

# Gardens in the Sky

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Skyrise greenery, which refers to greenery on building rooftops and walls, is a sustainable nature-based solution that enhances the built environment. Besides extending greening skywards, it has been shown to reduce energy usage and increase biodiversity in the city. The greening of facades, balconies, mid-level, and topmost roof spaces helps to optimise urban spaces for greenery and recreation, enhancing urban dwellers' quality of life through their work and living environment. This article presents interesting skyrise greenery projects with different building typologies.



## UWCSEA – EAST CAMPUS

1 Tampines Street 73, Singapore 528704

Building owner  
**United World College of  
Southeast Asia East Campus**

Landscape Implementer  
**Prince's Landscape**

A member of the global UWC movement, UWCSEA has a passionate belief in the power of education to be a force for good in the world. Our mission is to use education to help all our students to realise their potential as agents of positive change and actively identify ways to contribute to a sustainable future for all.

Centered around this mission, our learning environments are thoughtfully and deliberately designed to provide age-appropriate opportunities for students to develop the skills, qualities, and competencies that we have identified as necessary for them throughout their lives.

The Infant Sky Garden, atop the roof of our Infant School block at UWCSEA East, is one of our thoughtful spaces specially created to help our youngest students engage with nature for learning and for play.

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Class photo of children in heritage wear during annual UWC day celebrated globally on 21 September which coincides with UN International Day of Peace. UWC Day is a moment to celebrate the strength and diversity of the UWC movement and the school's mission for a more peaceful and sustainable future. (Image credit: UWCSEA)



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**1. Your rooftop garden has a good variety of plants. What is your design inspiration?**

Our Sky Garden was carefully designed for infants, with due considerations given to ensure that our young students have a safe but flexible space to learn, explore and play. We test bedded different concepts and observed responses before firming up on the installation of the permanent structures. For example, it was observed that the mud play area was more popular with the children and less well-received by staff or their parents. Through test-bedding, we can ensure that our play features are well-received by all stakeholders.

Continuing the themes of our classrooms and other learning spaces, we deliberately selected neutral colour palette and use of natural materials to create a more biophilic play environment.

Through thoughtful design, our large open area is now transformed into a safe and welcoming space which encourages exploration and imaginative play.

Our living walls and raised movable sensory garden beds are planted with a wide range of plants curated to educate the students and provide sensory play opportunities using plants' varied textures and features. The garden beds and its surrounding play spaces such as the water play are often used by teachers and students to examine nature and test theories for concepts taught in classrooms.

Different zones in the space allows different activities to take place simultaneously, providing our students with options to physically explore and engage in active play, find moments to quietly observe nature, or connect and engage with each other in the background of a natural setting





Children observing biodiversity at sky garden and interacting with the garden by play. (Image credit: UWCSEA)



## ***2. How does the newly installed skyrise greenery complement UWCSEA Tampines' corporate objective?***

Our focus at UWCSEA Tampines is to create educational spaces and empower our students to act and contribute to a sustainable greener future. For example, our nature program enables students to learn about plants and the know-hows for plants to thrive. Our young students then regularly explore the gardens with their teachers as they observe and apply knowledge learned in the classroom to their real-life surroundings. By also involving students in the routine maintenance and plant replacements at the Sky Garden, we hope to give them opportunities to appreciate and learn how they can care for the natural world.

## ***3. Alongside your rooftop garden, UWCSEA Tampines also implemented green walls under Skyrise Greenery Incentive Scheme. Could you share on how green walls help to value-add to your rooftop garden and overall campus greenery?***

Green walls are a distinctive feature of our East Campus. The installation of green walls in key locations across the campus helps to reduce heat radiating from walls that receive full sun, provide sound dampening insulation in high footfall areas, protect building from weather elements and bring nature closer to people.

Given the several benefits of green walls, we made the deliberate design decision to add in green walls at our Infant Sky Garden. This aligns our project with BCA's Green Mark Platinum criteria, contributing to our campus' status as a super low energy building. The green walls at Sky Gardens are also erected for safety reasons, i.e., to keep our young students away from building edge while creating visual continuity with the rooftop greenery.

Children playing at the nature playground beside sky garden. (Image credit: UWCSEA)





Image credit: COEN

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## CAPITASPRING

88 Market Street, Singapore 048948

Building owner

**CapitaLand Development (CLD), CapitaLand Integrated Commercial Trust (CICT) and Mitsubishi Estate Co., Ltd**

Building architect

**Bjarke Ingels Group (BIG)**

Landscape Implementer

**COEN Design International**

Renovation contractor

**Dragages Singapore**

Landscape implementer for

L51 Urban Farm

**Edible Garden City**

Tenant managing L51 Urban Farm

**1-Group**

CapitaSpring seeks to redefine and elevate workplace and living standards for its users as it adds an elegant new 280-metre-tall integrated development landmark to the Singapore skyline. With its multi-layered green spaces of more than 90,000 sq ft to cater to wide diversity of uses and creative lifestyle possibilities, CapitaSpring posits itself to not only be an attractive place for work, but also a vibrant place to live and play in.

CapitaSpring's abundant greenery helps to mitigate the urban heat island effect, while also enhancing workplace wellness for building occupants. Nestled between CapitaSpring's 29-storeys of premium Grade A office space and 8-storeys of Citadines Raffles Place Singapore, lies the Green Oasis at 100 metres above ground. The Green Oasis is an expansive spiraling botanical promenade that spans a total height of 35 metres from levels 17 to 20 and is home to over 38,000 plants adorning CapitaSpring's work-live-play amenities such as an amphitheatre, a yoga alcove, jungle gyms, ideation nests, work pods and a café.

Image credit: CapitaLand





**1. CapitaSpring is designed to be a green oasis in CBD area. What is the landscape design inspiration behind this project?**

Captivated and inspired by the tropical rainforest and its wealth of flora and fauna adapted to life at various forest layers e.g., emergent and canopy layers, understory, and forest floor, we have designed the Green Oasis to allow users to get close to nature. Our softscape planting palette uses complementary tree and shrub species of different heights to replicate the forest layers and create visual interest.

This approach of creating biophilic green spaces within our office skyscraper albeit its location in the heart of the central business district is a nod to the recognition of what nature and greenery can do to lift our spirits. Such skyrise green spaces improve the overall climatic environment as they create microclimates that shape conditions needed for plant growth which coincides with optimal thermal comfort for users.

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We noticed that public's appreciation for greenery and its benefits rising during Covid-19 pandemic.

**2. In your opinion, how does CapitaSpring help to strengthen City in Nature vision?**

CapitaSpring is one of few publicly accessible green spaces in the CBD. We noticed that public's appreciation for greenery and its benefits rising during Covid-19 pandemic, with more people being active in green spaces and taking up gardening as a form of therapeutic release. In line with Singapore's transformation into a City in Nature, and Singapore Green Plan 2030, the importance of greenery is underscored with the goal of restoring nature into our urban city as we expect almost double the amount of skyrise greenery in our buildings and public infrastructure with the target of 200 hectares by year 2030.

Through our integrated development project at CapitaSpring, we wanted to satisfy public's growing demand for green spaces by creating a biophilic green environment that is conveniently accessible within the bustling business district. Our rooftop greenery helps to cool down the built environment, restore ecological biodiversity within the city and rejuvenate its users. Public can now take in fresh air outdoors at Green Oasis and L51 Urban Farm while enjoying panoramic views of Marina Bay and CBD, then work from anywhere within CapitaSpring.



Image credit: COEN



Image credit: CapitaLand

### ***3. What is unique about the sky gardens at CapitaSpring?***

Our developer and designers are equally delighted that the principles that drive and guide the design of CapitaSpring's landscape are aligned with the objectives of City in Nature which is a key pillar of the SG Green Plan 2030.

The landscape gardens at the Ground Level, Podium, Green Oasis and Sky Garden are designed with biophilia and thermal comfort in mind to bring people closer to nature in their everyday lives, be it at work or play. The landscape gardens at CapitaSpring aims to restore nature into the built environment and add to the 7,800 hectares of green spaces that have already been achieved in Singapore.

The gardens carry a plethora of local plant species as careful planning was done to avoid just green washing the project. Local species planted in a naturalistic manner are used to encourage the establishment of local fauna. The creation of these urban yet naturalistic gardens aids in the strengthening of connectivity for fauna to move freely between green spaces, thereby extending the natural capital of both fauna and flora. We are delighted to observe bees and other pollinators finding their way to the Sky Garden sited at level 51 of the building. We could not ask for a better testimony than from these visitors.

Further, our gardens are designed for ease of maintenance and sustainability. CapitaSpring's

landscape aims to restore nature within the urban environment so that users can soak in nature's presence and destress while at work or at home.

### ***4. CapitaSpring is a high-rise building. What are your considerations when it comes to designing and implementing the sky gardens at CapitaSpring?***

Our plants have been carefully selected for their ability to flourish in Singapore's tropical weather and humidity conditions and thrive at high levels. It is important for us to have an in-depth understanding of the tree species as the characteristics of each species will guide its application within the landscape. The selection of trees follows our basic rule of leaf architecture where the size and form of leaves are influenced by the altitude of their application. Trees exposed to stronger winds and sun rays typically have smaller and well spread leaves to reduce the wind drag-and- sail effect and vice versa for trees at the lower altitudes.

Trees that can tolerate the given sunlight intensity and hours of exposure are also selected for the different climatic facades of the project as the sun path guides the design on the placement of the trees and shrubs. Slow growing trees with aesthetic appeal and unique physical attributes are also selected and strategically positioned to form focal points and topics of interests. For trees that are placed closer to edge, we have selected species that are slower growing and have fine leaves to cope with the strong winds and high sun exposure.



### 5. How about the plant selection?

In the entire development, there are over 80,000 plants across more than 130 species in the whole of CapitaSpring, of which more than half are indigenous to Singapore. We purposefully introduced indigenous plant species to encourage the establishment of local fauna and increase biodiversity in the urban context.

Due to the unique environment created at the Green Oasis, the tree species *Heteropanax fragrans* (Fragrant Aralia) was introduced for their beautiful form as well as their ability to adapt to slightly lower sunlight availability. Mature trees of this species are planted to give an instant lushness to the tall volumes of the spiraling garden.

A plethora of shrubs unveils throughout different levels of CapitaSpring as they are selected and planted based on their suitability to adapt to the varying conditions and sunlight availability at the different levels. Amongst the backdrop of lush green, we planted several accent plants to form focal points and gently catch one's attention, such as *Fagraea ceilanica* (Perfume Flower Tree), *Suregada multiflora* (False Lime), *Medinilla magnifica* (Rose Grape) and *Tarenna fragrans* (River Tarenna) which we specially selected an indigenous species with both white and pale yellow fragrant inflorescence on the same plant.

Image credit: COEN

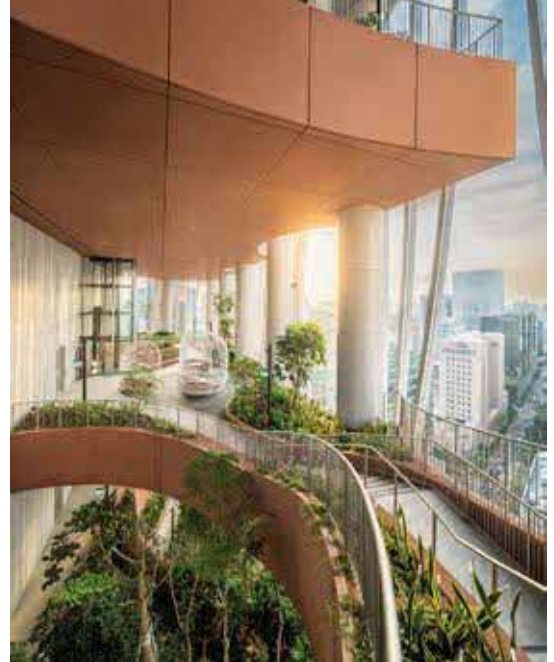


Image credit: CapitaLand

### 6. Based on your experience, can you share key considerations when it comes to maintenance of trees at height?

For projects sited in high user density and in a high-rise application such as CapitaSpring, safety is at the top of our considerations. Trees planted in high-rise buildings need to be securely anchored and it is good practice to install permanent root ball anchoring systems for every tree. This will mitigate risks of uprooting during high winds.

Trees at CapitaSpring are permanently anchored at the rootball level and secondary tripod staking are also implemented during the establishment period. Trees that have a tendency for branch abscission are not selected due to concern of falling from height.

As the trees grow taller, it is important to continue to adjust the point of staking to support trees at their centre of gravity and provide adequate support. Yearly inspections by a certified arborist are also recommended for the development, as regular inspection and maintenance is a must for gardens in the sky to ensure safety.

The thinning of tree crowns during regular maintenance will aid in the reduction of the sail effect and the weight of the rains on the leaves. It is also important to checking on the staking which helps to support the trees to ensure that trees do not sway excessively or bend over.

## Urban Farm at Level 51

Complementing the contemplative greenery in CapitaSpring is a rooftop urban farm at level 51. This urban farm was conceptualized and operated by 1-Group for their farm-to-table concept to help reduce the restaurant's carbon footprint in sourcing herbs and vegetables. The urban farm seeks to evoke public's sense of exploration and curiosity in plants with its five thematic gardens, namely the Singapore Food Heritage Garden, The Wellness Garden, The Mediterranean Potager Garden, The Australian Native Garden and The Japanese Potager Garden.

### Interview with 1-Group & Edible Garden City

#### ***1. What is unique about the edible garden or urban farm that you are managing at Level 51 of CapitaSpring and how does this complement the F&B concepts there?***

Managed by 1-Group, 1-Arden is an integrated F&B lifestyle destination where we wanted to put forth a place to educate the public on sustainability through carefully curated edibles and provide a whole new understanding of the many layers on biodiversity and its importance to ecological relevance. This forms our overall concept of "Sustainability on Show".

With 130 varieties of plants and over 3300 plants consisting of diverse and unique mix of edible flowers and fruit trees at Level 51's urban farm, we use farm-to-plate dining concepts to raise awareness on how sustainable and responsible farming can be brought to the dining table in a fun and engaging manner. Chefs and mixologists are empowered to become advocates and bring their creativity and knowledge into dishes and cocktails as they take specially selected ingredients from the food forest to create a botanical feast for the senses.

#### ***2. What is the inspiration behind the design concept of Level 51's rooftop urban farm?***

We were inspired by the food forest planting method which makes good use of space with efficient layering of foodscapes, utilizing the ground, the underground and the 'vertical layers' of the trees. This was how our concept of the urban farm was born as we seek to present a new urban agriculture with lush and aesthetically pleasing edible greenery at the rooftop of CapitaSpring.

We optimised every area, both vertically and horizontally, of our garden space to ensure maximum yield. Layer 1 is the rhizosphere layer and consists of root vegetables like Ginger. Layer 2 is the soil surface layer and consists of ground cover like Spearmint. Layer 3 is the herbaceous layer and consists of herbs like Lemon Balm. Layer 4 is the shrub layer and consists of fruiting vegetables like Roselle. Layer 5 are small fruit trees like Guava. Layer 6 is the canopy layer and consists of trees like Moringa. Layer 7 is the vertical layer and consists of climbing plants like cucumbers.

These layering of plants helps to establish cooling microclimates and encourage growth of ecological biodiversity and biomass, creating a more resilient ecosystem as the plants attract birds and beneficial insects.

Image credit: COEN



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We optimised every area, both vertically and horizontally, of our garden space to ensure maximum yield.



### 3. What goes behind the plant selection process for the urban farm?

To strengthen the farm-to-plate concepts offered by 1-Arden, we curated thematic gardens, such as Tropical Wellness Garden, Singapore Food Heritage Garden and Potager Kitchen Garden. Our gardens are planted using the food forest methodology mentioned earlier.

The Tropical Wellness Garden showcases herbs of medicinal qualities with unique textures and aromas. There is a mix of well-known herb species such as lemongrass and mints, and lesser-known tropical medicinal herbs such as sabah snake grass and oyster plant. Located at the entrance, visitors can feel the immediate healing benefits from the Tropical Wellness Garden when they enter the urban farm. We collaborated with STB in June 2022 for their Wellness Festival event where the community is invited to this garden to promote their well-being.

The Singapore Food Heritage Garden focuses on a lush mix of local species that have an element of heritage. We feel that the preservation of ingredient knowledge from kampong days and passing

down through generations, educates people on the importance of an ecologically balanced and sustainable world for future generations. Hence, we wanted to create an educational garden and include plant varieties which are rare, threatened and/or possess importance in conservation, heritage, and ecological aspects. An example of a local heritage plant would be the *Breynia androgyna* (Sayur Manis) which was commonly stir-fried or boiled in soup during kampong days.

The Potager Kitchen Garden is a more conventional method of ‘farming’ with clusters of the same crop planted near one another. Our planting method lightly follows the structure of the food forests while creating cohesive yet diverse plots in an aesthetic manner. This garden follows a tighter schedule of harvesting, clearing of beds and replanting. This garden features exciting produce of common plants such as *Piper sarmentosum* (Wild Pepper), and uncommon fruit and vegetables such as *Cyperus esculentus* (Tiger Nut). To complement 1-Arden’s Japanese and Australian cuisines, we planted a good mix of Southeast Asian and Japanese crops, such as *Peperomia pellucida* (Shiny Bush) and *Brassica juncea* ‘Wasabina’ (Wasabina Mustard).

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Our planting method lightly follows the structure of the food forests while creating cohesive yet diverse plots in an aesthetic manner.



Image credit: CapitaLand



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For the first time in Singapore, visitors will be delighted with the curious and fragrant flavours and aromas of varieties such as lemon myrtle, warrigal greens, Australian mint, sea blite, geraldton wax and more.

***4. Could you share with us on how the urban farm works closely with the F&B restaurants to introduce interesting plants to the public?***

Sustainability is a key notion at 1-Arden. For example, our farm-to-plate coastal Australian restaurant ‘Kaarla’ at Level 51 sells responsibly sourced Australian seafood, meats and agriculture. Complementing this, Level 51’s urban farm will supply unique Australian native plant varieties to the restaurant. In partnership with the Australian High Commission, we wanted to give proper cultural recognition to the Aboriginal Australians, i.e., the nation’s oldest population. This includes planting ‘salty’ varieties that will pair well with seafood. For the first time in Singapore, visitors will be delighted with the curious and fragrant flavours and aromas of varieties such as lemon myrtle, warrigal greens, Australian mint, sea blite, geraldton wax and more.

In the curation and implementation of Level 51’s urban farm, both 1-Group and Edible Garden City (“EGC”) share keenness to deepen our knowledge of the produces and we communicate frequently with each other to deliver the best experience to our visitors and F&B patrons. EGC’s farmers will observe plants at different stages outside of what they are commonly used for and make their recommendation to 1-Group’s Chefs John and Lam Lee. For instance, the ripe berry fruit of the curry leaf plant has a blueberry texture and comforting curry leaf aroma. As such, when produce is at its peak ripeness, Chef John pickles them using traditional methods.

The Chefs share their dream list of plants and tastes with EGC’s farmers who will then experiment to attain their wishes. One of our successful experiments is the Tiger Nut. It has a ground nut that has a texture of water chestnut and tastes similar to almond milk. Our Chefs also save seed or cuttings from imported produce for growing trials in the garden.

The collaboration between chefs and farmers helps to maximise the culinary value of every single plant. Together, we can discover new flavours and textures from familiar plants and push boundaries of plants that are not commonly grown here.

***5. Any challenges to maintaining an urban edible farm on the 51st storey?***

Our urban edible farm is completely exposed to weather elements and thus, we must learn to adapt with it. Due to the high altitude of level 51, we experience intense weather elements not commonly experienced at a lower altitude. Strong and gusty wind may damage the stems and stalks of tender vegetables or shrubs, or may cause them to collapse. We have learned to adapt to these situations, and it’s not uncommon for us to add anchors to these plants. Conversely, the same strong winds also benefit the plants by reducing atmospheric humidity and increasing the transpiration rates, which helps to accelerate the growth of some varieties of leafy vegetables.





PARKROYAL COLLECTION  
Marina Bay, Singapore  
(Image credit: Finbarr Fallon)

## PARKROYAL COLLECTION MARINA BAY, SINGAPORE

6 Raffles Boulevard, Singapore 039594

Building owner  
**Pan Pacific Hotels Group, UOL  
Group Limited and Singapore  
Land Group Limited**

Renovation contractor  
**Tg Décor & Cheng Meng  
Furniture Co.**

Building architect  
**Donovan Soon, FDAT  
Architects LLP**

Landscape Architects  
**Ramboll Studio Dreiseitl**

Landscape contractor for  
L4 Urban Farm  
**Edible Garden City**

The Park Royal Collection Marina Bay is envisaged as a tropical Garden-in-a-Hotel incorporating a myriad of sustainable building design concept, such as biophilic design, liveability, and ecologically responsible design.

At the heart of the hotel lies a green atrium featuring a tropical forest thriving across multiple floors, adding spatial quality to rejuvenate visitors. More than 40 species of trees and around 25 different species of shrubs and groundcovers have been planted at the atrium, contributing to a tranquil and improved indoor space quality by providing fresh air and reduced ambient noise. The voluminous height of the atrium with natural skylight has enabled a spatial design that gives a perceptual illusion of an external garden space. Guests of the hotel can enjoy the unique experience of mingling at stylish contemporary birds' nest-like architectural pavilions amidst lush foliage greenery flowing down the tiered planters.

### Interview with Ramboll

#### ***1. How does the indoor landscaping complement Singapore's 'City in Nature' vision?***

Ramboll is committed to create a liveable urban environment and bring people closer to nature. This was translated to the vision we had for PARKROYAL COLLECTION Marina Bay, Singapore as we transformed the building into a lush, tropical "Garden-in-a-Hotel" which further strengthens the eco-conscious branding of PARKROYAL COLLECTION Hotels and Resorts.

Inspired by the 'City in Nature' vision, the hotel brings flora (fauna refers to wildlife!) closer to the community as we enhance visitors' connection to natural environment with the atrium acting as the green heart of the hotel. The landscaping at the atrium mimics a thriving tropical forest with three-dimensional planting of groundcovers, shrubs, trees and trailing plants acting as the different layers of the forest. Trees and shrubs with diverse foliage shapes, textures and green tones play a crucial part in adding localised accents to enhance the naturalistic look and feel of the gardens.

**2. Bearing in mind that the planting areas are indoors, how did you choose suitable plant species for the hotel?**

Light, temperature, indoor climate, and soil depth were all considerations that had to be accounted when curating the plants for the project. In collaboration with arborists, species selection was made with the premises in mind, to ensure that plants would be able to adapt and thrive in indoor conditions. We carefully selected tree and shrub species to suit indoor conditions and ensure that the trees are acclimatised to thrive in indoor conditions a couple of months prior to planting.

**3. What would you say is the greatest challenge when it comes to the implementation/planting of the trees in an indoor built environment? How did you overcome it?**

The coordination of landscaping works within the overall renovation works was one of the biggest challenges due to the tight timeline of hotel operations. As our trees can weigh up to 400kg, we had to brainstorm on ways to hoist trees indoors. Eventually, the stakeholders and contractors had to employ creative indoor solution to supply and hoist the towering trees by using spider crane with forklift. However, the use of heavy machinery raises concerns on whether loading capacity of existing planters and slabs can withstand the weight.

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As our trees can weigh up to 400kg, we had to brainstorm on ways to hoist trees indoors.

We overcame this challenge by using lightweight materials and distributing the loads according to the plant palette, i.e., deep soil depths of planters are only for where trees are located while shallower soil depths are used for the rest of the shrubs and ground covers.

**4. How do you manage the maintenance regime of the trees such that it minimises disturbances to hotel guests, and yet ensure that the landscapes are well maintained for safety and aesthetic reasons?**

Maintenance regimes are scheduled to be only an hour-long daily at periods where the hotel experiences low traffic. Since construction and other renovation works were ongoing, the trees were permanently covered with dust and had to be cleaned often. However, because the plants at the hotel are indoors, cleaning them cannot be done with chemicals or pesticides – instead, they must be treated by wiping the foliage with natural oil.

**5. How are the plants and trees faring after installation?**

Fortunately, not a lot of plant replacements had to be done. We had to manage and proactively coordinate while installing living green features amongst ongoing renovation project works. It was a learning curve for all of us, from supply, acclimatisation, light availability, to building a conducive indoor climate for the plants. For example, we observed that some species tend to grow better indoors than others. This translates to useful learning experience for us and enabled us to keep records of which trees thrive best indoors. We can then focus on specific greenery palette for future projects to ensure better success rate.

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PARKROYAL COLLECTION Marina Bay, Singapore (Image credit: Finbarr Fallon)



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Image credit: Ramboll Studio Drieselt



**6. Has the Atrium Greenery helped to boost and drive-up hotel business? What are some of notable feedback you have received from guests and staff?**

PARKROYAL COLLECTION Marina Bay, Singapore recently clinched the 2021 KBDA Travel: Urban Hotel – Interior Design Award and Ramboll is incredibly proud to play a part in this field of hospitality that is paving the way for a greener future for us all as we continue to look to sustainable innovation in the future.

The hotel management has shared many good reviews on our greenery, sustainability efforts and positive coverage from media sites. Here are some of the feedback received:

*“The interiors are pleasing and comfortable. The bubble lift further makes it even more lovely with the view of the atrium when travelling between the ground floors and your room.”*

– Seeingtheworldinsteps

*“Beautiful touches of light wood from the stairway to the bird-cage like pavilions at the Portman’s Bar. Lush greenery aplenty as guests walk across the Atrium Skybridge, which is the most Instagrammable spot in the hotel.”*

– therantingpanda

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Image credit: PARKROYAL COLLECTION Marina Bay, Singapore



## PARKROYAL COLLECTION Marina Bay, Singapore's Urban Farm

The hotel's brand-new restaurant at Level 4, Peppermint, provides farm-to-table cuisine that includes plant-based options and the use of sustainable and locally sourced ingredients. Visitors can step out to the terrace outside the restaurant and discover the hotel's very own Urban Farm, where more than 60 varieties of herbs, edible flowers, vegetables and fruit are grown and used as salads, garnishes, aromatics, and ingredients for the dishes, as well as beverages, such as infused tea and water.

Interview with Edible Garden City

### **1. What are the objectives of the Urban Farm at PARKROYAL COLLECTION Marina Bay, Singapore?**

The Urban Farm here at PARKROYAL COLLECTION Marina Bay, Singapore is designed to be an inviting green space for guests to meander and explore, and where beautiful produce is grown for the hotel's restaurants, bar, and spa.

We wanted guests and diners to experience hospitality and dining in a more eco-conscious manner. Visitors are immediately greeted by the 150 sqm Urban Farm, with its grand arches and neat rows of lush, colourful edible produce when they step out of the restaurant onto the outdoor deck. The arches at the Urban Farm are perfect spots for guests to take Instagrammable photos.

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It was a learning curve for all of us, from supply, acclimatisation, light availability, to building a conducive indoor climate for the plants.

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PARKROYAL COLLECTION Marina Bay, Singapore  
(Image credit: Finbarr Fallon)





Image credit: PARKROYAL COLLECTION Marina Bay, Singapore



Image credit: Edible Garden City

The Urban Farm bolsters the hotel's food supply resilience by growing produce locally, cutting carbon emissions and improving environmental sustainability through natural farming methods. The farm provides fresh ingredients harvested daily, which reduces storage costs, eliminates preservatives, and enables the hotel to innovate with plant-based recipes as an alternative to meat dishes. This helps guests to tap into the benefits of healthier living through green diets and reduce the demand for meat farming, a water-and carbon intensive process.

## ***2. How does the Urban Farm contribute to Singapore's 'City in Nature' vision?***

The Urban Farm was revamped from an ornamental garden and with more edibles in the garden now, the farm plays a pivotal role in introducing more biodiversity into the surrounding urban landscape where it is located, strengthening the 'City in Nature' vision. Our Urban Farm consists of more than 60 corrugated metal planters, home to more than 60 varieties of edible plants, ranging from herbs, fruits, edible flowers, and vegetables. As fruits like golden papayas, red guavas and passionfruit emerge, we observed birds and pollinators start using the garden as their playground.

Sustainability is key to maintaining a good edible garden and nourishing the soil is one of the most underrated components of successful farming. The Urban Farm composts the organic materials from its plants and coffee grounds from the hotel. The compost is then fed back to the soil to nourish the plants.

## ***3. What would you say is a key factor that contributed to the success of the hotel's Urban Farm?***

Teamwork is key to the success of the hotel's Urban Farm. Our team learned how to collaborate well with the hotel's culinary team to ensure that the design and implementation of the Urban Farm is sufficiently efficient to supply ingredients for ongoing F&B operations and fulfil environmental sustainability objectives. Our Urban Farm supplies 20% of the hotel's needs, for example, farm-to-table food offerings at Peppermint and Peach Blossoms restaurants, signature cocktails designed based on the Urban Farm's produce at Portman's Bar and refreshing beverages with freshly plucked leaves from the Urban Farm at St. Gregory. This partnership with the chefs & hospitality staff at the hotel is a crucial contribution to the sustainability of the Urban Farm. The collective effort and constant feedback help the Urban Farm to evolve, stay on top of things and remain productive.



## MCDONALD'S JURONG CENTRAL PARK

291 Boon Lay Way, Singapore 649849

Building owner  
**Hanbaobao Pte Ltd**

McDonald's Jurong Central Park transformed their blank concrete pillars within their restaurant into living works of art using vertical gardens to soften its urban environment.

### **1. Why did you install vertical green walls on your pillars, instead of opting for regular a flat green walls?**

McDonald's Jurong Central Park is one of our most beautiful and recognizable park restaurants. The restaurant drew inspiration from the surrounding greenery in the park and literally brought nature even closer to our customers by wrapping existing columns with greenery. This helps us to ensure that our outdoor dining area remain open and porous for customers to still enjoy the park's natural greenery views.

### **2. What is McDonald's consideration in the selection of plant species for the green walls on pillars?**



Top / Image credit: McDonald's  
Bottom / Image credit:  
NParks (Jacqueline Chua)



To ensure the longevity and sustainability of the plants installed on our vertical gardens, we curated our planting palette to include shade loving but foliage rich plants such as *Philodendron hederaceum* (Heartleaf Philodendron), *Chlorophytum comosum* (Spider Plant), *Heptapleurum arboricola*, *Dracaena reflexa* (Song of India), *Aglaonema* 'Red Master', *Syngonium* 'White Butterfly' and *Tradescantia spathacea* (Dwarf Boat Lily).



Plant palette for vertical green pillars at McDonald's Jurong Central Park.

### **3. Could you share with us the responses you have received from staff and public regarding the new installation?**

Customers and staff enjoy the green concept and unique atmosphere when they are at McDonald's Jurong Central Park. Park visitors comment that they enjoy having their McDonald's favorites while dining in the outdoor seating area where the park's beautiful greenery is seamlessly blended with the restaurant's design. Customers appreciate that the vertical plants are a distinctive touch to the restaurant's park concept.

## THE GIVING GARDEN @ KIM TIAN

Block 119A Kim Tian Road, Singapore 169263

Building owner  
**HDB**

Area managed by  
**Tanjong Pagar Town Council**

Landscape implementer  
**Garden Works**

'The Giving Garden @ Kim Tian West' is a first-of-its-kind community garden, where Tanjong Pagar Town Council (TPTC) grows fresh produces at The Giving Garden to harvest and distribute them to residents in the surrounding vicinity.

The 1,020m<sup>2</sup> rooftop garden provides a picturesque view to residents living at the blocks along Kim Tian West and Jalan Membina with more than 45 species of plants and at least 10 different types of vegetables. The rooftop greenery also plays an integral role to cool the previous concretised car park roof deck making the surrounding environment more pleasant and created a vibrant communal spaces for its residents to enjoy.

### **1. What is the design concept and inspiration behind the Giving Garden?**

The Giving Garden is a collaboration between the Tanjong Pagar-Tiong Bahru Citizens' Consultative Committee, Kim Tian West Residents' Committee, the National Parks Board and the Tanjong Pagar Town Council. Ms Indranee Rajah, Minister in the Prime Minister's Office and Adviser to Tanjong Pagar GRC Grassroots Organisations, envisioned a holistic and meaningful space, where the community can grow vegetables and fruits for their consumption, learn about urban farming, supplement food security, bond the community and provide a therapeutic green space for users to enhance their health and well-being. The garden was named 'Giving Garden', as all harvested edible plants are distributed to the residents. The strong engagement of a thriving community is the heart of The Giving Garden.

### **2. What are some interesting design considerations of 'The Giving Garden' that TPTC would like to highlight?**

First, we raised the height of existing Prefabricated Extensive Green (PEG) trays by 200mm, so that our PEG trays which initially could only house groundcover will now have more soil depth to support the growth of ornamental shrubs and vegetables. This helps to add more colours and lushness to our garden.

With more variety of plants grown, The Giving Garden acts as a good physical learning platform for children to understand and appreciate plants grown in edible garden.

Next, we wanted to create a vibrant yet soothing setting to cater to the different demographics living in Kim Tian and thus, painted our planters with soothing colours like lime green, lemon custard and pink. Our planters look like they 'come to life' under the sunlight. We also made considerations to ease the loading capacity of our rooftop garden and used lightweight blocks for our planters.



Image credit: Tanjong Pagar Town Council

### **3. 'The Giving Garden' focuses on edibles and biodiversity-attracting plants. Could you elaborate more on your plant choice?**

Our built-up planters and peg trays have been planted with a variety of vegetables and woody edible plants such as *Brassica oleracea* (Kai Lan), *Brassica rapa* subsp. *chinensis* (Xiao Bai Cai), *Ipomoea aquatica* (Kangkong), *Spinacia oleracea* (Spinach), *Lactuca sativa* (Lettuce), *Brassica juncea* (Chinese Mustard), *Brassica chinensis* var. *parachinensis* (Chye Xin), *Abelmoschus esculentus* (Lady's Finger), *Solanum melongena* (Brinjal), *Cucumis sativus* (Cucumber), *Vigna unguiculata* (Long Bean) and *Passiflora edulis* (Passion Fruit). We have had considerable success with some of the plant species, for example the brinjals have been fruiting continuously and we harvested about 50 fruits on each plant within 3 months.

We are glad to observe our flowering plants such as *Stachytarpheta indica* (Snakeweed), *Lantana camara* (Spanish Berry), *Costus* spp., *Ruellia* spp., *Hibiscus* spp. and *Tecoma* spp. attracting butterflies, bees and sunbirds for pollination. This helps to benefit both the edibles and ornamental plants in the garden.

### **4. How are the residents taking to the new Rooftop Garden?**

Our residents are very pleased with the Giving Garden. We frequently see residents enjoying leisurely strolls around the garden, watching the butterflies, bees and birds feeding on the flowering plants. The Giving Garden also ignited gardening interest in some of them as they enquire with us on tips to grow edible plants.