

For discussion
on 8 April 2009

PWSC(2009-10)10

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities

Lingnan University

5EU – New academic block and student hostel

Members are invited to recommend to Finance Committee the upgrading of **5EU** to Category A at an estimated cost of \$216.0 million in money-of-the-day prices for the construction of a composite building of academic block and student hostel in Tuen Mun by Lingnan University.

PROBLEM

Lingnan University (LU) needs additional space and student hostel facilities to support the implementation of the normative four-year undergraduate programme under the new academic structure for senior secondary education and higher education (i.e. the “3+3+4” academic structure).

PROPOSAL

2. The Secretary-General, University Grants Committee (SG, UGC), on the advice of the University Grants Committee (UGC) and the Director of Architectural Services (D Arch S) as UGC’s Technical Adviser, and with the support of the Secretary for Education, proposes to upgrade **5EU** to Category A at an estimated cost of \$216.0 million in money-of-the-day (MOD) prices for the construction of a composite building comprising academic and student hostel facilities by LU at Tuen Kwai Road, Tuen Mun.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **5EU** comprises the construction of a 20-storey building providing about 2 980 square metres (m²) in net operational floor area (NOFA) for academic facilities on the lower floors and 600 student hostel places with ancillary facilities on the upper floors. The following facilities will be provided by the project -

- (a) Academic block (three storeys from G/F to 2/F);
 - (i) classroom and teaching laboratory facilities of about 600 m² in NOFA;
 - (ii) research laboratories of about 250 m² in NOFA;
 - (iii) library facilities of about 250 m² in NOFA;
 - (iv) office facilities such as offices for academic and administration staff, storage and meeting rooms, etc. of about 790 m² in NOFA; and
 - (v) other student/staff amenities of about 790 m² in NOFA such as a canteen, student common rooms, as well as sports facilities of about 170 m² in NOFA and supporting facilities of about 130 m² in NOFA;
- (b) Student hostel blocks (from 3/F to 18/F); and
 - (i) two interlinked hostel blocks providing 600 hostel places in total, and other ancillary facilities including flats for wardens/tutors and domestic staff rooms; and
 - (ii) common and support facilities of about 1 488 m² in NOFA, including student activities areas, quiet rooms, management office, attendant's room, laundries and store rooms;
- (c) Open space of 1 945 m².

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4. A site plan is at Enclosure 1. A list of the facilities, view of the building (artist's impression) and a sectional plan are at Enclosures 2 to 4 respectively. LU plans to start construction works in the second quarter of 2009 and complete such works in the third quarter of 2011.

JUSTIFICATION

5. The "3+3+4" academic structure will be implemented starting from the 2009/10 academic year. The first cohort of senior secondary students will undergo a four-year undergraduate programme starting from the 2012/13 academic year. The UGC-funded institutions, including LU, need to expand their campus space and facilities in order to accommodate the additional students under the new four-year undergraduate programme and to provide a suitable teaching and learning environment in support of the new academic structure.

6. LU plans to construct a composite building at a site adjacent to its existing campus to provide additional space and facilities to support the implementation of the "3+3+4" academic structure, and to cater for the accommodation needs of students. It plans to re-locate a number of academic departments under the Faculty of Business and the Research Centre to the new academic block, freeing up space on the existing campus to accommodate the expanded needs of other departments in the Faculties of Arts and Social Sciences.

7. The new academic block will house purpose-built teaching and learning facilities e.g. classrooms and teaching laboratories, a market research laboratory and a reference library, as well as some communal space and recreational facilities.

8. Under the prevailing hostel policy for LU, the University is provided with hostel places for 50% of its full-time degree student population having regard to its remote location in Tuen Mun and its aspirations to develop itself into a relatively small, fully residential liberal arts institution. In addition, the Government has agreed to provide an additional 1 840 publicly-funded student hostel places to the UGC-funded sector to support institutions' increasing student exchange activities, and a proportion of these places have been allocated to LU. The Government will fund up to 75% of the capital cost of the approved student hostel provision, with the remainder to be met by the respective institutions using private funds.

9. In anticipation of the increase in student population after the implementation of the "3+3+4" academic structure, the approved hostel provision for LU by 2012/13 academic year will be about 1 300 publicly-funded hostel places. Against its current provision of 1 000 publicly-funded places¹, LU will have a shortfall of about 300 publicly-funded hostel places. To address the anticipated shortfall and to fulfil its aspirations, LU plans to construct 600 additional student hostel places, 300 of which are publicly-funded and the other 300 places are privately-funded.

FINANCIAL IMPLICATIONS

10. The total estimated cost of the project is \$362.7 million (in MOD prices). The Government will contribute \$216.0 million, of which \$127.9 million is for the academic block and \$88.1 million is for the student hostel blocks (i.e. 75% of the cost for the 300 publicly-funded hostel places and the ancillary facilities). LU will contribute \$146.7 million to finance 25% of the construction cost for the publicly-funded hostel places and the ancillary facilities, and the full cost for the 300 privately-funded hostel places.

11. SG, UGC, on the advice of D Arch S, recommends a capital funding of \$216.0 million in MOD prices to be provided by the Government (see paragraph 14 below), made up as follows –

	Academic Block \$ million	Student Hostel \$ million	Total \$ million
(a) Site formation and development	11.5	26.0	37.5
(b) Building	60.2	112.4	172.6
(c) Building Services	26.2	38.5	64.7
(d) Drainage and external works	3.4	7.7	11.1

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¹ LU has another 500 privately-funded hostel places which were built by its own sources of funding.

	Academic Block \$ million	Student Hostel \$ million	Total \$ million	
(e) Additional energy conservation measures	0.8	1.7	2.5	
(f) Consultants' fees for	3.7	5.6	9.3	
(i) tender assessment	0.7	1.0	1.7	
(ii) contract administration	1.1	1.6	2.7	
(ii) site supervision	1.9	3.0	4.9	
(g) Furniture and equipment	7.6	16.2	23.8	
(h) Contingencies	8.5	15.6	24.1	
Sub-total	121.9	223.7	345.6	(in Sept 2008 prices)
(i) Provision for price adjustment	6.0	11.1	17.1	
Sub-total	127.9	234.8	362.7	(in MOD prices)
(j) Less contribution by LU ²	-	(146.7)	(146.7)	
Total	127.9	88.1	216.0 ³	(in MOD prices)

² LU's contribution is to cover the full cost of 300 privately-funded hostel places (\$117.4 million in MOD prices and 25% of the costs of 300 publicly-funded hostel places and the ancillary facilities (\$29.3 million in MOD prices).

³ The estimated capital funding to be contributed by the Government to the project expressed in September 2008 prices is \$204.5 million, representing an increase of 67.6% over the original estimated cost of \$122.0 million in September 2004 prices.

12. LU will engage consultants to undertake tender assessment, contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees is at Enclosure 5.

13. The construction floor areas (CFA) of the academic block and the student hostel blocks are 5 414 m² and 12 240 m² respectively. The respective estimated construction unit costs represented by the building and building services costs are \$15,959 and \$12,328 per m² of CFA in September 2008 prices. The detailed accounts of the CFA vis-à-vis the construction unit cost are at Enclosure 6. D Arch S considers the estimated construction unit costs reasonable, having regard to the current economic situation and prevailing construction prices, and comparable to those of similar projects such as **20EH** "Baptist University Road campus development" of Hong Kong Baptist University (with an estimated construction unit costs of \$16,860 per m² of CFA in September 2008 prices) and **53EG** "1 800-place student residences at Lung Wah Street, Kennedy Town" of the University of Hong Kong (with an estimated construction unit cost of \$13,677 per m² of CFA in September 2008 prices).

14. Subject to approval, LU will phase the expenditure as follows –

Year	\$ million (Sept 2008)	Price adjustment factor	\$ million (MOD)	Contribution by LU \$ million	5EU \$ million (MOD)
2009 - 10	93.0	1.03200	96.0	96.0	-
2010 - 11	218.2	1.05264	229.7	50.7	179.0
2011 - 12	28.8	1.07369	30.9	-	30.9
2012 - 13	5.6	1.09517	6.1	-	6.1
	<u>345.6</u>		<u>362.7</u>	<u>146.7</u>	<u>216.0</u>

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15. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2009 to 2013. LU will tender the works through lump-sum contracts because it can clearly define the scope of works in advance. The contracts will provide for price adjustment to reflect market fluctuations in labour and material costs.

16. The project has no impact on tuition fees. As the additional recurrent costs associated with this project will be absorbed by LU, the proposal will have no additional recurrent financial implications on the Government. In accordance with established practice, LU will operate the student hostels on a self-financing basis through charges levied on hostel places.

PUBLIC CONSULTATION

17. The proposed building is located on Government land outside LU's existing campus. The Tuen Mun District Council was consulted in January 2007. Members passed a motion to support the development and requested LU to conduct further consultation with the residents in the vicinity. In response, LU briefed the resident representatives of neighbouring estates in March 2007 on the design of the proposed works including the open space which are also open for use by the local residents. Concerns of the residents on the possible environmental impact created by the project were considered and addressed in the building design. The concerned resident representatives were generally in support of the project. We circulated an information paper on this project to the Legislative Council Panel on Education on 4 November 2008. Members did not raise any objection to the proposal. Subsequently, LU has amended its building design in response to the concerns of the Environmental Protection Department over the nearby road-traffic noise which may affect the future residents of the proposed hostel block. LU has also explored different noise mitigation measures and decided to adopt a new acoustic windows system to address the noise concerns.

ENVIRONMENTAL IMPLICATIONS

18. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). LU completed a Preliminary Environmental Review (PER) for the project in December 2008. LU will implement the noise mitigation measures as recommended in the PER to alleviate the road traffic noise impact to the proposed development.

19. LU has included in the project estimates the provisions required to implement suitable mitigation measures to control short-term environmental impacts. During construction, LU will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

20. LU has considered measures (e.g. the optimization of the foundation layout by suitable piling design, and the use of metal hoarding frameworks so that these materials can be recycled and reused in other projects) at the planning and design stages to reduce the generation of construction waste where possible. In addition, LU will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste to public fill reception facilities⁴. LU will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

21. LU will also require the contractor to submit for approval a plan setting out waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. LU will ensure that the day-to-day operations on site comply with the approved plan. LU will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. LU will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

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⁴ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

22. LU estimates that the project will generate in total about 18 550 tonnes of construction waste. Of these, LU will reuse about 4 638 tonnes (25.0%) of inert construction waste on site and deliver 12 057 tonnes (65.0%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, LU will dispose of 1 855 tonnes (10.0%) of non-inert construction waste at landfills. The total cost of accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$557,414 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne⁵ at landfills).

ENERGY CONSERVATION MEASURES

23. This project will adopt various forms of energy efficient features, including –

- (a) heat wheel for heat energy reclaim of exhaust air;
- (b) occupancy and daylight sensors for lighting control;
- (c) light-emitting diode (LED) type exit signs; and
- (d) automatic on-off switching of lighting and ventilation fan inside lifts.

24. For renewable energy technologies, this project will adopt solar park lighting.

25. For greening features, the project will provide landscaped open space and roof greening.

26. For recycled features, the project will adopt rainwater collection system for irrigation.

/27.

⁵ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

27. The total estimated additional cost for adoption of the above features is around \$2.5 million. There will be about 6.3% energy savings in the annual energy consumption.

HERITAGE IMPLICATIONS

28. This project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings and sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

29. The project does not require any land acquisition.

BACKGROUND INFORMATION

30. Under existing procedures, UGC-funded institutions submit capital works proposals to the UGC annually. The UGC examines all these proposals carefully, with professional advice provided by D Arch S who acts as UGC's Technical Adviser, and refers those supported proposals to the Government for consideration of bidding of funds under the established mechanism. Having examined LU's proposal, SG, UGC has, in consultation with D Arch S, adjusted the project estimate proposed by LU to arrive at the project estimate set out in paragraph 11 above.

31. We upgraded **5EU** to Category B in January 2008. LU engaged consultants in January 2008 to carry out topographical survey, site investigation, preliminary design, detailed design and to prepare tender documents at a total cost of \$6.2 million. We have charged this amount to block allocation **Subhead 8100EX** "Alterations, additions, repairs and improvements to the campuses of UGC-funded institutions". The consultants have completed the topographical survey, site investigation, preliminary design and detailed design of the project. LU is finalising the tender documents for this project.

32. The project will involve removal of one tree and transplanting of seven trees within the project site. The trees to be removed are not important trees⁶. LU will incorporate planting proposal, including planting of one tree and shrubs, as part of the project.

33. LU estimates that the project will create about 100 jobs (90 for labourers and another 10 for professional/technical staff) providing a total employment of about 2 400 man-months.

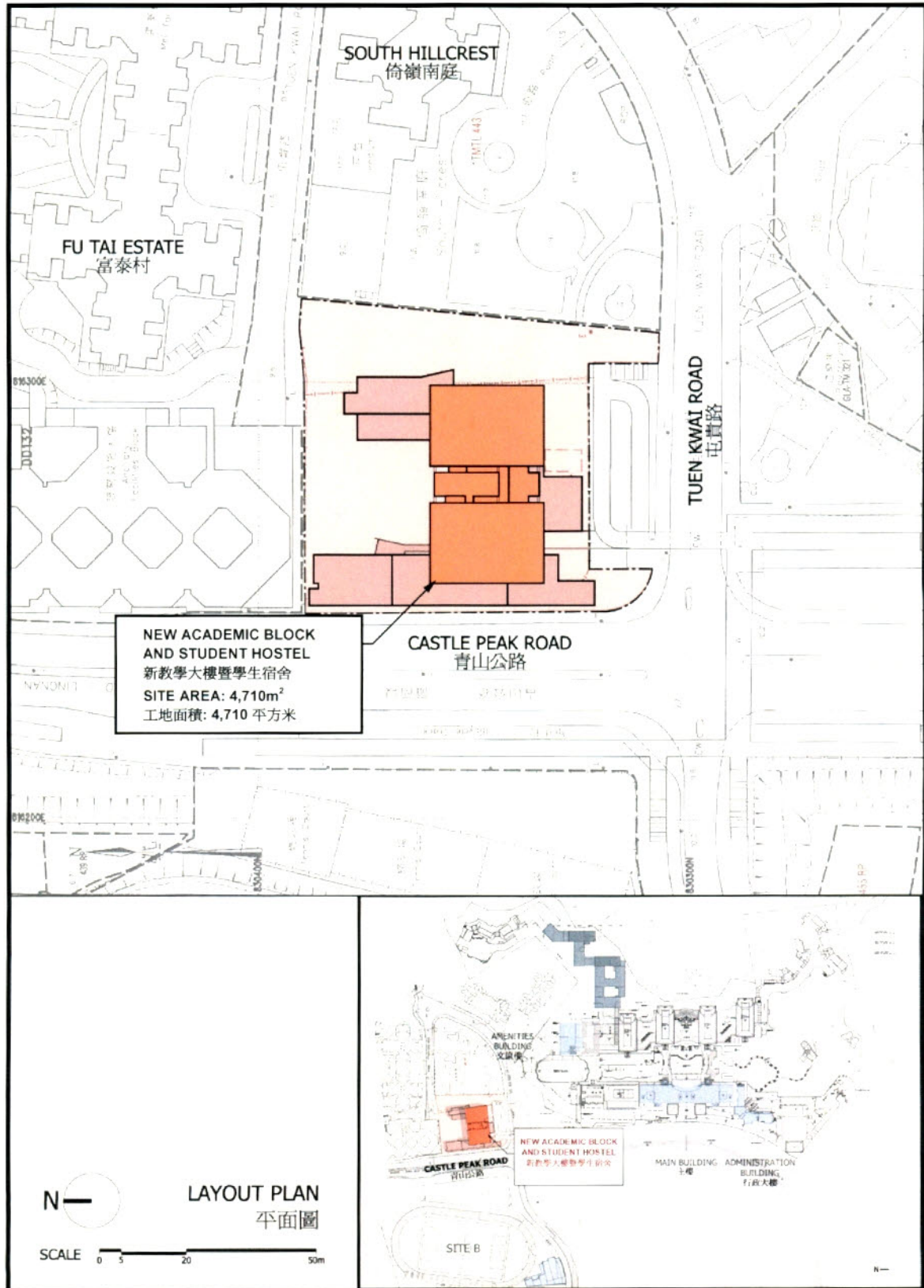
Education Bureau
March 2009

⁶ “Important trees” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery of heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level) or with height / canopy spread equal or exceeding 25 m.

Lingnan University
5EU – New academic block and student hostel
嶺南大學新教學大樓暨學生宿舍

Site plan 工地平面圖



Enclosure 2 to PWSC(2009-10)10

Lingnan University 5EU – New academic block and student hostel

List of facilities

	No. of Unit	Estimated floor area in net operational floor area (NOFA) (m ²)
(I) Academic Block		
1. Classroom and teaching laboratory	-	600
2. Research laboratories	-	250
3. Library space	-	250
4. Office facilities	-	791
5. Student and staff services facilities	-	787
6. Indoor sports facilities	-	170
7. Other facilities	-	130
Sub-total for academic block		<hr/> 2 978
(II) Student Hostel		
(A) Living accommodation		
1. Single bedroom	8	64
2. Double bedroom	296	4 440
3. Warden	2	300
4. Senior Tutor	2	130
5. Tutor	10	160
6. Domestic staff	6	150
Sub-total		<hr/> 5 244
(B) Common space		
1. Student activities area with a pantry	2	400
2. Quiet room	2	80
3. Common facilities	2	880
Sub-total		<hr/> 1 360
(C) Support space including management office, attendant's room, store area and laundry	-	128
Sub-total for student hostel		<hr/> 6 732
Total		<hr/> <hr/> 9 710

Lingnan University
5EU – New academic block and student hostel
嶺南大學新教學大樓暨學生宿舍

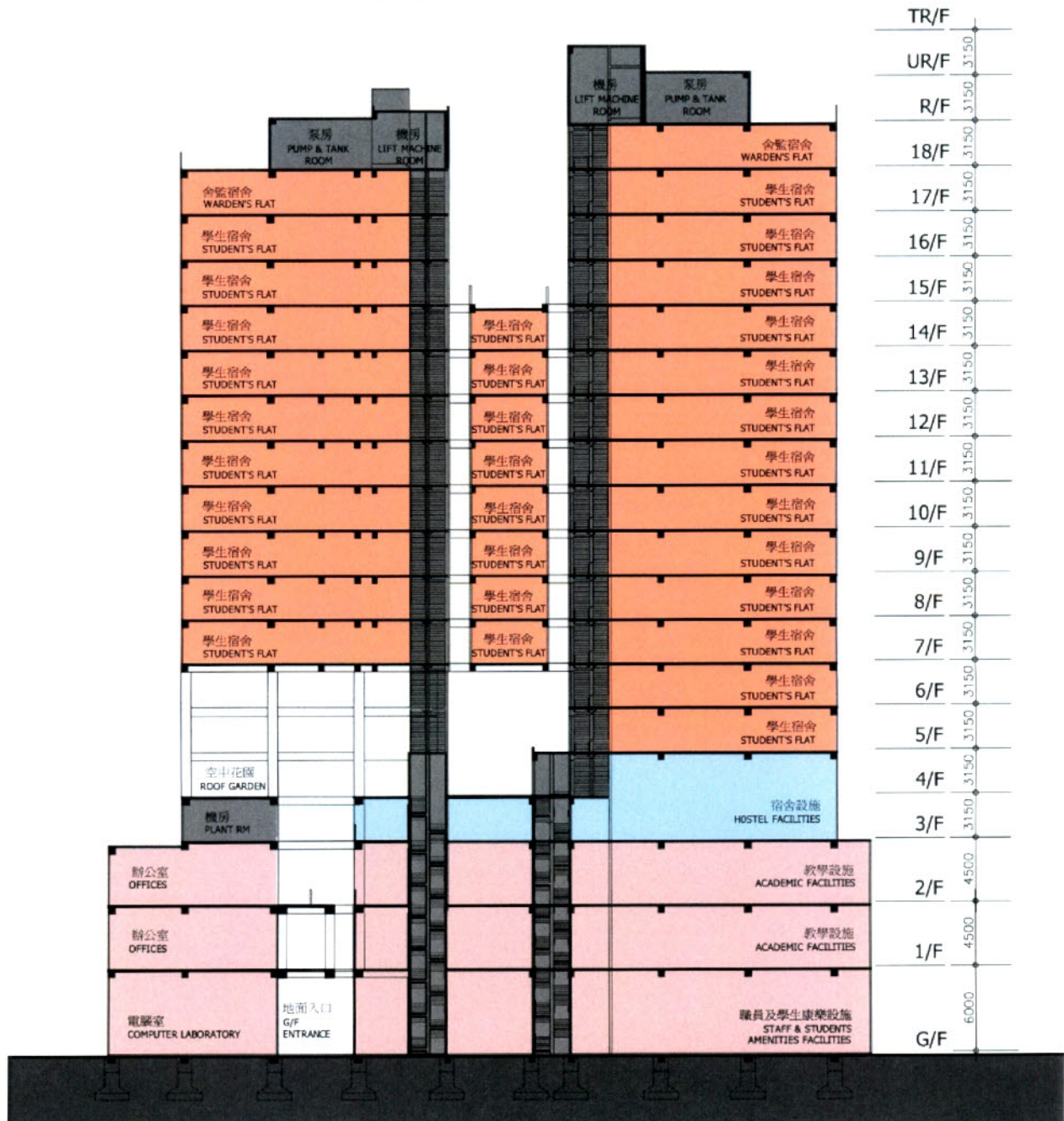


外觀構思圖
Artist's impression

Lingnan University
 5EU – New academic block and student hostel
 嶺南大學新教學大樓暨學生宿舍

Sectional plan
 截面圖

- STUDENT HOSTEL 學生宿舍
- HOSTEL FACILITIES 宿舍設施
- ACADEMIC BLOCK 教學大樓
- E&M SERVICES 機電設備



Enclosure 5 to PWSC(2009-10)10

**Lingnan University
5EU – New academic block and student hostel**

Breakdown of the estimate for consultants' fees^(Note 1)

		Estimated man- months	Average MPS* salary point	Multiplier <small>(Note 2)</small>	Estimated fee (\$ million)
Academic block and student hostel					
(a) Consultants' fees ^(Note 3)					
(i) Tender assessment	Professional	–	–	–	1.4
	Technical	–	–	–	0.3
(ii) Contract administration	Professional	–	–	–	2.2
	Technical	–	–	–	0.5
(b) Site supervision ^(Note 4)	Technical	154.5	14	1.6	4.9
Total					9.3

* MPS = Master Pay Scale

Notes

1. Having examined the consultants' fees estimated by LU, Director of Architectural Services considers the figures acceptable.
2. A multiplier of 1.6 is applied to the average MPS point to estimate the staff costs for resident site staff employed by LU direct on the project. (As at 1 April 2008, MPS point 14 = \$19,835 per month.)
3. The consultants' fees for tender assessment and contract administration are calculated in accordance with the existing consultancy agreements obtained through competitive tendering for the design and construction of 5EU. The assignment will only be executed subject to Finance Committee's approval to upgrade 5EU to Category A.
4. LU will only know the actual man-months and actual costs for site supervision after completion of the construction works.

Enclosure 6 to PWSC(2009-10)10

**Lingnan University
5EU – New academic block and student hostel**

Breakdown of the construction floor area (CFA) vis-à-vis the construction unit cost

		Estimated floor area (m²)		
		Academic Block	Student Hostel	Total
(a)	Breakdown of CFA			
	Net operational floor area (NOFA)	2 978	6 732	9 710
	Circulation areas and toilets	2 166	4 908	7 074
	Mechanical and electrical plants	270	600	870
	CFA	<u>5 414</u>	<u>12 240</u>	<u>17 654</u>
(b)	NOFA / CFA ratio	55.0%	55.0%	55.0%
(c)	Estimated construction unit cost (represented by the building and building services costs)	\$15,959 per m ² of CFA	\$12,328 per m ² of CFA	\$13,442 per m ² of CFA

(in September 2008 prices)