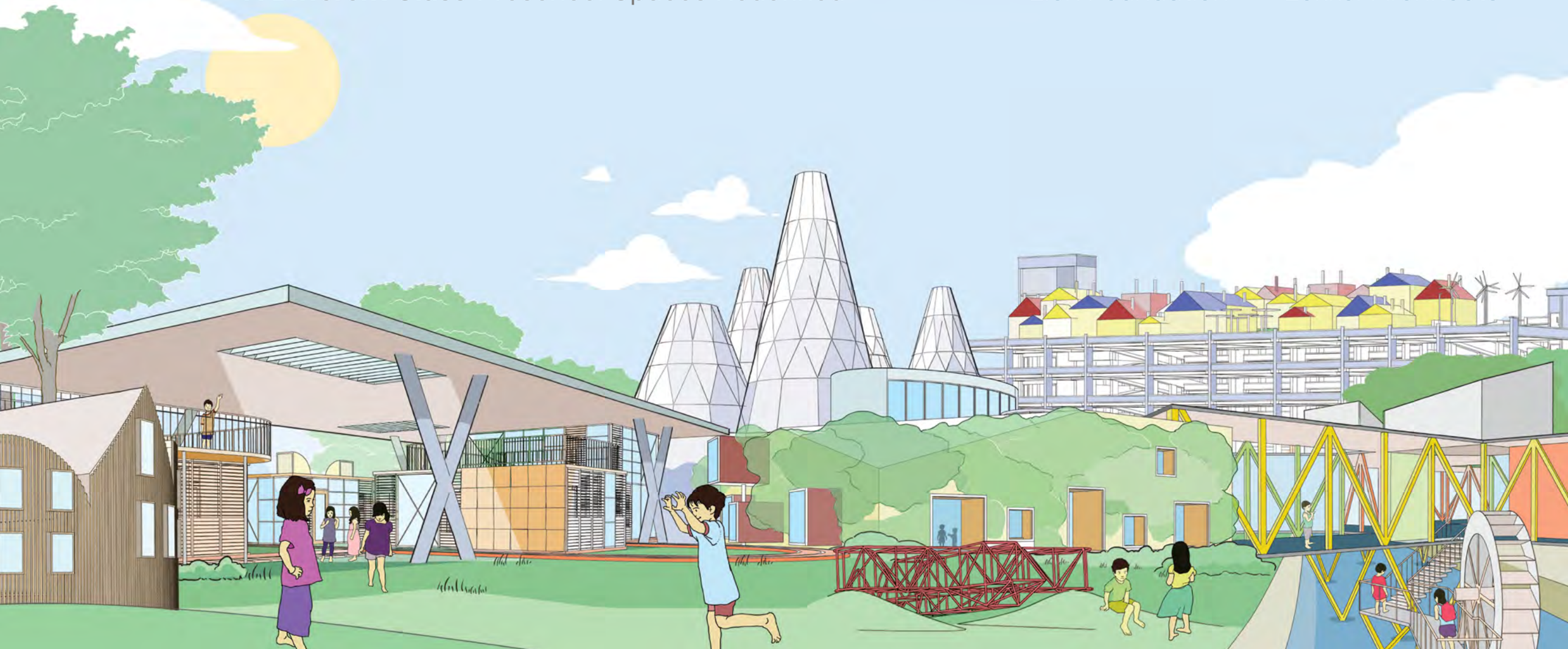
A Different Class Preschool Spaces Redefined

COMMISSIONED BY
Lien Foundation

DESIGNED BY
Lekker Architects



A Different Class

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A Different Class Preschool Spaces Redefined

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MESSAGE BY LIEN FOUNDATION

716.1
THAT IS—IN SQUARE KILOMETRES—OUR LOT

Scarcity of land is a perennial challenge in Singapore, acting as both a critical constraint as well as catalyst of Singapore's global excellence in urban planning, public transport and housing today. It even defines the national psyche.

In recent years, however, this pressure has intensified.

Population growth and urban densification have given rise to the so-called NIMBY ("Not In My Backyard") Syndrome, coined after a succession of plans by the government to site nursing homes, foreign dormitories and preschools close to housing estates met with protests from local residents.

While acknowledging the nation's (and, in fact, their own) need for these facilities, many Singaporeans were evidently unprepared to accept the ailing elderly, foreign workers and noisy preschoolers at their doorstep.

It was against this paradoxical backdrop that our first conversations with Lekker Architects—a Singapore-based firm helmed by Harvard graduates—took place in late 2013.

For a number of years, the foundation had been involved in early childhood education, focusing on advocacy and capacity building. But we were slowly realising the importance of changing not only mindsets and skill sets, but also sets in themselves.

How should the set for a child's most important years—the preschool—look like? Where else, other than the ubiquitous HDB void deck, can these vital places be sited in space-constrained Singapore? What inspiring and attractive forms of architecture can we deploy to turn NIMBY into PIMBY ("Please, In My Backyard")?

Spatial solutions are important to consider because unlike other natural resources that Singapore is infamously short of (say, water), space is a resource that can be used to our advantage, even with limits, through redefinition and reimagination.

It is the architect's Third Eye that enables this; he sees what others cannot.

This showcase of 10 new preschool concepts is the result of this collaborative examination with Lekker Architects. It seeks to look at space in Singapore in a different way, through a discovery of underused and overlooked plots around Singapore that could —with a little fairy dust—be turned into the magical spaces of a child's first school. Our children will benefit. Teachers will, too. A preschool must be a great space to be a child, and to be with a child.

We are presenting these concepts just as the Singapore government is revving up the construction of preschools to meet an increasing demand. 200 new preschools will be built in the next few years and locations for each will need to be found. It is a critical window of opportunity to rethink the homes of our preschools and go beyond the cookie-cutter void deck classroom.

If we miss this window, and brick and mortar is laid, a similar opportunity for change will not present itself again for years.

But the potential of this project extends far beyond the early childhood sector.

We hope for this exercise to be a catalyst for a deeper rethinking of space in land-scarce Singapore. Amid our condominiums, casinos, commercial offices and country clubs, critical social services must not be muscled out. Dignified and inspiring new spaces must and can be found for them.

Through its work, Lekker Architects opened our Third Eye. We hope it will also open yours, to future spaces of a different class.

INTRODUCTION BY LEKKER ARCHITECTS

LEARNING FROM LOST PLACES

The goal of this study is as simple as it is revolutionary: to find overlooked spaces in Singapore, and design preschools for them.

WHY DO THIS?

Because early learning environments are an area where we are falling behind. Our schools energetically engage programmes, people, and processes. By contrast, space is only starting to be considered in a meaningful way. Educators, parents and the Early Childhood Development Agency (ECDA) have voiced out the need for better design of preschool spaces. But this call has not been answered with confidence as of yet.

Much of this has to do with limitations of site. Due to availability, schools are currently built in a narrow range of settings. Many of these, such as void deck units, actually constrain the potentials of design and hamper the creation of compelling buildings for our children.

In fact, inspiring spaces are all around us but, we often fail to notice them. Some are ignored because they appear marginal or infrastructural. These include highway buffers, large drains, and car park roofs. Others such as public parks, beaches and waterways can seem daunting because their use would require buy-in by multiple government bodies.

In order to see our national landscapes differently, we considered them free of their conventional uses. Besides safety, our only criterion was that these be typical: that is, that they exist at multiple points across Singapore. This was done in the hopes that "common" spaces could connect new preschools to the entire population regardless of where they live. Nine such spaces were chosen. In this same spirit, one very familiar site—the HDB void deck—was given fresh consideration alongside the other locations.

TEN GUIDELINES

The distinctive qualities of each site suggested a new preschool concept, a certain typology. We pursued the design of these via a loose, exploratory process. General principles—core goals and values—emerged in a rather organic manner. Through the exploration of these 10 preschools, 10 general guidelines presented themselves.

1 Let the site be a teacher

The natural features of each site should directly influence its educational approach. The preschool's environment becomes a driver of curriculum and a focus for interdisciplinary learning and collaboration among areas of knowledge. At a floating school, for example, capturing the river through art is inseparable from understanding its biology, the life teeming within it. The singularity of place draws the student and teacher, the gardener and the scientist together to learn from itself.

2 Build community

The new preschool connects people as well as knowledge. It becomes an interchange, where the student benefits from the embodied learning of a broader community. This expertise might be crafts, writing, cooking or gardening. Most of all, it creates new potentials for inter-generational contact: for involving elder members of the public in common projects. The building also reaches out by sharing its special amenities, such as playgrounds and multi-purpose rooms, with its neighbours.

3 Engage the senses

We strive for designs to activate a wide sensory spectrum. Many preschools in Asia, as well as the West, have privileged the visual over other kinds of perception. While we hope for our children to be visually attuned, we understand that the building can directly contribute to experiences in sound and touch as well. Materiality—from wall and floor surfaces, to natural and acoustic elements—is central to this strategy.

4 Foster ownership

The preschool should belong to the students. Oddly, the classic approach to education proposes something quite different: that the institution is an inaccessible object standing above and beyond the student's influence. By informalising the building and emphasising care for its natural setting, we hope to foster a habitual sense of ownership and stewardship. Such an approach empowers the student, as well as challenges them to play an engaged role in the physical and social world.

5 Create a range of scales

Size matters in the production of various comfortable, conducive environments for children to explore. No preschool should be designed at a single scale. In fact, multiple scales should exist within a single space. For this reason, we have placed emphasis on "nested" volumes: alcoves and edges, play enclosures and quiet zones in the midst of free-flowing floor plans. Like the habitats of natural ecologies, our preschools should strive to create a continuum of comfort, which encourages the child to develop in confidence, and to find an appropriate setting for different types of activities and scales of social engagement.

6 Design for memory

Each preschool should leave the students with strong impressions. For this reason, each has been given a distinctive identity, a design language and an atmosphere. This should also be true of the spaces within. This is achieved less through the use of extravagant forms or materials, but instead by reconsidering the conventions of preschool buildings: the relationship of their parts to each other, indoor and outdoor, the inclusion of unusual elements and discovery.

7 Learn to play, play to learn

In these proposals, learning and play are not treated as discrete activities. By contrast, we understand play as a medium of cognitive growth, and to be most important among the student's activities. For this reason, large-scale elements for imaginative play have been directly integrated into the architecture of the preschool itself. As exercise has been shown to improve mental activity, structures for physical play are also brought into the interior spaces, and not removed to an isolated "playground".

8 Take risks

The design of our schools reflects a recent re-evaluation of risk in the preschool context. Rather than attempting to insulate children from the possibility of minor injury, circumstances are created to guide them through habitual situations that are (to a small degree) hazardous. Supervised risk not only helps to instil competence, but another character skill as well: the courage to tackle formidable challenges.

9 Let the outside in

There is an intentional ruggedness about many of the proposed preschool spaces, an attempt to remain porous and open to Singapore's distinct climate and environment. In the spirit of projects such as the Natural Learning Initiative, we hope to shift students away from sealed rooms to places where they can get their hands dirty. At the same time, we have opted out of many "sustainable" devices such as green walls that are currently fashionable. Instead, our outward orientation aims for a simpler (and deeper) re-engagement of children with the natural world.

10 Share the wealth

Each school hosts a special feature conceived in response to its particular setting that is potentially shared with others. The school along the beach has a large open tent. The school over the canal has a waterwheel and growing wetlands, and the school across the lawn, a pocket of jungle. These are intended to form a network of special facilities for learning and need not be exclusively "owned" by a single institution. Our preschool spaces may be visited or temporarily occupied by students or other members of an interested public.

AN OPENING

In total, this book contains 10 very unusual schools. These differ greatly from one another in their forms, materials and structures. They also differ in the kinds of spaces that they create. The schools are not intended to be read as finished products. They are not the result of a process, but merely a new stage.

We hope that they will serve as an opening: inspiring many more daring designs in the future. Each contains ideas that will ideally become part of a vocabulary for the creation of visionary schools in unexpected places—a stage in an evolution that will see Singapore as a world leader in the field of early learning.

1

AMONG THE TREES

P12

2

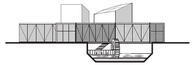
WITHIN THE CAMPUS

P20

3

ALONG THE BEACH

P30



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OVER THE CANAL

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ABOVE THE CAR PARK

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ACROSS THE LAWN

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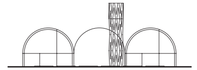

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AT THE FARM

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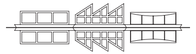

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ON THE WATER

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9

BY THE TRACKS

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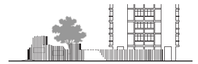

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BEYOND THE BLOCK

P90

1

AMONG THE TREES

Densely-greened road reserves are an ideal setting for preschool spaces. These foster close links to nature and a sense of adventure.

POSSIBLE LOCATIONS

- Road reserve between the Central Expressway (CTE) and Tiong Poh Road (shown)
- Road reserve between the Pan Island Expressway (PIE) and Tampines Street 11
- Road reserve between CTE, Braddell Road and Carmichael Road

FEATURES

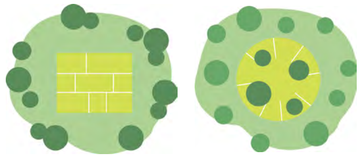
- Exterior of school resembles a rustic curtain that lets light in
- Tree houses
- Skyrocketing trees
- Amphitheatre

MERITS

- Unique spatial envelope for children
- Meaningful and habitual engagement between users of the space and nature
- Exciting experience of the tree canopy

Trees rise through the classrooms, setting focal points for learning and activities.

In the centre of the school is an amphitheatre, with tree houses nestled into the canopy above.



Unlike standard buildings that keep surrounding landscape at a distance (left), this proposal allows trees to enter into its interior, in the manner of a forest (right). The plan of the building is curved to take in views of the woods on all sides.

What if our island's road reserves became a temporary (or semi-permanent) home for preschools? In reality, many of these "buffers" have been standing for decades and have grown to become mature landscapes in their own right with tall canopy trees, resident bird colonies, and regular visitors.

There are many such sites positioned alongside Singapore's major roadways and around the exit lanes and ramps. The school among the trees is imagined next to the CTE, on a mature green-space running behind Tiong Poh Road in Tiong Bahru. It serves a large and diverse community of residents and is located a few minutes' drive from the Central Business District.

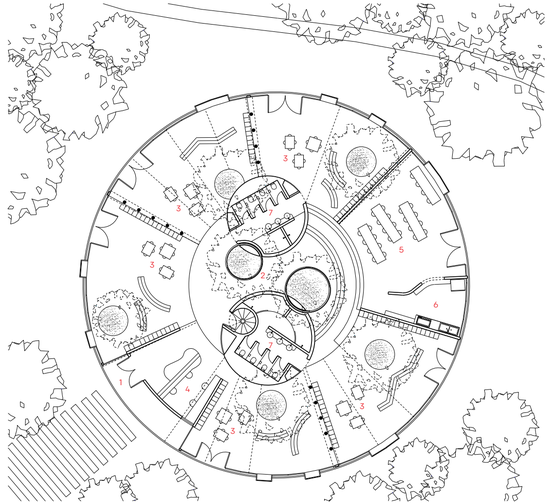
The school appears as a ring of small buildings, placed side by side. These are defined by a variety of heights, rooflines, and window patterns. The exterior is designed to resemble a rustic curtain, a ring of timber louvres that let in light while preserving the privacy of the interior. In the centre of the ring is an open space, a small amphitheatre or gathering area for the students.

The form originates with a simple goal that each classroom might provide a unique spatial envelope for its students. Each has an easily identifiable interior shape. The volumes get larger as the students get older; flat roofs give way to barrel-vaults and pitches. The dining area is the most horizontal, providing the atmosphere of a collective space that will be shared by multiple age groups.

Most notable, however, is the building's relationship to the trees on its site. Unlike a conventional building—which usually stands apart from trees and other landscape elements—our design allows the trees to enter the space of the classrooms. They rise through the floor and pass through openings in the roof. Rather than being something "apart" from architecture, the trunks become the focal points of the learning space. They are a setting for storytelling, a gathering space, and a canopy for shade.

Rising from the roofline is a spiral stair—enclosed, like the façade, in timber slats—that leads to two tree houses nestled into the canopy above. These are large enough for small class activities such as reading, singing, or bird watching. They are connected by an enclosed rope bridge, which gives the students a feel of adventure and a privileged view of their environment. The goal of bringing the building into such close proximity with the woods is to take full advantage of them as a medium for learning. As much as the building, the trees are the "enclosure" of the school, making space and providing identity through a meaningful and habitual engagement.

Rooms look inward and outward, towards the shared courtyard as well as to the surrounding woods.

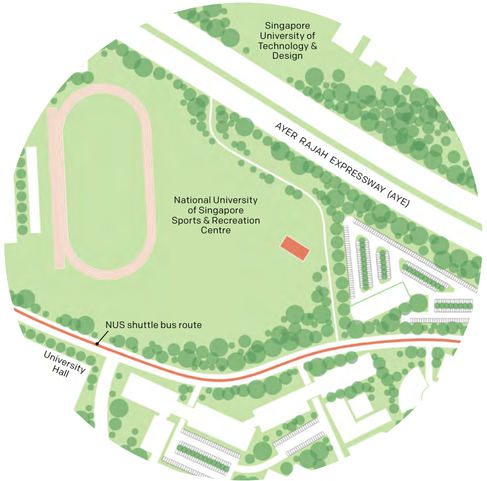


LEGEND
1 Foyer
2 Play Area
3 Classroom
4 Office
5 Dining
6 Pantry
7 Toilet

2

WITHIN THE CAMPUS

Many sites on Singapore's academic campuses have been left open for future development. These provide a setting rich in existing educational and infrastructural resources.



POSSIBLE LOCATIONS

- National University of Singapore (NUS), on a stretch of lawn at the Sports & Recreation Centre (shown)
- Nanyang Technological University (NTU) along Nanyang Valley
- Institute of Technical Education (ITE) College East at 10 Simei Avenue

FEATURES

- Made up of modular systems
- Adaptable to growth of school
- Merges learning and play with use of playframes, ladders, slides and bridges
- Large, open shaded areas for play

MERITS

- Unique emphasis on exercise
- No limitations of physical play to certain times of day
- Activities to develop strength and motor skills integrated into learning
- Integration into campus environment
- Designed for all weathers

The school combines elements of the playground with classrooms, under a large sheltering roof.

The school is sited within existing campus green spaces, becoming part of the academic landscape.

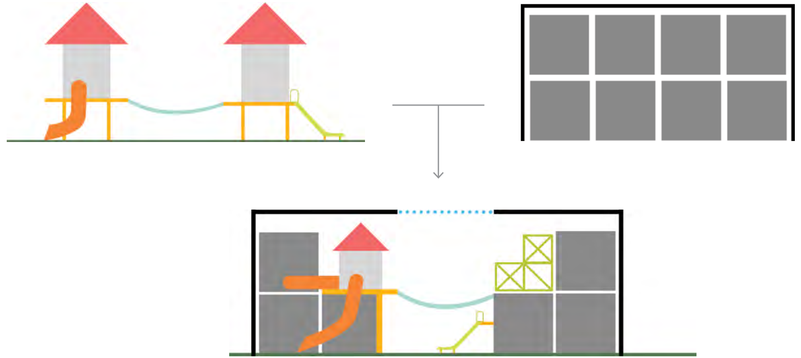
Campuses are one of the major land reserves in Singapore. While universities, ITEs, polytechnics and schools offering the Integrated Programme must economise their use of space, many include open areas that are waiting for future implementation. Campuses are also rich in existing educational and infrastructural resources that preschools may benefit from. These may be as practical as water and power, or as intangible as the knowledges of their faculties. Existing schools within such settings like The Caterpillar's Cove at Ngee Ann Polytechnic already gain from the shared resources of a larger community. In most cases, however, facilities are housed inside campus buildings that cannot realise the potentials of purpose-built structures. The school within the campus could exist at the National University of Singapore, on a stretch of lawn within the multi-purpose fields and abutting a parking lot that serves the Faculty of Science.

The design for this school strives to be maximally self-contained. As campus land resources are constantly in flux, the design utilises prefabricated elements such as modular systems for the erection of construction hangars and single-room sheds. It is built from steel, using concrete only for footings. The structure has no slab, as each room within is a discrete module. As the exact conditions of each site are unknown, and may change, the playground is nested within the centre of the large enclosure.

The school and the playground are not treated as separate elements, but are instead presented together, incorporating the design language and special modes of movement and exploration of playframes, ladders, slides and bridges directly into the architecture. The building does not have normal stairs, and no corridors. The classrooms are treated like wood blocks: they are placed next to each other and stacked casually within the enclosure of the hangar. Their roofs become mezzanine spaces, linked by rope bridges and tubes. The "ground" of the school is a continuous EPDM rubber surface, which is soft and topographical.

This configuration for the school within the campus has a number of practical and pedagogical advantages. In light of the Singapore climate, it is a boon that the playground can be used regardless of the weather. Moreover, it can be passively cooled, using large-diameter fans to create comfort without air conditioning. The design also allows for a unique emphasis on exercise. Physical play is not delimited to certain times of day and activities to develop strength and motor skills are likewise not separated from "normal" actions, but integrated into the habitual motion of the children. Unusual spatial configurations in the school within the campus and the available facilities around it encourage new forms of play and social-isation—fostering a fitness to learn as well as to grow.

This design proposes not to separate the motions of play structures, but rather to integrate them into the circulation of the building itself. Rooms are separated to contain slides, tunnels, and netting for students to move in experimental and unconventional ways.



A range of smaller enclosures create varied opportunities for play and physical experimentation.

PRESCHOOL WITHIN THE CAMPUS

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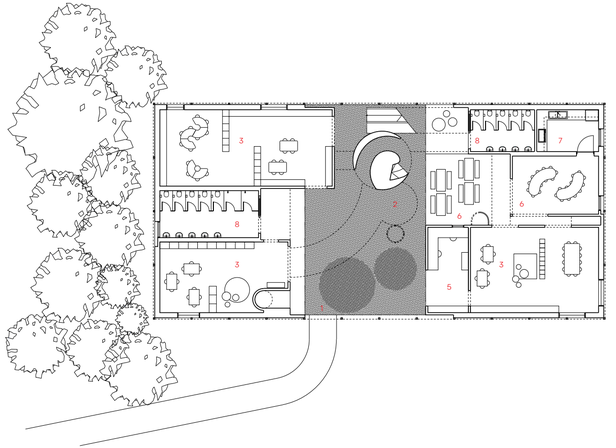
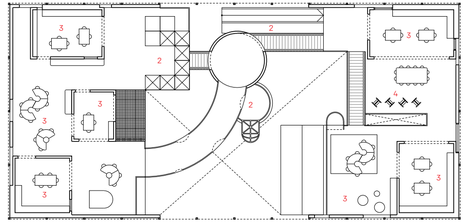




LEGEND

1 Foyer
2 Play Structure / Play Area
3 Classroom
4 Arts & Crafts Room
5 Office
6 Dining
7 Pantry
8 Toilet

3

ALONG THE BEACH

Singapore's expanding coastline provides the exciting possibility of preschools at the shore. Here, the children gain a tactile learning experience in a building open to its surroundings.

POSSIBLE LOCATIONS

- East Coast Park near East Coast Lagoon (shown)
- Pasir Ris Town Park near Orchid Bowl
- Changi Beach Park near People's Association Adventure Club

FEATURES

- Cluster of tents made of lightweight metal members
- Sand-bed floor
- Casuarina trees integrated into semi-outdoor space
- Filtered natural light throughout interior

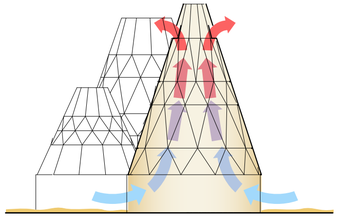
MERITS

- Tactile learning such as sand and water play
- Heightened focus on coastal environments
- Stewardship of beaches

A large semi-outdoor room allows for beach play throughout the day.

LEFT **A Teflon-coated fabric enclosure allows filtered natural light to partially illuminate the learning spaces.**

BELOW **The conical form of the building modules creates a "stack effect", allowing warmer air to vent through the roof while drawing cooler air into the rooms at ground level. This promotes passive cooling through natural breezes.**



The school along the beach is imagined to be located at East Coast Park. At first impression, it appears like a cluster of tents, or a sand castle grown improbably large. It is nested at the edge of the beach, where the scrub begins to grow and Casuarina trees create a broken line of shade. A small boat lies casually around its edges, and nautical flags spelling "school" in maritime signals fly from the roof.

The plan of the space is loose and open with a free-flowing intersection of conjoined circular rooms. Mezzanines house a small library, a reading room, and an office that overlooks the areas below. Classrooms, toilets, a kitchen and dining area share the ground floor in an informal arrangement.

The structure of the school is designed with a frame of light-weight metal members and resembles a cluster of tents. These are wrapped in a skin of Teflon-coated fabric, a material commonly used in large-scale tensile structures. The exterior allows the partial transmission of light and views. On fine days, the interior would be illuminated with a gentle white glow. The tent form is derived from the traditional Malay Selangor roof, which allows ventilation through openings near its top. As warm air exits the tents near the apex, cooler air is sucked into the lower floor. This "stack effect" creates a constant breeze and lowers the average temperatures inside thereby reducing the dependence of the school on air conditioning. Alternatively, a single large fan may be used at each tent during still days.

One tent is different from its neighbors. It is larger and shelters an unusual, semi-outdoor space. Like the others, it is shaded by a fabric roof but with a void at its apex. It would be constructed of a more transparent fabric than the rest of the building to allow a higher level of illumination than in other learning spaces. The floor is a continuous sand-bed of 110 square metres and Casuarina trees, blurring the boundary between inside and out. This large tent makes use of passive ventilation and may be enclosed by louvred gates.

Because of its setting, the school along the beach would place a special emphasis on tactile learning experiences such as sand and water play. It would hope to increase the comfort of its students with a slightly "rustic" environment, one less controlled than its conventional counterparts. Education here would include a heightened focus on coastal environments, and the study and preservation of marine life together with stewardship of Singapore beaches. Such programmes currently exist, but require that children travel from distant schools to participate, unlike here, where caring for the beach is part of the school's DNA.

Intersecting volumes and mezzanines create varied opportunities for interaction.

PRESCHOOL ALONG THE BEACH

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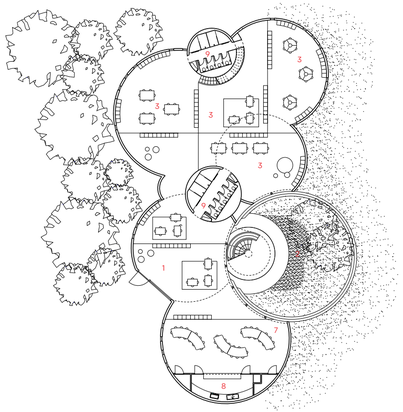
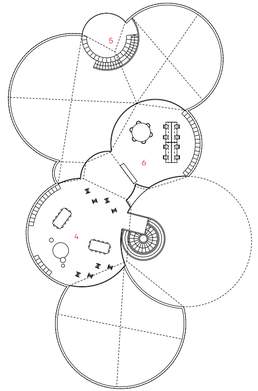




LEGEND

1 Foyer
2 Play Area
3 Classroom
4 Arts & Crafts Room
5 Reading Corner
6 Office
7 Dining
8 Pantry
9 Toilet

4

OVER THE CANAL

Our vast network of large drainage canals are an untapped reserve of spaces, located throughout the national landscape. Schools built over these canals may become catalysts in naturalising and beautifying these concrete infrastructures.

POSSIBLE LOCATIONS

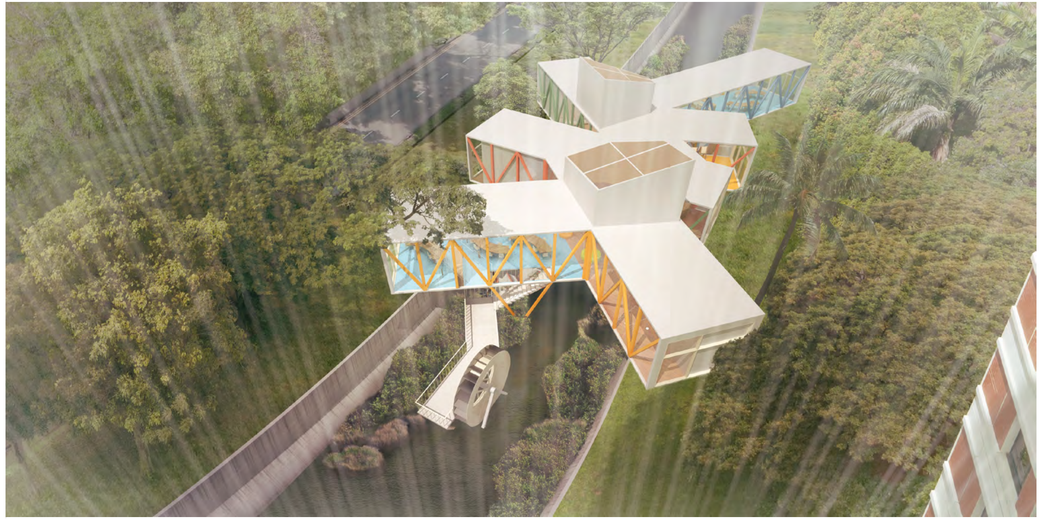
- Over Rochor Canal, between Victoria Street and Syed Alwi Road (shown)
- Over Alexandra Canal between Prince Charles Crescent and Tanglin Road
- Over Ulu Pandan Canal between Clementi Avenue 6 and Clementi Road

FEATURES

- Column-free interior
- Filtered natural light
- A water wheel
- Ecotope plantings

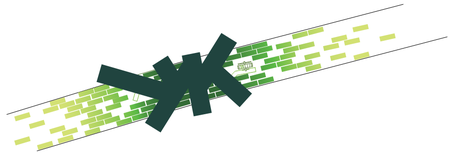
MERITS

- Beautifies canal and treatment of water
- Exposes children to conservation of water and reclamation of the drain
- Teaches students about hydrology and hydro-power



The school is assembled from a network of bridge-like structures crossing the canal.

A water wheel is activated when the canal is filled, teaching students about water movement and renewable energy.



The school building is intended to create a base for the naturalisation of the canal. Modular panels of riverine plants are used to establish a wetland system to clean and beautify the base of the concrete culvert. The extent of this "green carpet" would increase over the life of the school.

Singapore's "big drains" are not commonly considered a space fit for inhabitation. The linear nature of these infrastructures and their necessity for island-wide flood control means that they are found everywhere. Like a system of veins, they extend into most of our estates and central areas. At the same time, the sheer size of the culverts needed to manage tropical storm-water means that the land coverage of drains is huge.

This school could be located over the Rochor Canal, between Victoria Street and Syed Alwi Road. The design of this school assists in the beautification of canals and the treatment of their water. In this way, the new buildings might benefit from well-located sites, while becoming a source of positive change within their immediate neighbourhoods.

The form of the school resembles a system of bridges with branches that intersect at the midpoint of the canal. These rest at their landed sides on the broad top of the concrete embankment. Each branch is supported by a pair of tall trusses that create column-free interior volumes to hold the classrooms and support spaces. Skylights interrupt the ceiling plane at their intersections to introduce filtered natural light. The steel system of the trusses extends below the school to create thin supports that rest on the concrete base of the culvert.

The centrepiece of this initiative is a water wheel that is visible from the classrooms above. During a storm event, children watch the effect of the current turning the wheel to generate energy for the building. The wheel can be viewed from a closer (albeit safe) distance from a fenced viewing platform accessible from the main floor.

They will also observe the reclamation of the drain through a growing carpet of bio-filtration mats that use the school as a base and a point of access. These are a readily available technology that can be deployed one by one. We imagine this process beginning gradually with mats installed around the building's substructure. Then, grasses and ecotope plantings begin to add a green layer over the concrete base of the drain. Over time, however, the installation begins to spread laterally, creating a footprint of lush vegetation. This minimises the harshness of the drain as a visual environment. It also minimises the Heat Island Effect of the concrete surfaces and naturally cleanses the water that courses past. The school over the canal takes advantage of the canal as a source of learning with hydrology as the focus and creates safe spaces around it for children to learn from this underutilised space as intimately as possible.

Skylights and glass allow for pockets of the surrounding landscape to frame the learning spaces.

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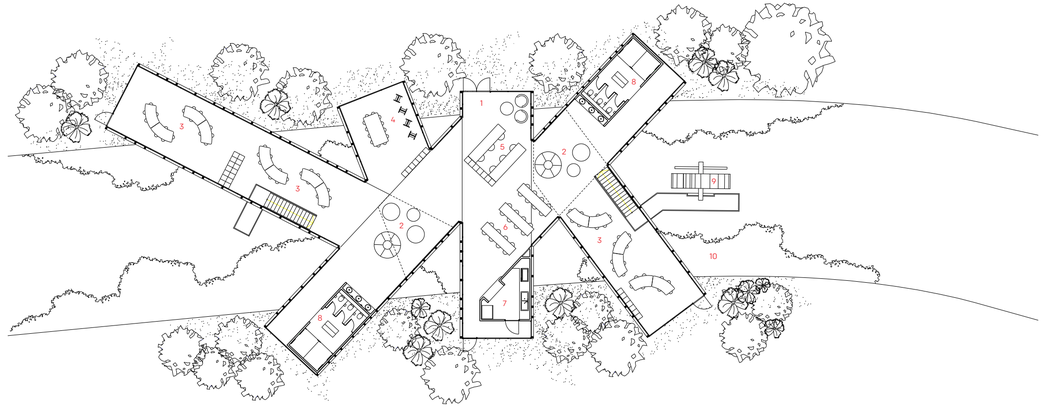


LEGEND

1 Foyer
2 Play Area
3 Classroom
4 Arts & Crafts Room
5 Office
6 Dining
7 Pantry
8 Toilet
9 Water Wheel
10 Floating Planter Beds

5

ABOVE THE CAR PARK

Rehabilitated car park rooftops will create space for preschools in the centre of housing estates. These provide the students with a unique perch while making a utilitarian space more beautiful and hospitable for the community.

POSSIBLE LOCATIONS

- Multi-storey car park at Bukit Panjang Ring Road (shown)
- Multi-storey car park at Skyville@Dawson, within planned roof gardens
- New multi-storey car park at Punggol Estate

FEATURES

- Learning village consisting of tiny house-forms
- Teepees
- Hidden playground
- Curved flight of steps
- Wind-farming facility of seven turbines

MERITS

- Intimate, domestic quality
- Instills a heightened sense of ownership
- Platform to discover wind processes / conservation of energy
- Opportunities for gardening and other outdoor activities

Adjacent classrooms open to the surrounding landscape, creating an active relationship between the inside and outside.

The upper levels of Singapore's multi-storey car parks have become a recent focus of design interest. Schemes for greening and programming these spaces are ongoing by the Housing & Development Board (HDB) and others. This might be because there are so many instances island-wide. But also, perhaps, because they have long been considered hot and unattractive places. If the rooftop surfaces were to be made hospitable and beautiful, visitors might become aware of their distinctive amenities: cool breezes and often-dramatic viewpoints of the surrounding city.

This design proposes an experiment already underway by the Early Childhood Development Agency (ECDA). What if the car park's upper decks were rehabilitated with lightweight structures, creating space for schools at the very centre of the estates? Our version of this scheme aims to do so in a very particular manner: not imagining the addition of a "building" so much as a village for children on the rooftop of a multi-storey car park at Bukit Panjang Ring Road.

This environment is made of tiny house-forms with roofs of varied colours clustered in rows, standing side by side as in a village. The merging of these little buildings creates continuous open space at the interior that contains the classrooms, kitchen, dining and office as well as supporting spaces. While there is a free flow among rooms, the colours of the gable roofs carry into the ceiling, preserving a sense of smaller volumes scaled to the proportions of the child.

Interstices between the "houses" and clusters give rise to small gardens and patios that lend the school an intimate, domestic quality—not so much an institution as a collection of rooms around a green commons. At the centre of this commons is a small amphi-theatre and a curved flight of steps that is shaded by trees. Peripheral areas of the deck create distinctive spaces: a "hidden" playground among hedges and a collection of teepees for the children to occupy. These represent a miniature public realm that is to be cared for by the students and teachers. As such, it is designed to instil a heightened sense of ownership, a space that is very much their own to nurture.

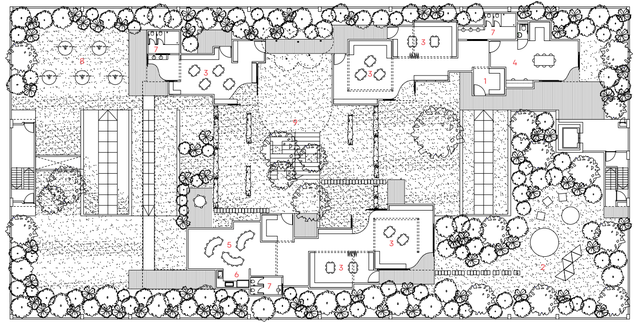
As with several of the other schools, each location leads to an intensified engagement with an element of Singapore's environment and a technology for engaging it sustainably. For the school above the car park, it is wind. The school spots a small wind-farming facility of seven turbines, raised at a height of six metres above the ground. These take advantage of air currents channeled between surrounding high-rise blocks, to create a source of energy. This shows the use of an emerging green technology, while—perhaps more importantly—communicates an aspiration toward qualities of independence and self-sufficiency that will serve to benefit the children's learning in the long run.

LEFT **In this design, the classrooms are not engaged within a contiguous building "block", but are allowed to stand free in the manner of tiny buildings. These join at edges and corners, around a shared green space, in the manner of a village.**

RIGHT **The school is imagined as a village of tiny houses surrounding communal gardens and play areas.**

The arrangement of the school allows for a broad array of micro-environments of differing scales and characters.

Perforated timber screens filter light and focus the children's attention on special views.



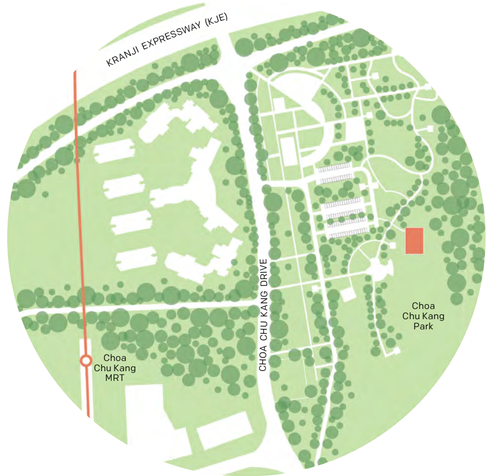
LEGEND

1 Foyer
2 Play Area
3 Classroom
4 Office
5 Dining
6 Pantry
7 Toilet
8 Wind Farm
9 Meadows

6

ACROSS THE LAWN

Preschools might be sited on one of our public parks' many grand lawns. In return, these might further enliven underused landscapes with new programmes and natural features.



POSSIBLE LOCATIONS

- Choa Chu Kang Park (shown)
- Ang Mo Kio Town Garden West
- West Coast Park near Adventure Playgrounds

FEATURES

- Small clearing as entrance
- Meandering discovery paths
- Multi-tiered tropical landscape
- Rocket play structure
- Micro-gardens and pocket spaces

MERITS

- In harmony with nature
- Launchpad for children to set ambitious goals
- Creates learning environment at a wide range of scales

Elliptical skylights allow for multiple views to the surroundings, deepening a sense of connectedness to the site.

Micro-gardens extend into the interior of the building, to engage users at multiple levels.

This building is not sited within a conventional lawn setting. Instead, it is surrounded by a thick layer of forest plants. The latter is allowed to enter into the interior, in small garden pockets. At the same time, rooms project into the green buffer, peering through the trees into the park beyond.

The school across the lawn intends to bring a new liveliness through both nature and activity to one of the many grand lawns at Choa Chu Kang Park. In contrast to the trees and grass that define so many of Singapore's public spaces, this building presents itself as an explosion of green: an inhabited jungle, emerging as if by magic.

Its façade has no architectural expression and can be built affordably. It is merely a backdrop for a dense ring of planting that stands in front. As such, the school gives the impression not of a building, but a fragment of landscape. Windows peek out from between the trees showing small rooms where children's activities take place. The building is not entered through a door on the façade but via a small clearing in the greenery.

While some small pockets of the building push out into the green layer, others pull inward drawing the lush planting into a series of micro-gardens. These create a strong impression at the interior, a porousness of surface where inside and outside are blurred. Micro-gardens have different scales, heights and proportions. In one instance, the size is expanded dramatically; this creates, in effect, a large "greenhouse" or conservatory that extends deep into the interior of the building. This space is designed with meandering discovery paths, benches and stepping-stones with the intention to engage the users at multiple levels. The glass enclosure extends up to the roof where the tree canopy becomes a backdrop for the classrooms at the second floor.

The interior is conceived as an open and multi-functional space. While the green pockets at the perimeter provide intimacy and sheltered vantages, the central space aims for an uplifting and expansive atmosphere. Curvilinear skylights emphasise verticality. Likewise, half of the building is a single large volume of double-height. The remainder is divided into two levels, providing more standard classroom dimensions. This creates a scalar continuum, extending from a micro-garden for a single child to a space that can accommodate the entire school community.

The dining room stands at the centre of the space under an elliptical skylight. At the side, a curvilinear ramp connects the floors. Its side is inclined to allow for a series of climbing walls of different levels of difficulty. Children may take the ramp or scramble their way safely from one level to the next. A special feature, a tall orange and white rocket is accessible from the ground as well as from a gangway that extends from the second floor balcony. Inside, there are two rooms where children can play, read, or have a quiet moment. The rocket is both a play structure and a symbol for the school's lofty aspirations: a provocation to the children to set ambitious goals, and "aim high".

Green pockets at the building perimeter provide sheltered and intimate spaces where children can play alone or in small groups.

PRESCHOOL ACROSS THE LAWN

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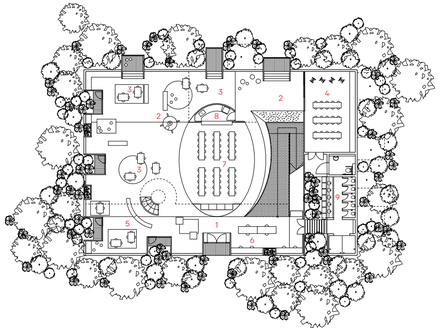
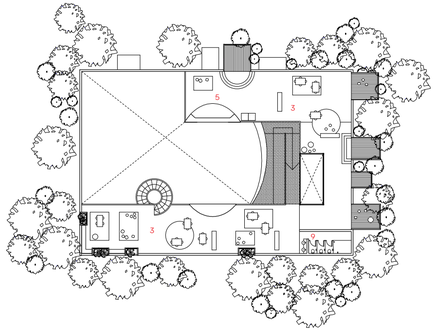




LEGEND

1 Foyer
2 Play Area
3 Classroom
4 Arts & Crafts Room
5 Reading Corner
6 Office
7 Dining
8 Pantry
9 Toilet

7

AT THE FARM

Many active and former agricultural plots exist in the north-west of Singapore. Merging the programmes of the preschool with those of a working model farm may provide children with a hands-on education beyond the classroom.

POSSIBLE LOCATIONS

- Neo Tiew Road, near Bollywood Veggies (shown)
- Sungei Tengah Road, near Farmart Centre
- Rosewood Drive near Singapore Sports School

FEATURES

- Made up of two barrel-vaulted sheds
- Fabric netting to provide shade
- Open-planned space
- Unique farm-themed playground

MERITS

- Alternative to field trips
- Education focused on natural processes
- Stewardship of nature
- Highly tactile learning environment

A simple barrel-vaulted roof creates a sense of volume reminiscent of a barn, silo, or other agricultural buildings.

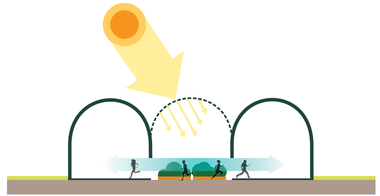
The school at the farm merges the programmes of school with those of a working model farm so that children can benefit from an education focused on plant cultivation and natural processes. This is intended as an antidote to the often sterile experience of children in cities such as Singapore where the relationship with nature is frequently abstracted and distant. It is also an alternative to the practice of field trips and farm visits, which can be superficial in their engagement. Here, the students develop a more substantial stewardship of nature, as they tend their plants and watch them grow.

Such a school could emerge in two ways. One is to build it on an existing plot of farmland or nursery—for example, Bollywood Veggies in Kranji or Choa Chu Kang. Another option is the creation of a new micro-farm on a Temporary Occupation Lease (TOL) from NParks, JTC or a private landlord. As it is intended as an educational facility and not as a functioning enterprise, a large piece of land is not required.

The school is designed to make use of the simple structures associated with agriculture. Its form is composed of two barrel-vaulted sheds like modern barns or silos. These share a common space, a field of planting beds that are covered by arched steel beams. This frame allows a fabric net to be draped overhead to provide shade. It is a technique already in use in most of Singapore's farms and nurseries; netting allows shade-tolerant plants to grow and the workers to have relief from the sun. For the school at the farm, this allows the children to use outdoor space throughout the day, mitigating concern for excessive heat or sunburn.

The interior, at both sides, is a kind of container. To create a lofty and expansive feel, the barrel vault is expressed on the inside. The classrooms have high ceilings and large glazing overlooks fields at one end. Within this enclosure, a smaller room and a mezzanine can be found, allowing for a more dynamic three-dimensional spatial experience. The majority of the floor is to be open-planned and organised around loose furniture and soft furnishings. Whimsical elements expand the theme of the school. A flight of birds appears to glide below the vault on one side; a wood pickup truck appears to be parked in the other.

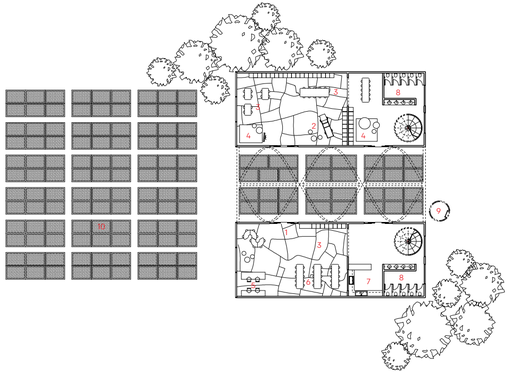
The exterior is imagined to have a casual, rustic character. It is not intended to appear "designed," as much as organic. Modular beds extend the planting soil in a grid in front of the school. A unique playground rehabilitates the sort of "found" objects one might see at an actual farm—a tire swing, a rope bridge, and a "fort" made of wooden posts. The landscape of the school at the farm is not manicured but evocative of Singapore's natural setting when it was more the result of informal arrangements cultivated over time, synonymous with the type of education that prevails there.



ABOVE **A net roof creates a shaded outdoor room at the centre of the school. This allows for exterior play and farming activities, as well as free movement between the two large interior spaces on either side.**

RIGHT **Open plan classrooms are overlooked by more intimate spaces on the second level.**

Graphic and three-dimensional elements enliven the environment and create opportunities for imaginative play.



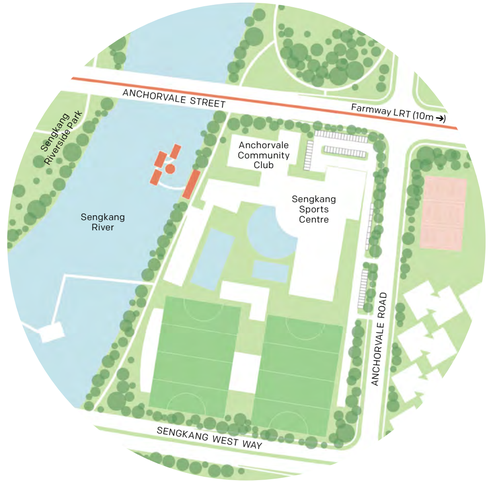
LEGEND

1 Foyer
2 Play Area
3 Classroom
4 Reading Corner
5 Office
6 Dining
7 Pantry
8 Toilet
9 Water Tank
10 Planting Beds

8

ON THE WATER

Newly naturalised waterways form an untapped hinterland for new building. Here, children can engage intensively with our island setting.



POSSIBLE LOCATIONS

- **Sengkang river next to Anchorvale Community Club (shown)**
- **Lower Seletar Reservoir, along Yishun Avenue 1**
- **Woodlands Waterfront Park**

FEATURES

- **Adaptable floating village**
- **Submerged platform**
- **Long exterior balcony for children to be close to water**
- **Nautically-themed elements**

MERITS

- **Better awareness of the riverine environment**
- **Inculcates a lifelong sense of responsibility for the rivers**
- **Unique opportunities for play and experiment**

Each classroom has an open and direct view to the surrounding waterscape.

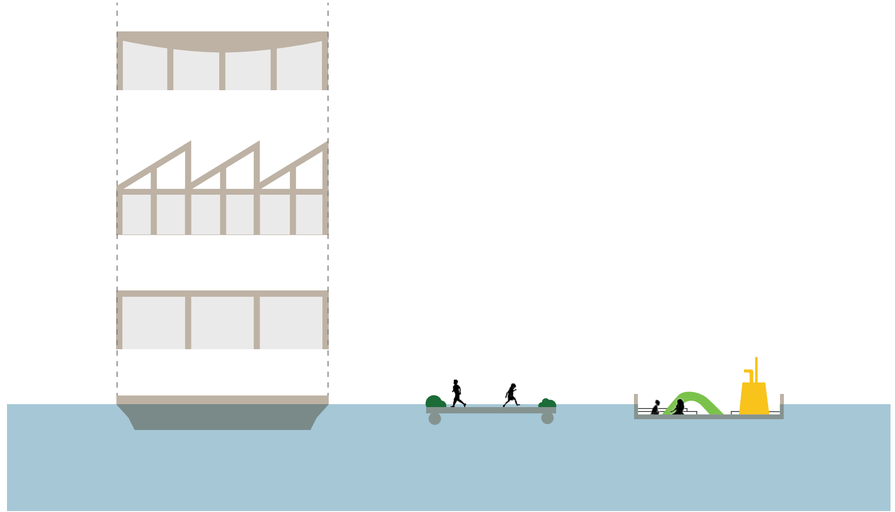
The Public Utilities Board's Active, Beautiful and Clean Waters initiative has resulted in a rapid expansion of the naturalised coastline within Singapore. Green terraces and boardwalks now stand in place of concrete embankments. However, the programming of these spaces has been a slower process and many areas are not yet enlivened by social activity. This makes the new riverbanks, like the Sengkang River, a perfect site for active community facilities.

The school on the water attempts to benefit from this opportunity. Its design uses a standard, commercially available floating platform of six by twelve metres as a starting point. These can support the weight of a single-storey building, and are used as a prefabricated base for a wide range of aquatic installations. This school is imagined as a modular system, like a flotilla of boats, or a floating village. There is also the option of adding individual classes when the school needs to grow to accommodate more children. The platforms can be anchored to minimise lateral drift but can also be towed to different mooring points along the island's waterways.

This means that the school on the water is not a building so much as a flexible, adaptive system. The version shown includes three classroom boats and an open platform for a playground. These are connected via small floating jetties that are supported from below by air tanks. The three classroom boats are designed with a similar material language. They are simple and almost childlike in their form. Each is built on a steel frame and clad in lightweight metal composite panels. While unified by their material, each is given a varied roofline such that they appear as objects with a distinctive character.

The classroom boats are moored to the coast via a long curving pier. At the coast, there is a single building containing the kitchen and dining, as well as the office and administrative support spaces. The building at the coast would be provided with a long exterior balcony for students to observe ecotope planting at close range, at the water's edge. Additionally, a submerged platform located next to the classrooms allows users to stand in water only two to four inches deep. This creates opportunities for water play at a far greater intensity than in conventional landed schools.

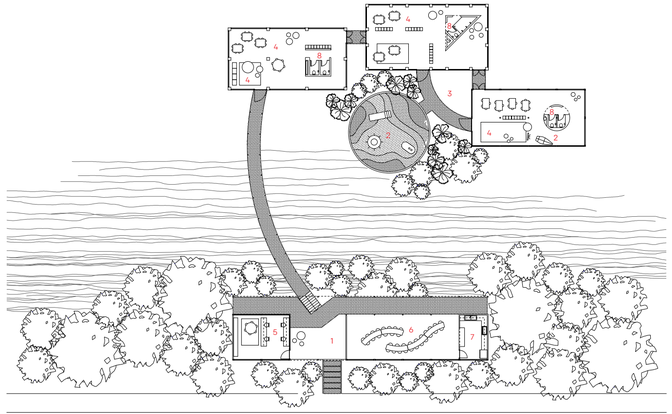
The central focus of the school on the water is to facilitate safe and intensified contact between children and the world of the waterways. In order to do so, a number of specialised elements have been produced. Over the course of the day, students will move between land and water, partaking in various activities and becoming aware of the subtle variations of life in the riverine environment. These experiences are intended to foster a lifelong sense of responsibility for this particular aspect of the local biome.



The school is built upon a series of prefabricated floating platforms. These house classrooms with varied roofs, as well as a playground that stands below water level. There is also an experiential platform, submerged slightly below the water, which allows children a more intensive interaction with the riverine environment.

A playground is nestled among the floating classrooms.

A long covered jetty connects the floating buildings to the coastline, and creates vantages for observing the marine environment.



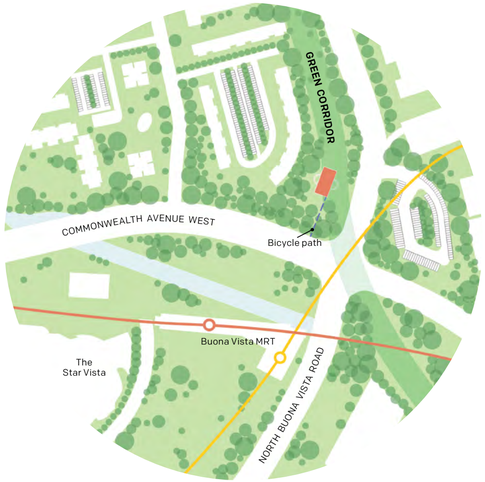
0 5 10 15 20 25M

LEGEND
1 Foyer
2 Play Area
3 Wading Platform
4 Classroom
5 Office
6 Dining
7 Pantry
8 Toilet

9

BY THE TRACKS

The 26km clearing left from the removal of the KTM railway line is an artery connecting the nation's distinct micro-environments. Each holds the potential for a unique educational experience.



POSSIBLE LOCATIONS

- Green Corridor near Buona Vista MRT station (shown)
- Green Corridor between Queensway and Portsdown Avenue
- Green Corridor near Hillview Road and Upper Bukit Timah Road

FEATURES

- Made up of freestanding classrooms under large roof
- Running track
- Cimbing walls
- Cool intimate spaces
- Evocative playframes

MERITS

- Tree house-like sense of intimacy and adventure
- Learning close to immediate environment
- Can be accessed easily by bicycle, pedestrians
- Can be naturally ventilated

The school is designed to be porous, and open to the unique landscape of the green corridor.

In the conventional school building, rooms are interiorised and clustered into common blocks along corridors. By contrast, this new design proposes to separate the classrooms—placing them under a common sheltering roof. This allows for the maximum free flow of air, light and space among them.

In 2011, the KTM railway line running from Malaysia to the station at Tanjong Pagar in Singapore was removed. It left an unusual void: a channel of informal greenery that links numerous neighbourhoods, resources and ecologies, offering a myriad of microenvironments, each with the potential for a unique educational experience. A clearing of 26 kilometres long, it provides locations that are immediately adjacent to housing estates and MRT stations.

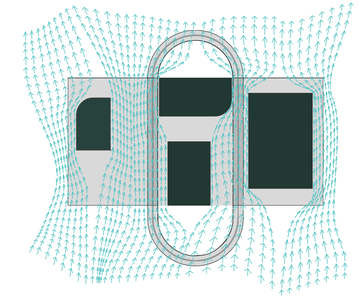
The school by the tracks has been imagined at a bend in the corridor near Buona Vista MRT station. It is accessible via North Buona Vista Road and Commonwealth Avenue West, and is within walking distance of JTC's one-north development, which houses a large (and growing) number of Singapore's medical, technical and creative firms. It is sited next to the pedestrian lane of an existing bridge, allowing the possibility of direct drop-off by parents on bicycles.

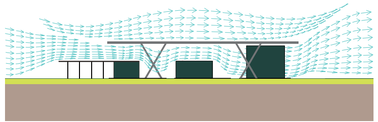
The design of this school is directly influenced by the natural and historical character of its setting. It is intended to stand as the very opposite of a conventional urban building—not an enclosed object sitting in a manicured landscape. By contrast, the school is a building that maintains a passive, casual relationship to the site. It is porous and open to both wind and vegetation. For this same reason, it allows an easy movement of students between the perimeter of the school and the abutting grassland.

Architecturally, the school appears as a conventional block that has been pulled apart. The rooms of the school have been separated and placed under the shelter of a large overhanging roof. While the smaller buildings are protected from sun and rain, they can benefit from their freestanding situation to allow air to flow through—reducing their dependence upon air conditioning. Surrounding windows, while harvesting breezes, also allow for views of the lush landscape that enfolds the building on all sides.

This unconventional typology of small rooms standing under a large roof also has spatial and operational advantages. Cool, intimate spaces appear in the interstices between the classrooms, creating enclosures that are neither interior nor exterior. Certain roofs are also inhabitable, offering special vantages and a tree house-like sense of intimacy and adventure. A running track threads between the classrooms, and a climbing wall clads the face of one. Specifically, a few rugged playframes stand partially out from the lee of the roof. A special truss, in the shape of a small airplane, stands in the grass, available to the students and for visitors alike. These allow for learning and play areas that, while protected from the elements, offer the experience of being close to the immediate natural environment.

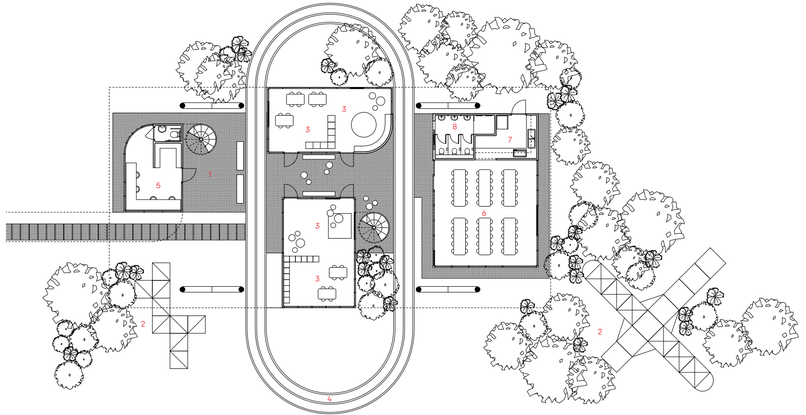
The school allows the green corridor to tumble in; it also permits some of its elements to spill out, in order for children to learn with the environment from within it.



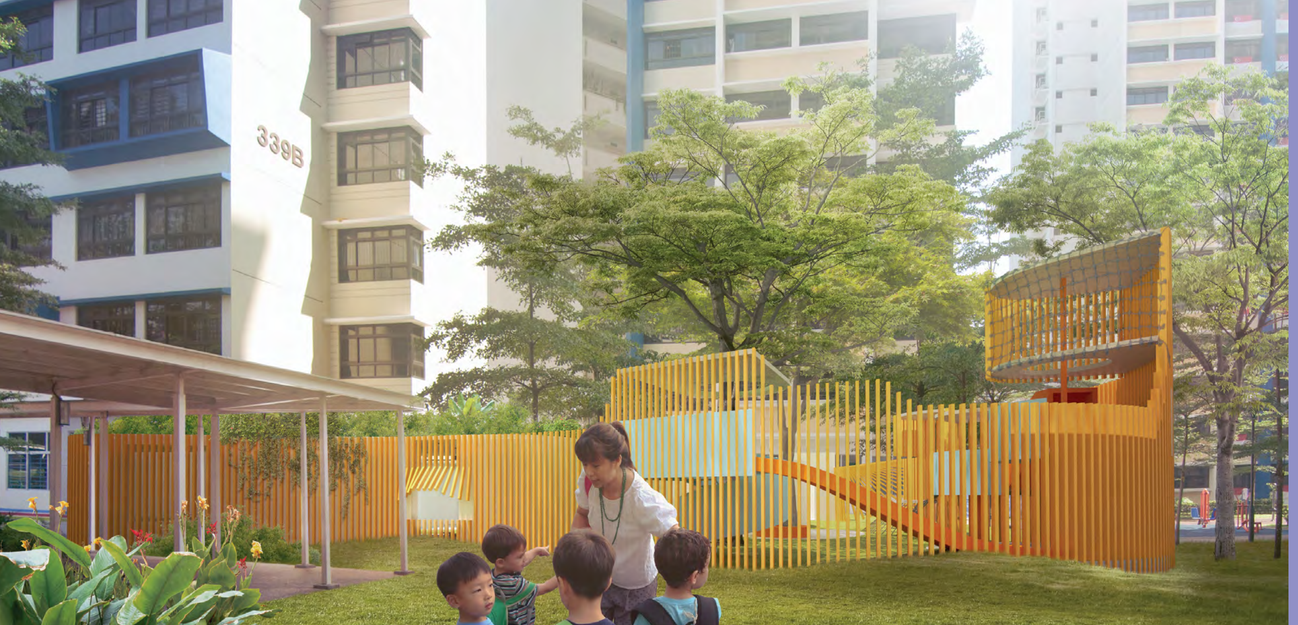


Elements such as a track and climbing frames extend beyond the sheltering roof into the open air.

The enclosures between the interstices of classrooms create room for activities.



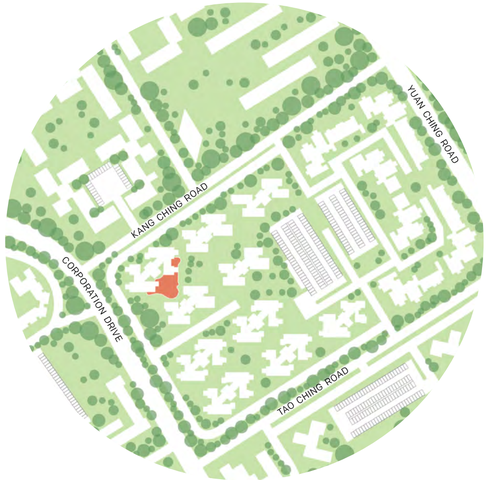
LEGEND
1 Foyer
2 Play Structure / Play Area
3 Classroom
4 Running Track
5 Office
6 Dining
7 Pantry
8 Toilet



10

BEYOND THE BLOCK

For the foreseeable future, void deck units will continue to be used as preschool sites. Expanding beyond their footprint unlocks their potential and creates new spaces to be shared with the broader community.



POSSIBLE LOCATIONS

- Block 339B, Kang Ching Road (shown)
- Block 315C, Yishun Greenwalk HDB Estate at Yishun Avenue 9
- Blocks 293B & 293C, Compassvale Boardwalk HDB Estate at Compassvale Crescent

FEATURES

- Made up of a variable system to adapt to different HDB void deck configurations
- Open classrooms that exist on neighbouring lawns
- Outdoor play areas
- Green roof
- Added tree planting

MERITS

- Sense of openness within school
- Amenities may be shared with seniors and other community members
- Exciting three-dimensional play environment

The extra building on the lawn that connects both HDB units creates an open space that is multi-functional in purpose. Expanded classroom spaces have an open, curvilinear character, with views to a green roof above.

The school playground is also accessible by the community at certain times of the day.

In this typology, the school uses the void deck unit as an anchor—expanding beyond its boundaries to absorb surrounding lawn areas for additional classrooms and playgrounds. This can occur at the centre of the block, at the end, or by joining two end units together (as in the scheme shown).

Given the demand for new preschools in Singapore and the desire to site these near the community, it is likely that void deck units will remain a convenient location in future. These have great advantages. Unfortunately, they also present limitations. Chief among these are low ceilings and closely spaced structural walls. Despite the best efforts of designers, schools set within this environment can often appear cramped and uninspiring. It is possible, however, that void decks could be rehabilitated, rather than being rejected or accepted as they are. The school beyond the block attempts to locate hidden potentials that have not yet been considered by architects.

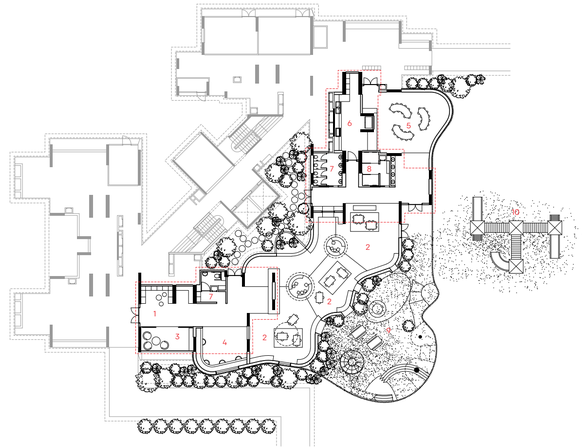
Our proposal is not so much a building as a variable system: an approach for turning a range of void deck units into desirable learning spaces. The solution involves looking beyond the confines of the site to adjacent green spaces. In fact, as a result of HDB planning conventions, a high proportion of these units are positioned immediately next to lawns. If the school expands past the void deck to "claim" adjacent areas, a world of architectural options emerges.

The example shown is a pair of actual units at the base of block 339B, Kang Ching Road, that has been identified by ECDA as a preschool site. These are actually separate rooms, which stand at diagonally opposed corners across a stretch of lawn. The added building forms a spatial bridge between the units. They are combined by means of a new freeform classroom wing, which would be built on existing lawn. The position of this large room beyond the line of the building allows for the provision of skylights and a green roof—creating a sense of openness and verticality not possible in most existing void deck units.

Additionally, the existing rooms of the void deck unit may be used as support spaces: offices, toilets, and kitchens as they are well suited for these more compartmentalised functions, which require enclosure and plumbing. The expanded portion of the building would allow more latitude for open classrooms, as well as outdoor play areas. The exterior form of the school is unimportant—in fact, the proposed design is intentionally "formless" in its language. It should be free to adapt to a myriad of blocks with their diverse configurations of architecture and lawn.

For block 339B, the outdoor wing is planned to expand toward an existing playground. The "skin" of the new addition is a simple system of vertical posts, which detach from the building to form a fence around new play facilities. At certain times of day, the two playgrounds would be able to merge their functions; the bounding fence of the school has been designed to open like a curvilinear gate when school is not in session, allowing neighbourhood children access to the play equipment. As such, the school beyond the block not only "borrows" space from the estate by going out of the HDB unit, but also "gives back" in the form of new facilities and translates values like sharing and ownership to the children who learn there.

Classroom spaces are not constrained by the closely-spaced structural walls of the HDB blocks above.



LEGEND
1 Foyer
2 Classroom
3 Family Room
4 Office
5 Dining
6 Pantry
7 Toilet
8 Bathroom
9 Garden
10 Existing Playground

A Different Class is a preschool proposal by Lien Foundation and Lekker Architects in view of the 200 new preschools that are to be built in time to come. The proposed preschool concepts in *A Different Class* are not meant to be read as finished products, as much as a suggestion of possible preschools that could exist in various parts of Singapore in the future. With these designs, we seek to promote different outlooks on one of the most crucial sectors of our nation in the years to come.

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