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BUILDING THE FUTURE

Surbana Jurong Group cements place among world's top architectural firms with city design that is built to last



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From meticulously restoring a forgotten Art Deco shophouse in Singapore's Orchard Road to designing a "secret garden" to distract young children undergoing treatment in Shenzhen Children's Hospital in China, Surbana Jurong Group is poised to take on the world with its growing portfolio of projects.

So far, the group has built more than a million homes in Singapore, created masterplans in more than 60 countries and developed more than 100 industrial parks globally.

The Singapore-based global urban, infrastructure and managed services consulting firm was recently ranked No. 14 on the World Architecture 100 list, also called the WA100.

It is global magazine Building Design's much-anticipated annual survey of the world's largest design and engineering practices, ranked according to the number of registered architects employed.

It is not the first time a Singapore firm has ranked highly in the WA100 list.

In 2018, DP Architects was ranked the eighth largest in the world. It was No. 17 last year, but is not on the list this year. RSP Architects ranked No. 35 this year, down from 29th place last year.

Mr Wong Heang Fine, group chief executive of Surbana Jurong Group, says the achievement "reflects a focus on building design talent across the group".

"The WA100 2022 rankings demonstrate our progress in this endeavour," he adds.

"While we continue leveraging individual brands and their unique advantages, we're also tapping our collective strengths, scale and resources to give our talent access to project opportunities around the world."

According to this year's list, the group has 639 architects spread out globally, earning more than US\$100 million (S\$134.3 million) in fees. The group was not on the list last year.

The WA100 has been dominated for the last few years by Gensler, the American design and architecture firm which is at No. 1 again this year, employing 2,692 architects and earning more than US\$1 billion in revenue.

According to Mr Lee Kut Cheung, chairman of Surbana Jurong Group's Global Architecture and Design Council, the collective expertise and experience of the group's architects and designers have enabled it to compete with international firms and offer the best creative services to its clients.

Headquartered in Singapore, the group was formed in 2015 after a merger between Surbana International Consultants and Jurong International Holdings.

Today, it has a global talent pool of 16,000 based in more than 120 offices in over 40 countries.

It collaborates with architects, designers, planners, engineers and built environment specialists

across geographies and disciplines on urban and infrastructure projects.

Its design and architecture member firms include Atelier Ten, an award-winning London-based environmental design consultancy; B+H Architects, a global architecture and design firm in Toronto; SAA Architects, one of Singapore's leading architecture firms; and Sino-Sun Architects and Engineers, one of China's top privately owned design firms.

Over the years, the group has won a slew of awards, such as the Building and Construction Authority (BCA) Platinum Super Low Energy Building Green Mark Award last year for the Singapore Examinations and Assessment Board building; and the Housing Board (HDB) Innovative Design Award for Punggol Point Cove in 2020, for its innovative and outstanding design concepts.

One of its outstanding projects was restoring the dilapidated Temasek Shophouse in 2018.

SJ architecture – the architecture entity of Surbana Jurong Group – not only worked on the restoration and preservation of the shophouse, but also focused on its sustainability.

The building is owned by the philanthropic arm of state investment company Temasek, which comprises Temasek Trust, Temasek Foundation and the Stewardship Asia Centre.

The project is notable for several achievements, including energy efficiency.

While most think of electric vehicles and wind turbines when it comes to sustainable green solutions, SJ architecture director Ivy Koh and Temasek Shophouse director Yvonne Tay worked together with their teams to reduce carbon emissions from the shophouse by increasing its long-term energy efficiency.

According to the United Nations Economic Commission for Europe, buildings account for about 40 per cent of energy consumption as well as 40 per cent of carbon dioxide emissions.

Cooling systems today consume as much as 40 to 50 per cent of energy in a building while heat waste from air-conditioners contributes to the urban heat island effect, where some places in the city become hotter than others.

"The outdoor evaporative cooling system called Airbitat that we installed on the rooftop of Temasek Shophouse does not emit waste heat into the environment," says Ms Koh, 41.

The company worked with home-grown technology and engineering firm ST Engineering to install an evaporative system that cools the surroundings by releasing water droplets into the air.

"Reduction in overall energy consumption of the building will also contribute to the reduction of the urban heat island effect," she adds.

Temasek Shophouse bagged the Urban Redevelopment Authority's Architectural Heritage Award in October 2019.

Ms Tay says the team took into account the original building design and layouts, and made sure the existing windows and fan lights on the facades were factored into the lighting and ventilation plans. "We managed to reduce reliance on artificial lighting and have also been awarded the BCA's Green Mark Gold Plus for Temasek Shophouse in 2019," she says.

DESIGNING FOR FAMILIES AND SOCIAL SUSTAINABILITY
continued on C2



The conservation of Temasek Shophouse in Orchard Road started in 2018 and took 18 months to complete. PHOTO: SURBANA JURONG

Cutting energy use in 1920s shophouse

Restoring Temasek Shophouse, which was built in the 1920s, almost to its original form was no mean feat for the architectural team from SJ architecture, a corporate architecture entity which is part of Surbana Jurong Group.

The conservation of the building in Orchard Road started in 2018 and took 18 months to complete.

The process includes adding sustainable test-bed cooling technologies that cut energy usage and reduce the urban heat island effect, which happens when air-conditioning units spew heated air into the environment.

SJ architecture's director Ivy Koh says there was a lack of in-

formation and documentation about the original building design, so the team had to piece together archival information dated much later, around the 1950s.

"We had to decipher old records, accounts and references to understand the original design, such as the function of original rooms and staircases," says Ms Koh, 41.

She adds that the key conservation challenge was to repurpose the structure for current and future uses.

The shophouse, which once housed apartments and shops with a facade showing Neo-Classical and Art Deco styles, won the Urban Redevelopment Authority's Architectural Heritage Award in October 2019.

It is now home to the philan-

thropic arm of state investment company Temasek, which comprises Temasek Trust, Temasek Foundation and the Stewardship Asia Centre.

Ms Yvonne Tay, director of Temasek Shophouse, says the shophouse had to function as an office and a community event space, so the need for thermal comfort was a priority.

One of the test-bed cooling technologies used was Airbitat, an outdoor evaporative cooling innovation developed by Innosparks, a subsidiary of ST Engineering.

This was installed on the building's rooftop terrace so the space can be used even in warm weather.

Other test-bed uses include hybrid cooling with a combination of

fans and conventional air-conditioning so that the interior temperature can be set higher at 24 deg C to consume less energy.

"For Levels 1 and 1M, due to the lower headroom, we have installed a new fan product called Vortex developed by Nanyang Technological University which is energy-efficient," says Ms Tay, 46.

She says the windows and glass fixtures in the building's facade can be opened to allow for natural ventilation when required.

Ms Tay says the restoration of Temasek Shophouse "signifies an honouring of our past and, at the same time, creating new possibilities for a better future".

Designing for families and social sustainability

FROM C1

Another project that has captured the imagination of the architectural and building community is the award-winning public housing project EastLink I and II @ Canberra in Sembawang, designed by

Surbana Jurong Group member company SAA Architects.

Designed in collaboration with the Housing Board, the mixed development is centred on the theme of connectivity, integrating housing and green spaces with commercial and community facilities.

It bagged the bronze in the residential category at last year's World Architecture News Award and HDB Design Awards.

Deputy chief executive of SAA Architects Michael Leong, 48, says that although the design was completed before the onset of the pandemic, it is created to build stronger social connections and well-being in the community.

"The Canberra estate is a large residential enclave, where most residents are new to the neighbourhood and have little attachment to the place they live in," he says, adding that designing for families and social sustainability is important for living environments.

"EastLink is designed with social sustainability in mind, something that is also applicable to other housing projects."

He adds that the vibrancy of a place is vital as people are usually attracted to bustling and welcoming spaces.

"As HDB intensifies the supply of public housing to meet rising demand, it is important to also think about helping residents to form long-lasting bonds, and this can be done by creating endearing designs and environments."

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EastLink I and II @ Canberra include residential and commercial spaces across 11 Housing Board blocks. PHOTO: SAA ARCHITECTS

Connecting communities

A public housing project that brings families together amid lush green spaces, improves connectivity and provides inclusive barrier-free mobility has picked up awards for good design.

Home-grown practice SAA Architects, a member of the Surbana Jurong Group, won two awards last year for EastLink I and II @ Canberra, two Build-To-Order projects completed in 2020.

Designed in collaboration with the Housing Board (HDB), EastLink won a bronze in last year's residential category at the World Architecture News (WAN) Awards and the HDB Design Awards.

Judges at WAN said the project is a "high-quality example of how new high-rise housing can be designed in a more meaningful way".

The mixed development includes residential and commercial spaces spread over 11 HDB blocks. All blocks are linked by elevated sheltered walkways to the nearby Canberra MRT station, a three-storey neighbourhood centre and a park connector.

Mr Michael Leong, deputy chief executive of SAA Architects, says the project, which was designed before the pandemic, was intended to bring families and the larger community together through Canberra Plaza, an integrated neighbourhood centre.

"The event plaza in Canberra Plaza is a double-volume space that is breezy and sheltered, providing a facility for large-scale communal activities, as well as informal gatherings," says Mr Leong, who studied architecture at Cornell University in Ithaca, New York, as well as the National University of Singapore.

A Family Lounge on the top floor of Canberra Plaza is another "freely accessible communal living space", says the 48-year-old.

The amenities, which cater to users of all age groups, include a reading corner, a PlayStation nook, a "hidden wonderland" for children with bookshelves designed to look like trees, grass-like carpeting and a pantry.

The enclave is also designed to help new and growing social enterprises, as well as businesses with inclusive hiring practices, by providing spaces in heartland shops.

For instance, HDB worked with self-help body raiseE to identify a suitable social enterprise for the cafe in the Family Lounge. The cafe employs people with disabilities and special needs, and has a vision of creating a sustainable value chain that benefits the community.

On top of creating barrier-free designs, the project also encourages active mobility for the sake of residents' health and wellness.

The estate of Canberra in the northern region is close to Singapore's forested coastline, the historic Sembawang Shipyard and the old British naval base. Sited between two water bodies – the Straits of Johor and the Upper Seletar Reservoir – the architectural language of EastLink I and II draws inspiration from the movement of flowing rivers.

"This flow is articulated in the design of the circulation along the central urban spine, from ground pedestrian routes to elevated shared public spaces," says Mr Leong.

"The pedestrian circulation is also connected to the Park Connector Network along Canberra View, encouraging all residents to adopt a healthy lifestyle as they use the connector for daily exercise."



From business travel hub to Covid-19 care facility

Connect@Changi was originally designed as a pilot facility for international business meetings to continue uninterrupted in the early months of the pandemic in 2020.

But since September last year, the 294,550 sq m space occupying Singapore Expo Halls 7 and 8 in Upper Changi Road has been re-purposed as a community care facility (CCF) to house more than 1,200 Covid-19 patients as Singapore gears up for an endemic coronavirus situation.

There are currently seven CCFs for people infected with Covid-19, but who have only mild symptoms and low risk factors.

Ms Ivy Koh, director of SJ architecture, which is a member of Surbana Jurong, says Connect@Changi was designed after post-circuit breaker brainstorming sessions on how to facilitate business travel into Singapore during the pandemic while maintaining the safety of foreigners and the local community.

"The team came up with a way to build rapidly and also adapt the original function of the building to minimise disruptions to its structure such as drilling and hacking," says Ms Koh, 41.

The team used the Prefabricated Volumetric Construction (PPVC) method:

Room modules were built in a factory with minimal physical works on-site.

Ms Koh says the collaboration among stakeholders, consultants and contractors enabled the facility to be finished in 14 weeks, when such a project would usually take more than three years to construct.

Connect@Changi was originally designed to manage and limit viral airflow through distinct segregation of clean and "toxic" air to keep the interiors free of infected air.

This proved to be an advantage when repurposing the facility last year.

For the halls to operate as a Covid-19 treatment facility, Ms Koh says the team consulted medical practitioners on their

requirements, as different patients require varying levels of care.

Repurposing Halls 7 and 8 from a business hub to a community care facility took two weeks.

"For patients who are well and healthy and requiring little medical attention, the key consideration is to ensure no crossing of paths and thoughtful planning of circulation of patients," says Ms Koh.

The treatment facility also features greenery and ample space for patients to stroll around and stretch without feeling cooped up.

Ms Koh adds: "For elderly patients with less mobility, we also upgraded the facility with additional features that seniors would expect in a hospital, such as emergency call bells and extra hospital beds."

Connect@Changi, which occupies Singapore Expo Halls 7 and 8 in Upper Changi Road, serves as a community care facility for Covid-19 patients with mild symptoms and low risk factors. PHOTO: SURBANA JURONG



Diverse designs around the world

1 NUS School of Design and Environment 4

Located within the National University of Singapore's School of Design and Environment, Block 4 or SDE4 (above) is an addition to the faculty's existing three blocks. The six-storey building adds around 8,500 sq m of floor area to house studios, laboratories, seminar rooms, workshops and office spaces.

Since its completion in 2018, the building has gained global recognition as a model example of a high-performance design and net zero-energy building in a tropical climate, as well as for creating a space that promotes occupants' health and wellness.

It was designed by a team comprising Surbana Jurong, Serier+Multiply Consultants and Transsolar Energietechnik.

2 601 West Hastings

Situated next to the largest transportation hub in Vancouver, 601 West Hastings (above, centre) is being transformed into a community plaza and tower that will create a strong streetscape and an iconic silhouette along the skyline.

Designed by B+H Architects, which is under the Surbana Jurong Group, the 25-storey office tower features subtle folds, overlaps and reveals in the corners with a distinctive curved uplift at the public plaza.

Before the redesign, it was an uninspired corner of downtown Vancouver which was insufficiently zoned for commercial space. B+H worked with city officials to enhance the commercial space while retaining as much public area as possible.



3 Shenzhen Children's Hospital

B+H Architects came up with an integrated design approach to ensure that the occupants of the children's hospital (above, far right) in Shenzhen, China, were not only fully engaged with the surrounding natural landscape, but also benefited from a unique design that included a micro-landscape within and around the building, from the ground floor to rooftop gardens.

Another idea was the introduction of a vertical "secret garden", intended to enthrall young eyes and provide a welcome distraction for patients and their families.

4 Moynihan Train Hall

The new Moynihan Train Hall (right) is an annex of Pennsylvania Station, the main intercity railway station in New York City which opens into the city's former main post office building, the James A. Farley Building in Midtown Manhattan in the United States.

Surbana Jurong Group's member company Atelier Ten was chosen to advise on how the heritage landmark, which was opened in 1914, could attain a high level of energy efficiency through "energy modeling" of the whole structure.

As a result of Atelier Ten's studies, the building became eligible for Leadership in Energy and Environmental Design (LEED), the US top green building certification system.



5 UnTower

B+H Architects unveiled an innovative and sustainable architectural solution in October last year for a building in British Columbia, Canada, that is a "use-neutral" tower, or UnTower.

The 70-storey building (right, below) has a distinctive ring-like floor plan and cylindrical form, enabling easy adaptations for residential, commercial and hospitality uses.

Its prefabricated components also allow ease of assembly, disassembly and repurposing of spaces to respond to emergencies such as future pandemics and disruptions.

PHOTOS: ATELIER TEN, B+H, SURBANA JURONG, SERIER+MULTIPLY CONSULTANTS, TRANSOLAR ENERGIETECHNIK

