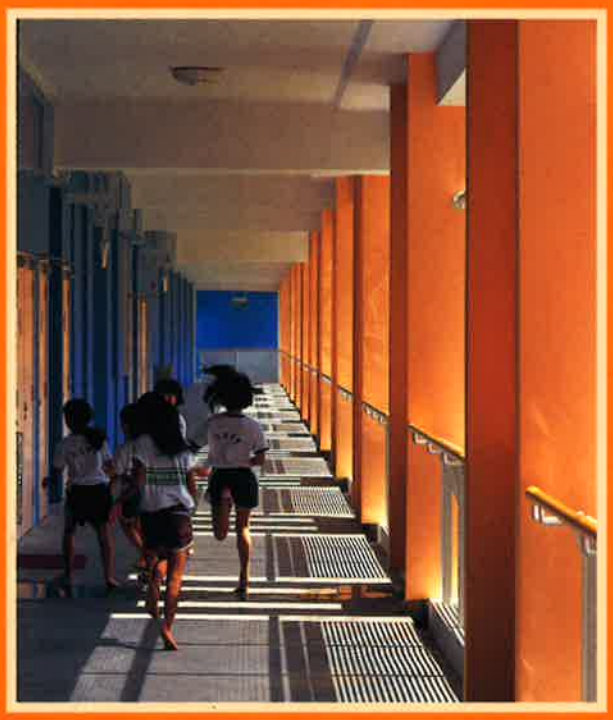


ARCHITECTURE *of* LEARNING

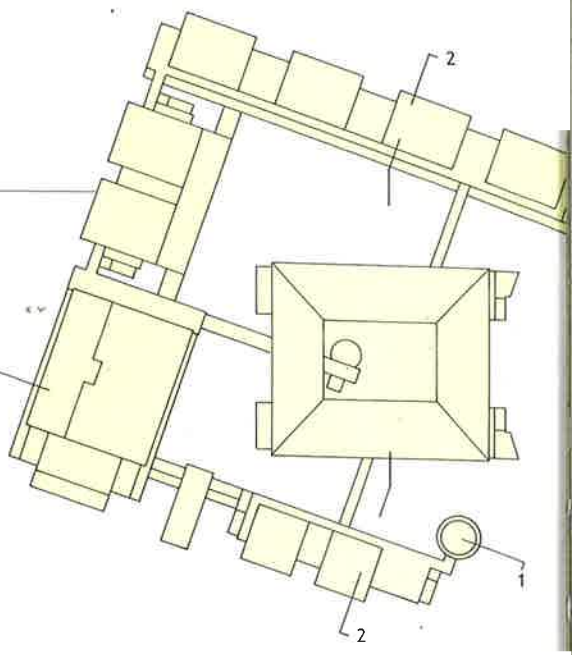
Robert Powell

New Singapore Schools

Interlocking Geometry

Sengkang Secondary School

10 Compassvale Lane, Sengkang 545090 • 1998



Top:
Along the northern façade the specialist teaching rooms are disaggregated into four blocks in a move designed to reduce the scale of the building.

Opposite:
A stair tower terminates the southern wing of the school.

Sengkang is the most recently constructed Singapore New Town, situated to the north of Hougang and to the south of Ponggol, and seamlessly merged with both. The infrastructure of the New Town has developed in a remarkably short period. The 1998 street map of the island showed farm tracks and sparse rural settlements. Two years later there are gleaming new HDB apartment blocks, an LRT line under construction and a network of neighbourhood schools.

This then is the context for Sengkang Secondary School which was completed in 1998. The school occupies a perfectly flat, rectangular site, bounded on the north-east, south-west and south-east by housing estate roads and on the north-west by 18-storey apartment blocks constructed in the same time frame as the school. It raises the pertinent question: how does one design in this 'context of no context'? In this case, the PWD architects obtained some clues about the future context from the preliminary plans of the town that the HDB provided. But, as the project architect notes it is an exemplary illustration of tabula rasa architecture.[20]

The plan of the school tests out a new paradigm where the classroom blocks are located at the centre of the plan, with the remaining accommodation located around the periphery of the site. This has been termed a "doughnut plan", or designing using an optimal-relationship diagram as the generator.

Thus the four-storey specialist teaching blocks run parallel to the perimeter roads on the north-east and south-west boundaries and the administration block and the canteen/hall block are butted end-to-end and run parallel to the north-western boundary of the site. The outer ring was meant, in part, as a 'solid' noise buffer for the classrooms as an intuitive strategy in response to the site as a peninsula surrounded by roads on three sides.

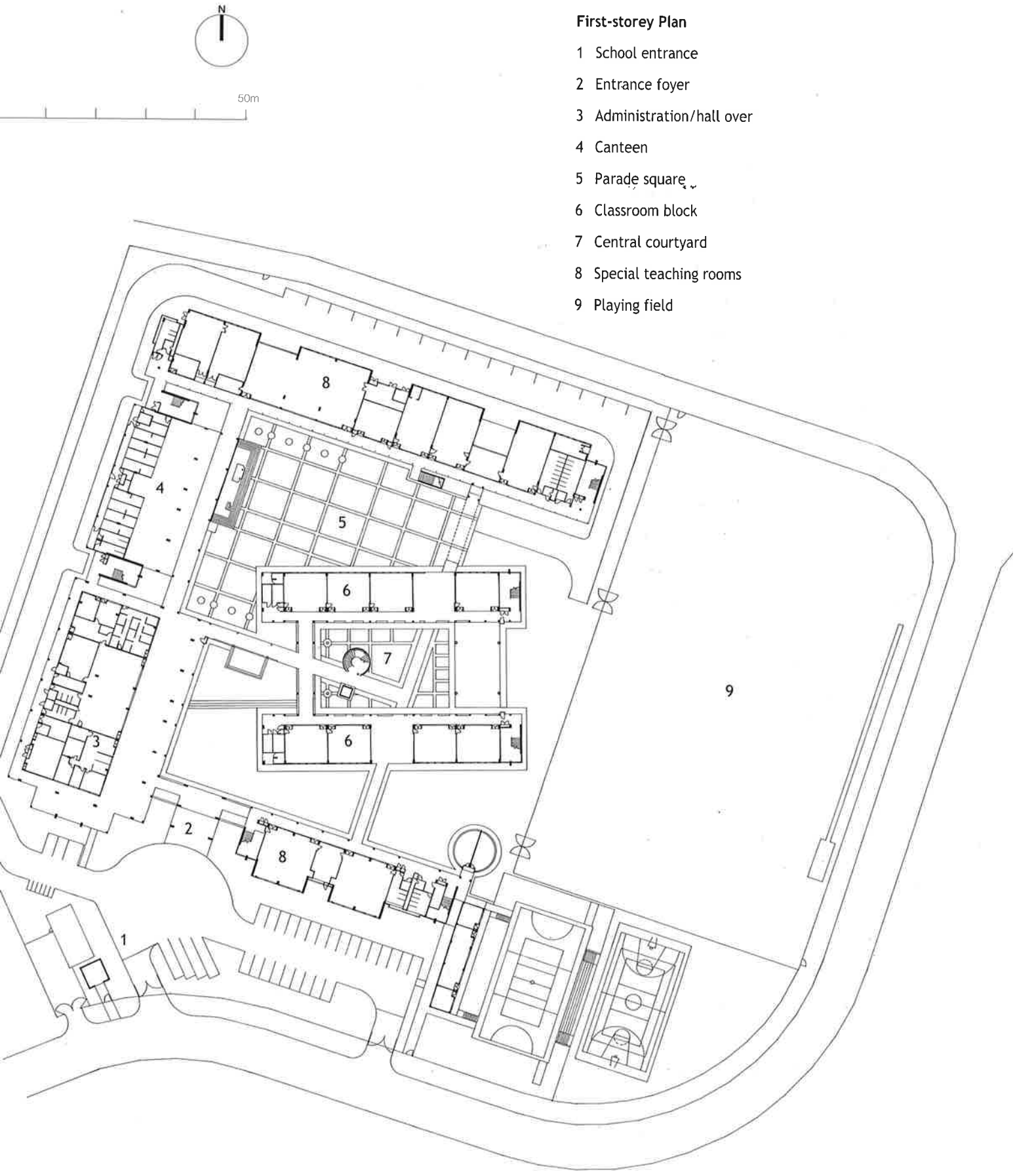
The roof and elevational treatment of the outer ring is intended to break down its monolithic nature. Originally, pitched roofs were meant to alternate between flat ones, but for practicality, the flat roofs were modified to gentle pitches. The summit of the roofs are on the periphery to emphasise the inward character of the scheme and to mitigate the overall horizontality.

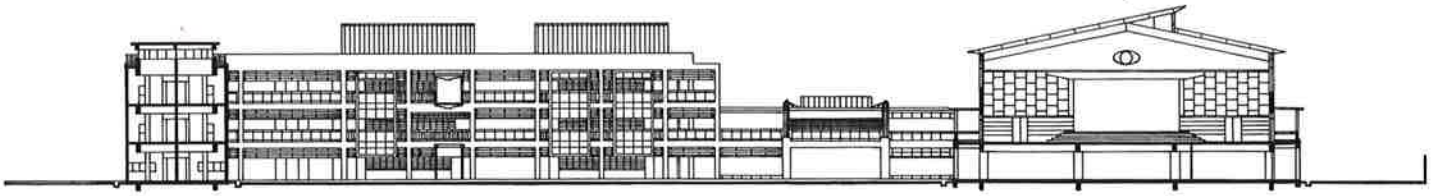
A 'U'-shaped building mass is created at the western end of the site, with an east facing void in the centre which is occupied by the two parallel, six-storey classroom blocks with a linear courtyard between the blocks. The two classroom blocks are rotated and run along an east-west axis. The effect is to leave residual spaces between the peripheral building mass and the central building mass, which are utilised for the parade square, a small amphitheatre and gardens. The 'flying' bridges linking the upper levels of the various blocks reinforce the underlying geometry of the design.

A sequence of spaces:
Top:
The canopy projecting above the school entrance.

Centre:
The parade square is a triangular space created by the juxtaposition of two interlocking geometries.

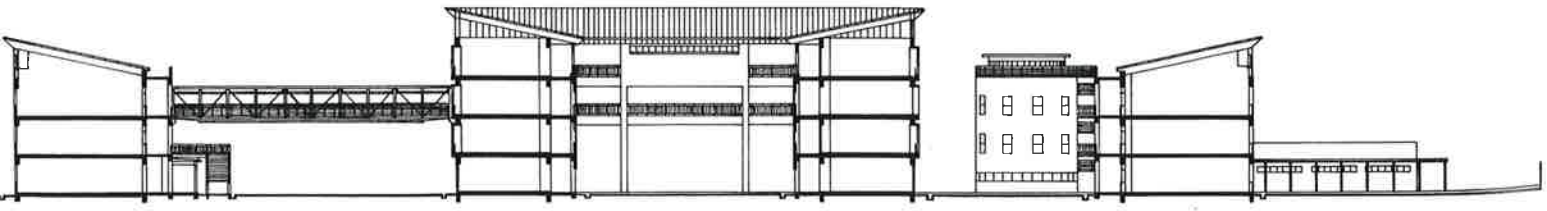
Bottom:
The classroom block is a compact rectangular form at the centre of the school.
An overhead bridge links the classroom block with the special teaching rooms.


N
50m
First-storey Plan
1 School entrance
2 Entrance foyer
3 Administration/hall over
4 Canteen
5 Parade square
6 Classroom block
7 Central courtyard
8 Special teaching rooms
9 Playing field



SECTION / ELEVATION 1 - 1

The school motto is displayed prominently as one enters the entrance foyer.



SECTION / ELEVATION 2 - 2

Left, centre and right: There is consistency in the tectonics and a high quality of detailing of secondary architectural elements such as balustrades and metal screens.

The classroom blocks look like a huge portal when viewed from the east and metaphorically can be read as a 'gateway' to the world of knowledge. The effect is to create an internal environment for the school which is inward looking and yet presents a friendly face to the outside world. The 'breaking down' of the scale of the blocks on the periphery contributes to this friendliness.

The project architect also saw the arrangement of the classrooms as a cloistered space which could be taken as an historical reference to schools that grew out from the medieval monasteries. However, the space between the classrooms flows out to the community field which, 'signifies the "open-ended" nature of contemporary education as compared to the closed, absolutist nature of knowledge of the 12th Century.'[21]

The entrance to the school is from the south-west and this sets up an axis which runs approximately north-east to south-west through the entrance foyer and between the school canteen and the parade square. This axis and that of the classroom blocks meet at the centre of the administration block. Primary colours are used in specific locations to assist in orientation but it is not strictly necessary for the plan is instantly comprehensible. In fact the legibility of the plan is its greatest asset. Walking around the school the underlying structure and the connections are instantly clear.

The school playing field, basketball court and volleyball court are all located along the eastern boundary of the site and act as a buffer significantly reducing the impact of noise generated by traffic on the peripheral roads.

The project architect has achieved consistency in the tectonics and harmony in the juxtaposition of materials. There are some exquisite details of metal screens, balustrades and glass block walls. The clerestory treatment on the top level highlights the light-heavy, steel-concrete, horizontal-vertical difference. The 'flying' bridges, the cantilevered front entrance and the detailing in general, make references to New Town Secondary School, designed by the same project architect. It was unintentional but inevitable as the design processes of both schools overlapped.

There are also delightful signs of the personalisation of spaces by staff and students. Climbing plants create a 'veil' drawn across the open end of the classroom block 'portal'. The effect is to soften the courtyard space at the heart of the school and yet project the life of the school into the surrounding area.