

What makes it eco-friendly

HERE'S a quick rundown on what makes 99L, Jalan Tandok, environmentally friendly.

> **Maximising natural daylight:** The entire north-west facade is clear glass while skylights above the straight-flight stairs within light up the south-east. More than 50% of the space is illuminated with natural light that streams in through large glass openings and skylights.

> **Maximising natural ventilation and thermal comfort:**

Openings are crafted on all sides of the building to facilitate cross ventilation. A stack ventilation effect – also the chimney effect, referring to the air movement into and out of a structure – is created using stepped (ie, multilevel) atriums with wide openings. All public and circulation spaces are naturally ventilated, including lift lobbies, escape staircases, toilets, and the sub-base-ment.

> **Reusing existing structure:**

The previous four-storey structure has been retained and incorporated into the new building, reducing the use of new building materials. The cafeteria, exhibition spaces, auditorium, storage space, training room, and prayer rooms occupy the old structure. Also, the building process used recycled content, regional materials, and materials with low levels of harmful volatile organic compounds.

> **Reducing heat gain and glare:** Egg crate-like sun shading devices and blinds installed on the north-west facade prevent glare and reduce the amount of heat penetrating into the office spaces. The shading cuts down 60% of the solar radiation reaching the facade glazing.

Trees planted in break out spaces also help reduce glare and shade the north-west facade. Also, the cold air trapped during the night in the building's south-east-facing concrete wall is naturally released in the morning, helping to further cool down the building.

> **Saving energy:** A high COP (coefficient of performance) value VRF (variable refrigerant flow) air-conditioning system reduces energy consumption. Also, the building automation system has an energy management element to improve energy consumption and user-friendliness by controlling general lighting via photo and motion sensors, energy monitoring via digital power metres, water usage monitoring via digital water metres, and educational displays and analyses of the building's energy performance.

> **Using renewable energy:** A 25kWp solar photo voltaic system is installed on the roof terrace.

> **Saving water:** Water-efficient fittings result in 55% of water savings. Also, all water requirements for flushing and irrigation is fully met by a rainwater harvesting system.

> **Green surrounds:** Trees planted in tubs within the building on all floors help absorb carbon dioxide and produce oxygen. Vertical greenery and herb gardens are also in place for human comfort and consumption respectively.

> **Waste management:** On-site composting allows building users to become involved in and educated about organic waste processing and to contribute to the building's landscape sustainability.

> **Promoting a green lifestyle:** Hybrid vehicle charging stations and bicycle racks outside the building encourage greener modes of transportation.



The triple height atrium upon entry gives you an idea of what to expect in the building: airiness and lots of light.



Exposed bricks and concrete flooring give off a minimalist vibe and natural feel.

Stories by **WONG LI ZA**
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THE almost 100-year-old Pertubuhan Akitek Malaysia (PAM) finally has a place to truly call home, one that was re-designed specially for the institute by its own members.

PAM, or the Malaysian Institute of Architects, were occupying Wisma Bandar on Jalan Tangsi, Kuala Lumpur, when it bought a four-storey former warehouse in 2010 to turn into its new home. The new PAM Centre is an eye-catching, contemporary eight-storey building located along Jalan Tandok in Bangsar, Kuala Lumpur, completed last May at a cost of RM17.8mil.

The most distinct feature is the black aluminium screen that envelopes the building's concrete facade, as well as the diagonally-stacked and landscaped open atriums that can be seen from the street, as if etched into the building. These stepped atriums promote cross ventilation and complement a long, single-flight stairway within.

"This is the first time that we are occupying our very own building, which we designed and built. It serves as our new PAM Centre as well as a Centre of Architecture," said PAM president Ezumi Harzani Ismail at a press conference last week, adding that the centre is also a public space for architecture and art-related exhibitions and events.

Today, Selangor Ruler Sultan Sharafuddin Idris Shah is scheduled to open the centre and launch a book, *In The Eye Of The Storm*, which documents the journey that led to PAM getting its own centre.

PAM also honoured the institute's first two presidents by naming the council room and the roof

Green by example

The new Pertubuhan Akitek Malaysia Centre in Kuala Lumpur leads the way in green design.



Ezumi, on the eight floor roof terrace, looking down at the skylight above the stairs within the building.

terrace after the late Datuk Ikmal Hisham Albakri and the late Datuk Kington Loo respectively.

The centre's design was chosen from a competition that was open to all PAM corporate members in 2012. The winner, HMA & Associates, led by Mohd Heikal Hasan, produced a design that is "elegant and an efficient solution on a very tight and highly constrained site."

"The design of the building features a no-boundaries concept. The space itself is like a gallery and has an open feel," said Ezumi during the media tour.

The centre has a definite minimalist vibe with its exposed brick and concrete walls. Squarish openings and skylights promote natural lighting, cool the building, and reduce the use of electricity.

The roof terrace is something Ezumi is proud of: it is an area filled with greenery that contains the building's solar system.

"It also offers the best views of Bangsar," said Ezumi.

More importantly, the centre received the highest rating of platinum under the national Green Building Index (GBI). The index is a rating system that was

developed by PAM and the Association of Consulting Engineers Malaysia in 2009. Buildings are awarded ratings based on six key criteria: energy efficiency, indoor environment quality, sustainable site planning and management, materials and resources, water efficiency, and innovation.

"As PAM is behind the GBI, we have to walk the talk. Hopefully, this building will serve as a showcase for what we are capable of doing," said PAM past president Saifuddin Ahmad who was also at the media preview.



Unique feature: Diagonally-stacked and landscaped open atriums through the building's centre promote cross ventilation – not to mention an interesting aesthetic touch. — Photos: SAM THAM/The Star



The straight-flight stairs feature skylights and openings that light and air them naturally.



Large numbers of louvres afford good control of light and shade and air flow.



Shaping Shanghai's skyline: (From left) Shanghai Tower, Jinmao Tower, and the Shanghai World Financial Center. Photos: ANN/China Daily



Ge wants to show that living and working in mega cities can be more efficient and energy-saving with skyscrapers.

Defying notions about skyscrapers

By **XU JUNQIAN**

HE built China's tallest skyscraper – as well as the world's second-highest one – but Ge Qing, chief engineer and architect of Shanghai Tower, isn't content with merely reshaping the city's skyline.

Ge and his team of more than 1,000 staff members are hoping the 632m structure, which officially opened in April, will improve the way people live and work in megacities such as Shanghai, whose population exceeds 24 million.

"There's no point in building a skyscraper just for height's sake, or for the crown of being the country's, continent's or world's highest," he says. "That can be easily overtaken."

In fact, it may have already been overtaken. In another Chinese city, Shenzhen, a 739m tower proposed by real estate developer Kingkey Group is awaiting final approval. If built, it will be the world's second-tallest after the 828m Burj Khalifa in Dubai.

Ge has his own motives. "What we want to achieve and, ideally, demonstrate to developers and designers of skyscrapers around the world is how to make living and working in highly populated cities more efficient, energy-saving, and fun by setting up skyscrapers," Ge says. "That's the significance of investing so much in having a skyscraper."

Standing in the heart of Lujiazui, Shanghai's financial hub, the Shanghai Tower was built at a cost of 14.8bil yuan (RM9.3bil).

It has 132 floors with a total floor space of 575,000sq m and can accommodate up to 40,000 people.

It is the first time a skyscraper in China has exceeded 600m in height. It runs the world's fastest elevator, at 18m per second and has a LEED Platinum certification, the world's most widely applied green building rating.

Ge speaks of the innovation behind the building: "What we are doing actually defies people's notions about the high cost of building and running a skyscraper."

By separating the 132 floors into nine sections and equipping each

with at least one "floating lobby" and a light-filled garden atrium, the building allows its users to have meals, shop, and meet people without going all the way to the ground, where shops and restaurants are usually located in a tall building.

The 114 elevators running inside the building have been arranged like metro lines heading to different floors and at different speeds. Six so-called transition floors for elevators have been set aside.

About 60% of the space inside the building is designated for offices and meeting rooms. The other 40% is for restaurants, shops, a museum, and a luxury hotel, which is yet to open. Atop the building is an observation deck for sightseers to get a bird's-eye view of the city.

"It's also more efficient and environmentally-friendly because during nonwork hours the office areas switch into a low-energy mode," Ge says.

It is estimated that of all its intelligent building control systems, the lighting system alone will save more than US\$556,000 (RM2.3mil) a year in energy costs over older buildings with similar floor space.

Its glass curtain – all 14,000sq m of it – manages not only to help the building withstand strong winds (like "dressing the building in a skirt and allowing it to swing slightly") but also achieves 24% savings in structural wind loading, compared with a rectangular building of the same height.

Part of a plan to turn Lu-jiazui into a world-class financial centre for top companies and corporate headquarters, Shanghai Tower was first brought to the table in 1993, after the municipal government had decided to develop Pudong New Area. The building was approved for planning in 2006.

Together with two neighbouring towers – Jinmao and Shanghai World Financial Center – it completes a trio of signature skyscrapers that have redefined the landscape of east Shanghai.

Since its official opening, the tower has received 11,000 visitors a day on average. – China Daily/Asia News Network