

Design and Applied Technology Teaching Kit for Senior Secondary Curriculum

Value and Impact

History of School Design in Hong Kong

[Teacher notes]

Organizer



香港建築師學會
The Hong Kong Institute of Architects

Sponsor



Research Team



THE UNIVERSITY OF HONG KONG 香港大學
faculty of architecture 建築學院
Community Project Workshop 社區項目工作坊

Contents

Preamble

Teaching plan	i
---------------------	---

Lesson 1: History of School Design in Hong Kong

1.1 1950s Public Schools	02
1.2 1950s Rooftop Schools	02
1.3 1960s Annex Schools	04
1.4 1970s Matchbox Schools	06
1.5 1980s Standard Design Schools	07
1.6 1980s Interlocking Schools	08
1.7 2000s Millennium Schools	10
1.8 2000s Post-millennium Schools	12

Summary, Key words and Further reading	14
----------------------------------------------	----

Disclaimer

Create Hong Kong of the Government of the Hong Kong Special Administrative Region provides funding support to the project only, and does not otherwise take part in the project. Any opinions, findings, conclusions or recommendations expressed in these materials/events (or by members of the project team) do not reflect the views of the Government of the Hong Kong Special Administrative Region.

© 2012 Hong Kong Institute of Architects

Topic 07

History of School Design in Hong Kong

Major teaching areas

Design and Applied Technology

Strand 3 – Value and Impact

- Values in Technology and Design
- Historical and Cultural Influences
- Entrepreneurship and Enterprise

Related teaching areas

Design and Applied Technology

Strand 1 – Design and Innovation

- Design in Practice
- Design Considerations
- Design and Communication

Strand 2 – Technological Principles

- Nature of Technology

Interdisciplinary teaching areas

Liberal Studies

- Module 2 Hong Kong Today

Visual Arts

- Visual Arts Appreciation and Criticism in Context

Learning Objectives

- To understand various factors to be considered in the design of schools, a building typology that should be familiar to students
- To analyse how design responds to ever-changing social needs by looking at the history of school design in Hong Kong

Teaching plan

Lesson	Contents
Lesson 1 History of School Design in Hong Kong	<ul style="list-style-type: none"> • 1.1-1.8 Quick overview on the history of school design in Hong Kong • Understanding how various school designs have fulfilled ever-changing social needs in history



Lesson 1 History of School Design in Hong Kong



Lesson 1

History of School Design in Hong Kong

What is the building type of your school? Is it one of the standard designs or a unique design? When we speak of a school, we immediately think of a standalone building, but this is not always the case.

1.1 1950s — Public Schools

In the post-war days of the 1950s, Hong Kong experienced rapid population growth due to baby boom and influx of mainland immigrants, and the number of students requiring education rose to more than 100,000.

In 1951, the Government proposed to build new primary schools in every district in the *Fisher Report*.

- Public schools were usually designed in an L-shape with a basketball court and an assembly hall on the ground floor.
- The school also included 24 standard classrooms and rooms for cookery, carpentry, music and medical studies.

These schools were fully funded and run by the Government.

- Tong Mei Road Government Primary School, established in 1959.



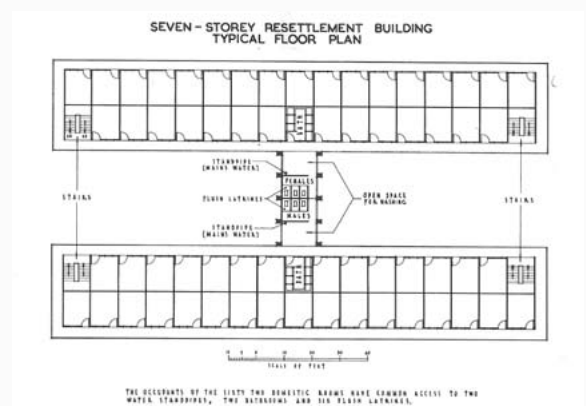
1.2 1950s — Rooftop Schools

Following the Shek Kip Mei Fire in 1953, the Government began to clear slums and built public housing estates to improve living conditions in Hong Kong.

In the 1950s, Reverend Verent John Russell Mills suggested to the Government that

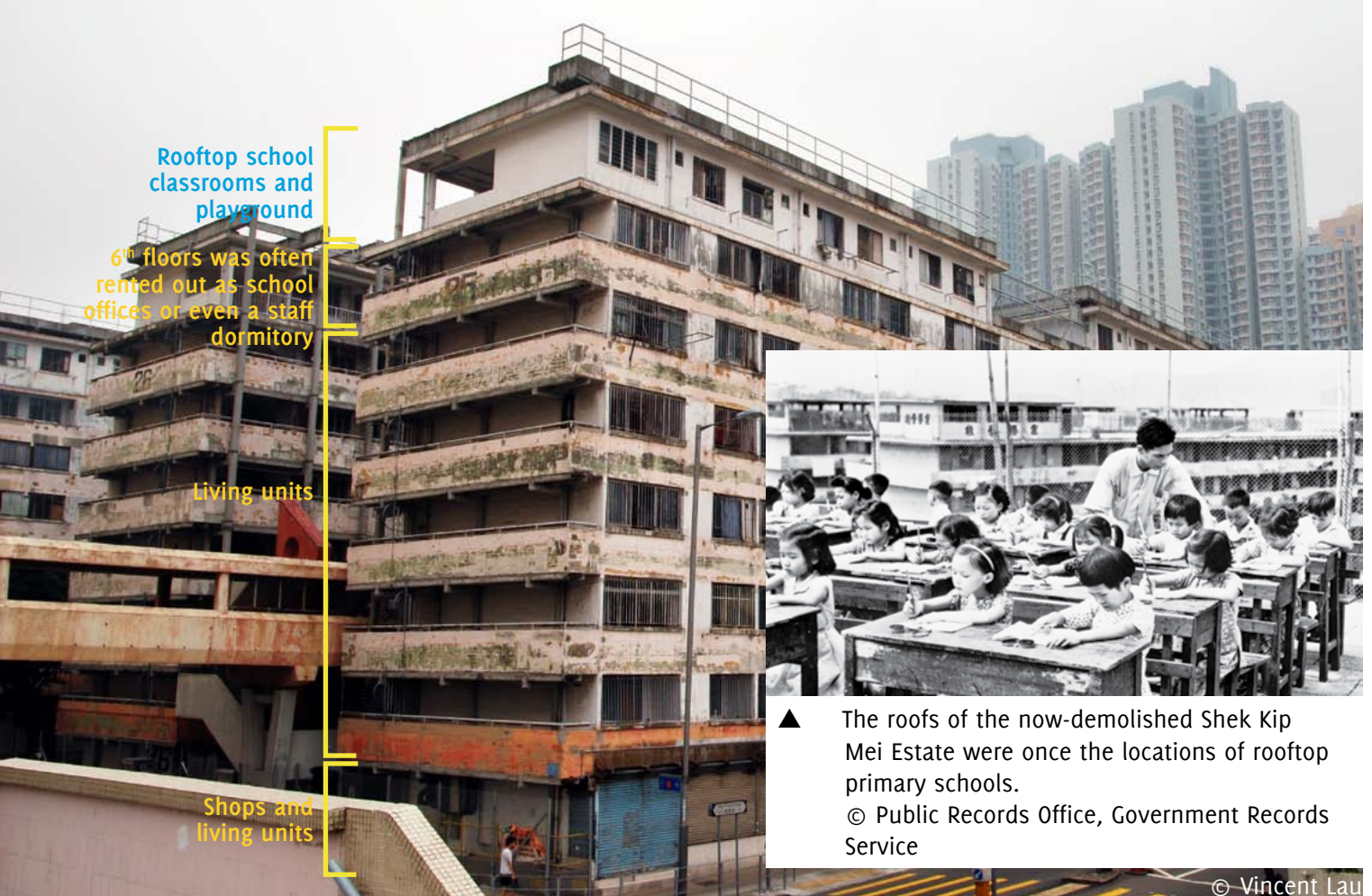
- primary schools could be accommodated on the rooftops of slab type public housing blocks ('slab blocks'),

thus the era of 'rooftop primary schools' began. Unlike public schools, these schools were often founded by religious bodies and charitable organisations.



- ▲ Typical floor plan of a 7-storey resettlement block in the mid-1950s.

© Hong Kong Housing Authority

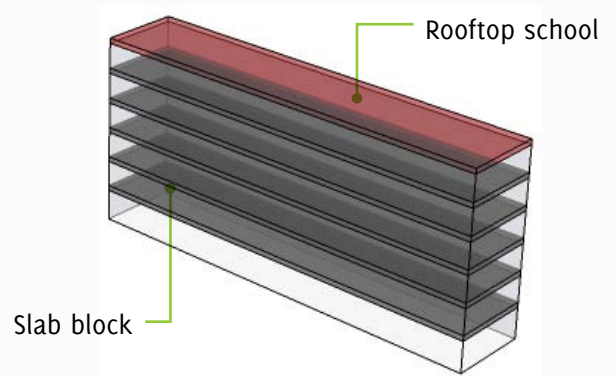


Slab Block

'Slab blocks' were a common residential building typology in the 1950s.

- The form of the building extends horizontally, with the width of the building much greater than the depth.
- It appears like a big slab placed at the site. Horizontal floor slabs are the most dominant elements in this typology.

Rooftop schools were situated on the top floor of the 'slab block'.



[Discussion]

- 1 What do you think of rooftop schools? What problems can you see with this kind of school?

Possible perspectives

1. The small classrooms on the roof could accommodate very few students and would not be a good long-term solution for education.
2. Students and teachers had to use the shared toilet on the 7th floor which was shared with other residents. Hygiene conditions were poor.
3. Learning was easily affected by weather.
4. Students had to share the staircase with residents and this could be a safety issue.



▲ Po Yan Catholic Primary School is connected to Block 22 of Tung Tau Estate.

1.3 1960s – Annex Schools

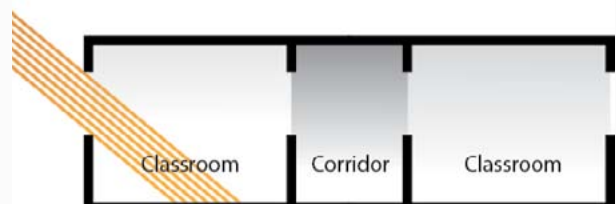
Annex schools were a practical approach to solve functional and spatial requirements. From the 1960s onwards,

- 5-storey school annexes with 24 classrooms were built and literally attached to public housing blocks.
- Classrooms were arranged on the two sides of a central corridor which was isolated from natural ventilation and sunlight (double-loaded corridor).
- Students used the public sports courts nearby for PE lessons due to the lack of facilities.

Double-loaded corridor

Double-loaded corridors are a practical approach to the issue of accessibility, with rooms arranged on both sides. The corridor is therefore isolated from natural ventilation and sunlight.

© Karen Tsui



[Discussion]

- 1 Compare the design of rooftop schools and annex schools. What problems and merits do you find with the annex design?

Possible perspectives

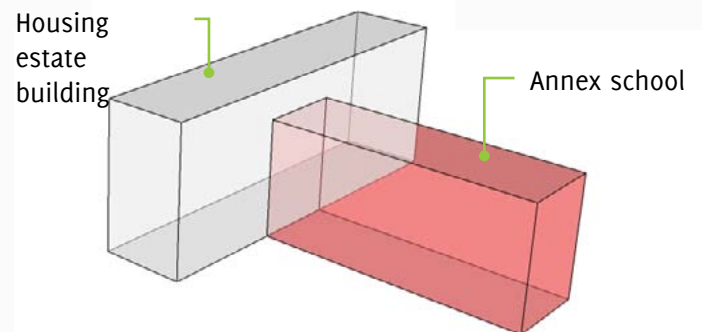
1. The capacity of an annex school was much larger.
2. Learning would no longer be interrupted by adverse weather.
3. Natural light could not penetrate into the corridor.
4. Annex schools were designed as part of public housing estates and the facilities were not sufficient. The schools were built to meet the minimum educational needs of the day, not the holistic needs of the children in the future.

Annex

An annex is an additional or extension of a main building.

Annex schools were based on a single rectangular block attached to a housing block which was part of the main housing estate.

© Karen Tsui



Po Yan Catholic Primary School (now Po Yan Oblate Primary School), established in 1965, was the first Government school with an independent school campus and is the only annex school left in Hong Kong. It is attached to Block 22 of Tung Tau Estate.

1.4 1970s – ‘Matchbox’ Schools

In the 1970s, schools were designed as buildings independent from public housing estates.

- Due to the rigid rectangular form, they were called ‘matchboxes’.
- As in annex schools, classrooms were placed on the two sides of a central corridor (double-loaded corridor).
- New additions included a basketball court on the ground floor and an extra assembly hall on the 6th floor.

[Discussion]

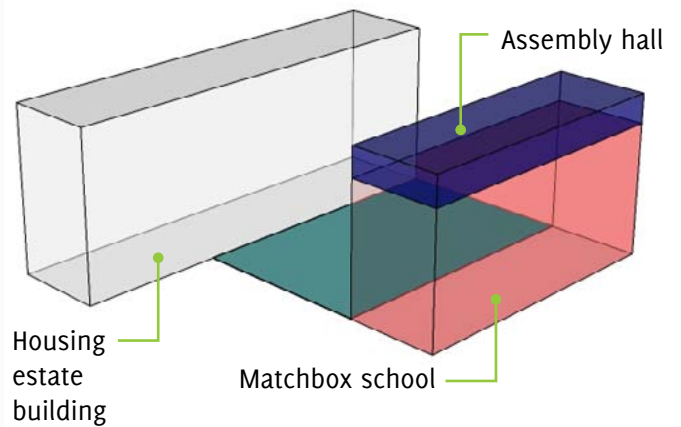
1 What problems and merits do you find in the ‘matchbox’ schools?

Possible perspectives

1. Similar to annex schools but the disturbance to the residential blocks was reduced.
2. The extra assembly hall and basketball court allowed more activity space for students.
3. Floor space was still insufficient.
4. The structure was rigid and did not promote flexible use of space. The modes of learning were therefore limited by the strict layout.

Matchbox

Refers to building blocks with the form of a matchbox. Each building is an independent block that is self-contained. It is not connected to the surrounding buildings. © Karen Tsui



The basketball court was shared by students of the ‘matchbox’ school and the residents of the public housing estate.

1.5 1980s – Standard Design Schools

In the 1980s, the Government developed the standard design for schools. Compared to previous designs,

- A standard school was bigger and better furnished.
- The gloomy central corridor was gone. On every floor, 6 classrooms were lined in a row on one side of the building and accessed via single-loaded corridor.
- The assembly hall was placed on the 2nd floor and doubled as a gymnasium, a facility that was not provided in older designs.
- The number of students in each class was also reduced from 45 to 30-40.

Despite these improvements, the student-teacher ratio was still high and modes of learning other than the traditional learning approach could not be easily accommodated in the rigid classroom setting.

[Discussion]

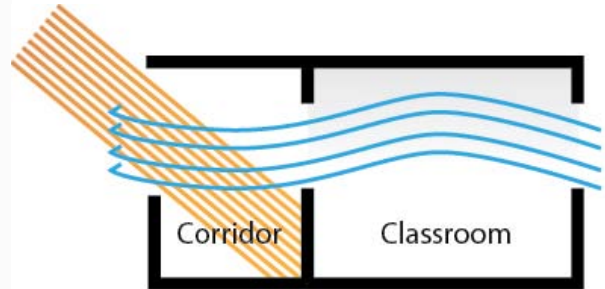
1 How was the school environment improved in the standard design?

Possible Perspectives

1. Open corridors allowed natural light and fresh air into the rooms, and provided a better interaction space for students.
2. As the campus grew larger, more learning facilities e.g. the school library.
3. More outdoor activity space for students.

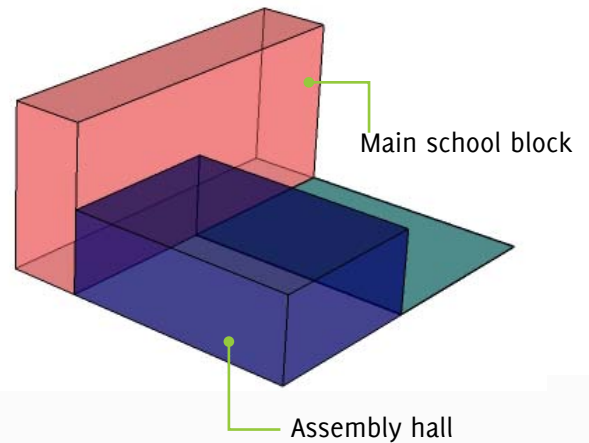
Single-loaded corridor

A single-loaded corridor is an open corridor which provides one-side access to rooms and leaves another side open for natural ventilation and sunlight.



Standard school design

The assembly hall is separated from the main block of the school. © Karen Tsui





A model showing two interlocking schools linked by the block with an assembly hall on top of the other.

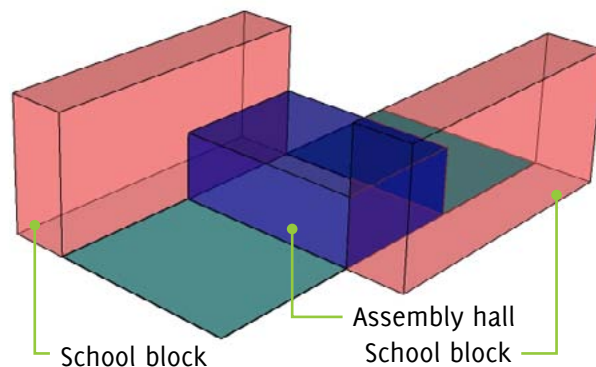
1.6 1980s - Interlocking Schools

In 1978, the Government began to implement 9-year compulsory education. There was an increase in the number of students and more secondary schools had to be built.

- Due to the limited supply of land, sometimes two schools were built in an interlocking style and shared a common hall building for efficiency.
- Each school had 24 classrooms, 12 special rooms, a library, a covered playground and a basketball court on the ground floor.

Interlocking

The two schools are linked by a building accommodating two halls of each school and form an interlocking composition. © Karen Tsui





[Discussion]

- 1 What problems or merits do you see in the interlocking school design?

Possible perspectives

- As the two schools share the assembly halls in one building, the noises from each hall might affect each other.
- As halls were not as frequently used as classrooms, it was a wise decision to put the two halls together to save land and leave space for other functions.

Innovative school design in the 1980s

Although the Government issued guidelines for standard school design in 1980s, innovative design of local schools have often been recognized by the Hong Kong Institute of Architects (HKIA).



St. Joan of Arc Secondary School

Architect: KNW Architects & Engineers Limited

Year of completion: 1986

Location: North Point, Hong Kong

St. Joan of Arc Secondary School was awarded the HKIA Annual Award in 1987. The designer aimed to create a gathering space for students along the staircase. The hanging roof further emphasizes the concept of a 'place of gathering'. The original campus consisted of 31 standard classrooms, library, assembly hall, multi-purpose room, and other special activity rooms.

1.7 2000s – Millennium Schools

Following rapid economic development in the 1980s, existing schools were revamped and upgraded in the 1990s to meet changing educational needs. By the end of the 1990s, the Government had increased investment in education and there was an increasing use of information technology in teaching/learning. With a greater demand for improvement in learning environments, the Government set out to develop the ‘millennium’ school, a new prototype to suit the latest educational goals and needs.

- The primary and secondary ‘millennium’ schools were L-shaped and U-shaped respectively.
- The schools had 24 or 30 standard classrooms, a basketball court, a library, language rooms, special rooms, networked computers and multimedia facilities.
- Staff rooms and rest areas were expanded to improve the working environment for teachers.
- In terms of spatial arrangement, the millennium school was comprised of 3 blocks which could be arranged according to specific site conditions.
- Schools in the millennium era adopted a site-specific design. Schools were built to conform to the site context, restraints, and topography.

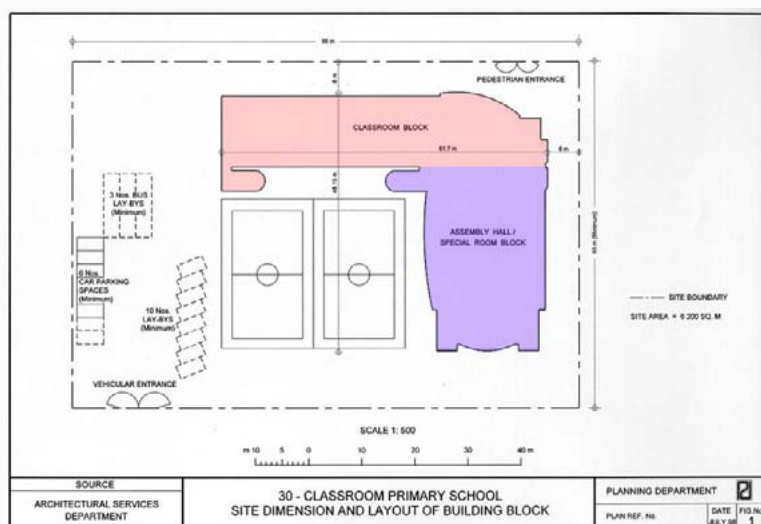
It was the first time that primary education had received so much attention in Hong Kong. As Hong Kong underwent restructuring into an information economy resulted from tertiary production, an all-rounded upgrade of school facilities at all levels of education was crucial.

Unlike the construction of standard design schools, for the first time in history, school sponsoring bodies were allowed to get involved in the design process while the Government paid for the construction.

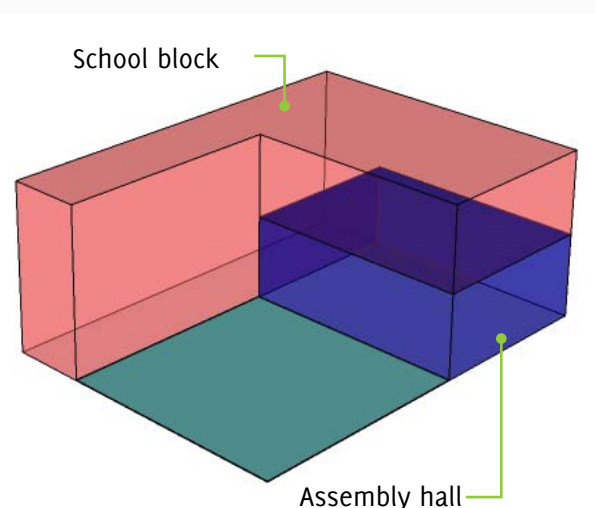


Millennium school design

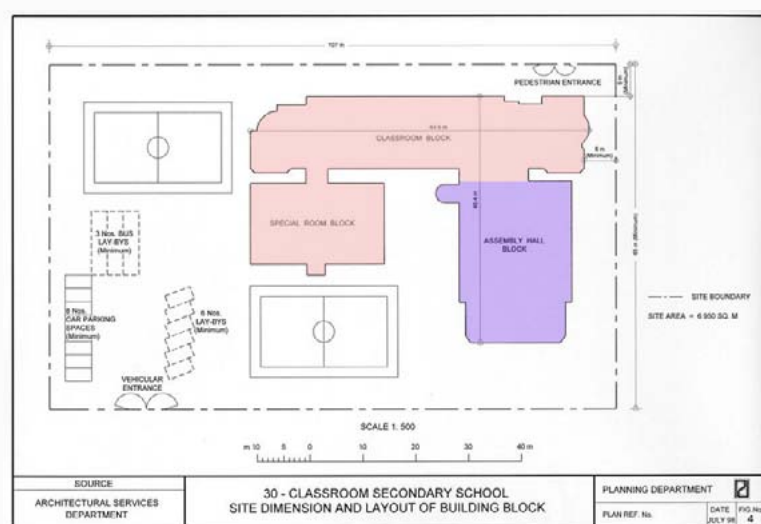
Model of a ‘school village’ - a group of millennium schools sharing common facilities such as a sports ground. Note the L-shaped and U-shaped configurations.



▲ Floor plan and model of L-shaped millennium primary school

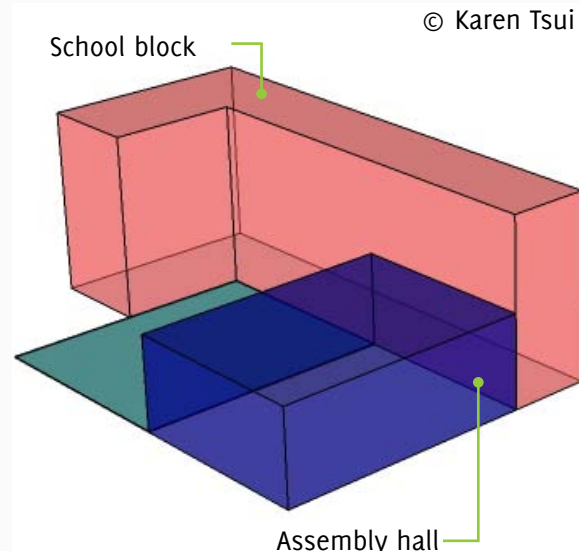


© Karen Tsui



▲ Floor plan and model of U-shaped millennium secondary school

Source: 'Hong Kong Planning Standards and Guidelines', Planning Department



© Karen Tsui

[Discussion]

- 1 What problems or merits do you find in the millennium school design?

Possible perspectives

- + The millennium schools were more spacious and well-equipped. There was much more open and green space for students and teachers to enjoy. A school should not only be a place for passing on textbook knowledge, but a safe and comfortable place to nurture students' well-being.
- Although the millennium school design was better designed and allowed some flexibility in building arrangement, it was still another type of standard design and therefore not very distinctive in character.



▲ Kowloon Tong Bishop Walsh Catholic School

1.8 2000s – Post-millennium Schools

In 2005, the Government began to adopt non-standard designs for future school buildings. Again, the school stakeholders were able to participate in the design process. For the first time, schools could really be tailor-made to:

- site conditions; and
- the particular educational goals of the schools.

Teaching Tips

Compare and contrast can be made in the process of school's design with that of public housing. More about public housing in Hong Kong can refer to Liberal Studies Topic 02 'Public Housing - improvement in quality of life'.



▲ St. Paul's Co-educational College Primary School



▲ Hong Kong Institute of Education Jockey Club Primary School

Supplementary

Teaching Tips

More information about architectural space, references can be made on Arts Topic 05 'VIDEO: Form and Space in Architecture'.

International school design in Hong Kong

Many of the international schools in Hong Kong are under the English Schools Foundation (ESF). The ESF was established by Government ordinance in 1967 to provide education to expatriates in Hong Kong during the colonial period.

- Since the schools follow international curriculum, programmes are very different from those in local schools and therefore special rooms and facilities are incorporated into the school designs.
- Moreover, international schools receive more funding than local schools so there is more freedom to design a better teaching and learning environment.

West Island International School

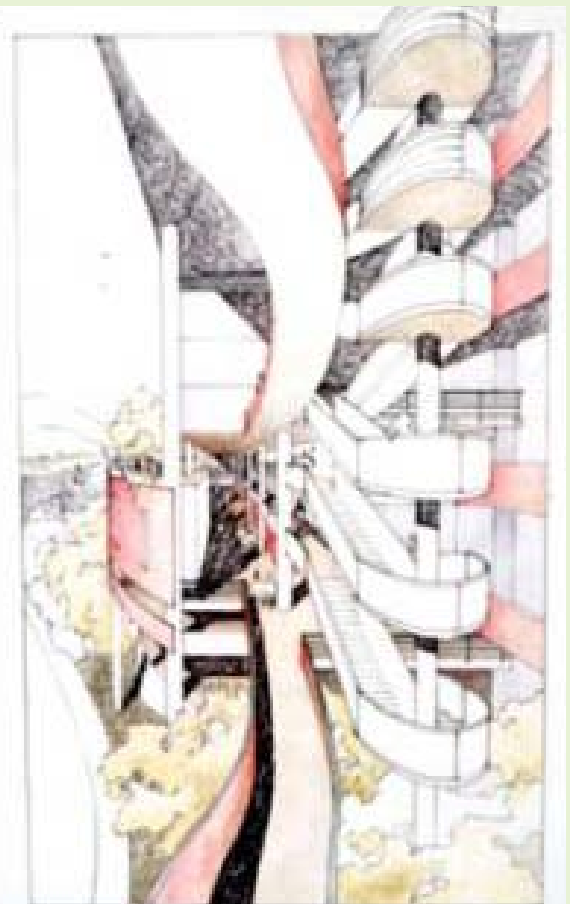
Architect: Design Consultants Limited

Year of completion: 1994

Location: Pokfulam, Hong Kong

West Island International School received the HKIA Annual Award in 1996. It is one of the international schools under the ESF.

In September 1994, the new building opened. The ten-storey structure consisted of three blocks: classrooms, laboratories, an auditorium and a 25-metre indoor pool, linked together by open-air walkways and air-conditioned faculty corridors.



© Design Consultants Ltd.

Summary

1. In Hong Kong, school design has evolved since the 1950s due to the changing needs of the population and limited land and financial resources. Innovation is shown in the development of school designs to improve teaching and learning environments and to suit different learning requirements.

Key words

Rooftop school
Government school
Annex school
Matchbox school
Standard design
Interlocking school
Millennium school

Further reading

1. Chung, Chak, and Ngan, Ming Yan. "From "Rooftop" to "Millennium": The Development of Primary Schools in Hong Kong since 1945." *New Horizons in Education* No. 46. November 2002.
<<http://www.scpe.ied.edu.hk/newhorizon/abstract/2002n/page24.pdf>>.
2. Hong Kong Institute of Education. *From Rooftop Schools to Post-Millennium Schools: The Post-war Evolution of School Buildings in Hong Kong* (Exhibition Pamphlet). Hong Kong Museum of Education (Organizer). 2011.
<http://www.museum.ied.edu.hk/publications-souvenirs/images/leaflet_Rooftop.pdf>.
3. School Design Research Group, ed. *Innovative School Design Parameters in Hong Kong for 21st Century*. Hong Kong: Department of Architecture, the Chinese University of Hong Kong, 2001.
Online version: <<http://www.cuhk.edu.hk/proj/innovative-school>>.
4. Centre of Architectural Research for Education, Elderly, Environment and Excellence Ltd., ed. *School Facilities Programming Guide for Hong Kong*. Hong Kong: Education and Manpower Bureau, 2003.
5. *Green School Primer: Lessons in Sustainability*. Mulgrave, Vic.: Images Pub., 2009.
6. 胡恩威《香港風格》，香港：CUP Publishing Ltd. 2005。

© The Chinese University of Hong Kong

Organizer



香港建築師學會
The Hong Kong Institute of Architects

Sponsor



Research Team



THE UNIVERSITY OF HONG KONG 香港大學
faculty of architecture 建築學院
Community Project Workshop 社區項目工作坊