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LEE SHAU KEE BUILDING

The Hong Kong Polytechnic University Campus, KIL 9853, Hung Hom

Lee Shau Kee Building, The Hong Kong Polytechnic University

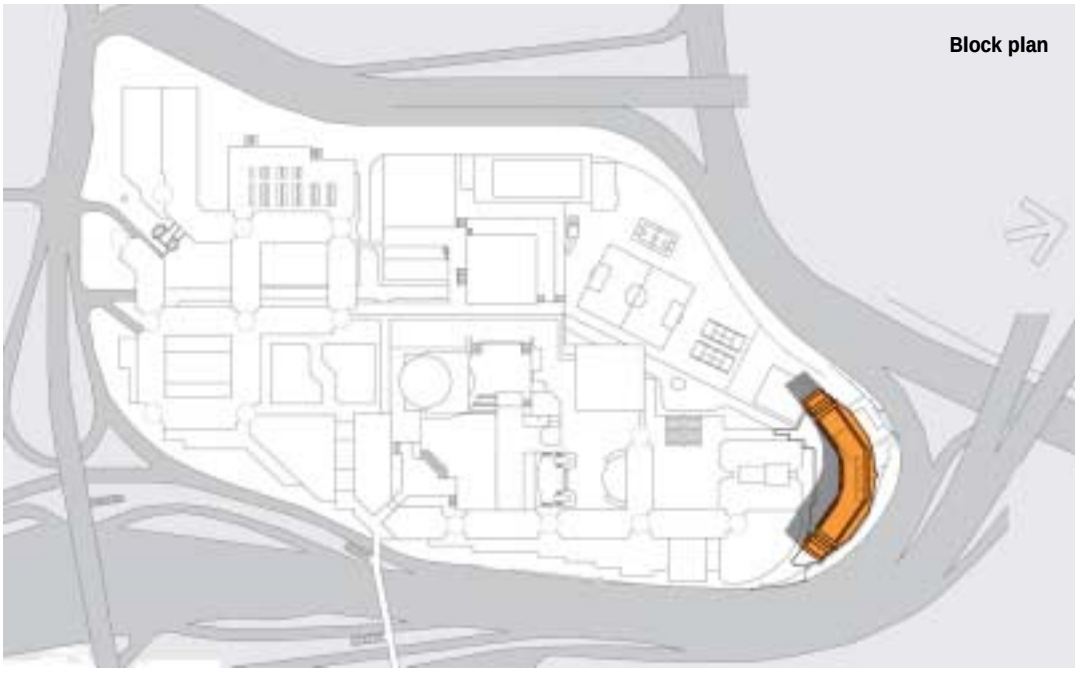
Located at Hung Hom on the Kowloon Peninsula, the Hong Kong Polytechnic University has grown substantially in recent decades to an overall GFA of 230,000 sq m on its 9.5 ha campus.

The campus is distinctive and distinguished landmark. Both the purist idiom of the existing buildings, with their brick-effect tile cladding and the campus master planning with separate vehicular and pedestrian zones are evocative of the great wave of campus development that occurred in North America and Europe during the 1960s and 1970s.

Both because of high cost of new land, and in order to maintain and enhance the existing collegiate atmosphere of the University Campus, the University has adopted a policy of containing growth within its existing site.

The two lowest floors of the university forms an almost continuous matt of building with a dedicated pedestrian precinct situated on their roof deck. Above the precinct the medium-rise superstructures of the various teaching blocks form an interlinked series of colonnades and generous open spaces. The campus environment possesses a generosity of scale and tranquility that is unusual in Hong Kong.

Lee Shau Kee Building (Phase 7), the latest building at the Polytechnic University, is designed to maintain a balance between



Block plan

providing an ambitious enlargement in teaching space whilst at the same time responding to the distinct character of the existing University Buildings.

Planning and disposition

The 14-storey 24,000 sq m Phase 7 building accommodates a mixture of lecture theatres, offices and classrooms and over 8,000 sq m of high-risk biology and chemistry laboratories on the top four floors.

A specialized heavy structures laboratory with vibrating table, gantry crane and reaction walls are located at the ground floor.

The linear form of the superstructure ensures that the maximum distance of any point in the building from a window is less than 10 metres and at once provides good natural lighting to the internal spaces and forms a protective wall between the northern end of the campus and the various multi-lane expressways and flyovers of the Hong Chong / Gascoigne and Chatham Road interchange. Phase 7 marks the northern limit of the University Campus.

The east-west orientation of the building site, which was recommended by *Dennis Lau & Ng Chun Man Architects & Engineers (H.K.) Ltd (DLN)* after a feasibility study of alternative locations on the campus, also serves to reduce thermal gain.

The plan of the building superstructure, which roughly describes the shape of a boomerang, reflects the curved site boundary. Indeed Phase 7 tightly hugs the site boundary at the northern end of the campus. The disposition of cores and air handling rooms which are situated at the turning points, or knuckles, of the curving plan form ensures delivery of rectangular teaching, office and laboratory areas of optimum functionality.

The apparent irregularity of the facade, which was an unavoidable consequence of the building's situation on a congested site, belies the systematic repetition of three basic corner conditions throughout the superstructure and disciplined modular planning based on 1.5 m primary and 500 mm sub-grids.

The superstructure forms an intimate plaza on the inside of the site that is continuous with the overall pedestrian environment of the University. In keeping with earlier phases, the building superstructure is elevated at this level so creating a spatially permeable setting with views beyond the building, in this case towards a canopy of trees growing on the boundary of Hong Chong Road.

Phase 7 stands at the northern pedestrian entrance of the campus that is substantially upgraded with extensive landscaping and a grand staircase. Barrier free access to the pedestrian podium at the northern entrance of the site is provided.

The main entrance to the building is at the podium level where a glazed multi-storey lobby clearly announces the building's circulation nexus. The fully glazed ground floor lobby, with its porte cochere, provides a dignified drop off point for visitors arriving or departing by private car.

In keeping the intensification of use of universities, which often serve as conference venues outside of term time, the Phase 7 development is expressly intended to provide an attractive setting for private or corporate events that may be held from time to time. The main lobby contains an exhibition area at Mezzanine level and is large enough to serve as a reception venue.

In order to encourage students to use staircases instead of lifts, the staircases, which are normally very utilitarian spaces intended only for evacuation purposes, are carefully detailed and offer a very gentle going in order to make them an attractive option for inter-floor communication. To this end, in a departure from the standard enclosed staircase design

of earlier phases of the university, the staircases of Phase 7 are provided with full height and full width glazing and promise to offer a dramatic and interesting journey for students.

A breakout space and roof garden is provided at the 6/F of the building together with student common rooms. The garden looks south above the earlier buildings of the Polytechnic University campus across the Kowloon peninsula towards Hong Kong Island.

External tile finishes

The earlier phases of the university are all clad with extruded clay tiles that have become a well liked *leitmotif* of the campus. However the campus has not escaped the endemic problems of tiled finishes and few of the buildings preceding Phase 7 are free of problems of tile debonding, stress-induced cracking and poor colour matching of tile repairs.

From the outset DLN sought to deliver external tile finishes that both met the desire of the University to continue the warm clay tile facades into Phase 7 but that at the same time would prove to be durable.

The remedy offered by DLN and accepted by the university was for tiled spandrels to be pre-fabricated off-site. The wall tiles, of German origin, are mixed to ensure 'uniform variegation' and cast into 1.5 m long glass reinforced concrete spandrels at a specialist yard in Guangdong.

Besides offering excellent control of workmanship with greatly enhanced durability the off-site fabrication of the spandrels has served to minimise construction time spent on site and the associated risk of disturbing ongoing teaching operations.

Programme and construction

Undertaking major construction in an operational university invariably demands special care not to adversely affect the activities students and staff who continue to go about their business during the works.

Concurrently the university's academic programme allowed for just 18 months for superstructure construction and fitting out.

Detail design aimed, within the discipline of stringent government funding limits, to deliver high quality and durable components and finishes that were amenable both to rapid delivery and off-site fabrication.

Unusually for a publicly subvented university project fully unitised glazing was specified allowing, like the pre-tiled spandrels, for minimisation of time spent on site.

In the light of a study prepared by the architect assessing the amortisation period for energy saving from double-glazing it was decided to adopt insulating glass units throughout the superstructure utilising outer panes of solar reflective glass. Phase 7 is unique in this respect on the Polytechnic University campus and highly unusual for a university building.

In its form, which derives from its unique location at the northern end of the campus, and from the variegated requirements of its brief,

Phase 7 does depart from earlier buildings of the Polytechnic University — it provides a poised and gymnastic counterpoint to the existing campus to which it is related.

developer / agent
Campus Development Office, The Hong Kong Polytechnic University

architect
Dennis Lau & Ng Chun Man Architects & Engineers (H.K.) Ltd

main contractor
Hsin Chong Construction Co., Ltd.

structural engineering consultant
Maunsell Structural Consultants Ltd.

mechanical and electrical engineering consultant
Parsons Brinckerhoff (Asia) Ltd.

quantity surveying consultant
WT Partnership (H.K.) Ltd.

foundation contractor
Vibro (H.K.) Ltd.

electrical sub-contractor
Hsin Chong Aster Building Services Ltd.

air-conditioning sub-contractor
Krueger Engineering (Asia) Ltd.

lift sub-contractor
Hitachi Elevator Engineering Co. (H.K.) Ltd.

plumbing and drainage sub-contractor
Poon Wai Kee Engineering Co. Ltd.

fire service sub-contractor
Hsin Chong Aster Building Services Ltd.

window sub-contractor
Midi Aluminium Fabricator Ltd.

curtain wall / shop front sub-contractor
Midi Aluminium Fabricator Ltd.

communication system sub-contractor
Hsin Chong Aster Building Services Ltd.

lighting sub-contractor
Hsin Chong Aster Building Services Ltd.

Fast Facts

site area ..... 88,290.90 sq m
GFA ..... 26,263.629 sq m
building height ..... 77.03 m
completion date ..... September 2005

number of storeys
14-storey of teaching complex with lecture theatres, classrooms, office and high risk biology and chemistry laboratories