

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities

The Chinese University of Hong Kong

48EF – Teaching building at Chak Cheung Street – phase 2

Members are invited to recommend to Finance Committee the upgrading of **48EF** to Category A at an estimated cost of \$121.2 million in money-of-the-day prices for the construction of a teaching building – phase 2 at Chak Cheung Street for The Chinese University of Hong Kong.

PROBLEM

The Chinese University of Hong Kong (CUHK) needs additional space and facilities to support the teaching, student learning, research and administration activities of its Faculty of Business Administration (the Faculty) and its School of Hotel and Tourism Management (the School).

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 and Manpower, proposes to upgrade **48EF** to Category A at an estimated cost of \$121.2 million in money-of-the-day (MOD)

prices for the phase 2 development of CUHK's teaching building at Chak Cheung Street.

PROJECT SCOPE AND NATURE

3. The scope of **48EF** comprises construction of a nine-storey extension block of about 5 600 m² in net operational floor area (NOFA) on top of a planned teaching building (phase 1) at Chak Cheung Street as phase 2 of the building to accommodate the following facilities for CUHK's Faculty of Business Administration and its School of Hotel and Tourism Management –

- (a) 20 teaching laboratories of about 1 950 m² in NOFA and eight research laboratories of about 390 m² in NOFA;
- (b) study space of around 250 m² in NOFA and five open laboratories of some 350m² in NOFA for student use; and
- (c) an approximate of 2 570 m² in NOFA office area for academic and administrative offices, and some 90 m² for support facilities.

4. A site plan is at Enclosure 1. A list of the facilities, the sectional plan and view of the building (artist's impression) are at Enclosures 2 to 4 respectively. The proposed project will supplement phase 1 of the teaching building (which is being built with CUHK's private funds for its School of Hotel and Tourism Management) by facilitating communal teaching activities. Phase 2 of the building will comprise a front block and a rear block. The front block will accommodate academic and departmental offices of both the Faculty of Business Administration and the School of Hotel and Tourism Management; whilst the rear block will house teaching and research laboratories, open laboratories and student study spaces for CUHK's Faculty of Business Administration.

5. CUHK plans to start construction works for both phase 1 and phase 2 of the project in the fourth quarter of 2007 for completion at the end of 2009.

JUSTIFICATION

6. UGC reviewed the space and accommodation requirements of UGC-funded institutions in 2006, and confirmed that CUHK has a shortfall of some 15 % in space provision, equivalent to around 29 000 m² in NOFA when projected to the 2007/08 academic year. The main shortfall of space lies in teaching and research laboratories, library facilities, student study space and office facilities. The phase 1

development project will provide additional space of some 4 800 m² in NOFA. The proposed phase 2 development project will bring additional space of some 5 600 m² in NOFA, thereby partially relieving CUHK's existing space shortfall and helping to improve the student learning environment. Upon completion of both phase 1 and phase 2 of the project, CUHK's projected shortfall situation will be reduced to around 21 000 m² in NOFA (11%).

7. The Faculty of Business Administration of CUHK offers a wide range of undergraduate and postgraduate programmes, including new programmes such as Insurance Financial and Actuarial Analysis, Quantitative Finance, etc. being developed over the years. The Faculty has a longstanding and serious space shortage problem. The lack of dedicated and integrated premises with modern teaching facilities is not conducive to CUHK's academic development in providing high quality financial and business administration education.

8. The new teaching building at Chak Cheung Street will address the existing undesirable situation and substantially improve the teaching and learning environment of the Faculty. It will provide up-to-date facilities for the delivery of business administration programmes, including assimilated real time stock exchange trading hall, global forex trading chamber, behaviour research laboratory for marketing, etc. The building will not only help fulfill CUHK's vision of developing itself into the business executive training hub of the region, but also facilitate the further development of the financial and business industry in Hong Kong.

9. To take advantage of economies of scale and maximize land development potential, CUHK proposes to develop phases 1 and 2 of the teaching building in tandem. This will result in savings of about \$15.0 million. Moreover, given that programmes provided by the School of Hotel and Tourism Management have a strong business element and involve teaching and course delivery by staff of the Faculty of Business Administration, there will be synergy by providing programmes of the Faculty and the School under one roof.

FINANCIAL IMPLICATIONS

10. SG, UGC, on the advice of D Arch S, estimates the capital cost of the project to be \$121.2 million in MOD prices (see paragraph 13 below), made up as follows –

/(a)

		\$ million	
(a)	Building	59.4	
(b)	Building services	40.9	
(c)	Consultants' fees for -	3.6	
	(i) Tender assessment	0.3	
	(ii) Contract administration	0.6	
	(iii) Site supervision	2.3	
	(iv) Out-of-pocket expenses	0.4	
(d)	Furniture and equipment ¹	7.1	
(e)	Contingencies	8.2	
	Sub-total	119.2	(in September 2006 prices)
(f)	Provision for price adjustment	2.0	
	Total	121.2	(in MOD prices)

11. CUHK proposes to engage consultants to undertake tender assessment, contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 5.

12. The construction floor area (CFA) of the phase 2 project is 10 150 m². The estimated construction unit cost represented by the building and building services costs is \$9,882 per m² of CFA (excluding foundation cost which has been taken care of by the budget for the phase 1 project) in September 2006 prices. D Arch S considers the estimated construction unit cost reasonable and comparable to those of similar projects such as **46EF** "Teaching complex at western campus" of CUHK (with an estimated construction unit cost of \$11,604 per m² of CFA in September 2006 prices and scheduled for completion in late 2008). A detailed account of the CFA vis-à-vis the construction unit cost of **48EF** is at Enclosure 6.

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¹ Based on a list of furniture and equipment submitted by CUHK.

13. Subject to approval, CUHK will phase the expenditure on the phase 2 building as follows –

Year	\$ million (Sept 2006)	Price adjustment factor	\$ million (MOD)
2008 - 09	2.3	1.00649	2.3
2009 - 10	113.2	1.01656	115.1
2010 - 11	3.7	1.02672	3.8
	119.2		121.2

14. We have derived the MOD estimate 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 2008 to 2011. CUHK will tender the works through a fixed-price lump-sum contract because it can clearly define the scope of works.

15. The project will have no impact on tuition fees. The additional recurrent costs associated with this project will be absorbed by CUHK. The proposal has no additional recurrent implications on the Government.

PUBLIC CONSULTATION

16. As the project is located within the CUHK campus and there are no residential developments in its immediate vicinity, it is unlikely that the project will affect residents in the area. CUHK has thus not conducted public consultation on the project.

ENVIRONMENTAL IMPLICATIONS

17. CUHK completed a Preliminary Environmental Review (PER) for the project in July 2005. The PER concluded that the project would have no long-term environmental impact and recommended that in the building design, central air conditioning should be used for all teaching and functional rooms in the teaching building. CUHK has included in the project estimates the cost to implement suitable mitigation measures to control short-term environmental impact.

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18. During construction, CUHK will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contracts. 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.

19. CUHK has considered the building layout and foundation system to cope with the topography in the planning and design stages to reduce the generation of construction waste where possible. In addition, CUHK will require the contractor to reuse inert construction waste like excavated soil for future back filling on this project or in other suitable construction sites as far as possible to minimise the disposal of construction and demolition materials to public fill reception facilities². CUHK will encourage the contractor to maximize the use of recycled or recyclable materials, as well as the use of non-timber formwork to further minimize the generation of construction waste. In addition, CUHK will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

20. CUHK will also require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle construction waste. CUHK will ensure that the day-to-day operations on site comply with the approved WMP. CUHK will control the disposal of construction waste to public fill reception facilities and landfills through a trip-ticket system. CUHK will require the contractor to separate public fill from construction waste for disposal at appropriate facilities. CUHK will record the disposal, reuse and recycling of construction waste for monitoring purposes.

21. CUHK estimates that the project will generate about 5 168 tonnes of construction waste. Of these, CUHK will reuse about 310 tonnes (6.0%) on site, deliver 4 548 tonnes (88.0%) to public fill reception facilities for subsequent reuse, and dispose 310 tonnes (6.0%) at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$161,546 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne³ at landfills).

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² Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

³ 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.

LAND ACQUISITION

22. The project does not require any land acquisition.

BACKGROUND INFORMATION

23. 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. The UGC refers those supported proposals to the Administration for funding consideration. Having examined CUHK's proposal, SG, UGC has, in consultation with D Arch S, adjusted the project estimate proposed by CUHK to arrive at the project estimate set out in paragraph 10 above.

24. We upgraded **48EF** to Category B in January 2007. CUHK engaged the consultants to carry out site investigation, preliminary design work, detailed design and to prepare tender documents at a total cost of \$2.8 million. We charged this amount to block allocation **Subhead 8100EX** "Alterations, additions, repairs and improvements to the campuses of the UGC-funded institutions". The consultants have completed the site investigation, preliminary design and detailed design of the project. CUHK is finalising the tender documents for the project.

25. The proposed phase 2 development project will not involve tree removal and tree planting. The 20 trees within the project boundary will be transplanted to locations within the vicinity of CUHK under the phase 1 development project. All trees to be transplanted are not important trees⁴.

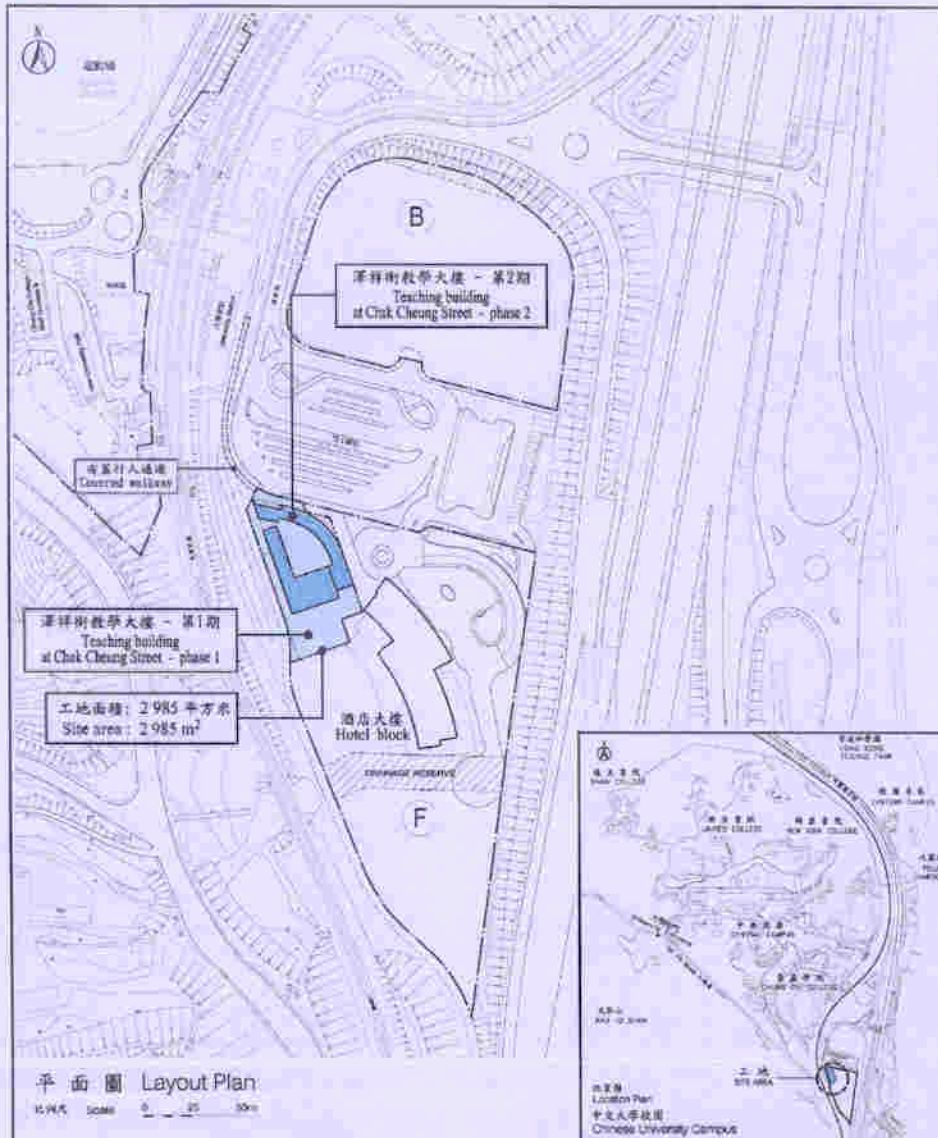
/26.

⁴ "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 or 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.

26. CUHK estimates that the proposed works will create about 95 jobs (85 for labourers and another ten for professional/technical staff) providing a total employment of 2 150 man-months.

Education and Manpower Bureau
June 2007



平面圖 Layout Plan
1:1000 0 25 50m

圖則名稱 Drawing Title
8048EF - 澤祥街教學大樓 - 第2期
Teaching building
at Chak Cheung Street - phase 2

圖 17 Revision

No.	Description	Date
1	REVISED DESCRIPTION TO BUILDING	11/03/07



香港中文大學 校園發展處
Caucas Development Office, CUHK

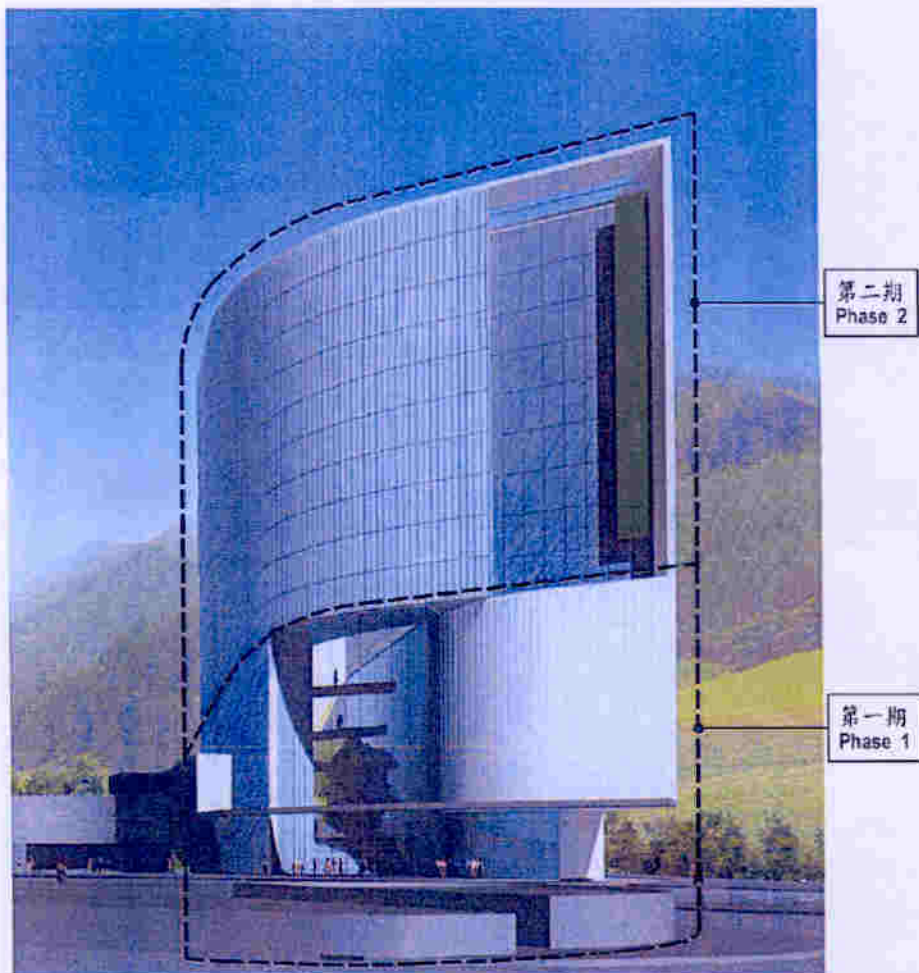
圖則 Sheet No.	W/L	卷別 Book	25 - 4 - 28
圖則 Drawing No.	8048EF(2007)	地點 Site	澤祥街 At Chak Cheung
電腦繪圖 Scale	1:1000	圖則 Drawing	8048EF(2007)

**The Chinese University of Hong Kong
48EF – Teaching building at Chak Cheung Street – phase 2**

List of facilities

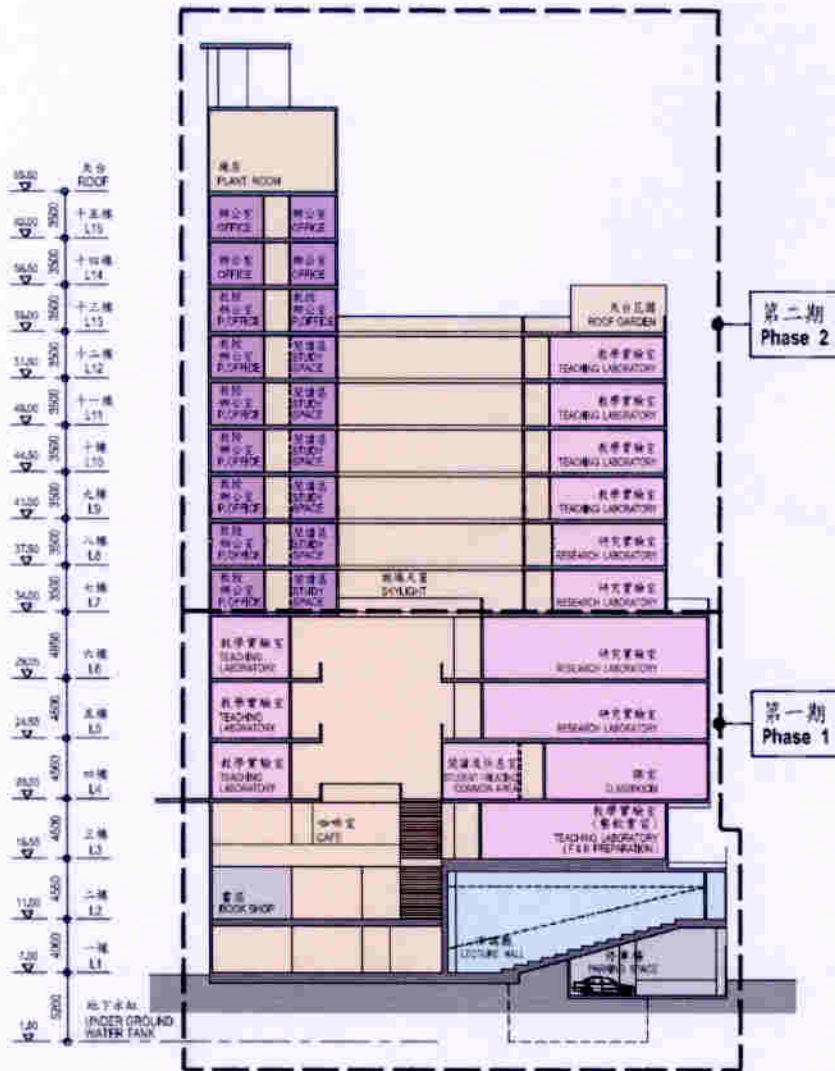
Facilities	Estimated floor area in net operational floor area (NOFA) (m²)
(a) Teaching laboratories	1 950
(b) Research laboratories	390
(c) Study space	250
(d) Open laboratories	350
(e) Office	2 570
(f) Support facilities	<u>90</u>
Total	<u>5 600</u>

The Chinese University of Hong Kong
48EF – Teaching Building at Chak Cheung Street – phase 2
香港中文大學
澤祥街教學大樓 — 第2期



從北面望向教學大樓的構思圖
View of the teaching building from north direction (artist's impression)

The Chinese University of Hong Kong
 48EF – Teaching Building building at Chak Cheung Street –phase 2
 香港中文大學
 澤祥街教學大樓 — 第2期



剖面圖
 SECTIONAL DIAGRAM

The Chinese University of Hong Kong
48EF – Teaching building at Chak Cheung Street – phase 2

Breakdown of the estimate for consultants' fees

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
(a)	Consultants' fees ^(Note 2)				
	(i) Tender assessment				
	Professional	–	–	–	0.2
	Technical	–	–	–	0.1
	(ii) Contract administration				
	Professional	–	–	–	0.4
	Technical	–	–	–	0.2
(b)	Site supervision ^(Note 3)				
	Professional	17.0	38	1.6	1.5
	Technical	28.0	14	1.6	0.8
				Sub-total	3.2
(c)	Out-of-pocket expenses ^(Note 4)				
	Lithography and other direct expenses				0.4
				Total	3.6

* **MPS = Master Pay Scale**

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the staff costs for contract staff employed by CUHK direct on the project. (As at 1 January 2007, MPS point 38 = \$54,255 per month and MPS point 14 = \$18,010 per month.)
2. The consultants' fees for tender assessment and contract administration are devised in accordance with the existing consultancy agreements obtained through competitive tendering for the design and construction of **48EF**. The assignment will only be executed subject to Finance Committee's approval to upgrade **48EF** to Category A.
3. CUHK will only know the actual man-months and actual costs for site supervision after completion of the construction works.
4. Out-of-pocket expenses are the actual costs incurred. The consultants are not entitled to any additional payment for the overheads or profit in respect of these items.

**The Chinese University of Hong Kong
48EF – Teaching building at Chak Cheung Street – phase 2**

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

(a) Breakdown of CFA

	Estimated floor area (m²)
Net operational floor area (NOFA)	5 600
Circulation areas and toilets	3 950
Mechanical and electrical plants	600
CFA	<u>10 150</u>

(b) NOFA / CFA ratio 55%

(c) Estimated construction unit cost (represented by the building and building services costs) \$9,882 per m² of CFA
(excluding foundation cost)
(in September 2006 prices)