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Urbanism in Suburbia

"It is the city trying to escape the consequences of being a city while still remaining a city." —Harlan Douglas, The Suburban Trend, 1925

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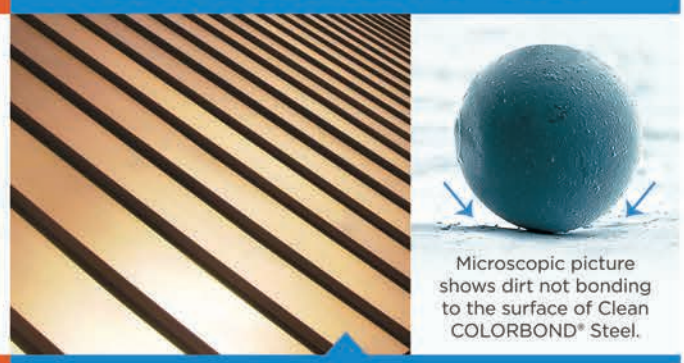
Conventional Pre-painted Steel	Clean COLORBOND® Steel
 Microscopic picture shows dirt bonding to the surface of conventional pre-painted steel.	 Microscopic picture shows dirt not bonding to the surface of Clean COLORBOND® Steel.
Dirt particles adhere to steel surface resulting in dark, hard-to-remove stains.	Dirt particles do not bond to Clean COLORBOND® Steel surface and rinse off easily during rainfall.

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Message from the Editor

"Prosperous suburbia was one of the end-states of history.
Once achieved, only plague, flood, or nuclear war could threaten its grip."

—

J. G. Ballard, *Millennium People*

What do we mean by "suburbia?" The Oxford English Dictionary defines it as "the suburbs viewed collectively," while the Merriam-Webster dictionary defines it more broadly, as also "the people who live in the suburbs", and/or "suburban life."

The suburbs, as we know, refer to an outlying district of a city, especially a residential one. In Singapore, the term may refer to several types of neighbourhoods. One is the public housing estates developed by the HDB (Housing and Development Board), sometimes called our "heartlands." The other is the landed housing estates, tracts of sprawling low-rise private houses in designated parts of the island. There are also condominium districts, though at times condominium developments are mixed in with the two former types.

Other than the Central Business District, the Rochor area, Orchard Road and shophouse districts, buildings in Singapore, outside of the central area, have typically been developed with a suburban typology.

Co-opted as part of a tropical garden-city narrative, this is manifested as buildings set back from the streets, and facades buffered by thick bands of lush planting. Parks and "park connectors" bring nature close to people. Activities happen *inside* buildings, and they may not be apparent from the street. Buildings are destinations to visit, and not ones that attract you and draw you in, en route, serendipitously.

To be clear, the benefits and pleasures of the green city that Singapore has successfully developed are not in question. But quite apart from sustainability, there is a whole other conversation that needs to take place about the green city, namely, a discussion about architectural form, urban space, and between them, how buildings engender urban life. This issue is an attempt to initiate this conversation.

Far from the car-centric suburban developments in America, suburbs in Singapore are very well-connected, with the MRT (Mass Rapid Transit – the local underground system) lines extending its tentacles in increasingly fine resolution. Neighbourhoods are increasingly pedestrian- and bicycle-friendly. Innovative typologies of communal space have been developed in Singapore, such as the park connector and the vast interior of connected retail space. All these must be seen as the ingredients of a type of urbanism uniquely Singaporean, still in the process of taking shape, as the Singaporean character develops in step with the environment it is in. The question remains, though, of how architects can stay in control or even just in touch, beyond deferring to specialist retail consultants and landscape designers.

Underlying this compilation of articles is a concern for the spaces in and between buildings, which need to be shaped by architects as much as buildings themselves. The essays and reviews in this issue will look at the physical planning of Singapore and visit familiar typologies that anchor the suburbs to see what changes may lie ahead.

The typologies we investigate more closely relate to consumption, dwelling, and production. X.F. Xie looks at the sameness of suburban shopping malls, a common feature of the neighbourhood town centre, while Quek Li-En looks at how Waterway Point in Punggol sets about making connectedness part of the suburbs. Lai Chee Kien traces the history of the landed housing development in Singapore, uncovering unexpected origins in Belgium, while Fong Hoo Cheong our Chief Editor takes a personal look at what has changed in such a private housing estate over half a century. Using a design studio that he had conducted in SUTD, Calvin Chua explores the origins and the future of the office park.

We also keep up with trends and events locally and internationally. We take a closer look at Aamer Architects' competition-winning scheme for the St. John's Home for Elderly Persons, and Atha Tsakonas looks back at the recently concluded 15th International Architecture Exhibition at the Venice Biennale, picking out salient points for our reflection.

Finally, in line with the urban theme, the Folio in this issue of *The Singapore Architect* uses cross-sections to describe life in and between buildings, depicting actual settings found in different corners of Singapore. We hope these drawings, together with the essays, will invite more attention, beyond the isolated buildings we design, to the greater socio-cultural landscape that we are making, a productive continuum of space from the inside to outside, and to the inside again.

Teo Yee Chin,
Guest Editor

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This collaboration began during LCP's early beginnings when it was known as Stramit Industries Pte. Ltd., an Australian company that operated in Singapore. Despite switching hands to its current owner, and adopting its current identity, the partnership remained strong. The reason was simple. BlueScope shared the company's dedication towards customers, and that common commitment has allowed BlueScope to play an integral part in LCP's ability to consistently fulfill and exceed customers' expectations over the years. The long-standing relationship also meant both companies have a deep mutual understanding which helped to increase efficiency and save time when collaborating on projects and resolving issues and challenges.

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Seeking out the City

Between Greenery and Density

by TEO YEE CHIN

fig. 1

fig. 2

'After independence, I searched for some dramatic way to distinguish ourselves from other Third World countries. I settled for a clean and green Singapore... if we had First World standards then businessmen and tourists would make us a base for their business and tours of the region ...'

'... To achieve First World standards in a Third World region, we set out to transform Singapore into a tropical garden city.... Greening is the most cost-effective project I have launched.'
- **Lee Kuan Yew**, 2000
From Third World to First: The Singapore Story, **(1965-2000)**

Clean. Safe. Efficient. Corruption-free. Tropical Garden City. Built up rapidly over 52 years, Singapore today holds a reputation globally for all of the above. This is no accident. As suggested from the quotes above from the late Lee Kuan Yew, founding father of Singapore, it is a deliberate plan from the beginning to differentiate the city-state from its surroundings.

Perhaps before the term, "garden city" was coined, Singapore was on a thorough nation-branding mission. Modernization and urbanization to a rural population were projects seen as instrumental in the survival of the nation, to attract global capital. But beneath the thick crust of a consciously constructed identity, is there an interior where local culture and society can thrive? Within a story of successful urbanization, is there necessarily an authentic urbanism?

Tropical Garden City

The garden city is not an invention by Singapore. It was a strong movement in the early 20th century by proponents such as Ebenezer Howard and Frederick Law Olmsted, and later in plans envisioned by Le Corbusier. Singapore has, however, claimed ownership of the term by a determined application of greenery to its streetscapes. An enduring image of Singapore is captured while driving into town from Changi Airport, on the wide motorway lined by trees arching over the road with their filigreed canopy.

fig. 3

fig. 4

Guidelines enforce planting on streets, as well as along boundaries of land lots. Parks distributed across the island are joined by a "park connector" pedestrian network, reminiscent of Olmsted's Emerald Necklace in Boston. Some years ago, the concept of Green Plot Ratio was introduced to measure planted surface area including green walls and roof gardens.

Curiously the role of architecture in urban place making in Singapore is, as a result, subsumed into that of planting. In most parts of Singapore, other than the historically preserved or the downtown commercial districts, buildings are required to be set back from the property line on all sides with a mandatory strip of planting plants acting as a buffer between the property line and the building. The selection of plant species affect streetscapes even more than facade details. Trees may be beautiful, but they do not hold social and cultural contents that communicate with people. While the layers of roadside planting may have contributed effectively to the identity of a garden city, they have also filtered out buildings and exempted architecture from engaging streets in ways more than simply as objects viewed from far. The tree-lined street does not tell stories as can be told by the accumulation of architectural facades on a street. Does the Garden City and the state that applies it, bear an implicit mistrust of unbridled architecture with all its aesthetic and social contents?

Islands within an Island

In land-scarce Singapore, the garden city makes a brilliant strategy because it manages the perception of density. The perception of density is not viewed as a positive in the construct of the Singapore city. Setbacks and thick planting between buildings have created picturesque settings around homes, in spite of their relative proximity. Each condominium development obtains its luxury by manufacturing a sense of exclusiveness — achieved by either being encircled by greenery or unobstructed views.

In 2012, residents in two different neighbourhoods, Tanah Merah and Upper Bukit Timah, petitioned the authorities

1 — Tree Lined Boulevards – one of the signatures of Singapore
2 — Orchard Road, one of the few streets where architecture expresses itself fully to the pedestrian
3 — Pathways accommodating joggers and cyclists along the re-born canal in Bishan Park
4 — Punggol Waterway Park with Waterway Terraces

fig. 5

fig. 6

fig. 7

5 & 6 — The Endless Interior of Retail at NEX, Upper Serangoon
7 — Our Tampines Hub, full completion targeted for August 2017

fig. 4

to stop developments in wooded lands adjacent to their homes, even if those lands have long been slated for development. On 24 November, 2016, the Singapore Land Authority (SLA) banned all weekend and night activities on the two main football pitches that it had leased to Home United Youth Football Academy along Mattar Road. This was in response to residents' complaints about noise generated from the footballing activities. As a result, 1,000-odd kids in the football academy were forced to seek a new training venue. The matter was eventually resolved with a less stringent measure—a restriction on training hours.

It appears that citizens have come to believe in the tropical paradise that planners have envisioned when designing the island. While the show of civic consciousness is laudable, the context of our being the third densest country in the world may have been lost on them. People have come to expect not to see and hear other people from their windows. Buildings are isolated objects and the more concealed from others the better. Escape from the city is now seen as an entitlement.

Other Urbanisms

Behind the veneer of the pristine Garden City, where is the urbanism? Parallel to this continuing isolation of architecture from the city, is there an urban or suburban form that supports, or even produces public life, culture, and society? To answer this, two models stand out from a broad survey of Singapore's spaces.

i. Waterfront urbanism.

In Singapore where water is an issue of national security, rainwater and greywater are collected in rigorously separated systems. In 2006 the Active, Beautiful, Clean Waters (ABC Waters) Programme was launched. In this masterplan, the entire network of drains, reservoirs, and rivers are activated to enhance the living environment. While Singapore has a surfeit of parks, the waterways provide connectivity, structure, and purpose. A most remarkable project can be found in Bishan Park where a concrete canal has been converted to a picturesque stream with wetlands on both sides allowing water levels to rise and fall.

While the waterfront paths are now used by recreational joggers and cyclists, they can also become alternatives for day-to-day commuting. The breadth of the waterways allows buildings to front onto them, injecting programme into the parks. Punggol Watertown is a new town for high density public housing where tall blocks step down gradually and open out to waterfront promenades.

Water now forms the foreground in many scenic postcard images of Singapore. What distinguishes waterfront urbanism from a green city, however, is that the former originates in a practical requirement to harvest water. Water bodies and waterways are not deployed at will as roadways can ruthlessly be, but are adapted from geography, such as the natural reservoirs and the coastline. As a more authentic origin of visual identity, the incorporation of waterfront urbanism affords the Garden City a greater specificity.

ii. Interior urbanism.

The accumulation of capital in a few powerful corporations have led to small land parcels being amalgamated into increasingly bigger plots. Buildings developed on these plots tend to be large, inflated and multi-programmed. While private commercial malls have started the trend, institutional and even religious buildings are keeping up in an attempt to capture the time and attention of the same populace. Star Vista, a mammoth complex which is a joint venture between a developer and the business arm of a megachurch, is one such example. The soon-to-be-completed Our Tampines Hub is the state's answer to a one stop, self-sufficient amenities centre.

The hot and humid weather of Singapore has seen its brave proponents of tropical

living. In the most part, people have ignored the fight and preferred to retreat indoors, cushioned in cavernous air-conditioned atriums. How much these "cathedrals of consumption," with their centralised control and manufactured diversity, serve as truly public spaces, remain questionable. However, the burgeoning infrastructure of roads and highways, coupled with a dearth of sensitive urban design, have made the interior the de facto public space.

The best examples of an interior urbanism for the future will be those that integrate natural ventilation with defined connectivity to streets and the expanding rail transit network. The School of the Arts (SOTA) by WOHA in the Bras Basah district is one such building. While its bulk and opaque facades are imposing on the urban intersection, its airy plaza raised one storey above the sidewalk is civic in atmosphere and a pleasant surprise when discovered.

A potential blind side to such places is the definition of their clientele. In a society where an affluent middle class comprises the large majority, these spaces could appear to be accessible to all sectors of society when in fact a less privileged minority more familiar with the instinctive nature of streetside spaces are alienated.

fig. 8

8 — School of The Arts (SOTA) at night, from the elevated plaza looking out to city lights at Dhoby Ghaut

Conclusion

The spatial models outlined above arise due to larger prevailing conditions in the city. The network of waterways is an organic overlay on the land that is largely invisible, and in fact offer an escape, from the formal infrastructure of roads and highways. The inflated buildings modelled on the hypermall are mini-cities in themselves and run the risk of being invisible worlds from the public sphere.

However, one must recognize that these models of public circulation and accommodation are taking on a life of their own. Singapore is developing its park connector networks confidently and successfully, while the mall space is almost the default type of space available in the city now, to an extent that even agencies like the library and the community club are taking up space in the mall.

Together with the street and the HDB void deck, they can be seen as types of urban space unique to Singapore. When brought together as a coherent whole, they hold the promise of a new Asian urbanism. While the Garden City, clean, green and efficient, has brought the nation successfully through the years of rapid urbanization, another more organic and complex urbanism may yet come to define Singapore in the future.

A History of Private Housing Estates in Singapore

by LAI CHEE KIEN

fig. 1

fig. 2

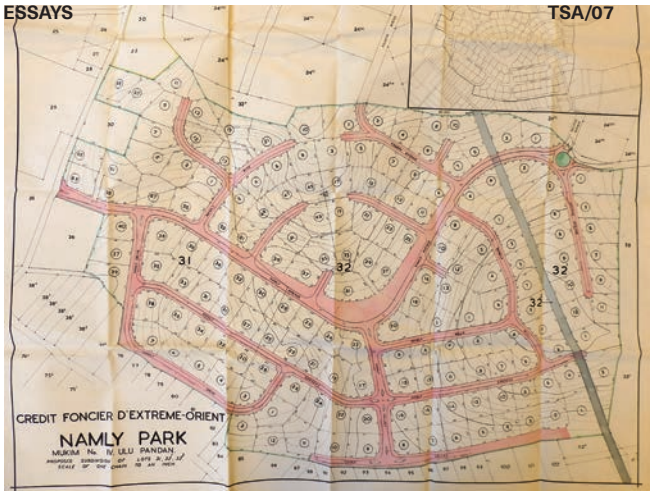
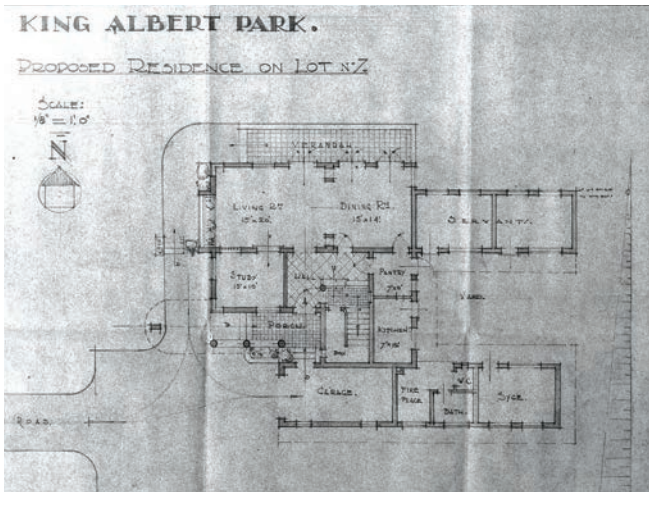


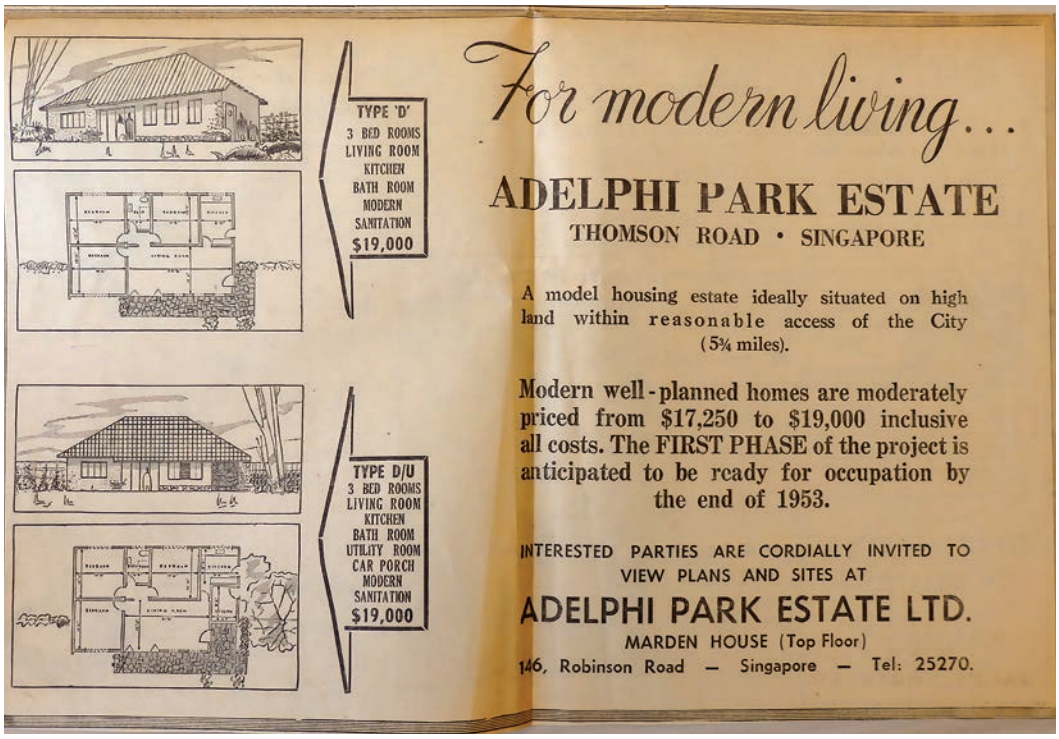
fig. 3



On 10 July 1939, a new method of development for landed property in Singapore was announced in the pages of *The Malaya Tribune*, for the proposed King Albert Park Estate. Situated on a small hill at the fringe of the city, with major road connections to both town and Johore, the estate subdivision and the sale method of its plots became the harbinger for future larger-scale land parcel developments for landed residential property in Singapore, as the outskirts and rural areas gradually became residential zones.

The claim of being up-to-date and "modern" was the provision of several infrastructural aspects such as asphalt roads leading to each of the 31 subdivided plots within the estate, along with drains, septic tanks, water and electrical connections. These were included in the plot purchases managed by King Albert Park's developer Crédit Foncier d'Extrême-Orient (CFEO), who offered the possibility of cash sales, installment payments, or mortgage plans. Owners could employ their own architects if they didn't use the developer's. Up until this time, potential house owners on the island had to negotiate with the colonial government or private landowners regarding land purchase, and had to arrange and pay for the abovementioned "extras" separately.

Incorporated in Belgium in 1907 and backed by several banks in France and Belgium, the CFEO invested in land and properties in many cities in China, including designing and constructing them. Branches were established in Tientsin (now Tianjin), Shanghai, Hankow (Hankou), Peking (Beijing), Tsinan (Jinan) and Hong Kong. It was incorporated in



1 — Aerial View of Serangoon Gardens Estate
2 — Cadastral Plan for Namly Park
3 — House plan for a lot at King Albert Park
4 — Newspaper Advertisement for Adelphi Park Estate

fig. **4**

Singapore as a housing and loans bank as well as estate and housing agent from 1927. From 1934, CFEO developed properties and estates including those at Holland Hill, Loyang, Garlick Avenue, King Albert Park, Queen Astrid Park, Camden Park, Leedon Park, Princess Elizabeth Estate, Binjai Park, Frankel Estate, Opera Estate, and Namly Park etc. After its assets were nationalized by China in 1955, CFEO operated only in Hong Kong and Singapore, but was liquidated in 1959. It was a large player in the local private housing market amongst other developers, not unlike Bukit Sembawang (1968) who later developed estates like Seletar Hills Estate (2,500 houses) and Sembawang Hills Estate (1,000 houses).

Apart from private housing developers in Singapore, two other housing organizations dating from the colonial era were involved in the development and construction of housing estates, namely the building societies and co-operative housing societies. The larger of two building societies was the Malaya and Borneo Building Society (1956), incorporated earlier as the Federal and Colonial Housing Society in 1950. The Federal and Colonial Building Society was started to provide houses for the lower income group of colonial government officers via financial schemes. It constructed 1,200 houses in Sennett Estate and 900 at Serangoon Gardens. It also serviced mortgages, with 16,056 accounts and a sum total of S$27.2 million by 1965. To reflect its subsequent status, the society was divided into two entities in 1969 as the Singapura Building Society Ltd and the Malaysia Building Society Berhad. The Singapore branch, now called Singapura Finance, is still in existence.

fig. 6

fig. 5

The other form of private housing – co-operative housing – was developed by the Singapore Government Officers Co-Operative Housing Society Limited (SGOCHS, established in 1948). The co-operative movement started in 1925 in Singapore with the establishment of societies to aid poorer members in colonial service, mainly via thrift and loan schemes. It continued well after Singapore attained Independence, and in its heyday, over 100 co-operatives were registered in the 1960s. At its height, the SGOCHS had 5,000 members in the society, and housing were sold to them at a range of $7,500 to $16,700, including freehold land in estates they developed. Its first estate project was Paya Lebar Gardens with 156 houses, followed by Thomson Road Estate, Cambridge Road Estate, Mayflower Gardens, Pulasan Road Estate, Windsor Park. Its last project, Changi Co-op Gardens, was uncompleted and which led to the SGOCHS closing down in 1979. At Paya Lebar, its main road was named Rochdale Road after the "Rochdale Society of Equitable Pioneers," , the first co-operative formed in 1844.

A special case of co-operative housing is what is known as the Teachers' Estate in Upper Thomson, developed in 1968 by the Singapore Teachers' Union. A large number of teachers benefitted from the scheme, notwithstanding the distance of the estate from town. Leaders of the union proceeded to purchase a plot of land on uneven terrain lower than the main road, and employed its own contractors and architects. The houses were sold to members at a cost of SGD S$24,000 to S$26,000, depending on the house type and location within the estate. The union building is located within the estate itself, and the different roads were named after literary figures like Tagore, Li Po, Tu Fu, Omar Khayyam, Kalidasa, Iqbal and Munshi Abdullah. Besides having a restaurant within the union premises, a row of shops provided services such as laundry, provisions as well as a bakery and an eggs distributor. A garden space is also provided for estate residents.

As may be observed, both private and civil sector developers contributed to the construction of freehold, landed housing

5 — Advertisement for King Albert Park
6 — The Squatters among the Coconut Plantation, Frankel Estate, 1949
7 — Leedon Park under Construction
8 — The Bakery at Teachers' Estate
9 — The Park at Teachers' Estate

fig. 7

fig. 8

fig. 9

fig. 10

fig. 11

fig. 12

fig. 13

estate properties in Singapore. While several of the plots in the early estates may be now classified as good class bungalow lots, we note that the overall result of such developments provided modern homes for the emerging middle class after the Second World War. In that respect, we should also register the idea that co-operative housing and housing societies were institutions that were important in such residential provision. The post-war period also saw uncertainties in the real estate transactions due to political instability. At a time when corrupt practices such as the "tea-money scandal" were rife, and building and material costs were fluctuating, such quasi-governmental entities assured its members and purchasers of a regular and structured path to home ownership.

Private housing thus alleviated the housing need despite the housing provision by the Singapore Improvement Trust and the Housing Development Board. In order to create such estates, land was cleared and shaped to accommodate their construction, and this opened up the "hinterland" of Singapore in the outskirts. Frankel Estate, a tract of 413 acres of land developed by CFEO in 1946, was a large coconut plantation on undulating land before it was developed. In order to service the estates, modern sanitation as well as proper roads and connections of drains and electrical supply were correspondingly developed. Such developments also "aided" in clearing squatters in those estates who settled there illegally prior to estate construction. CFEO had to build 160 homes for the squatters at Frankel Estate in 1951 so that the construction of the works could be expedited. In the case of SGOCHS, its last project of Changi Co-op Gardens could not expel the squatters on the chosen site. Without the mobility of resources such as CFEO, and being a semi-public entity, the disputes with squatters eventually forced SGOCHS to be closed down.

10 — Mayflower Estate (Co-operative Housing)
11 — The hills and knolls of Mayflower Gardens Park
12 — Terrace Houses along Upper Paya Lebar Road - housing estates havemaintained the low heights along major roads
13 — Terrace House at Paya Lebar Estate (Co-operative Housing)

fig. 14

fig. 15

Such housing estates also provide social amenities like schools, clubhouses, religious buildings such as churches, and post offices. Many everyday services like provision shops, supermarkets, cinemas, barbers, bakeries etc. were also constructed within the estates. Green spaces and parks provided much relief in the landscape for posterity, perhaps even the Lentor Stream which was recently removed. In the case of co-operative housing, the residents of estates are of a particular social class and had worked as civil servants,, or as or teachers, as in the case of Teachers' Estate. This fact created commodious relationships and a friendly atmosphere often not found in other estates, perhaps until its residents sold off their properties. Due to the remoteness of such estate areas, they also provided incidental employment in the early days for dwellers in nearby villages and kampongs, such as baby sitting, gardening or for itinerant traders and hawkers.

Over a long period, we may also regard these housing estate areas, in its entirety over Singapore, as a form that maintained low-rise areas against the frenetic reach for height in public housing and condominiums, a heritage in scale, perhaps, for the next generation.

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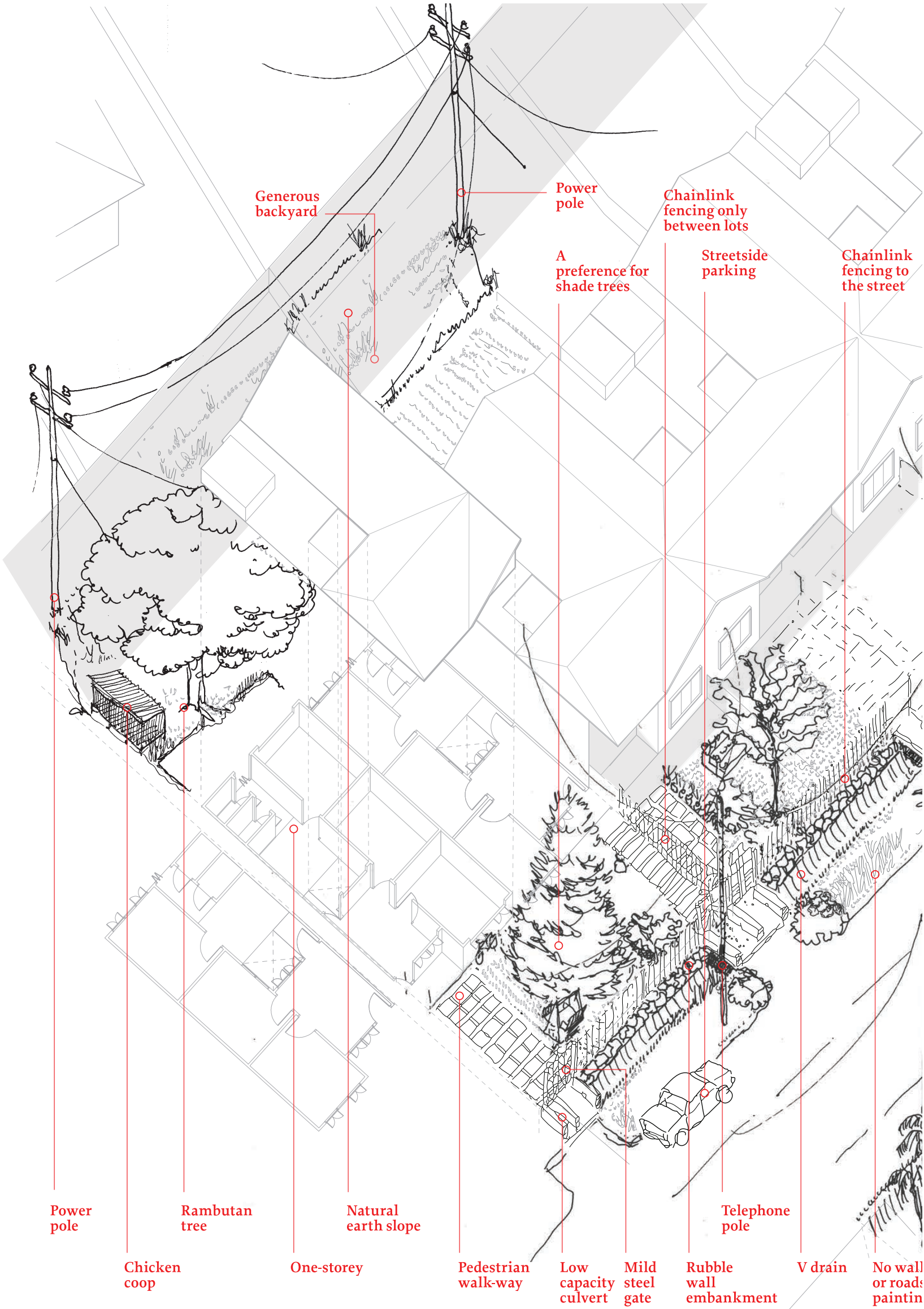
14 — Terrace House in Opera Estate
15 — A House in Frankel Estate

A Personal View

by FONG HOO CHEONG


Generous backyard
Power pole
Chainlink fencing only between lots
A preference for shade trees
Streetside parking
Chainlink fencing to the street
Power pole
Chicken coop
Rambutan tree
One-storey
Natural earth slope
Pedestrian walk-way
Low capacity culvert
Mild steel gate
Rubble wall embankment
Telephone pole
V drain
No wall or roads paintin

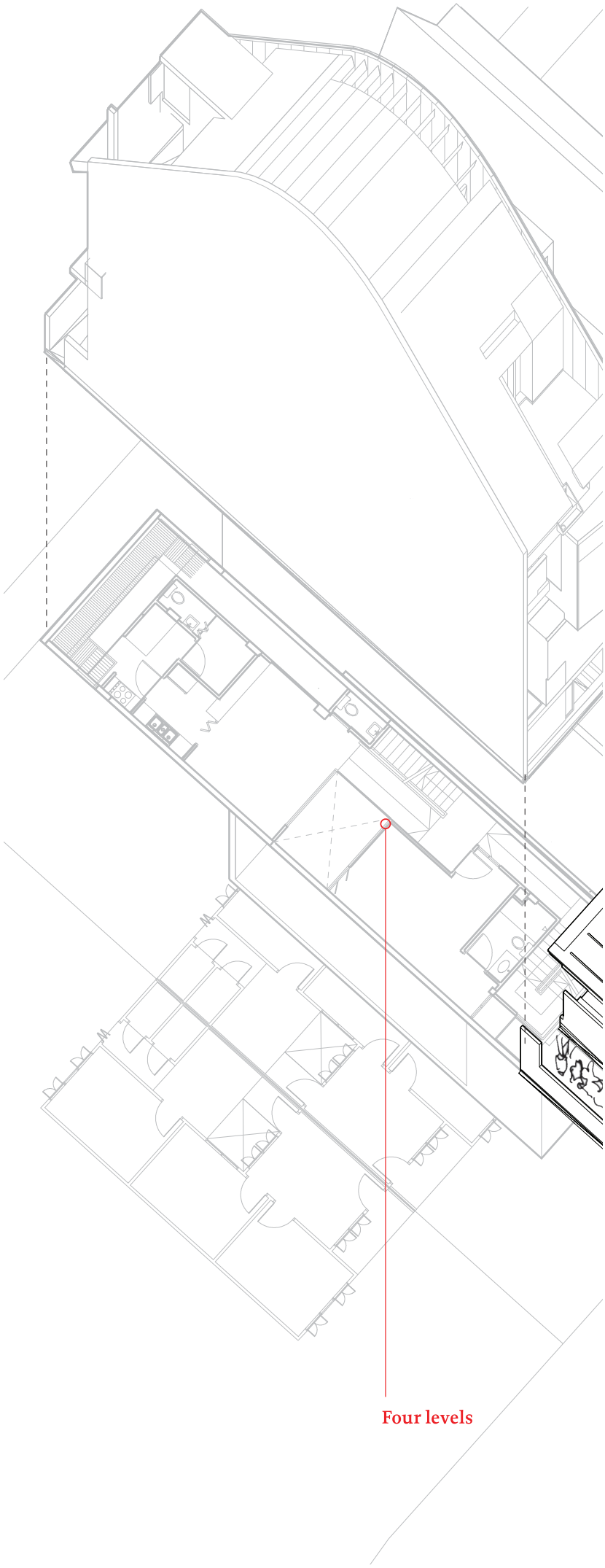
1965

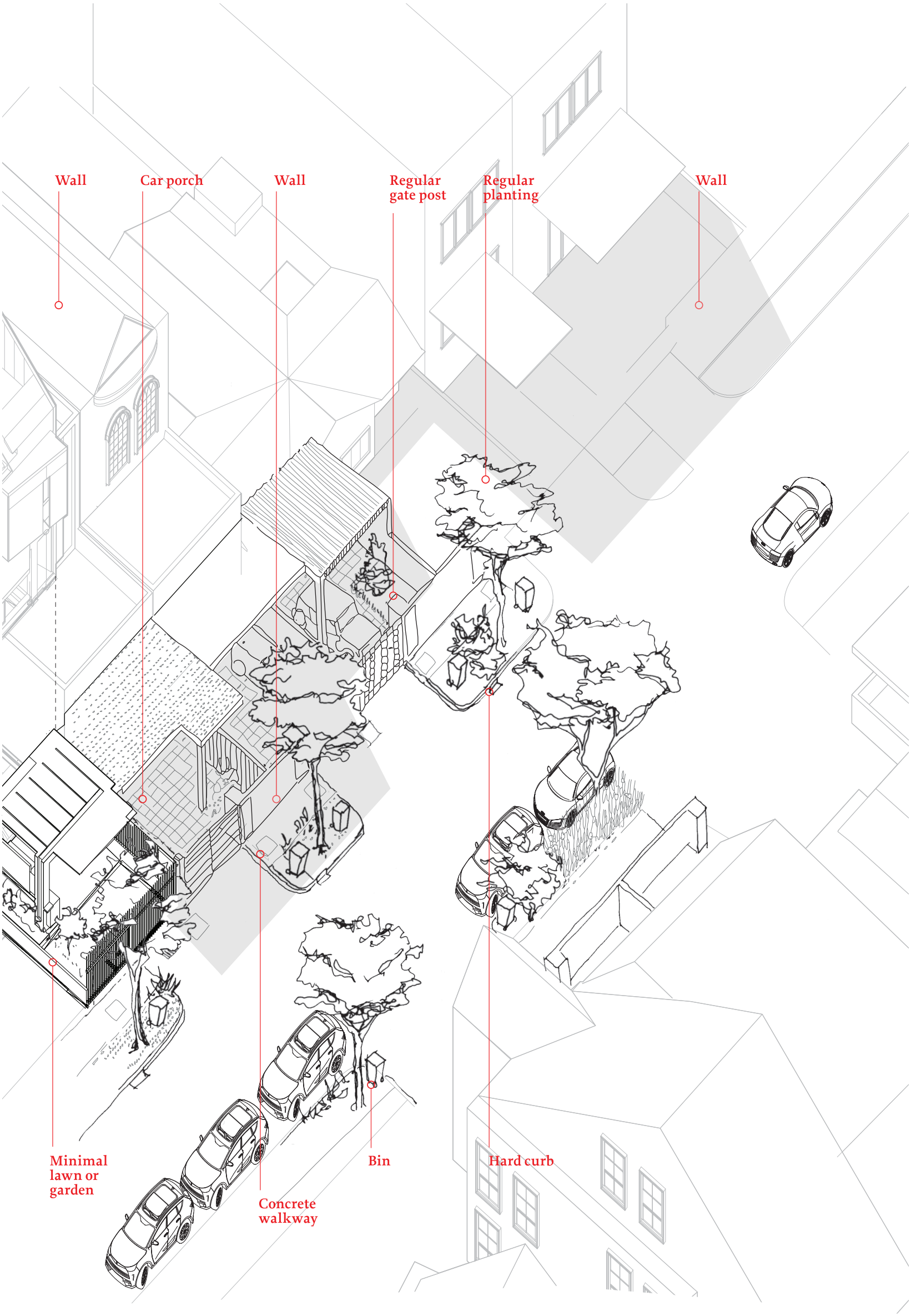
In 1959 the housing estate of Sembawang Hills Estate was launched as one of the very new suburban home forms. It was mixed landed housing consisting of two forms of terrace development: semi-detached houses and linked bungalows. They were all one storey in height and formed a cluster of housing that was considered very remote. The estate was planted with shade trees in front – mostly fruit trees like rambutans and chikus at the backyard.

At that time, Upper Thomson Road was a one-lane dual carriage road winding past the cemetery lands of Pek San towards the head waters of the Kallang River. The estate was surrounded by the nature reserve that will eventually become the catchment area for Lower Peirce Reservoir and Upper Peirce Reservoir. Pig and chicken farms and the vegetable plantations of the head waters of Kallang River were its neighbours. Children from farmers and the new suburbia mixed together in the local school. Sembawang Hills Estate boasted a circus and a primary school that carried its name. Both notable landmarks are no longer present. The community that existed then was a remarkable example of the suburbia untroubled by the demands of high property prices or the need to utilize every corner of a lot. The front lawn of neighbours merge into one another across the light chain link fence and the roads were safe from the ravages of motor traffic.

2017

The population of the suburban estate has been transformed. It reflects the car owning and utility conscious families that can afford to make multi-level dwellings. They arch over the narrow road. The roadside table transformation is in line with the thinking of what a "good" roadside is. The planting system is regularized; the street variegation is much reduced. The initial NParks planting of "Pong Pong" (cerbera odollam) trees were particularly despised as the toxic fruits and poisonous milky sap contrasted harshly with the fruit trees in the backyards, but in the end, they were changed. As the houses became larger, even the fruit trees were displaced in preference for more built-in space. The hard kerb and drop inlet design (which is standard for small lanes or highways) generates a further layer of regular rigid regularity. Cars line the narrow roads. The reduction in lawn to the front and back gardens and the loss of a sense of a front space that is open to the sky changes the scale terminally. The suburbia of now has arrived.




Wall
Car porch
Wall
Regular gate post
Regular planting
Wall
Minimal lawn or garden
Concrete walkway
Bin
Hard curb


FRASERS
CENTREPOINT
TRUST
NORTH
Shopping
Cold Storage
The fresh food people
THE BODY SHOP

The Sameness of Suburbia

A Reading of Suburban Malls

by X.F. XIE

fig. 1

Singapore's suburbs are by and large the same: high-rise prefabricated model homes dotted with a measured provision of neighbourhood amenities, delicately dispersed places of worship, served by ample roads, bus routes, a train station, and a sizeable shopping mall at the "heart" of the town. The self-contained satellite suburban towns of Singapore are easy to identify, but difficult to distinguish from one another; they share multiple common characteristics, rendering them interchangeable and at times indistinguishable.

How can we understand the urban and architectural condition of Singapore's suburban sameness? The Suburban Mall, a cornerstone of the development of these decentralised towns, provides a lens through which to understand the state processes and urban conditions that resulted in sameness of Singapore's suburbia, and in so doing, uncover the characteristics, outcomes and implications of suburban sameness.

Same Intended State Function

The first commonality suburban towns share is their genesis from the same state agenda to ease congestion from the city centre and cater for future island-wide development. The pressing need for a national urban growth strategy, strong state backing, and limitations of the small land area of the city-state, made it possible for this to be achieved within a single parti diagram.

The first iteration of this diagram emerged in Singapore's first Concept Plan of 1971. The existing structure of centre and periphery was disrupted with an open lattice of expressways strung with high-density satellite towns[1]. The vision was that if housing, employment, and recreation were brought into the suburbs, congestion within the city centre would be eased significantly. By 1991, the abstract "ring" parti had been further developed into a "constellation" plan; radial and circumferential Mass Rapid Transit (MRT) corridors were laid out in a fan-like urban structure, with a hierarchy of regional, sub-regional and fringe commercial centres identified at intersections[2]. Emphasis was placed on commercial centres outside of the city centre, their sizes increasing with their distances from the city centre – a clear disordering of the centre-periphery model. The aspiration of these Regional Centres was to be the "commercial and cultural hub" of their region with an "identity of their own,"[3] – a compelling dream amenable to nation-wide buy-in. Concept and Master Plans were aggressively brought to life, marked by the opening of the first major Suburban Mall in Yishun in 1992. A slew of malls followed, significantly increasing the stock of commercial centres outside of the city centre. Ironically, the intended uniqueness of each suburban town resulted in an architecture of sameness rather than differentiation. Commercial displaced cultural, as it proved difficult for multiple unique identities to be constructed within the same social, spatial and economic parti. The stock of Suburban Malls that has emerged over the last two decades serve as a body of both isolated and collective case studies for the examination of surburban sameness.

Same Urban Context

At the urban scale, Suburban Malls bear uncanny similarities with each other. Firstly, they are typically located

1 Urban Redevelopment Authority. (2016, July 28). *Concept Plan.* https://www.ura.gov.sg/uol/concept-plan.aspx?p1=View-Concept-Plan&p2=Concept-Plan1971

2 Urban Redevelopment Authority, "City For Business," in *URA, Living The Next Lap: Towards A Tropical City Of Excellence* (Singapore: Urban Redevelopment Authority, 1991), 18-21.

3 *Ibid.*

at major transport nodes, specifically at MRT or Light Rail Transit (LRT) stations, often within walking distance of a bus interchange. This typified urban condition is the result of the direct translation of the Concept Plan parti diagram and planning intention for the node to be accessible to as large a population as possible. In Tampines Regional Centre, for example, Century Square, Tampines Mall and Tampines 1 flank the west and east of the Tampines MRT station. While in Jurong East, JEM, Westgate, and JCube border both sides of the Jurong East MRT Station and the temporary bus interchange.

Secondly, Suburban Malls form the largest social centre of the suburban town, with the size of their land parcels being considerably larger than other neighbourhood amenities. Tampines Mall sits on a 12,600 sqm land parcel, while JEM sits on a 19,125 sqm one; both comparable in size to the mall parcels along Orchard Road[4,5], signifying the intention for them to be suburban substitutes of the city centre. The mall is positioned as the "heart" which forms the focal point of activity and services for the resident population. It is typically surrounded by swaths of high-rise housing, other amenities such as sports, education and park facilities, and sometimes offices or industrial estates.

Same Contents

Programmatically, Suburban Malls are almost identical copies of each other. Walk through the basement floors of Lot One and Clementi Mall and you would be unlikely to remember one from the other. EAT., Gong Cha, Hockhua Herbal Tea, KFC, Old Chang Kee, NTUC Fairprice, NTUC Unity Healthcare, Pet Lovers Centre, StarHub, Subway and Watsons are just some of the tenants the two malls have in common on their basement floors alone. What is even more striking is that many of these shops can be found on the basement floors of malls in the city centre as well. The aspiration for each suburban centre to be a "mini-city"[6] was implemented quite literally – many developers sought to bring the "Orchard Road shopping experience"[7] to the suburbs, resulting in dozens of the same chain stores being replicated island wide. Even high-end brand names such as Estee Lauder's Clinique chose to set up its first free-standing store in Asia in the atrium of Causeway Point in Woodlands rather than in Orchard Road.[8]

Soon the "success formula"[9] for Suburban Malls was popularised, to be applied to all malls as a sure-fire guarantee of their survival. Key tenants typically included a supermarket, department store, foodcourt, Cineplex, fast-food and other F&B outlet, thereby perpetuating the development of homogenised malls.

Same Architecture

The archetypal conditions of land parcels being of standard sizes and formulaic contents of Suburban Malls, could only perpetuate a sameness in the architectural form of the malls. With revenue maximisation as a top priority on the agenda, there could only be one strategy – to maximise the development potential of the site by maximising its allowable buildable envelope.

Singapore's first Suburban Mall – Northpoint (1992) in Yishun, is an archetype of this form. The building footprint is the result of the required building setback, taking on even the filleted curve of the junction between Yishun Avenue 2 and Yishun Central.

4 ION Orchard sits on 18,000sqm of land.
5 "Who owns what" in Rennie Whang's Who's Who of Orchard Road, *The Straits Times*, 15 July 2015, http://www.straitstimes.com/sites/default/files/attachments/2015/07/15/st_20150715_map15_1513347.pdf
6 E. Yap, "Retail on trial in Tampines: changing the face of shopping in Singapore," *The Straits Times*, 30 September 1995.
7 Tan S. Y., "Clinique opens 1st Asian 'store' in Woodlands," *The Business Times*, 8 October 1999.
8 *Ibid.*
9 Goh C. K., "Keeping up with retail in the suburbs," *The Business Times*, 29 April 1999.

fig. 2

This footprint was then extruded seven storeys resulting in an L-shaped box. The box is lifted up on a colonnade on the first storey as a generic gesture that allows for vehicular ingress and egress, drop off, and pedestrian walkway. Fenestrations or façade articulation are deemed superfluous, with elevation space on the façade given instead to large billboards and business signs. Other malls which follow this similar archetype include Tampines 1 (1995) and Causeway Point (1998) in Woodlands.

Variations of this form developed through the 1990's, though largely adhering to the principles of maximising retail and advertising space. In White Sands Mall (1997) in Pasir Ris, two semi-barrel vaults break the monotony of the flat roof, though the opaque box envelope remains true to the first archetype. In Lot One (1997) in Choa Chu Kang, the opaque box is broken up by isolated segments of glazing on the second storey and roof. However, the glazing remains opaque, with most being covered by advertisements, or rendered in highly reflective blue-tinted glass, thereby limiting any transparency between interior and exterior.

The late 2000s saw an interesting development of the Suburban Mall typology. Following URA's efforts to rejuvenate Orchard Road through the incentivisation of façade articulation and porosity[10], contemporary Suburban Malls were observed to imitate the decorated and glazed facades of the city. The earlier syndrome of replicating the "Orchard Road Shopping experience" through its retail mix had now advanced to architectural treatment. Costly facelifts in Orchard such as that of Paragon (2009) and Mandarin Gallery (2010) transformed mall frontages into completely transparent facades. Shortly after, Suburban Malls such as Clementi Mall (2011) and 112 Katong (2011) were observed to open up their frontages—a stark contrast from the earlier opaque box typology. 112's facade fronting East Coast Road extending to the turning of the junction corner is treated

1 — Northpoint Shopping Centre, Yishun.
2 — White Sands Mall, Pasir Ris.
3a, 3b, 3c — Replication of the "Orchard Road Shopping experience" in the suburbs through building façade

10 Urban Redevelopment Authority, *Urban Design* (UD) Plans and Guidelines for Orchard Planning Area - (A) Revision to Urban Verandah Guidelines (B) Revision to Façade Articulation Guidelines, 2009, July 6, https://www.ura.gov.sg/uol/circulars/2009/jul/dc09-14

fig. 3a

fig. 3b

fig. 3c

completely in glass. Similar Suburban caricatures were observed after Wisma Atria completed its second facelift in 2012 that transformed its monolithic blue facade into a "jewellery box" of flamboyant triangulated planes and glazed shopfronts. JCube (2012) and Seletar Mall (2014) followed suit with similarly unresolved diagonals and porous treatment. In both projects the lifted box form is retained, with generous facade space given to business signs and advertisements.

Dangers of Sameness

With context, contents, form and façade so strikingly similar, the original vision of each suburban centre having a distinct identity of its own is flatly denied; the early promise of Tampines being a "tropical suburbia" like no other place in or around Singapore"[11] is laughable.

Many building forms are categorised as types precisely due to their common characteristics. For instance, shophouses are typically two- to three-storeys high, identifiable by their clay tile pitched roofs, five-foot-ways, narrow fronts, internal courtyards, and similar facade colours and ornamentation. But what makes the sameness of the Suburban Mall so dangerous is the conflict it poses against the intention of the centre to be an identifiable "heart" of each town – a social hub for the local population to gather, interact, and form collective social memories.

One example of how this sameness is detrimental to the community is the consistent consequential loss of the street. Crowds flood the store aisles, escalators, and basement corridors throughout the week, but seldom are people seen gathering outside of the mall or in the spaces around them. Furthermore, the maiming discharge of commuters from these major transport nodes render the street experience one of unsympathetic jostling, claustrophobia and speed. The close adjacency of Suburban Malls to transport infrastructure means that

11 L. Reutens, "Tampines, a dream city come true," *The Straits Times*, 14 September 1991.

fig. 4

4 — Uniqlo Store as orientation device within the highly-interiorised malls

pedestrian entry into to these malls is typically taken directly and with great immediacy from the transport discharge point – be it at street level, the second storey, or underground.

The high level of interiority of Suburban Malls is further exacerbated by their lack of architectural response to the exterior urban context, blatantly represented through the mall directories mounted throughout the malls. The floor plans on the directories are simplified to lines and icons demarcating shops, circulation and toilets – essentially the only significant architectural elements of a mall. Any surrounding urban elements such as roads, or landmarks are typically completely white-out; all urbanity outside of box shell of the malls entirely ignored and deleted. The maze-like mall corridors and non-descript interiors call to mind the of disorienting curvilinear roads and cul-de-sacs, or "hopeless chicken scratches,"[12] of America's suburban towns. Residents of the area can only rely on chain stores such as "Uniqlo" or "H&M" as orientating devices, a deep perversion of historic towns, where streets are terminated with civic buildings.

Promises of Distinctiveness

With Suburban Malls planned at contextually identical sites, developed by the same handful of developers, managed and owned by the same Real Estate Investment Trusts (REITs), and leased to the same chain stores, Suburban sameness is stuck in a spiral of mimicry, replication, and homogeneity. The dystopian vision of a 719.1 square kilometre city-state made up of cut-and-paste towns is surely a call to action for distinctiveness. So how then could we possibly break away from the sameness of Suburbia to allow for the emergence distinctive future? The potential for uniqueness lies in the disruption of the cycle through allowing for different models for ownership, development and growth to take place. From the planner's perspective, the "heart" of the town need not be marked by shops, cinemas and restaurants within a single building footprint owned and managed by a single entity. From the resident's perspective, more can be done to nurture, articulate and exert a collective neighbourhood identity through bottom-up counter-proposals to the top-down modus operandi. Only through iterations of such a dialogue can the cycle be broken.

12 A. Duany, E. Plater-Zyberk, & J. Speck, "The Devil Is in the Details," in *A. Duany, E. Plater-Zyberk, & J. Speck, Suburban Nation: The Rise of Sprawl And The Decline Of The American Dream*, New York: North Point Press, 2001), 39-58.

The Office Park

Architecture between Nature and Production

by CALVIN CHUA

fig. 1

fig. 2

'Large translucent canopies will cover each site, controlling the climate inside yet letting in light and air. With trees, landscaping, cafes, and bike paths weaving through these structures, we aim to blur the distinction between our buildings and nature.'
- **David Radcliffe**, Vice President of Real Estate at Google, on the new Google Campus

From the primitive hut to today's technology campuses, nature has always been seen as an intrinsic part of architecture. While nature has become ubiquitous in corporate workspaces today, there is very little literature that explores the motivations behind its origins or its productive effect. Centring our discussion on the Singapore Science Park, this essay will examine the global origins and motivations of a pastoral environment within the office park, a dominant type of corporate office space.

Origins of the Singapore Science Park

The Singapore Science Park (SSP) was a research and development district conceived by the Jurong Town Corporation (JTC) in the early 1980s as a pilot project to jump-start the innovation and research culture in Singapore. Inspired by the economics of agglomeration[1] and the successes of the Silicon Valley innovation corridor, the SSP was sited beside the National University of Singapore (NUS) campus, surrounded by Kent Ridge Park and accessed by an expressway. The choice of site was intentional, based on the assumption that spatial contiguity between the university, the science park, and the larger western technological and industrial corridor in Singapore would be key in facilitating innovation and knowledge transfer between these research organizations.

Executed over two phases, the entire Singapore Science Park covers an area of approximately 200 hectares, with Science Park I (SSP I) separated from Science Park II (SSP II) by a ridge. Both SSP I and SSP II have been planned in the physical form of a suburban office park, comprising of linearly distributed low-rise buildings, accessible through two cul-de-sac roads: Science Park Drive and Science Park Road.[2] The clusters of research buildings are served by a pool of open-air parking spaces surrounded by trees along its edges. The individual buildings are made up of open plan floor plates that allow for easy configuration of work spaces.

However, despite the high tenancy rates, the park became an outpost for subsidiary offices of global corporations, with some not even engaged in research. The original aim of fostering innovation

1 Economics of agglomeration is a branch of urban economics that observe the benefits firms may have by locating in close proximity to each other. An example of a successful result of agglomeration is the Silicon Valley and Route 128 belt in Massachusetts.
2 Although Science Park Drive is currently connected to Portsdown Road, the connection was only introduced recently and most of the public transportation infrastructure still functions according to its original cul-de-sac configuration.

fig. 3

1 — A pastoral environment. View looking from Kent Ridge towards Singapore Science Park I. (Source: Author's photograph)
2 — Aerial view of the Singapore Science Park in relation to Kent Ridge. (Source: Author's drawing over Google Earth image)
3 — John Deere Headquarters within a pastoral environment, Moline, Illnois. Architect: Eero Saarinen. (Source: N, https://www.flickr.com/photos/enwhy/. Reproduced under Creative Commons licence).

and entrepreneurship through the agglomeration effect remained low as research was conducted in insolation rather than in collaboration with others firms located within the park.[3]

While organizational policies could be blamed, the spatial typology of the office park was fundamentally problematic in facilitating the environment for research and development. In order to critique the deficiencies of the suburban office park, it is important to understand the origins of the typology.

Origins of the Office Park

The office park was essentially a type of corporate office invented in the United States from the 1950s as a result of very specific socio-economic conditions, in particular, the economics of home ownership and managerial capitalism.[4] The Housing Act of 1949 paved the way for massive public housing construction projects in inner city areas while at the same time providing affordable credit and mortgage facilities. The result led to two opposing phenomena: a population growth in the city with residents from lower socio-economic backgrounds and a departure to the suburbs by middle-class 'white' residents as a result of easy mortgage lending facilities. Such a move led to the rapid suburbanization of American cities.[5]

At around the same time, leading American corporations perfected 'managerial capitalism', a new form of organizational structure that provided a clear chain-of-command to improve efficiency across their expanding business base. This administrative hierarchy not only reshaped the organizational but also the physical landscape of corporate and research offices.

The subsequent impact of the Housing Act together with the politics of urban renewal led to the decline of the inner city, filled with working-class neighbourhoods, ethnic enclaves, and failing urban infrastructure. Compared to the chaotic city, the suburb presented an optimistic, safe, and predictable environment that was defined by new infrastructure and a homogenous social and ethnic class. Coupled with the increasing number of middle to upper tier corporate management living in the suburbs, it became logical for corporate offices to expand away from the city.

The suburban corporate office can be broadly characterized according to three main typologies.

First, the corporate campus, which is modelled after the university campus, consisted of laboratories and offices enclosing a central quadrangle and

3 Su-Ann Mae Phillips and Henry Wai-Chung Yeung, "A Place for R&D: The Singapore Science Park," *Urban Studies*, 40, no. 4 (2003): 707-723.
4 Managerial capitalism is a system of business management that relies on a technocratic group of managers to organize the production processes. It is a dominant form of management system that defines most of the multinational corporations.
5 For an in-depth understanding of the socio-economic effects of the Housing Act, refer to *The Puritt-Igoe Myth* [Motion Picture], produced by Chad Friedrichs et. al., directed by Chad Friedrichs United States: Unicorn Stencil, 2011).

fig. 4

fig. 5

supported by a parking belt within a pastoral environment.

Second, the corporate estate, which evolved from the corporate campus, consisted of a single building complex in the centre of a large bucolic landscape that is usually larger than 200 acres.

Finally, the office park was a spatial product invented by speculative developers to offer lower-cost working spaces as an alternative to the prime corporate campus and estate. Comprising a field of buildings surrounded by parking spaces and landscape edges, the office park provided a flexible space that could easily allow corporations to expand or reduce their operations.[6] More importantly, it facilitated the formation of technology companies and enabled the rapid expansion of innovation corridors, such as the Silicon Valley and Route 128 in Massachusetts.

The pastoral environment that is embedded within all three typologies of corporate work spaces not only aimed at providing a conducive work environment, more importantly it projected the prestige and emerging status of the American corporate culture within the society.

Within Western political and philosophical tradition, nature has always been idealized and associated with notions of morality, social order, and a good life.[7] From the Renaissance utopian vision of Arcadia that celebrates the harmonious landscape between man and nature to the pastoral landscape designs of Frederick Law Olmsted, nature has been regarded as an apparatus of social order. By aligning itself with the pastoral movement, American corporations naturally attain a stature of goodness.

Therefore, similar to the agrarian movement which reflected the Jeffersonian democratic ideals, the new pastoral corporate landscape implied a sense of moral order and reinforced the class identity of the management workers. From a management perspective, this was important in creating a more selective and confident workforce in the process.

Combining the positive externalities of a pastoral landscape together with the success of the Silicon Valley belt, the

6 Louise A. Mozingo, "Postwar Corporations, Cities and the Pastoral Landscape" in *Pastoral Capitalism*, (Massachusetts: MIT Press, 2011), 12 – 15.

7 Raymond Williams, *The Country and the City*, (New York: Oxford University Press, 1973), and Kirsten Valentine Cadieux, "The Morality of Trees in Exurbia's Pastoral Modernity" in Kristen Valentine Cadieux, et. al, *Landscape and the Ideology of Nature in Exurbia: Green Sprawl* (London: Routledge, 2013).

fig. 6

fig. 7

office park became synonymous with the success of technological innovation and corporate organization in the United States. For the developing world that wanted to replicate the technological and economic success, the office park became the default typology that was readily adopted and applied to their local context.

A Failed Transplant?

Observing the evolution of the corporate office landscape in the United States, one can begin to understand the reasons why the SSP plans did not fully materialise and achieve its goals of stimulating an active research and development scene initially.

Firstly, to simply transplant the physical environment—the physical form of the office park typology and its pastoral landscape to a new site without a supporting socio-economic foundation—would not work. In the US, suburban home-ownership together with a class of middle management workers drove the demand for office parks. In Singapore, on the contrary, the SSP was invented at a time when there was no research and development, and native population base engaging in this type of work. However, it is important to note that whilst the SSP did not work as originally intended, it jump-started efforts in building a research and development culture, which was later materialized more successfully in its neighbouring one-north district.

Secondly, the suburban physical form of the office park, in particular the cul-de-sacs and the isolation of the individual office blocks are problematic in providing the necessary environment for interaction and knowledge exchange, especially in today's context. To achieve the agglomeration effect, apart from physical proximity, it is essential to create an environment for interaction through informal meeting spaces. The cul-de-sac is a closed system, confining the ground circulation to a singular linear experience, rather than an open field of interaction nodes.[8] In addition, the reliance on public bus transportation to circulate between SSP I and II further diminishes interaction on the streets.

Finally, the shift in the way we work today necessitates a more open environment, a space that cannot be defined by specific

4 — Aerial View of a Corporate Estate. Weyerhaeuser Corporate Headquarters, Tacoma, Washington. (Source: Google Earth)
5 — Aerial View of a Corporate Campus. Ramo-Woolrich Research Laboratories, Canoga Park, California (Source: Google Earth)
6 — Aerial View of an Office Park. Hacienda Business Park, Pleasanton, California (Source: Google Earth)
7 — An inactive street in the Science Park. (Source: Author's photograph)

8 Albert Pope, *Ladders* (New York: Princeton Architectural Press, 2014).

fig. 8

8 — From Pastoral to the Urban, view looking from the Singapore Science Park towards one-north. (Source: Author's photograph)

programmes and functions. These spaces, commonly known as "Third Places" is an environment for social gatherings that exist between the home (First Place) and the workplace (Second Place). First theorised by Ray Oldenburg[9], an urban sociologist, 'Third Places' have been readily incorporated by developers and more recently co-working space operators[10] into the design of work environment. The distinction between the interior and the exterior, between nature and the built environment has, as a result, often been blurred.

As such, in relation to the typology of the suburban office park, simply placing buildings within a natural landscape is no longer sufficient to create a conducive working environment. As witnessed in the proposal for Googleplex and other technology firms, it is important to "blur the distinction between … buildings and nature."[11]

Interventions

As such, to rectify the fundamental spatial issues of the SSP would require a total reconceptualization of its urban design rather than making simple improvement works. The design studio conducted at SUTD last August focused on developing a set of proposals that attempted to redefine knowledge production within the pastoral environment of the SSP.

With an increased emphasis on urban life as an important quality in fostering knowledge exchange within today's context, newer research campuses are situated in denser and more compact urban environments. However, given the varied topographical and environmental contexts of Kent Ridge, a similar strategy of densifying the built fabric may not be the most optimal. In addition, it is important to note that land intensification may not necessarily lead to the intensification of knowledge production.

Therefore, the goal of the design studio was to develop a collective urban strategy through an aggregation of intensity nodes that stitch together SSP I and II, incorporating the existing bucolic qualities of the site and the requirements of today's work culture. Rather than designing through pre-defined programmes and functions (residential, commercial, office), the studio inverted the process, where the existing site qualities (terrains, trees, streets, retaining walls) informed and defined the resultant programmes.

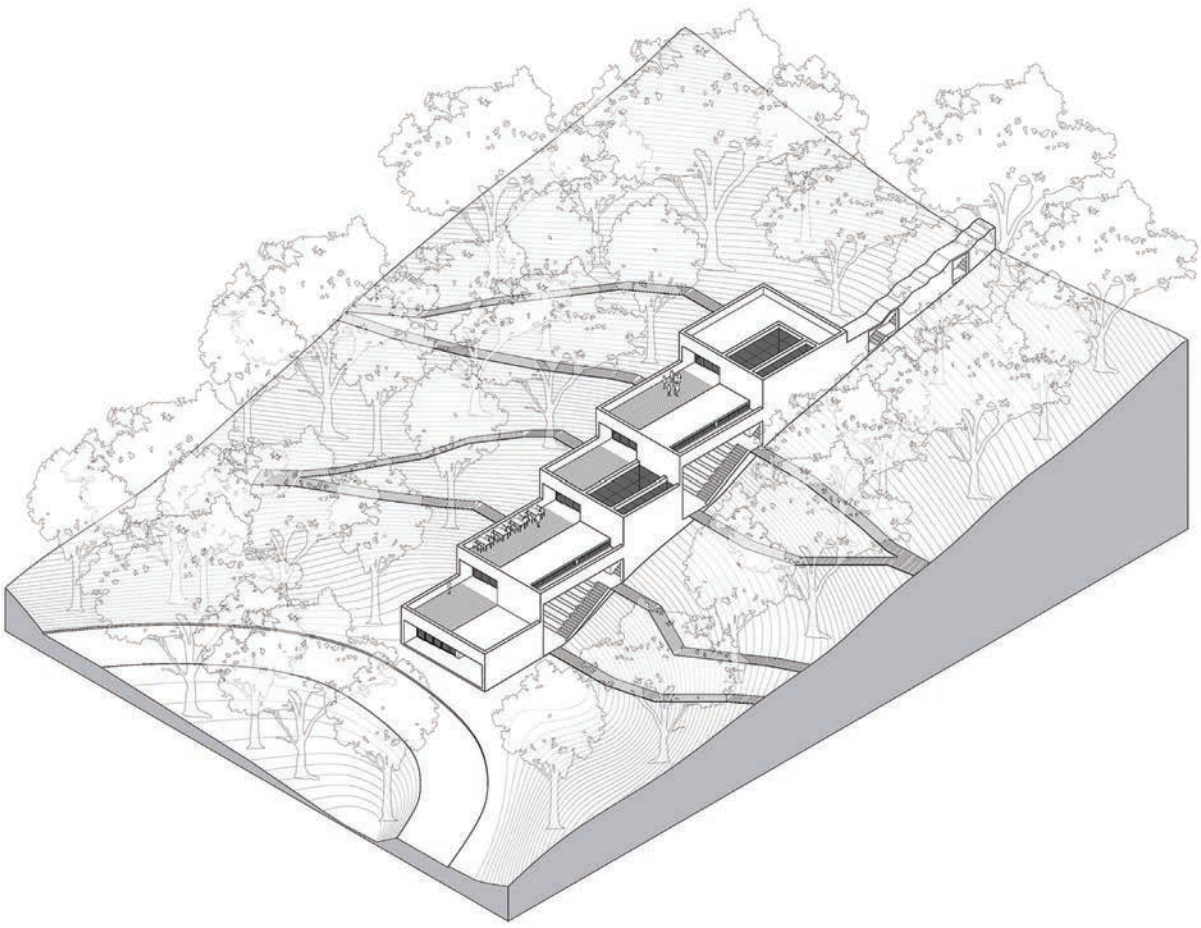
9 Ray Oldernburg, *The Great Good Place: Café, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community*, (Boston: Da Capo Press, 1989).

10 Erling Fossen, "Third Space First" in *Planetizen*, 10 January 2017, accessed 9 March 2017, https://www.planetizen.com/node/90616/third-space-first.

11 David Radcliffe, (27 Feburary 2015) "Rethinking Office Space" [web post]. Retrieved from https://googleblog.blogspot.sg/2015/02/rethinking-office-space.html

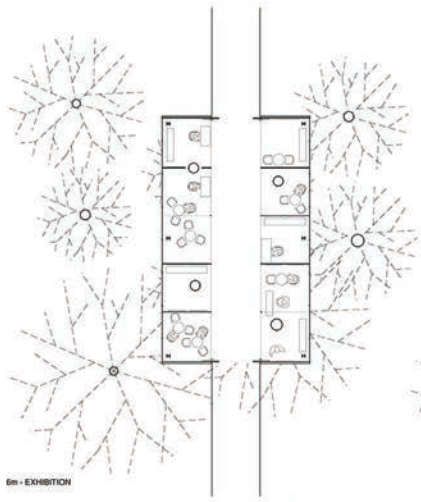
Villarcadia

This project redefines a working environment among nature. The building envelope is a skin that not only protects inhabitants from the discomfort of the wilderness, but also the landscape from human violation. The intervention responds to its terrain by accentuating its distinct topographical features. Its terraced form creates an enticing undercroft: the severe interior workspaces are contrasted against the backdrop of an unexplored, enigmatic, and seemingly unattainable nature. The collection of buildings remains porous, to create a knowledge exchange setting interwoven with greenery. There is potential for the eventual infilling of whole plot of land, a megastructure that can keep growing as nature continues to grow and bleed into it simultaneously. (Source: Drawings and Images by Aurelia Chan, Priscilla Teh).

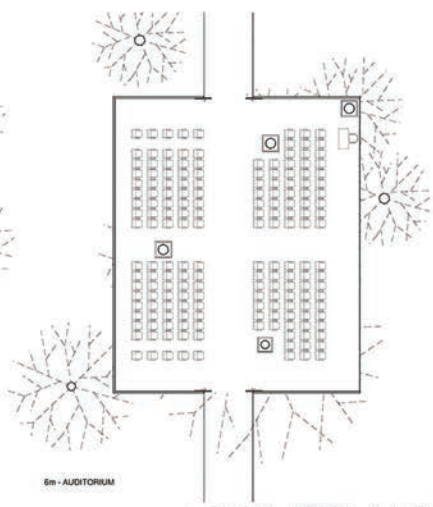


The South Buona Vista Trail

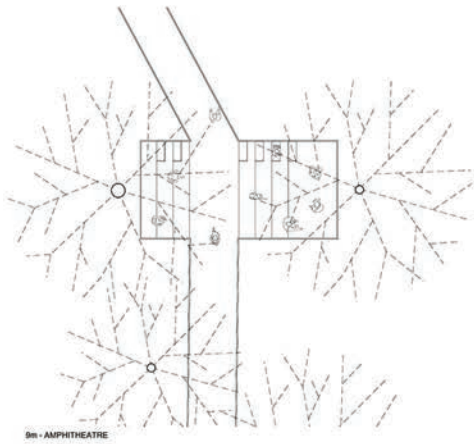
The proposal involves creating a series of nodes in continuous connection with each other from the Southern Ridges to NUS. The intention is to form a contiguous learning experience amidst a natural setting. The nodes are buildings embedded delicately within the natural landscape. On the street level the nodes are placed along the South Buona Vista Road at selected areas with sharp bends. Between the nodes, the road is designed to be pedestrianized to allow for visitors to walk through the road, from node to node. The buildings exploit the natural topography of their respective sites, with the floors following the contours of the slopes and terracing gently. The main architectural element that ties all of the buildings together is a series of steps and platforms that rise with the terrain, functioning as the main circulation route through the buildings as well as informal gathering and event spaces. The form of the building results in a series of mini-atria interconnected by these steps, each able to function independently. (Source: Drawings and Images by Brian Lee, Melissa Lee).



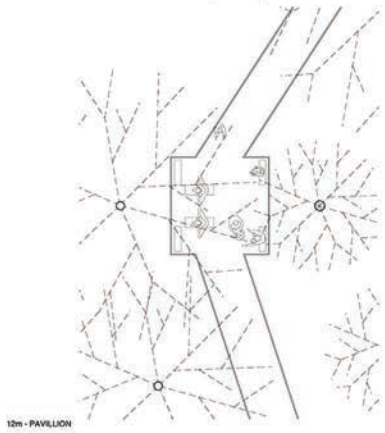
6m - EXHIBITION



6m - AUDITORIUM

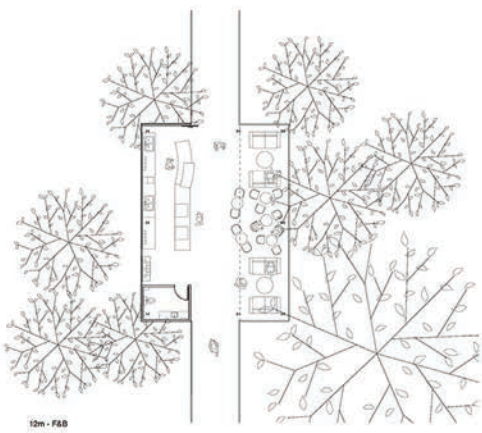


9m - AMPHITHEATRE



12m - PAVILLION

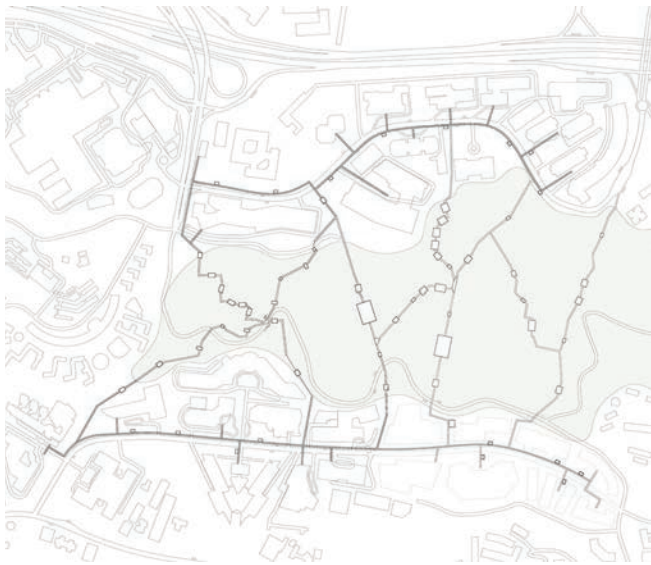
12m - AMPHITHEATRE



12m - F&B

The Connector

A campus is defined as a community that is unified by a common entity. We propose for the ridge to be the common entity that is celebrated and appreciated for its natural qualities by both SSP1 and SSP2. This is done through stitching the two parks together by strings of communal programmes. Common programmes including exhibition galleries, cafes and pavilions, could indirectly serve as catalysts for the formation of social relations between the SSP workers. Our intervention seeks to restore the balance between the urban and the natural, by introducing shared facilities that are nestled amongst the ridge, while greenery trickles out into the urbanized science parks. This results in the urban and the natural existing as unified elements within the same space. Architectural and natural boundaries start to blur, with no definite demarcations between the two. (Source: Drawings and Images by Abigail Tan, Aerilynn Tan).



Conclusion

When compared to newer developments such as one-north and the future Jurong Lake District, the SSP seems to be a relic of the past, incompatible with today's working and living patterns. These new developments seem to have perfected the balance between nature and the requirement of a dense urban environment through sky gardens and interconnected parks. How relevant then is the SSP and its suburban office park typology to Singapore and the wider region?

Whilst the unique site context of the SSP does not allow its typology to be easily replicated to other parts of Singapore, it is important to consider SSP within the larger context of the Southern Ridges. It allows for the re-imagination of the ridge not simply as a nature trail but a productive landscape that connects educational (NUS), research (SSP) and creative (Gillman Barracks) spaces together. Spatial strategies that weave working spaces into the ridge at the SSP may potentially be applicable to other sites along the ridge.

Today, most of the world's population are living in urbanized areas. However, these cities do not resemble the classical cities with a dense urban core, rather they are largely suburban, defined by offices parks and strip malls.[12]

As a dominant spatial product of our contemporary city, it is imperative and urgent to rethink ways to transform the office park as a productive space rather than leaving it as an uncontrolled sprawl of speculative real estate. The design exercise to rethink the pastoral environment of the Singapore Science Park initiates the conversation on how to remediate and reinvent the office park typology on a global scale.

12 Sarah Whiting, "Postscript" in Albert Pope, *Ladders* (New York: Princeton Architectural Press, 2014).

The Shopping Mall as Public Space: A Morphing Typology

by QUEK LI-EN

Waterway Point
by RSP Architects Planners & Engineers

fig. 1

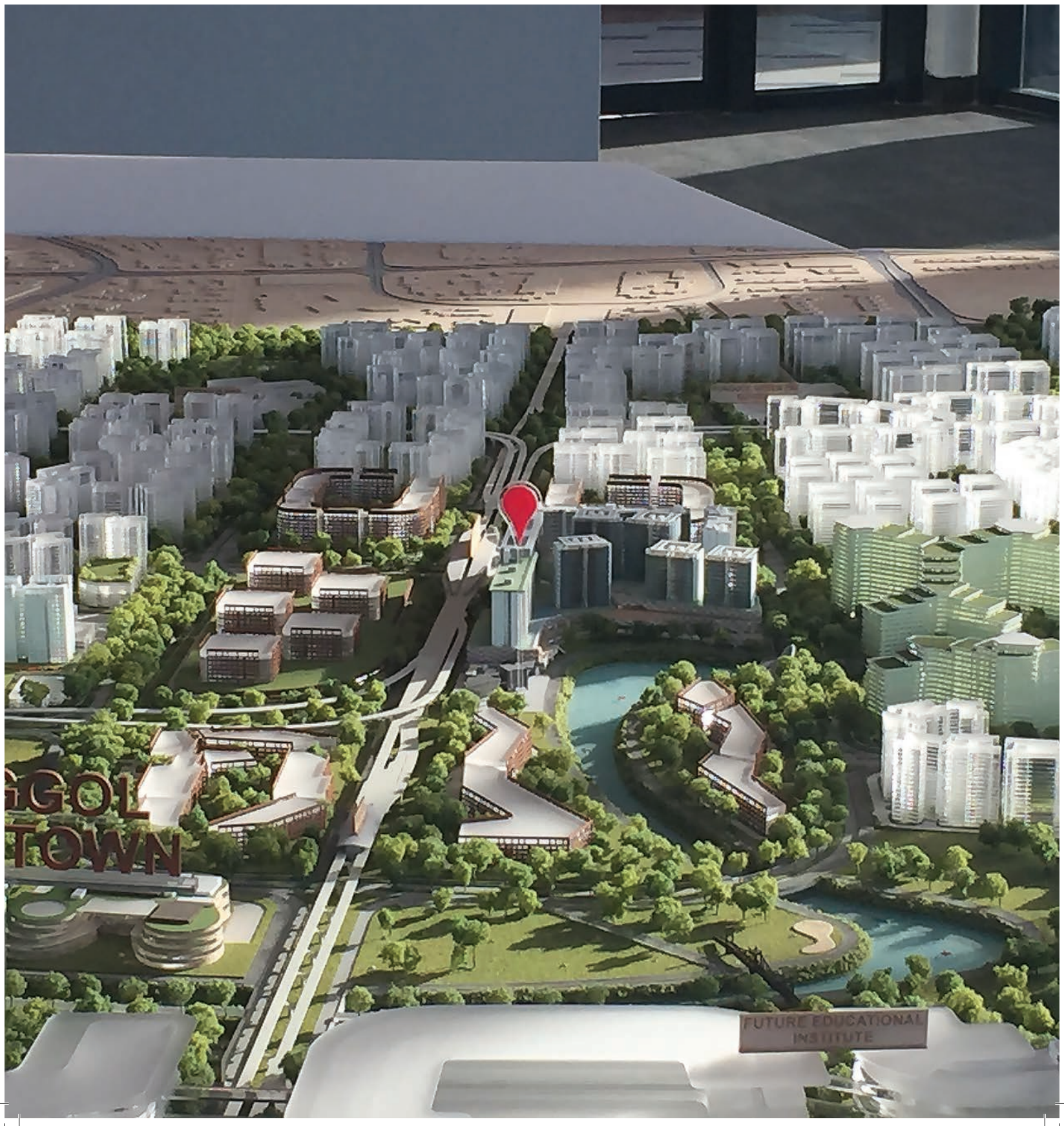


fig. 2

fig. 3

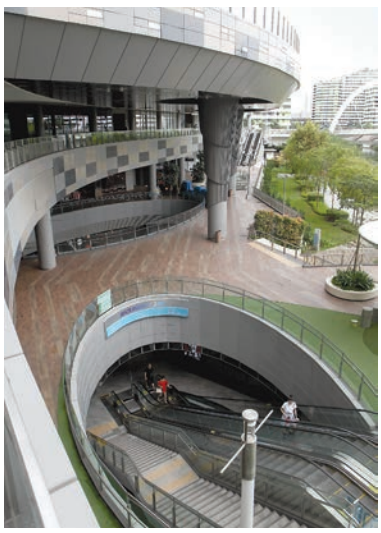


fig. 4

Seamless City

Shopping malls constitute a significant aspect of the public realm in Singapore. Step out from any Mass Rapid Transit (MRT) station or bus interchange, and more than likely, you will find yourself immediately adjacent to, or even directly connected to a shopping mall.

Waterway Point at Punggol, designed by RSP Architects, Planners & Engineers Pte Ltd, belongs to the series of malls adopting this urban planning strategy and is a significant development in shopping mall typology in being not just a retail destination but also an urban connector. The mall connects not just the MRT station and mall, but also serves as a conduit towards the nearby Park Connector Network (PCN), the North Eastern Riverine Loop.

This node of commercial and residential development, integrated with transport networks and parks, is part of a broader strategy by the Urban Redevelopment Authority (URA) for the master plan of Punggol – Punggol 21 Plus, a town planning prototype for future suburban developments.

Seen within this context, the architect's prerogative in this shopping mall is not limited to an isolated building, delinked from the surroundings, but a building whose raison d'être is closely integrated with the infrastructure and planning that has preceded it, and the future urban development that will surround it.

Waterway Point is a mixed-use building comprising four storeys of commercial space and 1,001 condominium housing units in 11 tower blocks above. The idea of mixed-use urban development is familiar to Singapore. As early as 1966, the Singapore Planning and Urban Research Group (SPUR) proposed a multi-tiered city integrating housing, commercial and work spaces. The closest materialization of this vision can be seen in People's Park Complex (1973, DP Architects) along Eu Tong Sen Street and Golden Mile Complex (1973, DP Architects) along Beach Road.

Fast forward to 2017, Singapore has densified the city and taken this concept further, combining increasingly complex configurations of programmes. In reviewing Waterway Point, we attempt to investigate the architect's contribution towards this urban planning vision and discern the impact it will have on the shopping mall typology.

Plan

Central to the scheme is a 10-metre wide public thoroughfare which runs through the core of the development connecting the MRT station to the waterfront promenade. In view of the odd shape of the site, the architects have cleverly curved this axis to divide the site into two equal halves, generating two retail wings in the process, each with its own character and assortment of public spaces.

The architects have cleverly curved this axis to divide the site into two equal halves, generating two retail wings in the process.

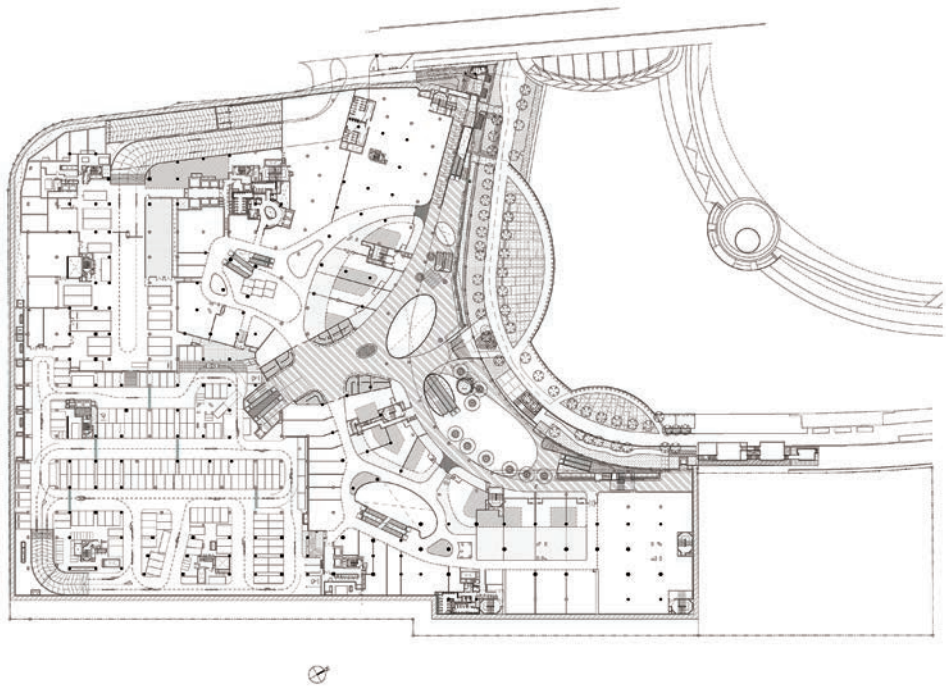
This language of curving corridors has also been extended to the secondary circulation paths, the effect being that a continuous retail loop is circum-navigated around the building, a situation ideal for leisurely shopping. The downside of this circulation pattern is that there is a lack of straightforwardness to the interior layout which can be confusing for wayfinding purposes, an essential consideration considering the increasing scale and complexity of shopping mall developments.

Multiple voids of varying sizes are also dispersed across each floor plate,

1 — Site Context of Waterway Point
2 — Mixed-Use Residential / Commercial / Park / Public Space
3 — Voids punctuate the floor
4 — Smaller atriums provide localised wayfinding

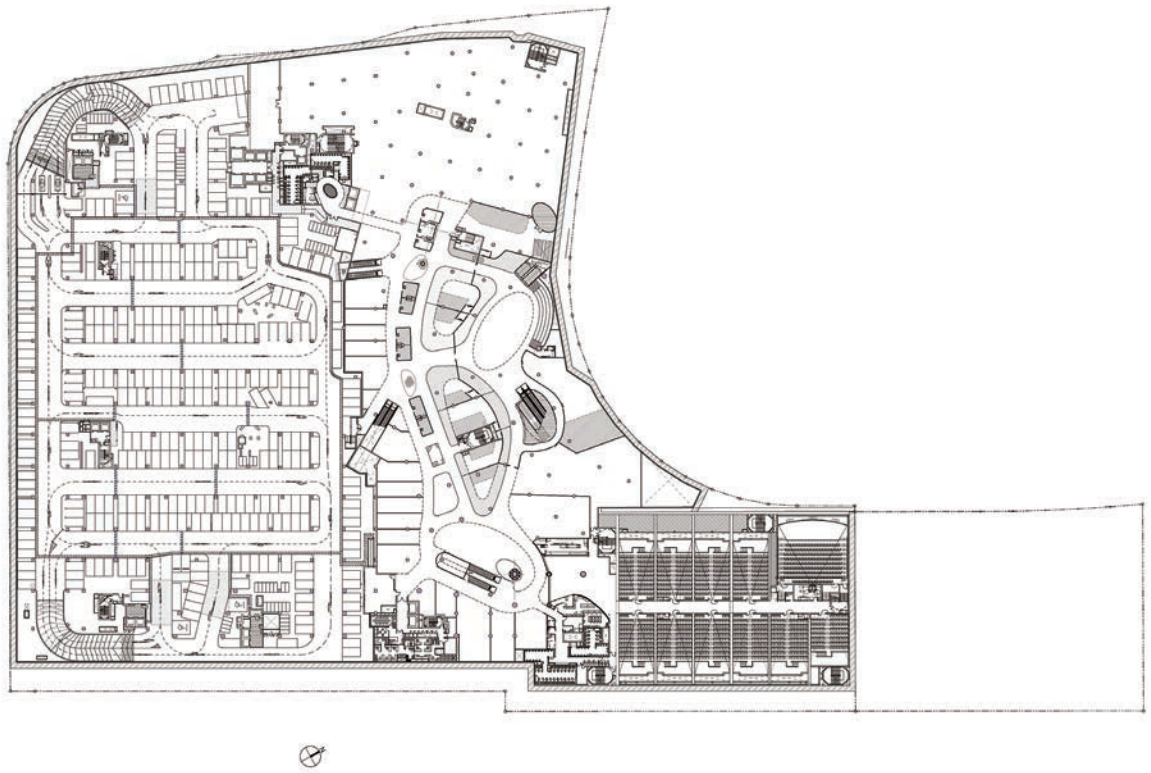
BASEMENT 1

fig. 5



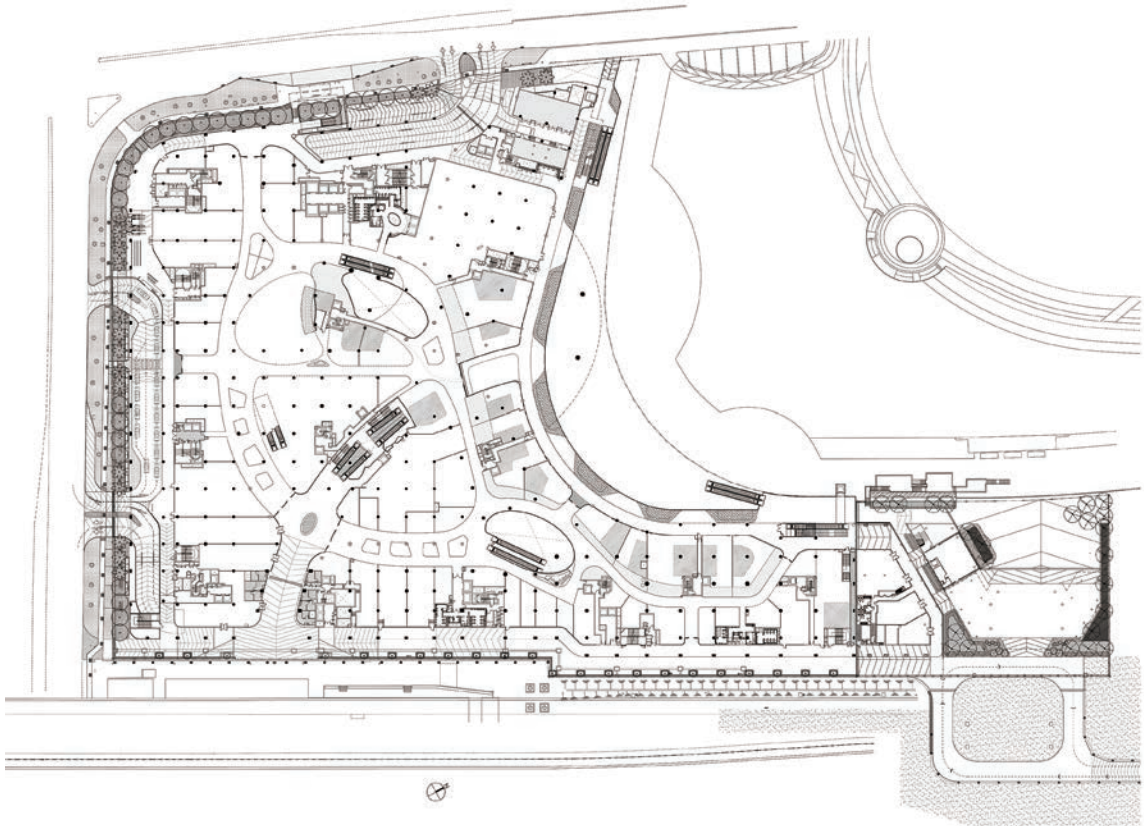
BASEMENT 2

fig. 6



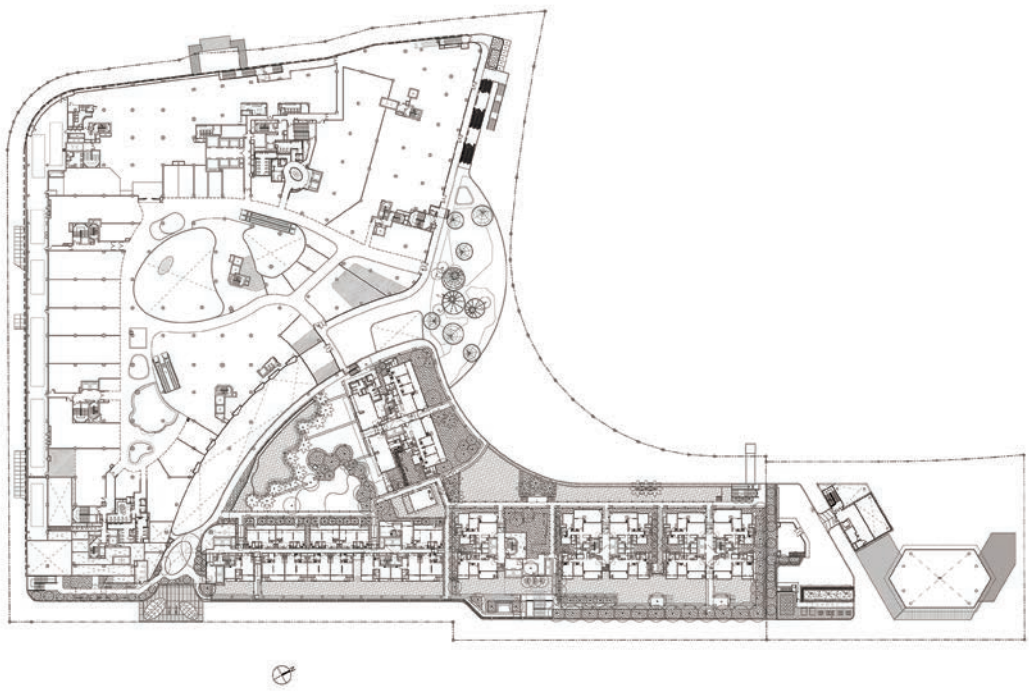
1ST STOREY

fig. 7



2ND STOREY

fig. 8



offering views across different floors. Careful attention has been paid to the programming of these spaces such that the views and activities seen through these voids entice the user to explore the shopping mall.

Facade

Fronting a strategic bend in the river, the principal facade of Waterway Point is actually the riverside facade. A series of overlapping terraces in sweeping curves extend from the commercial floor plates and are cleverly used to break down the massing of the building to create an inviting scale from the waterway below.

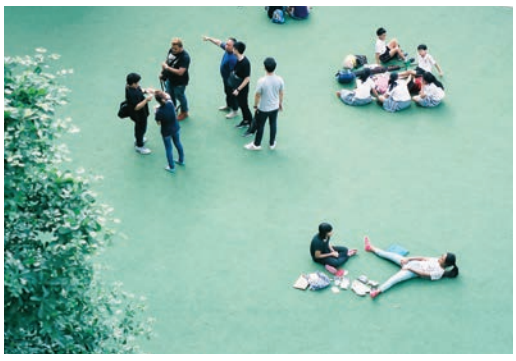
Taking advantage of the riverfront view, food and beverage shops with full-height glazing have been programmed onto the riverside frontage. The generous terraces were initially conceived of as al-fresco dining extensions for the food outlets but due to the requirement for a fire engine accessway around the perimeter of the residential blocks, a significant stretch of the terrace is left as a vacant walkway. One wonders if a specially engineered fire safety system could be implemented in the future to overcome this limitation as it would greatly enliven the facade from the waterway and also increase revenue for the shops with outdoor seating and the developer with additional rentable area.

Perhaps due to building height constraints challenging the quantum of buildable area allowed by its plot ratio, the residential blocks appear congested and give the impression of being stunted. Given a more holistic consideration of what the site can accommodate, a more generous spacing

fig. 9

fig. 10

fig. 11



could have been achieved between the blocks creating a more spacious residential communal environment. To be fair, however, the residential component has, to the date of this print, not been completed, and the experience of riverfront living here cannot as yet be assessed.

Public Space

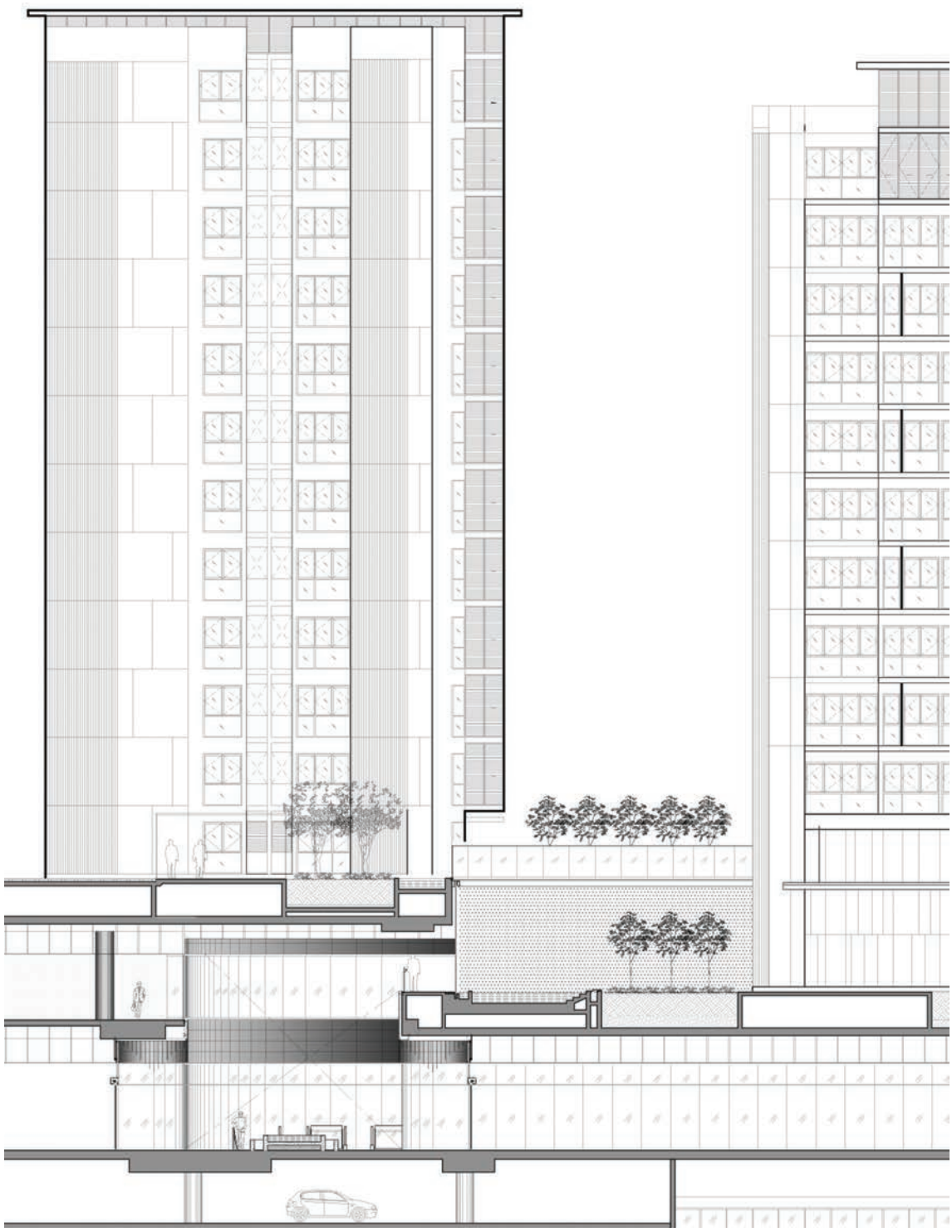
Waterway Point also boasts a variety of public gathering spaces, transcending the commercial premise of the shopping mall and transforming it into a modern-day town square. Whilst conventional shopping malls have often incorporated a large central atrium wherein pop-up stores or kiosks could be located, these spaces are often inward-looking and flanked by rows of retail shops with little accompanying seating. In contrast, Waterway Point provides a diversity of ambiences across different scales to cater to a range of commercial and non-commercial activities.

One example is the generously sized, artificially-turfed deck surrounded by overlooking terraces and walkways. Aptly titled "The Plaza," this riverfront plaza incorporates intimate pockets of space shaded by trees whilst at the same time accommodating a large open area that could potentially host a community or musical event.

Whilst a majority of the public spaces have been sensitively integrated into the shopping malls circulation path, a notable lack of connection is established with the "Town Square," an open-sided pavilion situated indifferently off the side of the project.

5 — Basement 1 plan
6 — Basement 2 plan
7 — 1st storey plan
8 — 2nd storey plan
9 — The riverfront terrace
10 — The Plaza seen from an overlooking terrace
11 — Use of The Plaza

fig. 12



Threshold

The tension between the public commercial floors and private residential blocks in a mixed-use development has always been difficult to negotiate. In exploring the relationship between these two domains, the architects have made a daring foray into difficult territory. A far simpler response would be to totally segregate the two functions, designing separate access points for each of them.

An innovative feature attempted is the connection of sight lines between the residential tower block and the public thoroughfare. To enable this, the ceiling of the public thoroughfare has been slightly elevated, opening a gap towards the residential blocks. This has the added benefit of providing day lighting for the thoroughfare without sacrificing floor area for the residential units above. In its implementation though, the gap is disproportionately small compared to the height of the public thoroughfare making its presence less palpable.

Another intersection is established through "Happy Park," a water playground in whimsical forms providing relief from the tropical heat. Situated on the uppermost commercial floor and having a dedicated access from the condominium units above, the playground can be readily accessed from the condominium units or from the mall. However, a tension arises due to this very proximity and the privacy of the nearby residential blocks is compromised.

Reinterpreting the swimming pool of the condominium units above as an opportunity for a skylight over the shopping mall atrium is one of the architects' commendable intents. However, it is engaged only tentatively, as only a small skylight was implemented for the large atrium below. Whilst undoubtedly establishing a connection, such a proposition could have been even more powerful in creating wonderful moments reconciling two worlds — private and public.

Circulation

The public thoroughfare is a pioneering attempt to incorporate a fully accessible public space within the scope of a private development and suggests the increasing connectivity of the city. Open 24 hours a day and equipped with escalators and elevators, the thoroughfare accommodates pedestrian and wheelchair users comfortably. However, cyclists and users of Personal Mobility Devices (PMD), a growing demographic, are less favourably accommodated.

Whilst bicycle parking is amply provided at both the MRT station and waterfront promenade, and slopes are integrated into the staircases for cyclists to push their bikes while dismounted, a designated route for the cyclist or PMD user from the MRT to the PCN is not provided for. Considering that Waterway Point is the main circulation link between the MRT station and the PCN, this oversight may become more glaring in the future as cycling, a more sustainable and healthy form of transport becomes prevalent. This is clearly a result of the level difference between the train platform and the waterfront, with architecture being called upon to be the mediator.

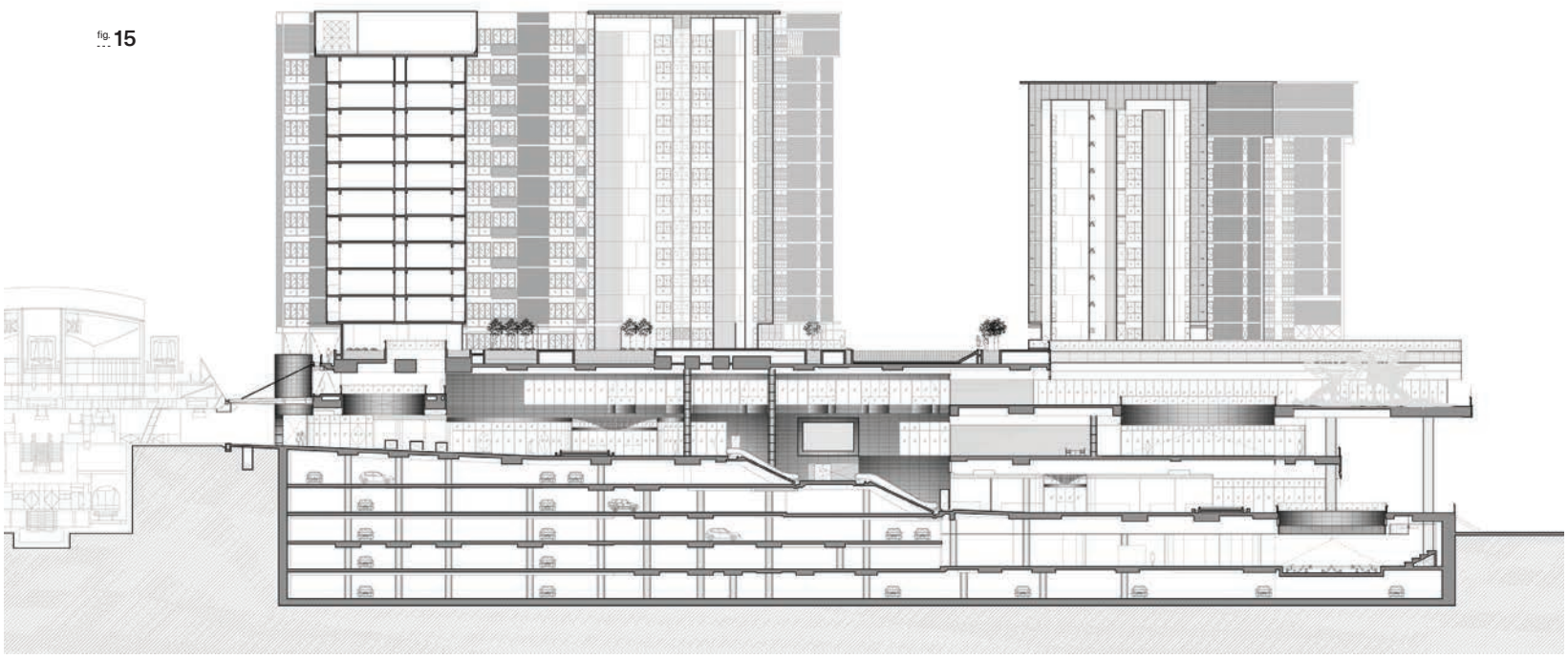
An innovative feature attempted is the connection of sight lines between the residential tower block and the public thoroughfare.

12 — Transverse section through public thoroughfare
13 — View from public thoroughfare
14 — Accessibility through public thoroughfare

fig. 13

fig. 14

fig. 15



15 — Section

The Shopping Mall Typology Tomorrow

To call Waterway Point a "shopping mall" is perhaps a misnomer. In today's context, the shopping mall has evolved to become much more than the commercial enterprise that its namesake suggests. By successfully integrating public spaces and park land with commercial and residential spaces, Waterway Point becomes the pre-eminent site of urban experience.

As Singapore develops, the only possibility is that more and more functions get appended to this already complex development typology. In Waterway Point, foreseeing a generation of young Singaporeans moving into the Punggol area, an entire commercial storey has been dedicated to cater for the needs of children. In the near future, the needs of the elderly, together with their attendant medical facilities are bound to be accommodated within this typology as well. Indeed, architect Tay Kheng Soon has already articulated this requirement and has proposed an alternative term for this condensation and centralization of the vital services of the town as the "Central Nervous System."

Technologyitself will impose its own set of requirements on the typology. The rise of an online, smartphone-based commercial enterprise may override the need for extensive retail space. Yet there is cause to believe that the typology as a whole will survive, and morph into the place of direct and communal urban experience.

It is interesting to note that the leasehold for a seemingly large and central plot such as Waterway Point is limited to 99 years. Perhaps that is the time frame by which the development is scheduled to be in need of renewal. In reality, significant changes will probably be required much sooner and the only way we can provide an enduring built environment is to have embedded the expectation for change into our architecture.

Turning the Corner

Asimont Villas
by AEDAS

by TEO YEE CHIN

fig. 1

'... a new cluster terrace housing typology that caters to a modern yet sociable lifestyle ...'
- An excerpt from the architect's statement

'You don't know the meaning of the word 'neighbors'! Neighbors like each other, speak to each other, care if anybody lives or dies! But none of you do!
- A character in *Rear Window*, an Alfred Hitchcock film in **1954**

Architects designing private houses or private housing developments often start off by putting distance between occupants of different units, or by creating the illusion of remoteness from other occupants. Architectural strategies used include orientating blocks to make the most of an unobstructed view, turning rooms inwards to face an internal court, or by placing screens to block views of neighbours. Ideally, one should not have to sense the presence of other people in one's home.

The word "private" used here has two meanings. The first, in a way commonly used in the property and construction industry, implies that the funding for the project originates not from the state but from individuals or commercial entities. The second refers to the condition of not being observed or disturbed by others.

It is no coincidence that the two meanings conspire in a project since one is likely to experience more privacy in a private housing development, or perhaps because the converse is true, that one feels less private in a public project, for example, where a corridor in a public housing block offers some incidental views into individual flats.

Asimont Villas, a private housing development, therefore pushes gently against this trend when it sells a "sociable lifestyle." Not surprisingly, this is a cluster housing development. In fact, of all landed housing typologies, cluster housing[1] lends itself best to exploring modes of communal living. In Asimont Villas, the sense of community is achieved by leaving the use of open spaces ambiguous.

While the house (bungalow, semi-detached house, or terraced house) allows the homeowner to claim the open areas around it and the condominium sees every space outside the apartment unit as common space, the cluster housing development is able to play a nuanced game when it comes to defining spaces as private or public. With Asimont Villas, Aedas has combined innovation, sensible planning, and landscaping to generate a new and refreshing perspective on private landed property.

Modified Typology

Before this project was developed, the building on site was a four-storey condominium development comprising eight townhouses and eight maisonettes, sharing a swimming pool and an underground carpark. Tasked by the developers, New Century Homes, to conduct a feasibility study, the architects initially considered a condominium development similar to the pre-existing building as well as a strata landed housing development. While the former would have fully optimised the permitted floor area, the final decision by the client and architect was to create a cluster terrace housing development where each dwelling would occupy a part of the site and have its own garden. Surprisingly, the development was completed without all the available gross floor area (GFA) being used up. The decision for such a typology to be adopted was made to identify with the more prestigious status of houses in the area, and to therefore command a higher selling price for the properties.

The architects were innovative in their interpretation of the terraced house. Instead of a typical row of houses sharing party walls on two sides, they left the front and rear facade available, with each cluster

1 Cluster housing refers generally to a group of houses that can be detached, semi-detached, or terraced, and that together, they occupy a large plot with a common entrance.

fig. 2

1 — Asimont Villas – A cluster terrace housing development exploring new ways of living together
2 — Each unit owns a PES (Private Enclosed Space) with a deck and pool
3 — A variety of materials used on the facade and landscape

fig. 3

fig. 4

fig. 5

4 — Units in close proximity with permeable boundaries between private and shared outdoor spaces
5 — Using a variety of external finishes as a strategy to blur the distinction between singular and multiple

of terraced houses comprising three units. In total, there are seven such clusters.

All the units being rectangular, the third unit is rotated with its long side abutting the combined rear edge of the other two units. In this way, each "terraced" house has two frontages that meet to make a corner of the block. The third rotated unit has three frontages, owning two corners of the block. The spatial effect of owning a corner, opening onto one's own garden and pool, is significant. The wider combined frontage across the corner allows generous lighting into the living room and the occupant has access to a panorama of the surroundings. The experience is that of being in a villa rather than a terraced house.

From the outside, one also gets the sense of owning a chunk of the building as each unit gets a three-dimensional representation on the facade. Consider this effect in contrast to the facade of an intermediate terraced house, which is a cut out from a long flat plane.

Yours or Mine?

One consistent narrative throughout the design is the disguise of the clustered units within the form of individual villas. This gives rise to the material strategy of the architecture and the landscape. There is a considerably large variety of finishes employed. Besides the grey granite which is used to articulate floating boxes on the second storey, we also see textured paint, aluminium panelling and a window wall system with a staggered pattern on the external walls.

Steven Thor, executive director of Aedas, explains that this mosaic of finishes is a deliberate strategy to blur the dividing line between one unit and the next. To further this effect, there are also no boundary walls, and party walls are not specially extended at the dividing lines. The impression that there are seven villas on this plot rather than 21 terraced houses contributes to the desired prestige of this development.

The same technique is applied to the landscape design. Between private pools, enclosed spaces and common pathways, there are no hard fences but bronze aluminium screens, waist-high sliding gates, and hedges and trees instead.

To further this effect, there are also no boundary walls, and party walls are not specially extended at the dividing lines.

One could say the architects set themselves the challenge of designing the exterior spaces when they planned the layout of the clusters, especially for the inward facing units. These units do not look out to the road, but instead faces another unit. However, from a living room of the inward facing unit, one cannot easily distinguish between the space belonging to the house and that which is shared, or belongs to a neighbour. As a result, one apprehends the entire outside space as one large garden, with a sensibility that is tinged with both ownership and communality.

Extrovert

Let us take a closer look at the layout of each unit. A circulation band of a dog-leg staircase and a lift shaft stretches across the centre of the house. This landing gives access to spaces on the left and right, one side larger than the other. This removes all circulation space other than the staircase landing and defines a major and minor side of the house in terms of size. On the first storey for example, the kitchen occupies one side of the unit while the living and dining room fills the other larger side, and both are separated by the staircase and lift.

fig. 6

Residents drive to the basement immediately after passing the main gate and park in dedicated lots outside their basement entrance door. The basement contains the yard, a utility space, and the household shelter.

The plan is “extroverted” on two accounts. Firstly, due to the compact nature of the planning, there is no internal court to which spaces can orientate. There is also no excess foyer or corridor that allows inhabitants to linger deep in the plan. All spaces have windows looking outwards—even the staircase looks outwards to the communal space at every turning. Secondly, as with many cluster housing projects, the car parking at the front porch of the typical "house" is positioned in the basement. This frees up the space around the living room for social activities.

We then have a curious situation where the architecture stand looking like bungalows—looking aloof, but the spaces, within the house and outside, are geared towards communality, sharing, and interaction. Evidently, houses are not intrinsically unfriendly because of their architectural character. Instead, any such reading is really due to the way the house-form is sited within a compound, behind a boundary wall and surrounding garden.

It is the relationship between architecture and landscape that defines its sociable character.

Living Together

Strolling through the development with the architects, we are constantly moving in and out of the shade of trees, always surrounded by lush greenery. We find ourselves unintentionally interacting

fig. 7

fig. 8

with the inhabitants in different ways. At times, we are able to look into a person's living room quite easily, seeing the style of decoration and even some personal artefacts like photographs. At other times we hear the sound of children playing in pools ahead before we catch a glimpse of them through the shrubs and aluminium screens.

But what about privacy? It is fair to return to an examination of this word. It is, after all, a treasured trait of homes that you can retreat from the outside world. Specifically, let us take a closer look at this characteristic of certain plans called "overlooking". This term is commonly used to describe how a window of one unit allows a view into another's interior.

Conventional wisdom in planning is to avoid overlooking in the layout of a residential development. However, in spite of all good intentions and efforts, overlooking frequently occurs, at least to some extent. My personal experience is that while it is quickly flagged out as a flaw at the design stage, it is quite tolerable in reality.

At the risk of sounding like a voyeur, it is somewhat fascinating for me to look into a neighbour's life, if the view that presents itself and its contents do not cause too much embarrassment. From the window of my lift landing, I can see the study table of my neighbour's teenage son, and I often catch a glimpse of him doing his homework till late at night. Just perhaps, it gives me more awareness of what another person is going through. Conversely, I am aware that parts of my home can also be viewed from the street or neighbouring houses, and I live with an awareness of that.

6 — The spatial effect of owning a corner
7 — Master Bedroom of the show unit
8 — Layering of spaces from the units to Asimont Lane

fig. 9

A New Normal?

Our lives are increasingly lived in the view of others, especially with the advent of social media and the presence of cameras everywhere—in cars, homes, and public spaces. Liberal connections formed over social media are spilling over into the physical space. Examples are co-working spaces such as The Working Capitol, and Hoffice, which is a web portal that facilitates mutual arrangement between freelancers and entrepreneurs to visit and work in each other's homes.

In Asimont Villas, in spite of efforts by the architects to orientate windows away from one another and to use plants and aluminium as screens, we occasionally encounter moments of overlooking. Yet, this is not necessarily a negative trait. We can instead, learn to live together in an increasingly dense environment. Within limits, a heightened awareness of others around you can be a positive thing in terms of fostering a sense of community and improving neighbourhood safety.

On the whole, this development is a refreshing take on the landed housing type. In addition to the intimate quality of the outdoor spaces and the well-planned layout, the development stands out with its sense of community. This is achieved while preserving a level of prestige attained from a sophisticated architectural design, the use of high quality building materials, and fine landscaping.

Whether it is intended or not, Asimont Villas has advanced the discourse on how we can balance luxury and status with a way of living together.

Photography Credits

All images courtesy of AEDAS.

9 — First Storey Plan
10 — Location Plan of the Development
11 — Parking Level Plan

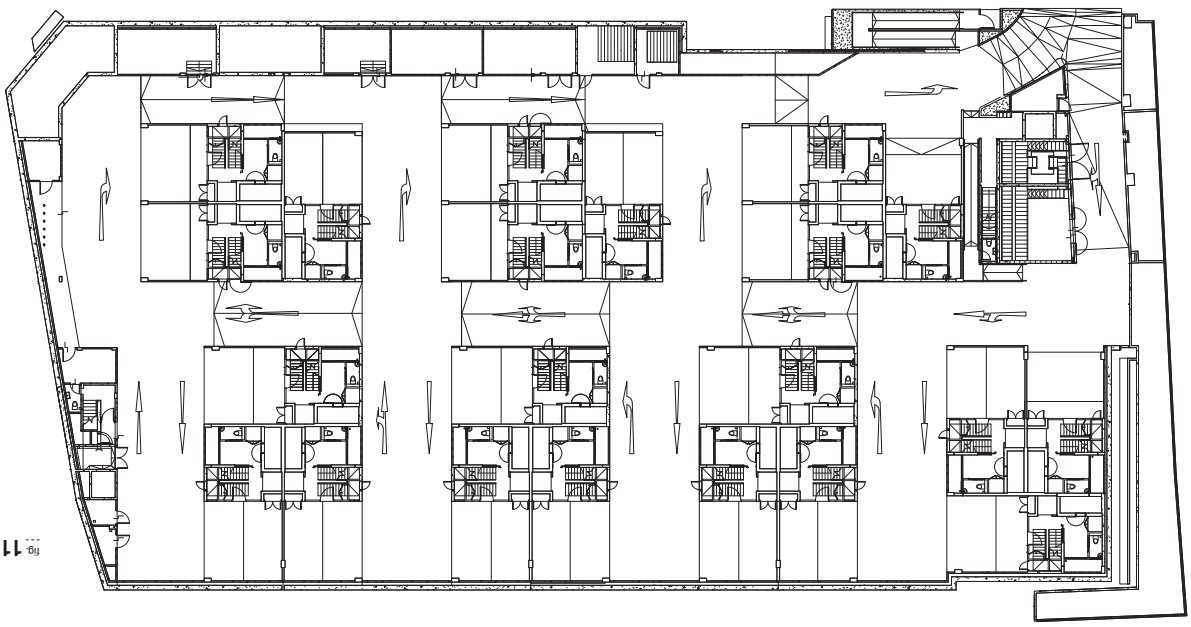


fig. 11

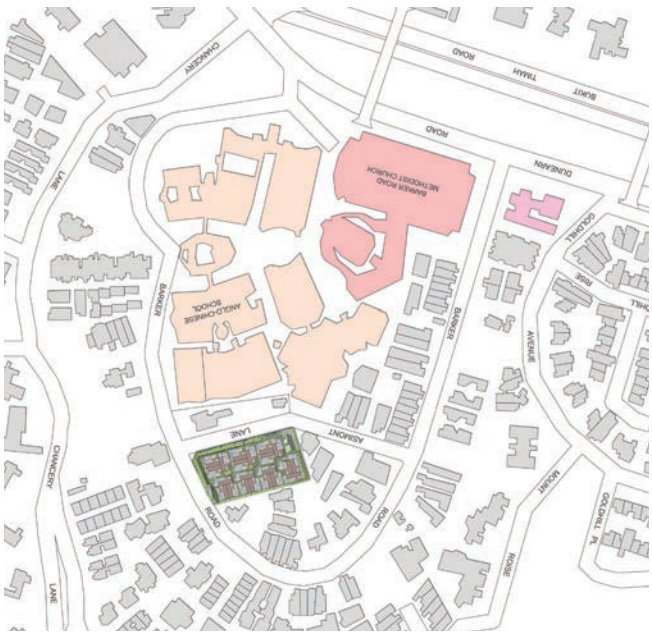
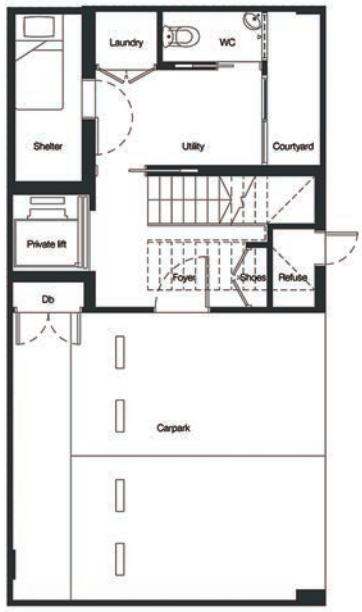
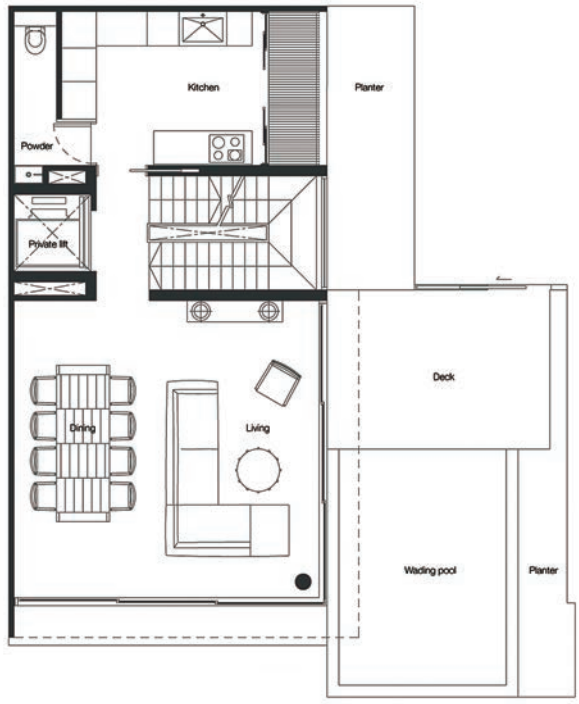

CHANCERY
LANE
BANNER ROAD METHODIST CHURCH
ANGLO-CHINESE SCHOOL
BANNER ROAD
ASHMONT
ROAD
DYKE
ROAD
DUNEARN
ROAD
BLADT
TIAAH
ROAD
COLONEL
ROSE
AVENUE
MOUNT
ROSE
COLONEL R.
LANE

fig. 10

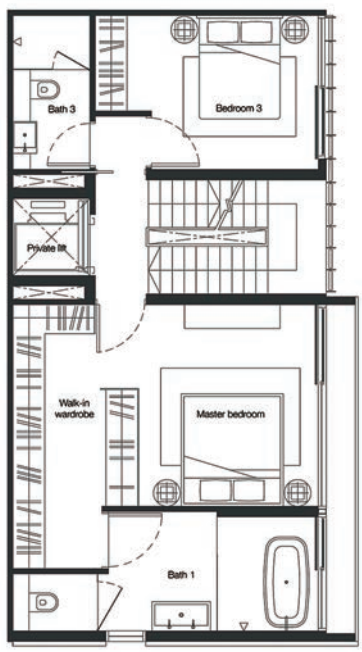
fig. 12



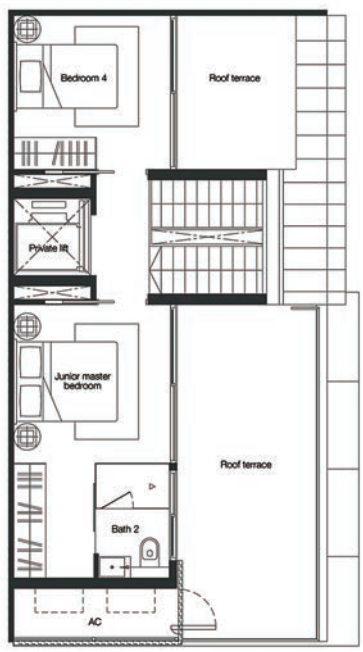
BASEMENT



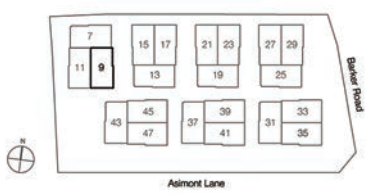
1ST STOREY



2ND STOREY



3RD STOREY



UNIT 9
Four-Bedroom Villa
386 sq.m. (4,155 sq.ft.)

12 — Floor Plans of a Typical Unit

Big in Nature: Fitting in with the Forest

The New Temasek Club
by DP Architects

by JAX TAN

fig. 1

fig. 2

fig. 3

What is an architect to do with a slice of the tropical forest for a site, and a design brief bursting with a demanding list of land-intensive programmes?

One approach is to fulfil the deliverables of the brief – to meet the demand in a focused manner, and completely de-contextualise the site into an abstract, generic piece of green screen for views. Another approach considers the sacredness of the site and takes the stand of breaking apart programmes and making the tropical the intrinsic experience of entering the space from start to end. Yet a third approach, and perhaps the most noble, accepts the contradiction of the goals in context and negotiates a best-case architectural solution.

Inevitably, the third approach involves confronting the dilemma between the urge to preserve any kinds of green in urban Singapore and the requirements of the big area programmes. While the architect takes an empathetic stance on what the client wants to achieve, he/she appreciates that it is truly a rare treat to be given even a slice of the Singapore tropics – unfettered, extra virgin.

Such was the challenge faced by the team at DP Architects (DPA) led by its CEO Angelene Chan for the design brief set by the Temasek Club in the newly acquired location on Rifle Range Road. Located on the fringes of the Bukit Timah Nature Reserve, it was to be a club with state-of-the-art sporting and recreational facilities, function rooms, and guesthouses exclusive to their members and guests– Singapore Armed Forces (SAF) regulars, full-time National Service men and officers. As the winner of the design-and-build competition held by Temasek Club, DPA's winning proposal negotiates the

1 Cluster housing refers generally to a group of houses that can be detached, semi-detached, or terraced, and that together, they occupy a large plot with a common entrance.

fig. 4

terrain with the objective of immersing the massive building form. At a staggering 21,000 square metres, much of the club is built into the valley of the landscape and attempts to blend with rather than overwhelms the site.

The entry to Temasek Club begins from the leisure ride turning from Dunearn Road onto Rifle Range Road, weaving through the lush greenery to a grand steel pavilion streaked with hanging creepers and a shaded canopy of roots. An articulated gesture, the structure and the green meld together to summarise the intent of the architect: to coexist with the natural habitat but to be resolute in representing the grandeur and discipline of the SAF military establishment.

The driveway leads to a curated main entrance courtyard and drop-off at an elegant single-storey arrival hall that continues the military language with its formal, regimented expression. At the centre of the courtyard is a sleek sculpture, also designed by DPA, standing at 4.8 metres tall with a 4-metre diameter defining the key motto of the SAF Officer Cadet School – “To Lead, To Excel, To Overcome.” Its eight core SAF values, are engraved on its base, and the aspirations of SAF for excellence throughout its history, are expressed in the asymmetrical blades rising to the peak in a spiral.

On both ends of the arrival hall are two naturally ventilated buildings connected via two circulation drums. Externally, the horizontal louvered facade while functioning as a sun-shading device also expresses the visual metaphor of the eight strokes of the lion’s mane in Temasek Club’s logo. The ninth and final crown of the lion’s mane is abstracted into an angled copper-hued roof. Integrating the

1 — The arrival courtyard. The central lobby's glass facade invites views to the lush landscape beyond.
2 — The master plan showing the development's four key programmatic zones.
3 — The pavilion, draped with hanging creepers, marks the entry to the secluded site.
4 — A striking sculpture marks the main entrance courtyard. Designed by DPA, the sculpture's concept revolves around the motto of the SAF Officer Cadet School, "To Lead, To Excel, To Overcome."

architect's concept and abstraction of the Temasek brand and identity into the architectural form has evidently struck a chord with the client. The meaning behind the sculpture and facades has become key "talking points" used for hosting and engaging with important guests during their visiting tours of the new club.

Inside the arrival hall, a stunning view of the nature reserve is proffered by the generous use of full-height glass windows. Sited at 20 metres above the valley where the rest of the programmes are neatly tucked into, the pool and tennis facilities form the foreground on the lower level, cradled by the surrounding greenery. The view reveals the complexity and bigness of the compound, in contrast with the illusion of the entrance being a low-rise building. Here, the device of the simple architectural section evinces the bigness of this effect.

The complexity of the large building is also effectively broken down through the clarity in the masterplan. Two separate circulation drums cap the ends of the arrival hall, leading to the various events and conference facilities on one side and recreational and entertainment facilities on the other. Angelene matter-of-factly describes the ease of navigating the complex building blocks–"when you're wearing shorts, and gym clothes, you go to the right. When you're coming in ballgowns or dressed very beautifully you go to the left.". The statement belies her keen understanding of a visitor in a huge facility figuring out where to go to, how to get there. Certainly, during a morning tour, throngs of individuals alighted at the entrance, and with the confidence of easy familiarity, turned to either wing to attend to their matters of the day. Moreover, the separated lift lobbies also enhance security measures as the client occasionally hosts highly important guests. Operationally, the club is now more prepared to mitigate any risks by controlling a single point of access should they be hosting highly confidential meetings or exclusive guests at the wing where the function rooms are.

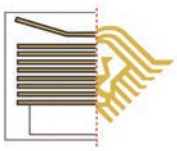
Exiting the arrival hall, the visitor is led through the naturally ventilated lift lobby and a long corridor along the 38-lane bowling alley towards the guesthouses. This long walk above and inside the complex does take away the chance to engage the environment, afforded by being in the heart of nature. However, the inconvenience is a necessary evil, a way to manage registration and handicap access to the guesthouse villas. At the end of the long walk, there is an elevated deck that meanders about twelve humble guesthouse villas of various sizes. The interiors of the villas are clean and modest, with generous views and natural light employed as its key features. On the exterior, the villas are constructed in muted tones of copper and grey, and blend into the greenery sensibly. Here, the architect had expressed that in line with their intention to design harmoniously into the site, the villas have been carefully placed between existing tree clusters to maximise privacy and minimise disturbance to the natural landscape during construction. In fact, all the villas were built on stilts as the architect "did not want the building to touch the ground."

Despite the intent to "cut down as few trees as possible," Angelene shared that one of the major challenges of the design-and build project was in ensuring that the contractor moved in the same direction as they had set out through their design and concept. Due to the tight construction timeline, the contractor had taken the lead instead and inevitably removed trees from the clusters, so that the villa site is now less lush than initially intended.

While the design intent did not appear to have suffered in any major way, the design-and-build contract may have posed a limitation on the final design and consistency in workmanship throughout the entirety of the club. Under a design-and-build contract with architectural design as a sub-set of the contract, the contractor's interests will invariably take precedence. This mode of procurement may then see more instances of internal value-engineering to meet a budget that is

fig. 5

fig. 6



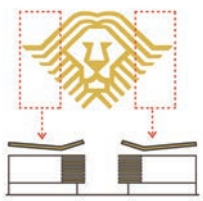


fig. 7

5 & 6 — The eight horizontal louvres helmed by a copper-hued roof represent the nine strokes of the lion's mane.

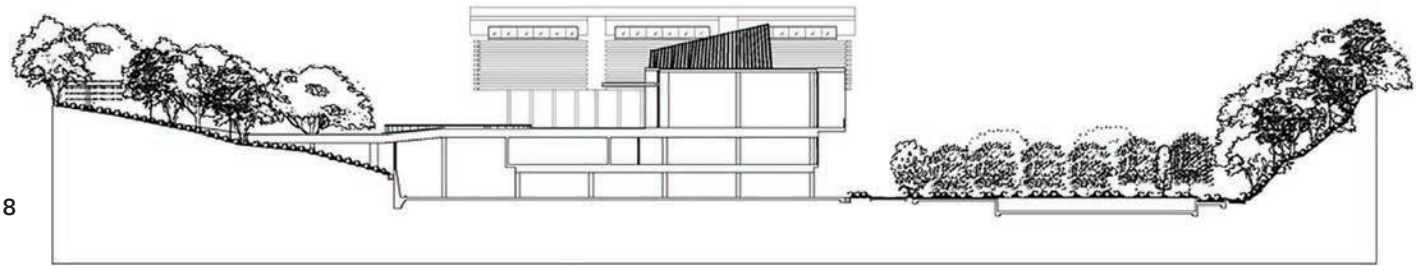


fig. 8

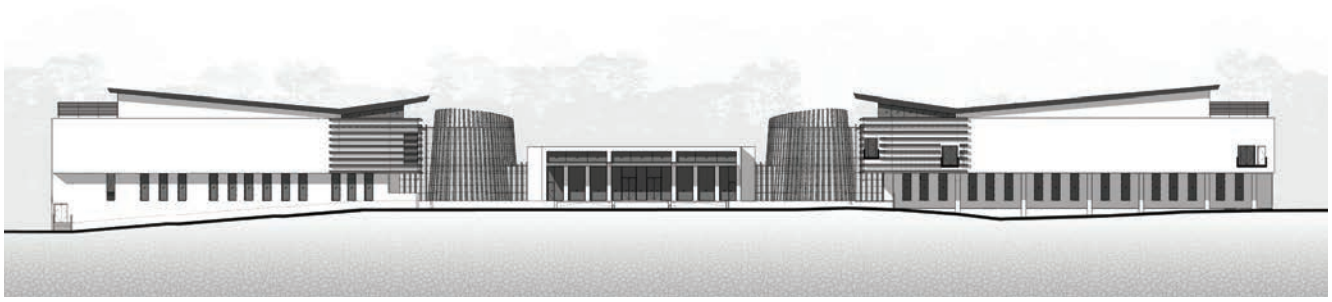


fig. 9

committed at an early stage. As observed on the site visit, the quality of workmanship appeared to fall short at times. One wonders if the mode of procurement has also led to a greater difficulty in enforcing the rectification of defects.

Yet zooming out to the big picture, Temasek Club is certainly not bereft of either design or quality. Perhaps first and foremost, the battle is half won by a site that adds an air of exclusivity–there are no urban buildings in sight, only greenery. Furthermore, the site is jam-packed with activities like the 38-lane bowling alley (the biggest in Singapore), its highly-equipped gym, 50-metre pool, 600-seater banquet hall, private VIP rooms and themed-karaoke rooms. The activities the club promises will keep anyone of any age or all walks of life preoccupied. Architecturally, this poses as a dichotomy for designing such a complex. The activities themselves stimulates and demand so much of engagement from the user that external stimulation from the environment is not required, nor sought to be made more available, despite the privilege of its natural setting right by the Bukit Timah Nature Reserve. Instead, these spaces were carefully considered, designed and packaged compactly like a large cruise ship berthed into the green dock, all to the client's approval and satisfaction.

Since its renovation, bookings and sales have skyrocketed by nearly four times. It is to the credit of the team at DPA who managed to organise the spaces in such an intelligible way with the complexity demanded of the internal circulations and relationships for all the programmes, while expressing a singular architectural approach towards the landscape. Most successful of all, and perhaps the biggest reason for DPA winning the contract, is in their unique delivery of a vision for their client, Temasek Club–their willingness to communicate the architectural design in an approachable and palatable manner: a story to tell, and a pride to maintain.

Photography Credits

All images courtesy of DP Architects.

fig. 10

fig. 11

fig. 12

7 & 8 — Sectional diagram showing how the natural valley in the terrain was employed to conceal the volume of the club buildings.
From the main entrance courtyard, the club appears as a single-storey building.
9 — Elevation drawing showing the two circulation drums linking the arrival hall to the two programmatic wings.
10 — The guesthouses are designed around the landscape and trees and built of natural materials to suit the forest setting.
11 — Full-height glazing brings stunning views of the nature reserve inside the guesthouse.
12 — The central lobby block forms the club's core, and overlooks the pool and verdant surroundings.

Building a Future-Ready Home for the Aged

Architectural Design Competition for the new St. John's Home for Elderly Persons

St John's Home for Elderly Persons (SJHEP) provides shelter and care for the physical and spiritual needs of such elderly persons who have no home or suitable accommodation and no children or close relatives who have adequate facilities resources to look after them. The Home is open to all regardless of race and creed.

The Home began operations on 21 December 1958 at its present location at 69 Wan Tho Avenue on a leased land of 12,290 square meter. The lease expired in December 2015. The Government had indicated that the Home may occupy the current land for another six years, and a new lease for thirty years from January 2016 is offered for 3,300 square meters of land on part of the existing site. The licensed capacity is increased to 150 residents. The Home would therefore require a new building to accommodate a larger capacity on a smaller site.

Together with the Singapore Institute of Architects (SIA), the St. John's Home For Elderly Persons (SJHEP) organised a two-stage Design Competition to select a design for a new Home.

The competition was called on 7 April 2016 and attracted 52 entries from which 7 schemes were shortlisted to proceed to Stage 2. The Stage 1 competition closed on 16 May 2016 and Stage 2 was on 13 July 2016. The final judging and selection of the winning scheme was completed on 22 July 2016. Aamer Architects was selected as the winner for this design competition.

Competition Objectives

The design competition seeks to generate new and fresh ideas and secure the best design for its new five-storey building, providing facilities and services not only to its present residents but to the elderly living in the surrounding precincts i.e. Sennett Estate, Potong Pasir, Joo Seng and Bidadari Town. The Home is envisaged to be an integrated service facility centre serving the needs of the elderly in the community, possibly working with other service providers, complementing the Home as a sheltered home.

Assessment Criteria

A A workable yet fresh and exciting design for the new five storey building;

B Demonstrate an understanding of the requirements, including opportunities and constraints, the surrounding buildings, as well as the historical, urban and social context of the site;

Jury Panel

1 Mr Theodore Chan
Immediate Past President
(Chairperson of the Jury Panel)

2 Mr Woon Wee Yim,
Chairman St John's Home

3 Mr Andrew Lioe Hui Siang
Vice Chairman, St John's Home

4 Ms Rita Soh Director,
RCD Architects Pte Ltd

5 Dr Wong Sweet Fun,
Deputy Chairperson Medical Board,
Yishun Community Hospital

fig. 1


4950
1950
4342
3000
1990
1060
2490
1950
1500
1950
1500
4400
2500
600
500
3450
1225
1325
1000
6000
3450
1225
1325
1000
6000

St. John's Home for Elderly Persons

Aamer Architects

Design Award

Architectural Design Competition for the Redevelopment of St. John's Home for Elderly Persons

Jury Citation

This winning scheme is set apart from the rest by its compact building mass and distinctive facade character. Its relatively small building footprint allows for greater use of the ground floor area for open programs and flexibility, as well as efficient core placement. With the ground space freed up, the chapel at the ground floor is designed to enhance the sense of entry and identity of place with its bold roof projection, while acting as a green roof deck for the spaces above.

Deeper review of the spatial organisation of the typical floor plan shows the residential units angled, offset and carefully juxtaposed to produce a serrated plan profile, which helps to address privacy, planting, views and climate. Interior spaces of the bedroom units are well resolved, with thoughtful consideration for the lifestyle of the residents.

Overall, the scheme manages a fine balance of realistic constructability, with a well-crafted vision of a place which is definitive of the future St John's Home.

fig. 2

fig. 3

fig. 4

1 — Ward Plan
2 — Ward Plan 3D
3 — Internal Perspective of Chapel
4 — Artist Impression
5 — Artist Impression

fig. 5

Citation From
Aamer Architects

The new St John's Home for the elderly is not about the conventional notion of occupying spaces but rather crafting an ambiance that one seeks which is conducive to the mind, body and soul; a new Home.

A new home that exudes all the familiarities of the key aspects of communal living through various levels of interaction, be it with one another or with the crafted spaces.

From the intimate spaces within the room accommodations to the larger common areas, favourable environments laced with lush greeneries were created to cater for every aspect, inducing self-esteem.

By placing the main block facing north/ south and the chapel to the west with the service zones clearly separated to the rear, the large arrival plaza can be used for a variety of events.

The dramatic form of the floating chapel is an inviting visual marker while shielding the chapel interior from the western sun. Being completely transparent to the outdoor plaza, water feature and tranquil gardens on the south and east side, making it an ideal atmosphere for activities that draw in visiting families and the community.

Special attention is given to the residents' accommodations and facilities to give them a variety of spaces that are naturally lit and ventilated which function seamlessly between the private and interactive areas.

Through pulling apart, shifting and flipping of the room modules, the interlocking building block becomes permeable and bright. The otherwise normal corridors are expanded to become forecourts which could be personally crafted and decorated to give the residents a sense of home. With it, incidental spaces like lounge, study and pantry are included creating a better flow throughout.

The planters and 'green' roofs that passively cool the building are also activity spaces for rooftop gardening and farming or merely to enjoy the sunset and distant views.

Indeed, the intent of creating a Home far away from Home is achieved through clear process and site planning that embrace the needs of the residents with a variety of well designed spaces that elevate their self esteem and well being.

We began this project by appreciating resident's and operational needs, and a sincere desire to improve their quality of life by providing that 'home' away from home being comfortable, user friendly, interactive and well able to connect with the community... aspiring to make people happier actually..."

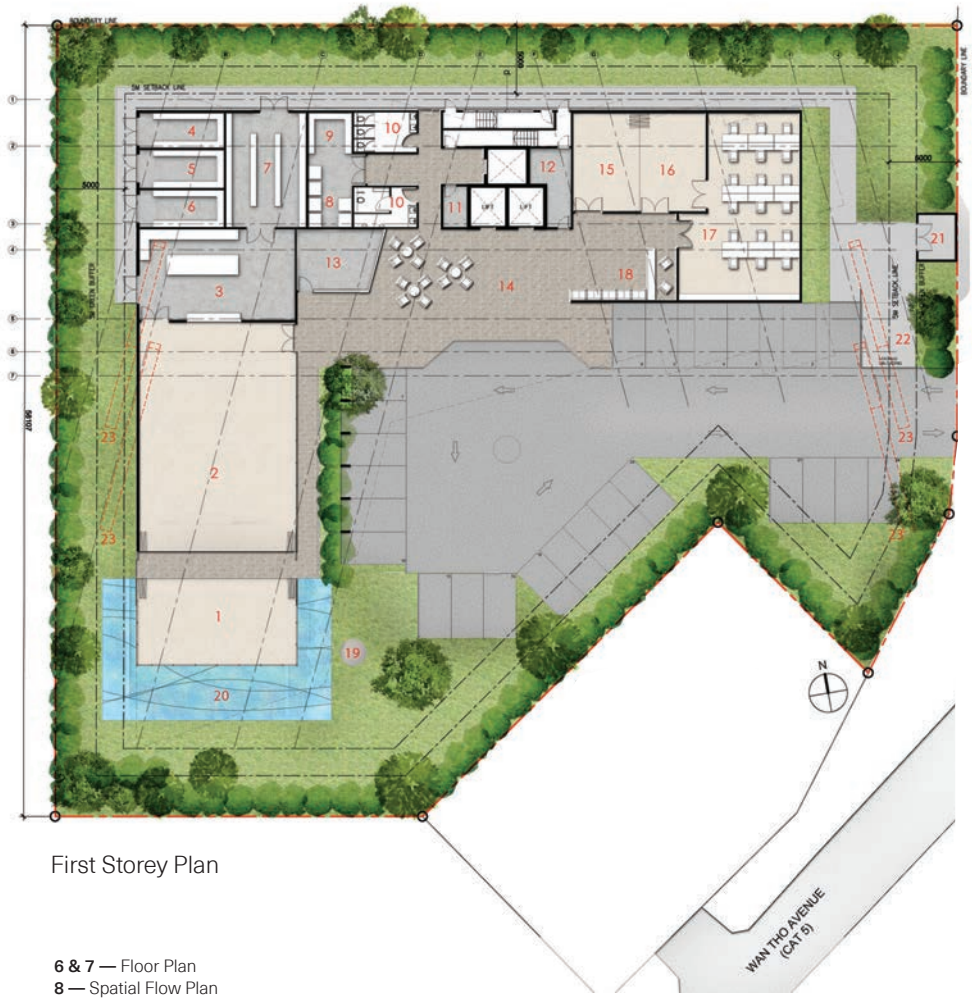
Aamer's quote

fig. 6

Second Storey Plan

1. Passenger Lift 1
2. Passenger Lift 2
3. Fire Lift / Service Lift
4. Fire Lobby
5. Smoke Stop Lobby
6. Fire Escape Staircase
7. Sick Bay
8. Inner Clinic
9. Outer Clinic
10. Room Accommodation
11. Garden
12. Physiotheraphy
13. Common Lounge
14. Counseling Room
15. Volunteers's Room
16. Day Area
17. Room Accomodation (Female)
18. Staff Lounge
19. Staff Accommodation
20. Staff Bath
21. Fire Escape Slide

fig. 7



First Storey Plan

1. Chapel/ Function Room
2. Dining Hall
3. Kitchen/ Preparation Area
4. Wheelchair Store
5. House Keeping Store
6. Facility Store
7. Food Store
8. Laundry
9. Linen Store
10. Visitor's Toilet
11. Store
12. M&E Room
13. Cafe (Social Enterprise)
14. Entrance Lobby
15. Activity Room 1
16. Activity Room 2
17. Office
18. Reception
19. St John's Statue
20. Reflective Pond
21. Bin Centre
22. Service Bay
23. Fire Escape Slide Landing

6 & 7 — Floor Plan
8 — Spatial Flow Plan

fig. 8


ROOF
Roof Garden/ Farming
5TH STOREY
Male Rooms - 12 nos (48 residence)
Nurse Station
Nurse Toilet
Sluice Room
Day Area
4TH STOREY
Male Rooms - 12 nos (48 residence)
Nurse Station
Day Area
3RD STOREY
Female Rooms - 12 nos (48 residence)
Nurse Station
Nurse Toilet
Sluice Room
Day Area
2ND STOREY
Female Rooms - 2 nos (8 residence)
Nurse Station
Sluice Room
Day Area
Outdoor Excersice
Garden
Activity Room (TV, Newspaper, Board games)
TV Lounge
Physiotherapy
Volunteer's Room
Counseling Room
Isolation Wards
Clinic/ Sick Bay
Staff's Accomodation
Staff's Bathroom
Staff's Lounge
1ST STOREY
Chapel/ Function Room
Reflective Pond
Dining Hall
Kitchen/ Preparation Area
Food Store
Housekeeping Store
Linen Store
Facilities Store
General Items Store
Laundry
Visitor's Toilet
M&E Room
Cafe (Social Enterprise)
Activity Rooms
Board Meeting Room
Office
Reception
Carpark/ Charity Bazaar Area
Garden/ Exercise Area
Covered Drop Off Area
FIRE ESCAPE SLIDE
FIRE ESCAPE SLIDE
FIRE ESCAPE SLIDE
LAUNDRY
COMMUNITY
WASTE
EMERGENCY
SERVICE BAY
Main Circulation
Communal Circulation
Service Circulation
Fire & Emergency Circulation

fig. 9

fig. 10

fig. 11

9 — External Perspective
10 — Rooftop Gardening / Farming
11 — Entrance Forecourt

Reporting From The Front

Biennale Architettura 2016

by ATHANASIOS TSAKONAS

fig. 1

Following on from the successful 2014, research-centred Biennale, last years curator, Chilean architect Alejandro Aravena, sought to reverse the increasing disconnect between architecture and civil society through positive solutions and outcomes. Considering this, Pritzker Prize winner Aravena's *Reporting From The Front*, linked the practice of architecture with the quality of life of its users, especially those at the margins. This Biennale also projected a social-political-economic dimension that confronted issues like segregation, inequalities, housing shortage, migration and participation of communities, amongst others.

Exposing the 'architectural' profession to an honest scrutiny in line with very real global pressures, the 2016 Venice Biennale's social view of urban conditions revealed how for far too long planners, economists and politicians have failed to adequately consider the masses who make up the citizenry and their quality of life. In an interconnected world, and one in which the mass movement of migrants is greater than at any time in history, it is no longer enough to simply maintain the status quo. By presenting a myriad of ways and means by which architecture remains relevant to these concerns, the Biennale offered a positive pathway for social justice and an ethical approach to rampant urbanization.

Involving all the Biennale's sectors and in parallel with the main exhibition curated by Aravena, the event saw 63 national pavilions along with several Collateral Events and three dedicated pavilions for Special Projects. Local participation, with the architect as collaborator, was the stand-out theme throughout the main exhibition, where a social activism informed the architectural process, acting as counterbalance to the overwhelming sense of alienation people encounter in their cities.

Conversely, the national pavilions tended to project their nation's identity through architecture. Addressing real situations, or by imagining alternative examples, these pavilions encapsulated a far wider dimension of the societies they represent. An overview of the exhibits exposed various undercurrents and/or groupings which can be broadly identified as asylum seekers (Germany, Austria, Finland), housing accessibility (Great Britain, Mexico, Singapore) and reinforcing community (Australia, Peru).

The following paragraphs describe the more notable installations as well as national pavilions.

Introduction
Alejandro Aravena

Walking through the main opening hall of the Arsenale, over 90 tonnes of recycled metal wall studs and plasterboard from the previous years Art exhibition greets the visitor. Arranged along the walls and suspended from the ceilings, these elements representing the contemporary lifestyle made a poignant statement about the sustainable and unsustainable, as if this particular gathering was predicated on the destruction of its past. In this gesture, Aravena's unifying undercurrent of 2016, was how the practice of design and architecture could inspire political and social change.

Architecture does not solve social problems. People working together solve social problems

Alejandro Aravena

Ephemeral Settlement
Rahul Mehotra and Felipe Vera

Looking at the Kumbh Mela religious festival in India which takes place every 12 years, this study explored how its three month duration sees an influx of nineteen million people, making it the greatest transient settlement on earth. Offering an urban challenge to its infrastructure, services and accommodation, its greatest achievement is that with the coming of the monsoon, the festival concludes and the rains wash away all traces of its habitation.

1 — Reusing the steel stud and plasterboard debris from Biennale Arte 2015 for the Introduction room of Biennale Architectura 2016.
2 — Anne Heniger's mud sculpture 'pepita' to sit inside, built with rammed earth in the Zabur technique which uses only the hands as the tool shaping it layer by layer. Rammed earth floor and wall panel.
3 — Kumbh Mela: An extreme case of religious congregation that generates a temporary settlement of five million people.
4 — 15th International Architecture Exhibition, Venice Biennale 2016.

1 Cluster housing refers generally to a group of houses that can be detached, semi-detached, or terraced, and that together, they occupy a large plot with a common entrance.

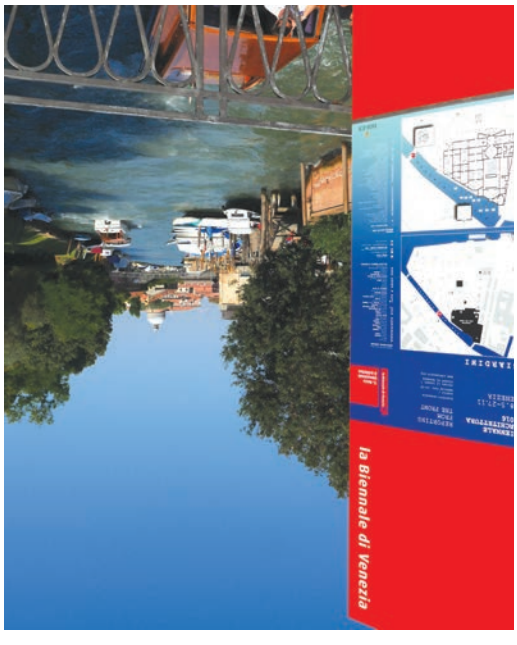


fig. 4

fig. 3

fig. 2

fig. 5

Conflicts of an Urban Age
SE (London School of Economics) Cities

One of three Special Projects, Professor Ricky Burdett and LSE Cities' showcase of the transformation of selected cities over the last 25 years is an analytical case study in urbanism and how the conflicts of our increasingly urban age – inequality, climate change, urban growth and expansion – are experienced and lived by the majority of urban dwellers. As an example, Guangzhou in China saw its population increase by 925% yet its urban area footprint increased by 3284%, making the case that the city is socially and environmentally unsustainable. As with most of the case studies, it asks what we can do to make cities more tolerant, adaptable and sustainable.

Breaking the Siege
Solano Benitez and Gabinete de Arquitectura

Paraguayan Architect Solano Benitez looks at the migration of people to the city and how to accommodate them through sustainable means. An abundance of bricks and unskilled labour offers him an alternative to the industrialised system where employment is the key element. His intention is that simple structural design will allow for the *decoupling of quality to the end product, where the use of unskilled labour is turned into a democratic practice.*

Mud Works!
Anna Heringer

Mud is the primary material in Heringer's work in Bangladesh. Her advocacy for its use is both technical (minimal post-form preparation, ready availability, thermal mass and low carbon footprint) and cultural (people see it as a familiar material). This suggests that local architecture is an inclusive process where the construction process is more than assembling structure, but also of building community.

The Work of Eyal Weizman in War Zones
Forensic Architecture

Using architectural logic in reverse, Weizman showed that facts gained through the architectural study of post-conflict effects could be used as evidence

fig. 6

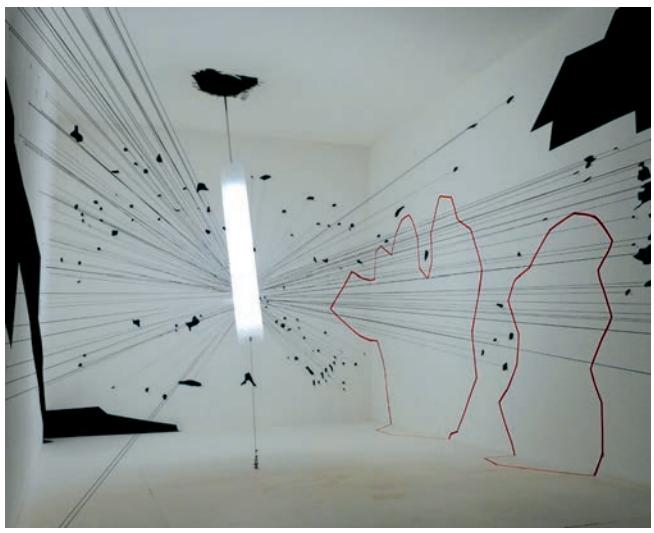


fig. 7

in proving war crimes against humanity. A full-scaled re-creation of an actual missile strike on a room in a house in Afghanistan, reconstructed using video footage smuggled out of the war zone, the exhibit showed not only the penetration of the drone fired projectile, but the subsequent perforations in the walls from the exploding shrapnel. Disturbingly, parts of the wall without perforations indicate the likely presence of humans.

Making Heimat, Arrival Country
Germany

In an unprecedented gesture, Germany confronted its mass influx of refugees through a de-constructive statement of intent. Having received permission from the Venetian conservation authorities, four large openings were created in the external walls of their pavilion as a sign that Germany was defying their supposed conservatism by opening and welcoming new arrivals seeking refuge. The exhibit addressed how best to accommodate them physically, socially and culturally, in the context of a united Europe. Through a framework of multiple housing typologies and incremental urbanization, they explored what architectural and urban conditions should be satisfied to ensure successful integration into German society.

From Border to Home – Housing Solutions for Asylum Seekers
Finland

Looking at the asylum crisis as an opportunity offered rather than a burden, Finland's contribution offered dedicated housing solutions for their own ten-fold increase in asylum seekers, and in doing so exposed their social generosity. Architectural competition participants were asked to address both temporary housing within the wider context of contemporary housing challenges and tangible solutions for longer-term housing policies that also had positive social impact. The winning entry, a team from Finland, Germany and Italy, highlighted the need for diverse approaches to this existential problem. Solutions offered include vacant office space converted to temporary housing, a mobile app that

5 — With bricks and unskilled labour, Solano Benitez's archway of possibility for developing countries.
6 — Discovering a tunnel beneath the Uruguayan pavilion as metaphor for constructing exteriority; a case for resilience and sustainability.
7 — Forensic Architecture's full-scaled recreation of an actual missile strike on a room in a house in Afghanistan. Those parts of the wall without perforations indicate the likely presence of humans.

fig. 8

matches available housing supply with demand, and new housing developments as flexible adaptations to the existing rigid building codes.

Home Economics
United Kingdom

The British housing crisis inspired five models of living presented throughout five different time-frames, reflecting varying periods of occupancy in ones life. From a model where a communal living space is provided for a number of apartments, the curators argued that sharing the "common" area was a way of reducing the available "lost" area that is otherwise rent-paying. An adaptable space allowing for specific programmes during the day cycle is another means to an affordable existence. But this also raised an uncomfortable truth that the socio-economic imbalance in a global city like London had rendered its property market inaccessible to a younger generation of aspiring homeowners along with those in the middle to lower-middle income levels. It is the citizen who is asked to adapt rather than the state.

Space to Imagine, Room for Everyone
Singapore

With 85% of its population accessing a good standard of state supplied housing, the concern was a creeping apathy due to the comfort and security of the domestic and public spaces, especially with the last generation. In a series of eight schemes, the emphasis was on how citizens could take control of their environments and invigorate those spaces rather than being defined by them. One such scheme, *03-Flats* was a set of short films chronicling the domestic lives of three single women in their public housing flats. A subtle critique of family-centred ideology, it highlighted the negative aspects of urban rationalisation that people on the margins are left to negotiate.

Unfoldings and Assemblages
Mexico

The Mexican contribution delved into social participation in the housing industry. Rather than a prescribed means of building methods or systems, community-based construction manuals produce an adaptive cultural response. This enables communities with knowledge and self-determination to take charge of their environments and use both modern and traditional materials and methods to create their homes. Architects develop simple step-by-step manuals on how to erect various building typologies, in some cases resembling comic strips. A number of these were presented along with simplified models reflecting an almost

8 — Investigating 200 years of copying cultural artefacts as a strategy for preservation, Brendan Cormier's *A World of Fragile Parts*. Replicas of a reclining Pauline Bonaparte as Venus Victrix by the Italian sculptor Antonio Canova.
9 — One of the many self-help manuals for construction by unskilled people that are culturally ingrained in Mexican society.
10 — Focusing on the small battles fought at the home-front: a series of images looking inside public housing flats across Singapore adorn suspended glass lanterns.
11 — Community participation through the swimming pool in the Australian Pavilion.
12 — An expressive structural form through compression, *Beyond Bending* by Ochsendorf, Block and Dejong looks at reducing construction materials by avoiding bending.

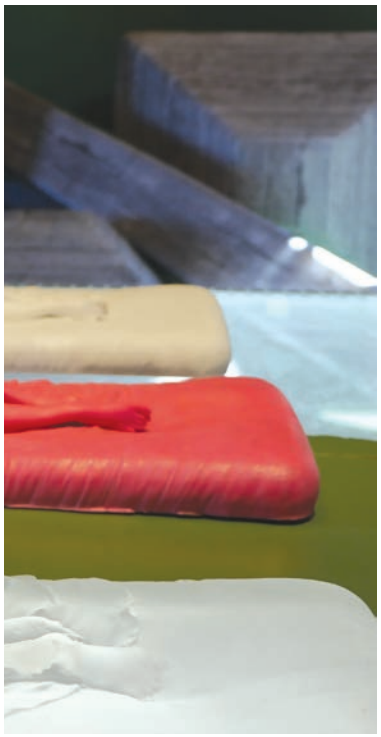


fig. 9

fig. 10

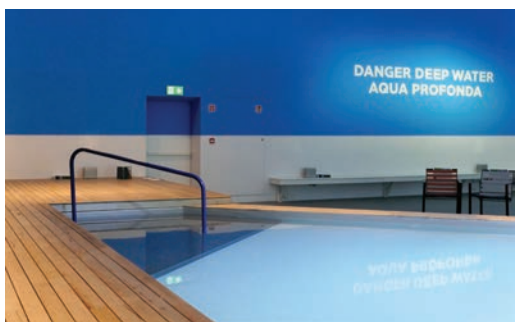


fig. 11

fig. 12

child-like pedagogy, allowing people with low levels of literacy to navigate and decide their future.

From the Edge,
Australia

Community participation was the theme in the Australian pavilion, by way of how a common public space facilitates all manner of human interactions. A swimming pool installed within the pavilion, along with bleachers, deck chairs and transistor radios, symbolised a neutral space in the Australian landscape, where people of all ethnicities, genders, religions and classes gather and bridge their socio-cultural differences. It is an antipodean translation of the piazza for multiple generations, whose summers were made of family gatherings and community events. And with recorded stories transmitted from the poolside radios, prominent Australians related their personal encounters with or at this public amenity. But, as the exhibit identified, the pool also has a contested history of racial discrimination and social disadvantage.

Darzana: Two Arsenals,
One Vessel,
Turkey

A visually arresting display, waste material found in the Halic dockyards of Istanbul was 'assembled' to recreate a vessel dubbed 'bastarda', which is a cross between a galley and a galleon.

fig. 13

fig. 14

In linking the cultural heritage of Istanbul with Venice, as two Mediterranean cities which once shared a common culture of maritime commerce, the inference was in highlighting the very different paths both have taken since; Venice becoming a well preserved museum coping with outgoing migration, whilst Istanbul conversely a pulsating megacity with incoming migration. The vessel also reflected the loss of traditional dockyards across the to urban development.

Traversing the various halls of the Arsenale and Giardini, it becomes obvious that the bi-annual cultural event consumes an inordinate amount of intellectual effort and social capital. This risks becoming another 'event' to be consumed until the next cycle. For in the majority of urban dwellers who face daily strains imposed by their city, can an elite architectural gathering, such as the Biennale, proffer long term realistic solutions? Is it still relevant?

The answer may lie with the principal benefactor and host Venice itself. Prior to the summer season, a large group of Venetians delivered a blunt message though a concentrated public campaign, "Tourists Go Home!!! You Are Destroying This Area". In this frustration of overwhelming visitor numbers, the rising cost of property, the dependence on tourism for the economy and jobs, and the social decay and physical degradation imposed on this historic city, the host became the subject. Venice was forced to confront an uncomfortable truth: its citizenry were being marginalised in the process of becoming a 'global city'.

As the pre-eminent stage for art and architectural discourse in the world, Venice became a trend setter for the global cultural capital, and its eager international audience. Yet its own Biennale contribution of Japanese architect Tadao Ando's Punta della Dogana redevelopment and its towering concrete pillars, invited local resentment against such a modern intervention within their midst. Driven by Alejandro Aravena's agenda in which "reporting from the front" confronted the debris of various social and political forces through architecture, the irony is that the "front" for Venice is how sustaining the Biennale is eroding and impoverishing the life of Venetians.

fig. 15

fig. 16

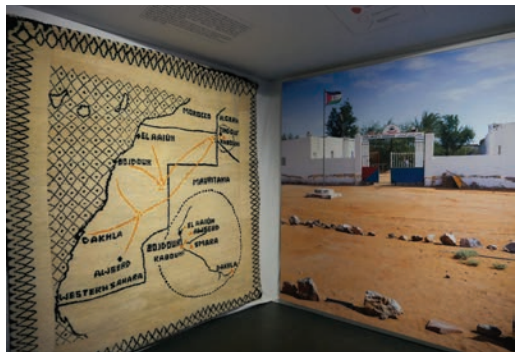


fig. 17

fig. 18

13 — Waste materials reassembled as the 'bastarda', in the Turkish pavilion.
14 — *Making Heimat*: New openings in the German pavilion reflecting a new way of integrating migrants into German society.
15 — Creating a dialogue between old and new elements: Japanese architect Tadao Ando's Punta della Dogana museum redevelopment completed in 2009.
16 — A pyramid of projects presented by the Nordic countries of Sweden, Finland and Norway to stimulate discussion between their societies and architecture.
17 — Architectural production of people living for decades in refugee camps. The National Union of of Sahrawi Women mapping their nation on woven tapestry as produced in the camps.
18 — Protest poster against the Punta della Dogana museum redevelopment.

Contributors

Athanasios Tsakonas is a registered architect and founding partner in Singapore firm Tan + Tsakonas Architects. He graduated from University of Adelaide, followed by an MA in Urban Design from NUS. With a background in public housing, he has completed various projects throughout the region and Australia, including the Centre for Climate Research, Library@ Esplanade and Timbre+ at One-North. A versatile designer, he is also keenly interested in architectural history in the region.

Calvin Chua is a UK-registered architect and educator. He directs Spatial Anatomy and is currently an Adjunct Assistant Professor at the Singapore University of Technology and Design (SUTD), leading a design studio that focuses on the design of new working and living environments within old industrial estates and business parks. In parallel, Calvin conducts an architectural workshop in Pyongyang through the AA Visiting School Programme and Choson Exchange, and has been featured in various news media, including Monocle Radio and CNN. An alumnus of the Architectural Association, Calvin has worked for several architecture and territorial planning firms in Europe.

Fong Hoo Cheong, MSIA, BOA registered Architect is the owner and founder of local boutique architectural consultancy HCF and Associates. His design work gain recognition in the form of President's Design Awards, Best Design of the year 2015. He is an active member of the profession holding a parallel appointment as *Executive Director of the Singapore Institute of Architects* and *editor of The Singapore Architect* periodical. He had contributed significantly to architectural education over some 15 years as an educator specialising in B Arch Level 1 teaching at the Dept of Architecture, NUS. He was *Studio Master, Adjunct Associate Professor and from 2012 to 2014 Year 1 Coordinator.* He continues to serve as board member, Preservation of Sites and Monuments Advisory Board.

Jax Tan is an aspiring architect currently working at Designshop. There, most of her hours are spent experimenting and negotiating with spaces and people to realise dream homes for the clients. Outside of work, she dabbles in small scale, short term branding and interior design projects via Open Studio, a spatial design practice founded with her partner in 2016.

Lai Chee Kien is Adjunct Associate Professor at the Architecture and Sustainable Design Pillar, Singapore University of Technology and Design. He is a registered architect, and graduated from NUS with an M Arch. by research [1996], and a PhD in History of Architecture & Urban Design from the University of California, Berkeley [2005]. He researches on histories of art, architecture, settlements, urbanism and landscapes in Southeast Asia. His publications include *Building Merdeka: Independence Architecture in Kuala Lumpur, 1957-1966* (2007) and *Recollections of Life in an Accidental Nation: Alfred Wong* (2016). His 2015 work, *Through the Lens of Lee Kip Lin: Photographs of Singapore 1965-1995* was awarded the Singapore Book Award for Best Non-Fiction Title in 2016.

Quek Li-En (M. Arch, National University of Singapore) is a registered architect practicing in Singapore. Li-En believes that architecture is intimately connected with everyday life and founded Quen Architects in 2016 to pursue the integration of architecture, art, landscape and interior design.

Teo Yee Chin is a practising architect. He is the founding principal and design director of Red Bean Architects (RBA). Born in 1975 in Singapore, Yee Chin obtained his Master's of Architecture at Harvard University. He balances the creative work in RBA with an ongoing, self-driven research on the city actualised through writing and teaching. He has been an invited speaker at TEDx, Archifest, NUS and Singapore Polytechnic expounding his ideas on urbanism and human-centred design. His articles on local architecture and urban design has been published in local press and media. In 2016, Yee Chin was given the prestigious appointment to design and co-curate the Singapore Pavilion at the Biennale Architettura in Venice.

X.F. Xie grew up understanding Singapore's suburbs from the various neighbourhood swimming pools and running tracks she would frequent. Her interests lie in the intersection of urban networks and identity.

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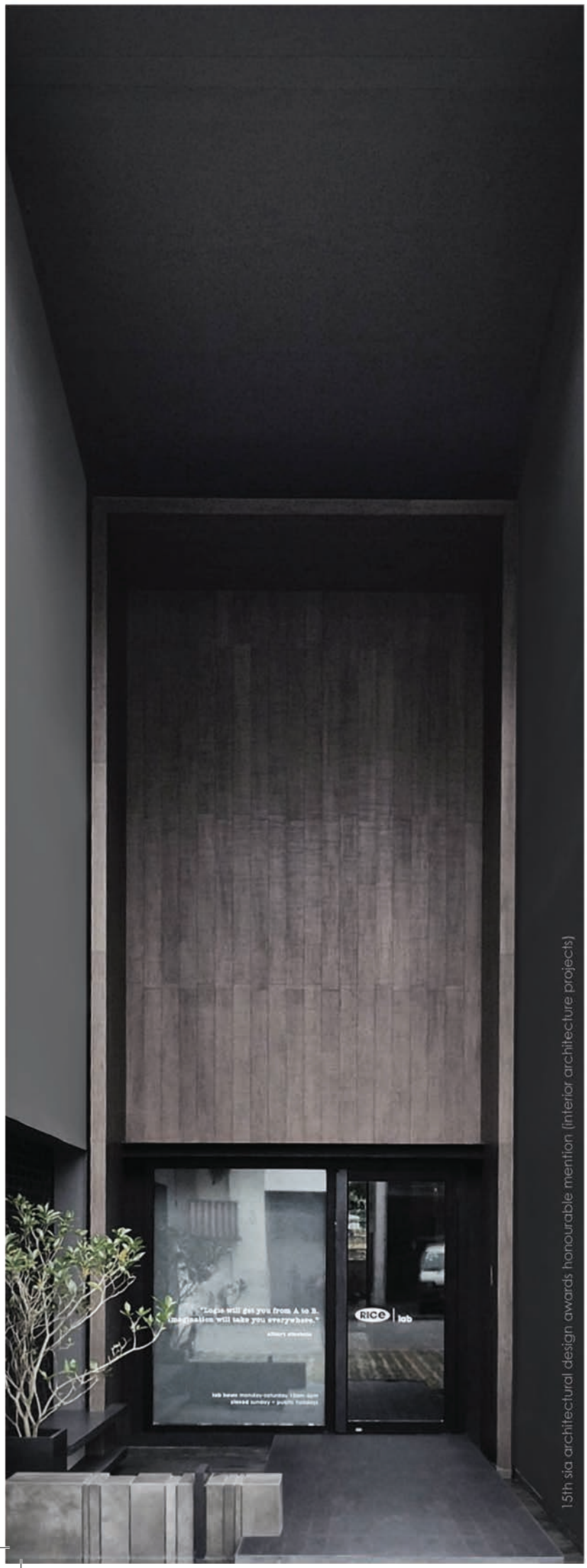

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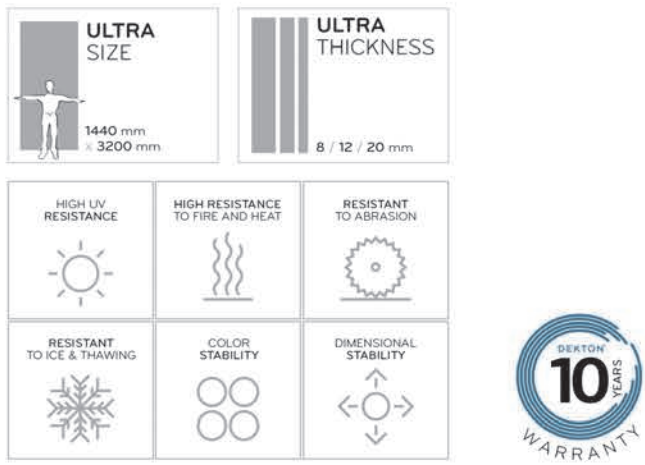

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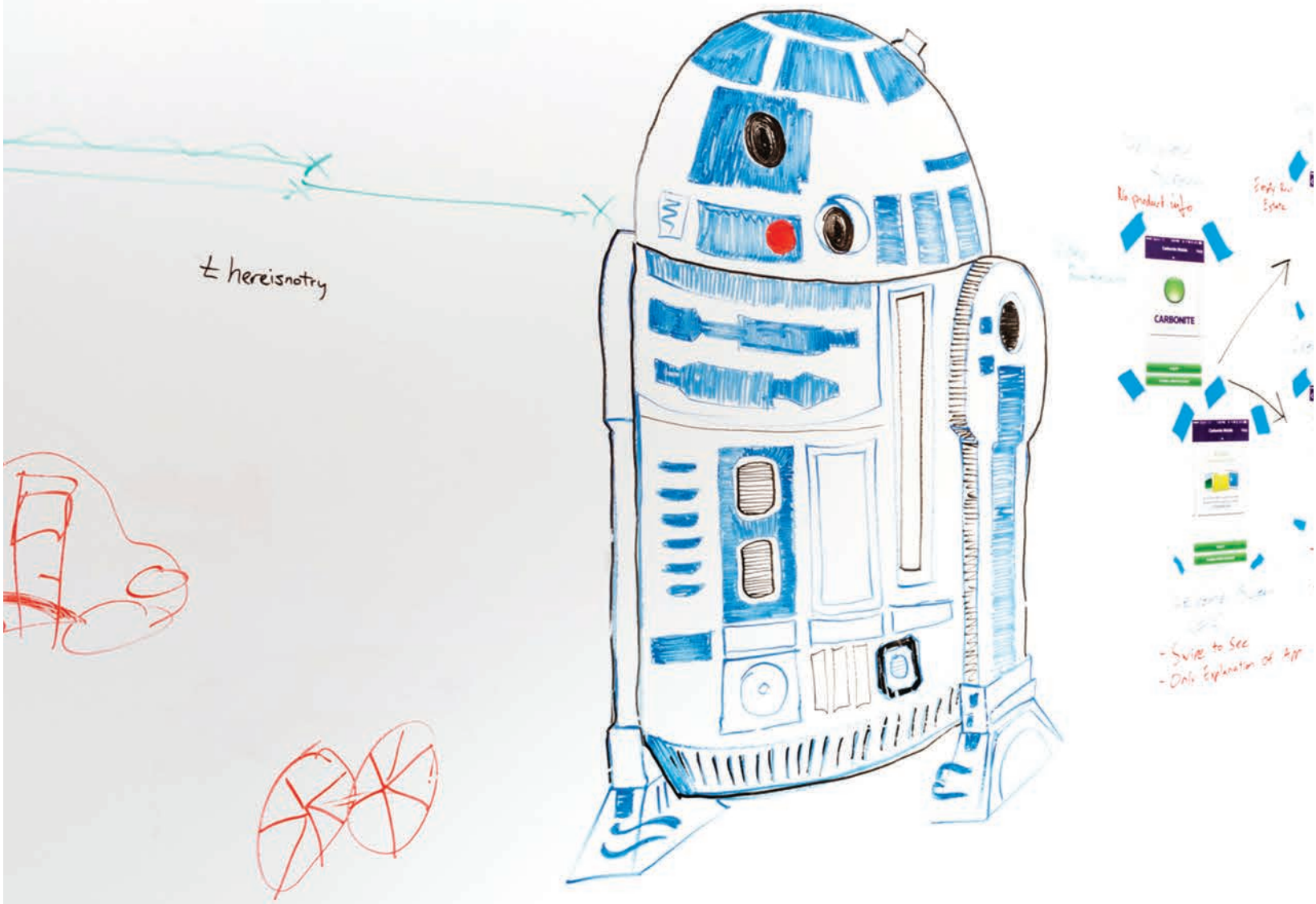

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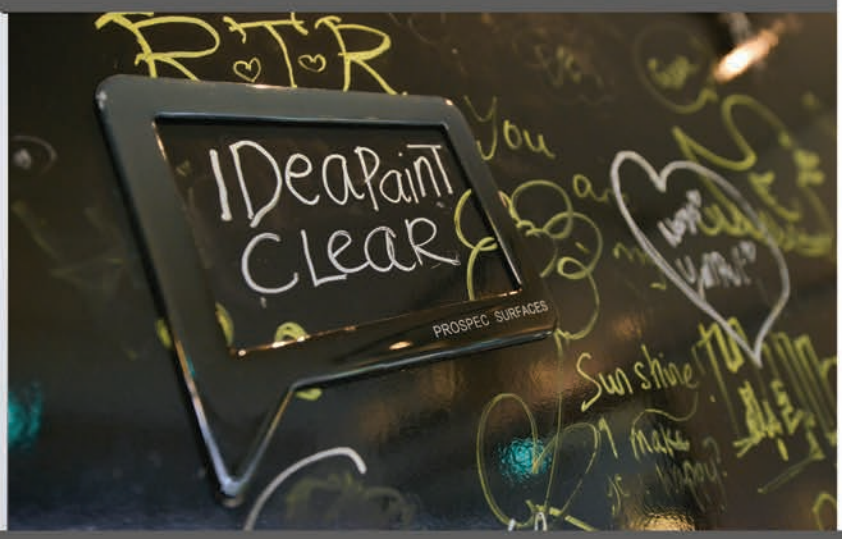

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