



The main administration building has a high ceiling that promotes air flow and a cooling effect.



Mokhlis on a balcony outside one of the offices showing the louvred screens that can be opened to let in more air and light.

# A breath of fresh air

Step into a government building that is far from the usual drab institutional monolith.

Stories by **WONG LI ZA**  
star2@thestar.com.my

AS we drive into the area, the semi-open, high-ceilinged lobby of the administration building exudes a welcoming feel. Three skylights provide natural lighting in the porch, which is separated from the interior by a green-tinted glass panel. Walking inside, the familiar logo of Malaysia's Social Security Organisation (Socso) rests on the main wall behind the reception desk. We are at the Socso Rehabilitation Centre in Malacca, the biggest and first such centre in Malaysia, and

probably South-East Asia, that combines medical and vocational rehabilitation with an allied health institute. It is also the first rehab centre under Socso, which has 6.4 million contributors now. "The whole concept of this rehab centre is in line with our objectives. We don't want to just pay out compensation and pensions, or merely give treatments to Socso contributors. We want to offer them a second chance in life after an accident. "We want to give them the opportunity to return to their jobs or at least equip them with living skills to manage themselves and be independent," says Datuk K. Selvarajah,

Socso chief executive officer and director general, during an interview in Kuala Lumpur after our tour of the centre. More than that, the centre – located in Malacca's Bandar Hijau, Hang Tuah Jaya – is proudly a green building. "It's a good location, not very far from the Klang Valley. The piece of land was developed by Yayasan Melaka, who offered it to us. Bandar Hijau is a new growth area and we are one of the pioneer institutions there," says Selvarajah. "The whole area is a green zone and is designated for institutional buildings. Going green is the order of the day and we wanted to adhere to the Government's objectives of being environmentally-friendly," he adds. The administration building is certified under Malaysia's Green Building Index (GBI), the green rating tool for buildings to promote sustainability in the built environment. According to greenbuildingindex.org, a "Green building focuses on increasing the efficiency of resource use – energy, water and materials – while reducing impact on human health and the environment during the building's life cycle through better siting, design, construction, operation, maintenance and removal". The firm that designed the centre is Arte Axis Design Group, which consists of Anuar Aziz Architect, Arte Axis Atelier and Arte Axis Interior.

The centre's facades are built with low-e (low-emissivity) glass panels,

which reflect 60% to 70% of heat. The cost of these panels for the administration block alone is RM6mil but, as Selvarajah points out: "They may cost quite a lot but in the long run, it will save electricity costs." Mokhlis Abdul Rahim, resident architect with Anuar Aziz Architect, explains further: "The low-e glass panels are a key feature of this project. This type of glass reflects heat, leading to lower energy needed to cool a room. It takes about five to seven years to get energy savings back from the low-e glass, so it is a viable solution in the long run," says Mokhlis. Facades facing west do not feature glass panels, only concrete, to minimise heat inside the buildings. The buildings are also designed to allow natural sunlight and air in through skylights and air wells, by keeping ceilings high, and using an open concept interior design. The features succeed so well at introducing natural light that artificial lighting isn't required during the day – which is quite unusual for an office building. The administration building lobby has no air-conditioning, as the high ceiling and other design features promote natural cooling. Insulating materials – including aluminium cladding – on the roof and certain walls are also used to keep heat out. To further reduce its energy footprint, the complex has a centralised air-conditioning system and water chillers.



**Naturally cool:** The folding fan-inspired steel roof over the Sanctuary Garden at the Socso Rehabilitation Centre in Malacca acts as a wind tunnel and promotes air flow. Photos: SAM THAM/The Star

"The Building Automation System with a smart thermal control feature allows chillers to be switched on at designated times automatically to suit operations and to achieve the required conditions and regulate usage. "The system – which also controls the lighting – optimises energy saving and the comfort level of occupants," says Edmund Cheong, the centre's deputy director and head of administration. Lights used are the LED (light-emitting diode) T5 type, which uses 30% less electricity compared to regular lights. Completed on July 31 last year, the complex also features a rainwater harvesting system – four underground reservoirs, each with a capacity of 4,540 litres, supply water for the landscaping's irrigation system. All roofs in the area serve as water catchment channels that direct the water into underground pipes. The water is then filtered before being stored in concrete tanks. A network of pipes all around the area operate by way of gravity, making use of the sloping grounds. Once the hoses are plugged in, the water will flow out, much like an

aqueduct system. Since the landscaped area spreads across 22ha, keeping the grounds watered is no joke. However, the centre's monthly water bill is only around RM6,000 a month thanks to the rainwater harvesting system. Street lamps all around the compound are solar-powered. Each street lamp system costs RM25,000. There are 75 systems in the entire area. The centre's buggies also run on electricity to minimise carbon emission. Seventy per cent of the waste built up during the entire construction period was also successfully recycled. The centre is currently operating at one-third of its full capacity. The current electricity bill is around RM170,000 a month, of which approximately RM110,000 is used to cool the buildings. "When fully operational, the cost is expected to be RM420,000 a month on average, of which RM275,000 is expected to go towards cooling. I think for a facility of that size, it is very reasonable," says Selvarajah. The Socso Rehabilitation Centre was shortlisted for the World Architecture Festival 2014 Awards

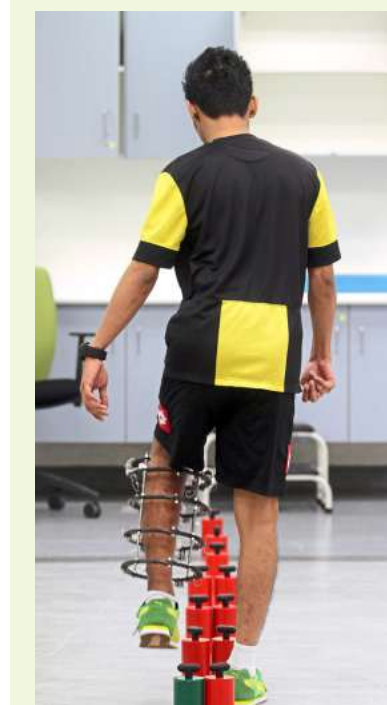
under the Health category. Although it didn't win, being shortlisted still served as a boost to Anuar Aziz Architect. The whole idea was to create a green rehab centre with emphasis on access for all. "When we talk about universal accessibility, it's not just about the patients who come in but also the children and the elderly who may come and visit. This whole area is designed with equality and inclusiveness in mind," says Datuk Saiful Anuar Abdul Aziz, managing director and principal of Arte Axis Design Group. Besides being wheelchair-friendly, all around the area are tactile floor tiles for the blind while for the deaf, there are vibrating beds in their rooms to warn them of a fire or other dangers. Developed at a cost of RM238mil, the centre is spread out over gently undulating land. The idea was to work around the natural contours of the land, with minimal cutting or filling of soil. The lower part of the area contains a pond, while the main buildings are located on higher ground and well spread out. "The challenge was in having the

buildings far apart yet maintaining a slope gradient that is friendly for wheelchair users," says Saiful. That was how the idea of the primary spine came about, to balance the gradient from one point to another so that wheelchair users can move about with ease. This covered pathway connects all the buildings and is designed not only as a walkway and buggy path, but also serves as an exercise platform. "It's not all flat but has a slight gradient, because once patients go out into the real world, it will also be like that. So we want the environment to be disabled-friendly yet we do not want to spoil them," explains Saiful. Creepers have been planted along the sides of the pathways and trained to go over the top along trellises. There are also "pause stations", or sitting areas, along the paths. The medical rehabilitation centre is located next to the administration building and is designed in the shape of an open palm, hence it is fondly known as the "five fingers". There are five rehab facilities there, which includes sensory services, physiotherapy, a hydrotherapy pool and a "work hardening" section.

## Leading the way in rehab

SINCE Malaysia's Social Security Organisation's (Socso) Rehabilitation Centre in Malacca took in its first patient on Oct 1 last year, it has received over 120 patients (as of Feb 13). At full capacity, the two hostels can accommodate 300 patients. Under Socso's return-to-work programme, patients undergo physical and vocational rehabilitation so they can rejoin the workforce. Vocational skills offered include hospitality, sewing, electrical work, design and laundry. "Spirituality is also very impor-

tant in rehab," says Datuk Saiful Anuar Abdul Aziz, managing director and principal of Arte Axis Design Group that designed the centre. The centre's surau is surrounded by the core buildings, with a design concept "based on enlightenment". The roof curves towards Mecca and the building features aluminium louvre windows to promote natural sunlight and air flow. A section specially for the wheelchair-bound to perform ablutions with ease is also incorporated. For non-Muslims, there is a spiritual, or quiet, room located in the hostels. At the end of our site visit, we stop by the staff cafeteria, which features an aluminium-strip, curved ceiling that promotes air flow and creates more open space. "The concept of green technology is a financially viable proposition. It's also good for the environment and promotes cost savings in terms of utilities. The initial capital expenditure may be higher but in the long term, it will save costs. It's a good model for other institutional facilities," says Datuk K. Selvarajah, Socso chief executive officer and director general. "Other than its green features, the rehab centre is also the first of its kind in this part of the world to integrate physical rehabilitation with vocational training," adds Selvarajah. Since it opened, the centre has had visitors and delegates from different countries including China, Germany, Indonesia, and Japan who came to study the design and concept.



Other than its green features, the centre is the first in this part of the world to integrate physical rehabilitation with vocational training.

there must be a soothing effect, like walking into a holiday resort. Patients are going through a difficult period while under therapy, so we must give them motivation and encourage them during their rehabilitation and recovery period," says Selvarajah. Colour palettes are kept light for a calming effect. Extensive use of trees and various plants and creepers to create a garden concept to promote the healing and recovery of patients was incorporated. A total of RM8mil was spent on landscaping. "The budget is quite high but we believe that healing must be complemented by nature," says Saiful, adding that there are also pocket gardens with pergolas in between the five rehab sections that also serve as exercise stations. An interesting area in the centre is the Sanctuary Garden located between the medical rehab block and the ward. It features an eye-catching wall comprising old-style tiles painstakingly painted in different colours on the inside. "We want patients to feel they are part of the outside environment in this open space. We played with colours in the tiles as part of the rehab element," says Mokhlis, who showed us around the area with other staff from the centre. Above the area is a steel roof designed like a handheld, folding fan. "This roof serves as the best example of a wind tunnel," adds Mokhlis. Indeed, standing there, we could feel a consistent breeze passing through.



The centre's surau features an 'enlightenment-based' design concept – the roof curves towards Mecca, and perforated walls allow a connection with the outdoors while letting in light and air.



An inviting entrance to the staff cafeteria, which features (inset above) a high-curved aluminium-strip roof to allow the maximum movement of air.



The colourful feature wall at the Sanctuary Garden. Note the subtle reproduction of the Socso logo with the white bricks in the wall. (Inset) The use of colour as a calming element is an important part of rehab.



Part of the primary spine, or pathway, that connects the various buildings at the centre that allows patients to move about with ease on foot, in wheelchairs or buggies while enjoying the greenery.



The low-emissivity glass panels reflect away 60-70% of the heat hitting the building, helping to keep the insides cool and cooling costs low.