



## Far East Organization Children's Garden

# The Nature and Science of Child's Play

Main text by Chris Low

Supplementary text by Ng Boon Gee and Anton van der Schans

Images by Gardens by the Bay

With every concern invested in engaging the children, plants and foliage are supporting elements that do not compete with the play equipments but quietly complete the picture of a children's garden for sensory play.

With a highly anticipated opening in January 2014, the latest instalment of the Gardens by the Bay is an outdoor playground that covers close to one full hectare. Interestingly, the primary user for this recent addition is a group that probably has the keenest and most direct contact with greenery. Designed by UK-based landscape architectural firm Grant Associates—which worked closely with Gardens by the Bay, playground safety consultants, and play equipment fabricators—the playground will encourage children to interact with nature and water through a series of interactive play equipment and water play features. Children will find themselves “hanging out” in tree houses, scaling a green ridge likened to a hiker's trail, and crossing bridges and passages, all the while nestled in the large expanse of the 54-hectare Bay South Garden.

The encounter of the playground is to be experienced as a designed space that does not take physical interaction as an expected by-product. Rather, its success hinges on the full engagement between children and the numerous play equipment and children and the surrounding flora and fauna and a holistic connection between play and nature.

Naturally, the most appropriate signage for a playground in the garden is the introduction of a large mature *Ficus elastica* tree near the entrance. From here on, the playground can be approached from several play areas. One of the key features in the playground is the exploration of water and play. Here, the water play experience consists of three different external water feature systems, one of which is “Water Splines”. Designed as a series of vertical water spines, the water feature appears light and physically unobtrusive. This almost invisible singular form, when multiplied by tens, creates a forest of “reeds” that though fixed in location is free to spin 360 degrees at the upper portion of its vertical structure. Using the physical science of water pressure and external factors, such as wind, the upper portion that is designed to arch outwards will turn around

freely, likened to a water hose left unrestrained, displaying a life of its own. It will be interesting when the addition of human activity weaving through this forest of reeds brings a new meaning to this kinetic structure.

The next water feature is a serpentine-like passage of arcing water jets, which when activated forms a “formless” canopy of water streams. This “Hydro Vault” is a field of arcing nozzles, mounted on the ground surface, that applies the logic of projectile motion to emit clear laminar rods for water from the plaza surface. The water canopy arches will be carefully calculated and programmed, to be high enough to allow kids to pass under it. In some locations, the lower heights would encourage physical encounters with the water streams.

The third water play feature uses the physics of mass and gravity to generate its display. Designed as an “Orchids”, eight water buckets are hinged to a cantilevering horizontal support when at rest. What at first appears to be static will begin to tip downward, pouring out the contents of water when the volume within the chamber is filled to a preset point. As the water empties itself out of the orchid, creating a curtain of rainfall, the net weight of the flower structure will counterbalance itself and return to its original resting position.

Incorporating moulded landforms is the introduction of a green ridge—Adventure Trail. The ridge rises as it runs alongside one half of the perimeter of the playground, overlooking the Kingfisher Lake to the south and the Marina Reservoir to the north. Mimicking the natural landform with dips and humps, various play structures are strung out along the ridge. As it stands along the periphery, the ridge also allows a constant visual engagement to the centre of the playground. On the ridge, play structures are designed to address different motor skills, each one a variant of another. If one removes the physical context, and makes reference to the





natural environment when taking a rigorous hike through a mountain trail, the motor skills one requires are: jumping, crossing, reaching up and over, lowering oneself, and manoeuvring under a low branch. These are all experienced in the play structures along the ridge. The parallel experience between this physical built environment and a natural mountain hike is engaging and experiential. The Adventure Trail is also a physical trail that connects the entrance of the playground to the two Rainforest Tree Houses.

Children are highly graphical beings; they are essentialists by nature. Draw a long "S" line and the immediate association is a snake. Draw "O-O", and likely these would represent the googly eyes of a frog. Applying the associative manner of learning found in toddlers and very young children will be the Fish Fountain, where a series of stone fish sculptures spouting water offers a direct complement to child's play. The fish sculptures, which resemble partially submerged fish of varying sizes surfacing a pond, allow toddlers to climb and sit on top of the fish where possible or "ride" a fish, whatever that suits their imagination.

It is rather testing though that much of the water play structures remain in very open and unshaded conditions. With the unrelenting heat and humidity, a shaded play area would always be favoured highly. However, this openness is also with strong considerations, as explained by Grant Associates, because water play areas often have very low tolerance for leaves and debris, which accumulate quickly if designed with plants and trees nearby for shade. Understandably, planting and water then should seem to exist exclusively, for it would

be a greater letdown for any child, if the water play areas were often shutdown as a result of high maintenance.

Among the largest physical structures in the playground are the two Rainforest Tree Houses, designed closely with Carve, a play equipment fabricator from The Netherlands. The tree houses are a combination of weblike metallic frames that form branches and a series of hanging rope baskets that provides pockets of spaces suspended from the branches. The ingenuity of this play equipment is the sense of scale. When the structure was first installed, it had appeared large and intimidating; standing at almost eight metres tall, it did not seem quite fitting in scale to a playground. However, with the inclusion of an "undergrowth" foliage, generously planted all around and below, the semblance of a tree rising above the ground emerges. With all the rich foliage, when one is moving through and weaving between the steel branches, the scale changes significantly. The initial height separation from the ground is largely reduced as a result. The hanging baskets are an interesting reinterpretation of "hanging out", a combination of the traditional tyre swing and rope hammock.

To be able to swing freely, in a safe enclosure, is probably the best answer to the watchful eye of any parent at the playground. Answering this, the ropes, Corocord Play Ropes, are appropriately of high tensile strength. Built from galvanised six-stranded steel wires, each strand of these special "Herkules"-type ropes is tightly wrapped in polyamide yarn. They were specifically selected to meet the corrosive conditions of the salty sea air, apparently due to the nearby sea water.



1. The Far East Organization Children's Playground encourages interaction with nature and the playground structures equally.
2. A green ridge, the Adventure Trail, connects the playground entrance to the two tree houses.
3. The leaf-shaped amphitheatre provides shelter near the Fish Fountain.
4. Water and sensory play are key goals of the playground. Fish sculptures spout water at the Fish Fountain.
5. A series of water feature systems at the water play area.
6. A series of play structures designed to develop different motor skills at the Adventure Trail.
7. Corocord Play Ropes of high-tensile strength allow children to swing freely and safely.
8. The second of two Rainforest Tree Houses is marked by distinctive slides.





7



9



8



10



Without diverting from the main intention of being in a tree house, which lets children hide as well as seek in it, interactive devices for making sounds and telescopes for "spying" are all thoughtful design inclusions in the Rainforest Tree Houses. Working towards an inclusive design, ramps and bridges connect to different locations in the park and to both tree houses. Timber is used selectively for these connection routes, marking a differentiation from the synthetic rubber surfaces of the play equipment areas.

Even if the natural shade of trees is absent from the water play area, welcome respite from the unforgiving sun and heat in the playground is offered via a free-form Canopy Structure. This custom-made tensile fabric structure also marks the events venue at the play area. It is expected that different garden functions and events will be held beneath this vast canopy that stretches out approximately 360 square metres.


As part of a much larger agenda, the playground is designed around a system of drains and filters that very much supports itself. With the water feature designs, runoff water is channelled back and reused via a series of pumps and a stringent filtration system. In the same way, periphery "drains" are designed to be camouflaged under pebbles and rocks. This naturalistic finish allows the occurrence of little streams, like creeks, to meander around the site. In moving away from the standard concrete drain designs and steel frame drain grilles and covers, this naturalistic design is an added dimension of play for the playground. Designed as a natural ditch, it can be imagined that after a heavy rainfall, the little streams will be flushed with water. The running sound of a natural creek can be no better a place of education for children.

With every concern invested in engaging the children, plants and foliage are supporting elements that do not compete with the play equipments but quietly complete the picture of a children's garden for sensory play. The architects explain that the selections of plants,

from colour to height and texture to scent, are not left to chance. Rather, they are carefully selected, and juxtaposed, with the stringent advice of a team of horticulturalist experts from Gardens by the Bay.

Some of the key plantings include:

- Feature trees, such as *Adansonia digitata*, *Adansonia madagascariensis*, *Pseudobombax ellipticum*, *Moringa drouhardii*, *Moringa stenopetala*, *Brachychiton rupestris*, and *Brachychiton australis*, are planted on the steep ridge. These pachycaul trees from Moonsoon tropics add unique character to the garden with their bizarre tree form.
- Different species of *Ficus*, such as *Ficus lutea*, *Ficus americana*, *Ficus lyrata*, and *Ficus benghalensis*, are planted in close proximity around the tree houses to form a thick curtain of trailing aerial roots for children to duck under.
- Topiary arches formed using *Ficus microcarpa* are lined along the ridges to provide instant shade for the children.
- An avenue of "old man palm", *Coccothrinax crinita*, is planted at the main entrances to kindle the imagination of the children at play. This Cuba native is well known for its stiff, beige-colored fibre hairs densely borne along the entire length of the single, thick trunk, making it look a old man in big beard.
- Butterfly-attracting plants, such as *Murraya paniculata*, *Magnolia champaca*, *Aglaia odorata*, *Micromelum minutum*, and *Randia macrantha*, are planted in selected sections of the garden to create a natural habitat for butterfly.

Through the encounters and engagement of such a children's garden, kids will delight in the endless possibilities of play and fun. Nature is to be seen, felt, sensed, and smelt—naturally. 



9-11. A suspension bridge links the two tree houses.

12. The first of two Rainforest Tree Houses is topped by telescopes and sound-producing devices.

13. Children are encouraged to climb up and within the first tree house.

14. Slide from the second tree house.