vice-president Serina Hijias and honorary secretary Michael Ching say some of the reasons affecting architectural decisions both locally and internationally are

increases in the prices of building materials and growing awareness of sustainable practices.

Prof Zalina attributes Malaysia's growing awareness to the introduction of the Green Building Index rating tool by the Malaysian Institute of Architects and Association of Consulting Engineers Malaysia in 2009.

"Today's generation of Malaysian

homebuyers see 'green homes' as countering the effects of the rising cost of living. Homes with energy-efficient features will not only promise better use of resources and a greener environment, but also help reduce utility bills and promote healthier living," she says.

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# Designers of the future

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To ensure a green and sustainable future, we will first have to ensure Malaysia's new crop of architects are trained in eco-responsibility. Prof Zalina says architecture students are required to respond to sustainability issues. To do that, she says, universities need to offer courses highlighting the students' responsibility as future architects to design and plan built structures and spaces that reach an equilibrium between the needs of humans and nature.

However, she notes that existing efforts to address sustainability vary greatly from institution to institution and discipline to discipline. Many courses in Malaysian universities fail to cover green or sustainable design adequately. Sometimes, the topic of green and sustainable design is scattered throughout the programme instead of a compulsory aspect of the whole programme.

She also believes that the isolated character of the sustainability modules, which do not find their way into the design studio process, is also not effective in inculcating environmental responsibility in each student and emphasises that training in universities will never trump practical industry experience.

Prof Zalina opines that current Malaysian architects who have professional degrees with accreditation from the Board of Architects Malaysia have what it takes to design sustainably – environmentally, economically and socially.

When all is said and done, she sees the knowledge of sustainable development as multidisciplinary in nature and attributes the key success factor of a sustainable building design to the application of an

integrated design process where multiple stakeholders – architects, engineers, landscape architects, building operators, client/building users, planners and others – collaborate early in the design stage.

She says, "This approach emphasises the development of a holistic design where all design requirements are considered simultaneously, rather than sequentially. By doing this, architecture students will be more prepared for teamwork to satisfy the contemporary demands of society."

### Opportunity to work globally

Housing affordability in urban areas continues to be a hot topic in Malaysia because of the rising cost of living, stringent lending policies and a mismatch between the income of the urban middle class and the cost of housing.

Because of this, there is a need for well-designed houses that take cost and sustainability into consideration. However, there is a major roadblock – the hot weather. Architects have to take into account the tropical weather when designing homes, which, for many, means air conditioning.

Malaysian Green Building Confederation vice-president Serina Hijias and honorary secretary Michael Ching hopes that Malaysians are becoming more open to passive design as a way to cool their homes, as opposed to active design, where the home is subject to active systems such as air conditioning and mechanical ventilation,

which takes up unnecessary energy.

Passive design takes advantage of natural resources such as sunlight and airflow for lighting, cooling and ventilation, creating a comfortable indoor living environment that uses minimal active energy sources.

They add, "To address climate change, we also need to consider fossil fuel-free building operations via embedded energy networks, which can include water harvesting apparatus, as well as more efficient designs to reduce operating and maintenance costs of buildings."

Assoc Prof Dr Zalina Shari, acting head of the Department of Architecture in Universiti Putra Malaysia, says the Industrialised Building System (IBS) is another solution. IBS can be used to shorten the construction period, which will save labour costs and reduce wastage of building materials.

However, she also suggests that architectural design practices should shift

from conventional IBS, which still needs substantial manpower, to digital IBS. Digital IBS leverages on today's digital design tools and robotic construction for flexibility in design, fast construction and superior quality finish.

"For example, instead of using precast products that only result in boring and standardised high-rise units, architects can design with the Building Information Modelling-integrated digital design system to provide clients with customised solutions. During construction, all panels can be assembled on-site like a huge Lego structure," she adds.

Besides the use of IBS to reduce waste, she says energy conservation should be the main concern for design professionals, as designing greener and more environmentally friendly housing will benefit lower-income families as they will be able to afford thermally comfortable, economical and healthier living environments.

With its focus on aesthetics, highly individualistic architecture is outdated and thus, paves the way for architecture that focuses on sustainability.

