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Health check for

The iconic buildings of the future will no longer be grandiose but green. With shrinking resources and ever rising energy costs, it makes sense to design or modify buildings to comply with Malaysia's first Green Building Index, introduced yesterday.

GREEN is symbolic of spring and new beginnings. How apt it is to start the year, then, by introducing Malaysia's Green Building Index, our first certification tool that will provide guidelines for environmentally friendly construction.

After all, some of the biggest culprits guzzling the earth's energy and water resources are man-made structures. The Index means that, for the first time, buildings in Malaysia can be assessed on their impact on the environment, and the construction of new buildings can be guided and managed to lessen their impact on their surroundings.

And not a moment too soon! The effects of climate change and the depletion of earth's natural resources are keenly felt around the globe today. Malaysians too have experienced the consequences of unprecedented floods and landslides resulting from the mismanagement of and disregard for nature.

What's perhaps more pertinent to us is that green dwellings can save us money. Because going green is not only about being environmentally responsible, it also yields huge savings for building owners - up to 30% savings in energy consumption, according to Dr Tan Loke Mun, past president of the Malaysian Institute of Architects (Pertubuhan Akitiek Malaysia/PAM, pam.org.my).

For example, an intelligently built home that is orientated away from the sun, has sun-shading features, allows for natural ventilation, and has reflective internal surfaces to maximise daylight, does away with the need for artificial lighting during the day, and airconditioning.

This building can go further in lessening its impact on the earth by using environmentally friendly building materials and opting to be powered by renewable energy such as solar energy.

Tan explains that, while it is impossible to make green buildings mandatory in Malaysia as the country comprises widely diversified cities, towns, and villages with a multitude of buildings, Malaysians themselves will come to want such structures.

"I believe Malaysians will care about having green buildings because it offers practical savings for us," argue Tan.

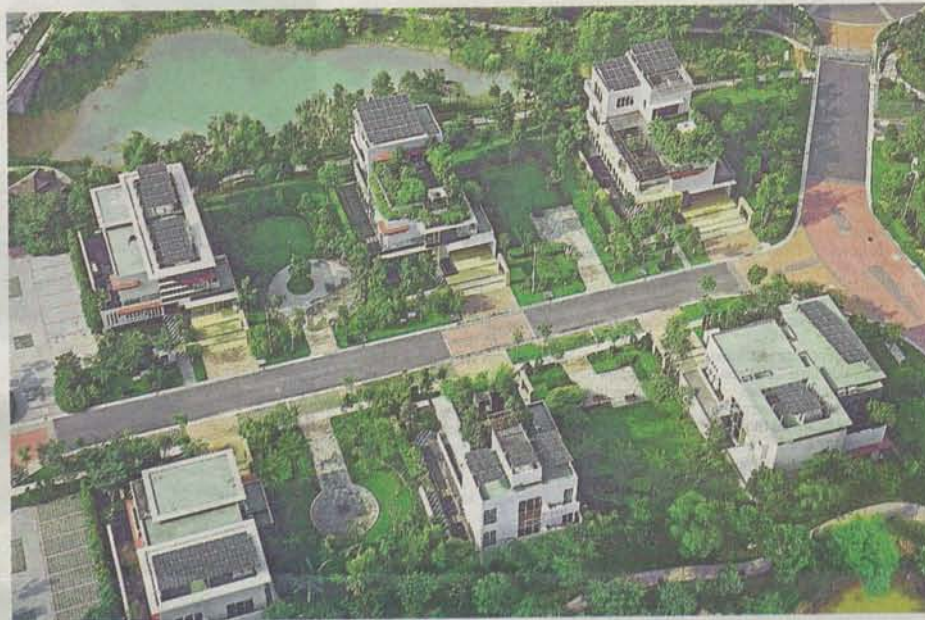
"Many homes in the Klang Valley have already incorporated insulation in their roofs and solar panels. Green homes are not necessarily more expensive; it's only about 3% to 15% of additional cost, which they can easily recover in utility bill savings."

Another aspect that will be covered by the Green Building Index is that of transportation. Architect Chan Seong Aun explains how public transportation accessibility in a housing project has important environmental and monetary impacts.

"Transportation constitutes 40% to 70% of household energy use," he says. "A family makes about five to 10 trips daily shuttling to work and back, shopping, buying groceries, sending children to school, and tuition classes, and other activities."

An effectively planned neighbourhood can reduce such energy costs by clustering activity areas sensibly - having small shopping areas within walking distance of a certain number of houses, for instance.

Another way of saving lies in construction materials, the cost of which will only keep going up in the future.



Could this be the way of the future? This is Malaysian developer SP Setia's Setia Eco Park project in the Klang Valley where all the houses have photo voltaic panels on their roofs to harness solar energy. - SP Setia

Says Tan, "We have been throwing away useable materials that can be recycled into building materials, such as steel and timber. There are many possibilities of becoming more sustainable, and the Green Building Index is one of the steps."

So, what's this index about?

The Green Building Index is a green rating tool to guide architects, designers, government bodies, building owners, and developers towards constructing environmentally responsible buildings.

It was initiated and will be managed by PAM's newly formed Sustainability Committee. The committee comprises 40 members selected from the building industry as well as the academic world.

The Index was introduced yesterday in Kuala Lumpur by Malaysia-born Penny Wong, Australia's Water and Climate Change Minister.

"Architects (in Malaysia) have been using foreign benchmarking tools over the years, and yet, we lack a single green-branded building," says Tan.

"However, many of the foreign tools cater to temperate climates. Singapore's Green Mark, which started in 2005, is the only tool for tropical countries to date. But Singapore's priorities in energy and water resources differ from Malaysia's."

"It was also costly to hire foreign consultants to work based on their country's ratings tool. As such, there was a need to develop Malaysia's own ratings tool."

In August last year, PAM endorsed the formation of the Sustainability Committee and a panel to certify green-rated buildings. Full support was given by the Building Industry Presidents' Council, and the Association of Consultation

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DR TAN LOKE MUN

Engineers of Malaysia.

The Sustainability Committee visited Singapore for comparative studies on its Building and Construction Authority's Green Mark, and Australia to study its Green Star programme.

"It was vital that all the professional institutes involved in the building industry support the Green Building Index," explains Chen Thiam Leong, a Sustainability Committee member and past president of the Association of Consultation Engineers.

"The Green Mark and Green Star authorities were immensely helpful in helping us put together our own ratings tool, which incorporates internationally recognised best practices in environmental design and performance in buildings."

What the index measures

A green building can be defined as a building that uses its resources efficiently; these resources include energy, water, and materials, explains Tan, who is the Sustainability Committee chairman.

The Index will assess a building for its compliance with six key criteria: Energy efficiency, indoor environmental quality, a sustainably managed sustainable site, optimal use of materials and resources, water efficiency, and innovativeness.

"The building also has to sit well within its locality, climate, and culture," emphasises Tan.

Points will be awarded for four levels - platinum, gold plus, gold, and certified - in two categories of buildings, residential and non-residential.

"Our ultimate goal is to reduce the carbon footprint of our urban cities, as the impact left by buildings is immense," says Dr Tan.

"Buildings last a long time, and over that lifetime they play a part in contributing to the destruction of our environment. Over its life cycle, a building uses many resources and is the source of much pollution emissions. The Green Building Index can be likened to a health check for buildings both new and existing."

While there are similarities between our Index and Singapore's Green Mark, the scoring system differs. Being an island republic with scarce natural resources, Singapore places great emphasis on energy efficiency, giving that criterion a whopping 62% of points. In Malaysia, the same category gets 35% of total points.

Malaysians' infamous lack of a maintenance culture in even the best designed and constructed buildings will undoubtedly be a huge hindrance when it comes to assessments.

"Many old buildings have ineffective air-conditioning as the filters are not maintained or cleaned regularly," Tan gives an example. So the air-conditioning is turned up, and

more and more energy is used to cool the same space.

"And in some offices," Tan points out, "the air-conditioning is overly cold because it is not adjusted to cater to the number of people actually using the space. It all amounts to huge wastage."

A green building does not need to be big, iconic or expensive. We need look no further than the Federal administrative capital of Putrajaya to see the many grandiose buildings languishing in what has been reported to be an "urban heat island" with average temperatures 5°C hotter than other Malaysian cities, rising up to 40°C.

This is due to a combination of limited trees, maximum use of granite and asphalt bricks, and lack of shade. Authorities there are scrambling to plant more trees in a feeble attempt to address the symptoms of an ailment that could have been prevented at the design stage.

Green buildings are becoming so critical that in April 2008, it became mandatory in Singapore for all new buildings, or works on existing buildings exceeding 2,000 sq m in floor area, to achieve a minimum Green Mark rating.

The Singapore Government has also launched a Green Building Masterplan and allocated S\$50mil (RM121mil) for research and development in green building technologies.

Its Building and Construction Authority's vision is simple: to have every major building go green, says Tan Tian Chong, the authority's technology development division director.

In fact, the need for green buildings is becoming such a worldwide concern that the International Union of Architects, a global network dedicated to the architectural

Malaysian architecture

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profession (uia-architectes.org), has decided on the theme of Sustainable Architecture for 2009-2011.

Challenges and possibilities

But can environmentally friendly buildings retain a sense of cultural and local identity? And that is vital if we are to live with these buildings for several generations.

University lecturer and *StarMag's Architecture Inside Out* columnist Prof Dr Mohamad Tajuddin laments that many green buildings – such as well-known Malaysian architect Datuk Dr Ken Yeang's Mesiniaga building in Subang Jaya, Selangor – are "a courageous attempt at energy efficient tropical architecture but lack local cultural references".

"Some green buildings are stylish and claim to be green, but are they actually green and how much can they withstand a test?" he asks.

"The Green Building Index is a welcome step forward for Malaysian architecture. But when clients insist on iconic imagery for their buildings, how far can our architects go in advising them not to fall for the trappings of such imagery and opt for green features?"

"Green features can also be interpreted in social cultural aspects. How about examining our vernacular architecture to see their fantastic features adapted to tropical climates?"

"I also blame our academics for not educating students enough on green buildings and for not disseminating information to lay people on



Ventilator turbines on rooftops help harness abundant wind energy in Melbourne. – Dr TAN LOKE MUN

such architecture. Because if the public is unaware of green building technologies or features, they don't demand for them.

"As such, housing developers may as well cater to the educated elite by providing houses in the RM300,000 and above category. What of the vast majority of people who can't afford that?"

National House Buyers' Association of Malaysia secretary-general Chang Kim Loong has mixed feelings about the Index.

"The Green Building Index is a positive move forward," he says. "Such a ratings tool will undoubtedly better our built environment, especially for the future. Developers must initiate the concept for their buildings."

But Chang wonders if we've got the cart before the horse: "A main issue is that Malaysia hasn't even made it mandatory for developers to adopt a quality standard of building. Ask the buyer of a shoddily constructed home or an abandoned project, and he will tell you he just wants a house, any house."

"Green buildings are vital for any society. But in our current state of affairs, only a niche market can afford to think about green features. The majority of Malaysians will be thankful if they can just have a roof over their heads."

Real Estate Housing Developers' Association president Ng Seing Liong points out that many developers are still learning green building technologies.

"PAM has consulted us on the Green Building Index, and we have pledged our full support. We believe this is the right step for the future but we will let it progress steadily and not in a haste."

"Also, we do hope that the Government will introduce some sort of tax incentive for incorporating green features. The additional cost of building green homes is one factor; there has to be public acceptance first. But certainly, many green building ideas are workable here."

In the Klang Valley, well known Malaysian developer SP Setia has won acclaim for its Setia Eco Park project which features houses with photo-voltaic panels that convert solar energy into electricity.

Houses developed by Bandar Utama Development Sdn Bhd in April 2007 include a rainwater harvesting system that costs just an additional RM300 to install. Almost 500 litres of harvested rainwater can be stored and used for gardening, cleaning drains, and washing porches – all of which lead to savings.

But for green buildings to really work, owners must play a role, says Tan. For example, he says people in his office have taken to turning off all lights and air-conditioning during lunchtime.

"Just that simple act of flicking off the switches for an hour or two a day saved me 25% of my electricity bills every month. Small offices that pay about RM1,000 in monthly utility bills can save at least a thousand ringgit annually. It does pay to go green."

Many countries such as Germany, Britain, and America have set ambitious targets to achieve zero energy or carbon neutral buildings, the ultimate goal of research and development in green buildings. While Malaysia has started a little late, the Green Building Index is a vital step forward in the right direction. Malaysians just have to do our bit by embracing it wholeheartedly.

■ In upcoming issues, *StarMag* will examine various aspects of green buildings and technologies, and share practical ways for Malaysian home owners to incorporate eco features into existing buildings.