The 9th Singapore Landscape Architecture Awards 2013
Winning Innovations in Singapore Landscape Architecture

Text by Secretariat of SILA
Images by Singapore Institute of Landscape Architects (SILA)

Previously known as SILA Professional Design Awards, the Singapore Landscape Architecture Awards organised by Singapore Institute of Landscape Architects (SILA) aims to set new benchmarks and distinctions in the design and practice of landscape architecture.

With 57 submission entries, SILA managed a rigorous two-stage judging process by 19 judges from 12 countries. The entries were submitted to four categories, including General Design, Residential Design, Master Planning, and Integrated Design. The international jury consisted of both current and past presidents of landscape architecture institutes, as well as respected landscape practitioners. Many members of this jury belong to the International Federation of Landscape Architects Asia-Pacific Region (IFLA APR).

"Landscape Architecture is a niche profession that designs, plans, and manages the relationship of natural and built environment. The role of the Singapore Landscape Architecture Awards is twofold. First, to recognise the contribution of landscape architects in integrating natural systems into our living environment through design, and second, to acknowledge the collaborations of architects, engineers, and landscape contractors to keep our 'garden city' lush and green," says Damian Tang, President of SILA.

Internationally renowned landscape architect, Professor Yu Kongjian from Turenscape, Beijing, China, chaired the first stage of the judging process. This panel—which was conducted online—consisted of representatives from Australia, China, Hong Kong, Indonesia, Iran, Japan, Korea, Malaysia, New Zealand, Singapore, Taiwan, and Thailand.

The second stage of the judging process integrated site visits and table discussions and was chaired by Dato Ismail Ngah, vice-president of IFLA APR. The on-site panel consisted of presidents from SILA, Singapore Institute of Architects, Singapore Green Building Council, and DesignS, as well as faculty members from Singapore University of Technology and Design.

The "award winners" were announced on 22 November 2013 during the Singapore Landscape Architecture Awards (SLAA) and Gala Dinner at the Grand Copthorne Waterfront hotel. The night was attended by Guest of Honour, Mr. Lee Yi Shyan, Senior Minister of State, Ministry of Trade and Industry and Ministry of National Development.

Winning projects and their jury citations are elaborated on below. More information may be found at sila.org.sg.

Outstanding Award of Excellence by Final On-site Jury

Name: PARKROYAL on Pickering
Award Recipient: Tierra Design (S) Pte Ltd
Location: Singapore
Completion Date: 2013
Also "Gold" in the "General Design" Category

Jury Citation

The final jury celebrates PARKROYAL on Pickering as an outstanding example as it sets a defining and exemplary role for landscapes in commercial high-rise developments. The ancient idea of the "hanging garden" has been pulled into the present in this tiered garden that engulfs the building. Well-conceived maintenance zones, sensitive species choice, and irrigation management illustrate the holistic design sensibilities of the project. PARKROYAL on Pickering is a crucial precedent for commercial landscape architecture in Singapore. Keen attention paid to the grounding of design intent and execution have resulted in the overturning of traditional conceptions of the relationship between landscape and architecture. In this project, it is the strength of the landscape vision that provides the supporting framework for the architectural concept.

1, 2. The final jury awarded the Outstanding Award of Excellence to hotel PARKROYAL on Pickering as it demonstrates the potential of landscape design in a commercial high-rise development.

Outstanding Award of Excellence by Online Jury

Name: Goodwood Residence
Award Recipient: ICN Design International Pte Ltd
Location: Singapore
Completion Date: 2013
Also "Silver" in the "Residential Design" Category

Jury Citation

This project, from site planning to design details, demonstrates the power of landscape architecture in creating quality dwellings for people. It sensitively integrates the natural landscape, while considering its ecological processes and benefiting from its ecosystem services. Goodwood Residences is a good integration of architecture, materiality, and landscape. A multi-leveled landscape approach engages both the façade and ground plane as planted surfaces. Plantings build on the existing landscape features of the site while extensive lawns provide multi-use spaces for residents. Though the landscape is young, the species selection shows great potential to mature and the project is a promising entry in the residential landscapes category.

3

Gold Award Winners

General Design Category
Name: 158 Cecil Street
Award Recipient: Tierra Design (S) Pte Ltd
Location: Singapore
Completion Date: 2011

Jury Citation

158 Cecil Street is an impressive example of the transformative potential of the landscape in a commercial precinct. The vegetation seizes on the opportunity provided by the light wells of the building's atrium. While such a concept is not novel in global landscape architecture, this is a successful Singapore-based example of the ability of landscape architecture to collaborate with other professions to value-add to commercial buildings and office spaces.

Name: JTC Green Core
Award Recipient: Atelier Dreiseitl Asia Pte Ltd
Location: Singapore
Completion Date: 2013

Jury Citation

JTC Green Core is a commendable effort to maximise the potential of an industrial site. Its integration of cultural aspects, such as the artists' studio space and artworks, within the site itself was well conceived and articulated. Building on the existing natural elements of the site, the project provides an instant landscape effect along with a highly detailed use of materials. Circulation corridors, which tie-in with the existing cultural infrastructure, are well sited and take full advantage of the views through the landscape.

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3. The online jury awarded the Outstanding Award of Excellence to Goodwood Residence as it integrates architecture, materiality, and landscape to create a quality dwelling for homeowners.

4. 158 Cecil Street is an impressive example of the transformative potential of the landscape in a commercial precinct.

5. JTC Green Core introduces artists' studio spaces and well-articulated landscape elements to an industrial site.

6. Adventure River at Adventure Cove Water Park, which cleverly preserves and "borrows" from the site's existing landscape qualities.

7. Sage @ Nassim Road sets a high precedent for landscape conservation and design in a residential complex.

8. Labrador Coastal & Nature Walk allows the public to visit protected mangroves in a non-invasive way.

9. HealthCity @ Novena illustrates high-level integration within a mixed development.

10. My Waterway @ Punggol is a successful collaboration between multiple professions on a landscape project.

Name: Adventure Cove Water Park
Award Recipient: Ortus Design Pte Ltd
Location: Singapore
Completion Date: 2012

Jury Citation
Adventure Cove Water Park makes the most of its pre-existing landscape qualities. Through a scheme that positioned the adjacent forest as significant, it has laudably preserved and "borrowed" its greenery. With over 700 feature plants, including a selection of transplanted mature trees, the planting is excellent given the site's constraints. A multi-layered approach to plantings, inspired by the neighbouring natural environment, creates a grand backdrop for the water park.

Name: Labrador Coastal & Nature Walk
Award Recipient: ICN Design International Pte Ltd
Location: Singapore
Completion Date: 2012

Jury Citation
Labrador Coastal & Nature Walk is a praiseworthy example of a waterfront public infrastructure that successfully employs a light-handed and effective touch within a controversial site. While the expectations of the site were high, the design manages these effectively through the low-impact, site-driven placement of the walkway. The project facilitates important access to the mangroves, encouraging the public to visit the site in a non-invasive way.

Residential Design Category
Name: SAGE @ Nassim Road
Award Recipient: Sitetectonix Pte Ltd
Location: Singapore
Completion Date: 2012

Jury Citation
Sage @ Nassim Road sets a high precedent for landscape conservation and design in a residential complex. Strategically cantilevering a barbecue area within a cluster of existing trees, it capitalises on landscape quality and social opportunity. Pockets of retreat are provided around the swimming pool, while an ingenious approach to the fire-engine access road doubles its use as a water feature. Overall, as a compact low-rise development, this residential landscape has surpassed expectations.


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Master Planning Category
Name: Healthcity @ Novena
Award Recipient: Broadway Malyan Asia Pte Ltd
Location: Singapore
Completion Date (Expected): 2030

Jury Citation
The vision for HealthCity @ Novena illustrates high-level integration within a mixed development. Accessibility and circulation are facilitated by landscape design, with vegetation strategically employed to buffer the multiple functions that need to occur within the complex.

Open Category
Name: My Waterway @ Punggol
Award Recipient: Surbana International Consultants Pte Ltd
Location: Singapore
Completion Date: 2012

Jury Citation
My Waterway @ Punggol is a prime example of the ability of multiple professions to work together on landscape projects. Although the role of engineering in this project was significant, landscape architecture has been used to enlighten the waterway. The project has required the skilful balancing of multiple aspects, including the spatial design and provision of amenities. CG

Silver Award Winners

General Design Category
- NUS Cinnamon & Tembusu Colleges by Sitetectonix Pte Ltd

Residential Category
- Goodwood Residence by ICN Design International Pte Ltd
- Setia Sky Residences (in Kuala Lumpur, Malaysia) by Sitetectonix Pte Ltd

Master Planning Category
- Garuda Wisnu Kencana Cultural Park (in Bali, Indonesia) by AECOM Singapore Pte Ltd

Merit Award Winners

General Design Category
- Greenwood Sanctuary @ Admirality by Surbana International Consultants Pte Ltd
- NUS-UT Education Resource Centre by Sitetectonix Pte Ltd
- NUS-UTown Residences and Town Green by Sitetectonix Pte Ltd
- NUS-UT College of Alice & Peter Tan and Residential College 4 by Sitetectonix Pte Ltd
- Setia City Park (in Shah Alam, Malaysia) by Sitetectonix Pte Ltd
- The Star Vista by ICN Design International Pte Ltd
- United World College (S.E.A.) East Campus by Martin Lee DesignS

Residential Category
- Casa Clementi by Surbana International Consultants Pte Ltd
- Miro by ONG&ONG Pte Ltd
- One Amber by Sitetectonix Pte Ltd
- Prive Executive Condominium by COEN Design International Pte Ltd
- Punggol Breeze by Surbana International Consultants Pte Ltd
- Tate Residences by Tierra Design (S) Pte Ltd
- The Heights at Kata (in Phuket, Thailand) by Sitetectonix Pte Ltd
- The Interlace by ICN Design International Pte Ltd
- The Oliv by ICN Design International Pte Ltd
- The Wharf Residences by COEN Design International Pte Ltd
- Tree House by COEN Design International Pte Ltd

Master Planning Category
- "Managing Urban Runoff: Drainage Handbook" by Atelier Dreiseitl Asia Pte Ltd
- Nusajaya Tech Park (in Iskandar, Malaysia) by AECOM Singapore Pte Ltd
- Sentosa Integrated Resort Competition by ICN Design International Pte Ltd

Open Category
- CleanTech One by Surbana International Consultants Pte Ltd
- Enchanted Garden @ T2, Changi Airport, by Kingsmen Exhibits Pte Ltd


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Terminal 3 of Changi Airport Singapore

WEAVING THE AIRPORT'S GREEN TAPESTRY

Text by Franklin Po
Images as credited

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PROJECT CREDITS

Location: 65 Airport Boulevard Singapore **Client:** Civil Aviation Authority of Singapore **Completion Date:** 2008 **Architect:** Airport Design Division CPG **Landscape Architect:** Tierra Design (S) Pte Ltd **Design Consultant:** SOM New York **Interior Designer:** Woodhead Wilson **Main Contractor:** Shimizu (S) Pte Ltd **Landscape Contractor:** Hortiflora Pte Ltd **GFA:** 380,000 m^2

There are many green walls and significant landscape projects around the world, but the Green Tapestry is unique, since the airport is operational 24 hours a day, 7 days a week.

The highly dense city-state of Singapore made a commitment to create a sustainable balance between the demands of growth and the greening of its environment. From a "Garden City", it aspired to and became the "City in a Garden". The client, Civil Aviation Authority of Singapore, was committed to the idea of bringing the City-in-a-Garden concept to Changi Airport Singapore. Opened in 2008, Terminal 3 was constructed to meet the increase in air traffic. The 380,000-square-metre terminal has three basements and four aboveground levels, and an annual handling capacity of 22 million passengers.

Commencing in 2000, the landscape design was incorporated at the very early stages of the project, allowing for a holistic design approach. The landscape designers from Tierra Design sought to create living spaces without borders between buildings and garden, or architecture and landscape, by combining building technology and a living green "veil"—the Green Tapestry. The latter is one of the terminal building's highlights, a feature green wall, and a perfect example of how vertical planting can significantly affect overall interior ambience with a small footprint in plan. The interior space is seen as a continuation of the exterior airport gardens, which are visible through the wide and tall glass "skin" of the building.

The architecture of Terminal 3 sought to offer the latest in airport facilities and a new experience for passengers, guided by four design principles: clarity, natural lighting, external views, and maintainability. The interior architecture is conceived with layers of ceiling panels, baffles, skylights, and high-tech "butterflies" that evoke the imagery of a rainforest canopy. The unique roof lets soft natural light into the building yet keeps tropical heat out with 919 skylights, each designed with special reflector panels that automatically adjust to maintain ideal levels of soft and uniform daylight indoors. The other aspect of the architecture focused on reducing the energy demands of the round-the-clock facility, through an intelligent building management system.

Located in the transitional zone of Terminal 3, the Green Tapestry separates two spaces, the landside check-in and the airside lounges, from each other. Both the architects and landscape designers wanted to establish an interior environment where planting has an integral role in blending and interacting with the architecture, not just as accents and decoration. The intent was to use landscape elements to develop a unique landscape design palette appropriate to the scale and use of the building. Visible from 100 metres away, the large wall that is now a living green tapestry and stretches five storeys tall provided an opportunity to present plants *en masse*.

The green wall was an innovative solution to the task of creating the greatest impact with plants in the least amount of floor plan space and "softening" the otherwise brutal, hard, and unfriendly wall between the landside and airside. Spanning 300 metres and 4,200 square metres, the vertical garden is separated by four water features. The suspended I-beams and stainless steel cable structure are covered with vines, creepers, and epiphytes. Passengers walking through the Terminal 3 building can enjoy the interior suspended vertical garden from not only the departure area but also the arrival area.

Unprecedented at such a scale at the time of the design, introducing so much greenery into an air-conditioned space posed a great challenge. Unfazed, the landscape architects felt that "conditions seemed right to attempt something bold". The solution had to include a low-cost, lightweight system for growing massed climbing plants. Suitable plant species had to be tested for viability in an indoor, low-light, and air-conditioned environment. Plants potentially suitable were installed on test racks in Terminal 1 for four years to ascertain their performance in comparable environmental conditions.

Seven species of climbers and a dozen species of epiphytes were identified and selected based on their growth rate, tolerance of light levels, foliage quality, flowering capability, ease of maintenance, and

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Landscape Design Plan Used to Articulate Various Programmes (Drawing: Tierra Design (S) Pte Ltd)

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1. The Green Tapestry is visually spectacular in the transitional zone of Terminal 3 (Photo: CPG Consultants Pte Ltd).

2, 3. The five-storey-tall vertical garden is 300 metres long and spans 4,200 square metres (Photos: Tierra Design (S) Pte Ltd).

5. Inspired by a rainforest canopy, the landscape design and interior architecture were conceived to integrate seamlessly (Photo: CPG Consultants Pte Ltd).

6. Interior spaces are enhanced by floor and wall surface patterns and textures (Photo: Tierra Design (S) Ptd Ltd).

8-10. The green wall consists of over 10,000 plants, including 7 species of climbers and 12 epiphytes identified and tested for their feasibility (Photos: Albert KS Lim).

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Cross Section of Green Wall (Drawing: Tierra Design (S) Pte Ltd)

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sustainability. Climbers included the Elephant Climber (*Argyreia nervosa*), Porcelain Flower (*Hoya carnosa*), and Red Jade Vine (*Mucuna bennetti*), while epiphytes included bromeliads, ferns, orchids, and philodendrons. As opposed to pattern making, the design of the infrastructure system was about how to allow vines to grow and cling. The process is compared to "gardening", except in the air instead of on the ground, which takes time, commitment, patience, care, and nurturing.

The unique characteristic of plants found in a tropical rainforest inspired the selection of plants for the vertical garden. In the rainforest, vines, and epiphytes successfully compete for growing space by lifting themselves up off the ground with the help of taller neighbours, or volunteering themselves onto wet bark of living trees. They manage to survive and thrive with less neighbours crowding about them; in this manner they are able to reach further to the rainforest canopy to gather light for life-sustaining photosynthesis.

At Terminal 3, the Green Tapestry consists of more than 10,000 plants. The design maximises planting space in order to introduce more greenery, warmth, and softness to the predominantly stone, glass, and steel structure of this megastructure. It achieves this without losing valuable floor space. An irrigation system provides water, with the help of occasional misting to replace humidity removed by air-conditioning. Extensive skylights allow sufficient light for plants to thrive. Hanging three metres over the baggage claim area, the green wall rises 14 metres into the voluminous cavity of the building.

There are many green walls and significant landscape projects around the world, but the Green Tapestry is unique, since the airport is operational 24 hours a day, 7 days a week. It had to be designed to be maintained easily without the need for scaffolding. The plants are grown on stainless steel cables secured to the steel infrastructure system and each cable is removable if there is a need to replace plants individually. Catwalks were designed to allow safe access to the planters from behind the planting layers.

Like any garden, the Green Tapestry has matured and evolved in response to the care that it is given, and the Airport Authority has been 100 percent committed to the maintenance of the green wall. The vertical garden will be an ever changing tapestry of living textures—a demonstration of dynamic landscape architecture. The impact of this green concept has been far reaching, with the Airport Authority now greening and upgrading the older terminals through the introduction of different types of gardens. CG

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