

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities

The Chinese University of Hong Kong

37EF - Extension facilities for the clinical departments of the Faculty of Medicine at Prince of Wales Hospital

Members are invited to recommend to Finance Committee the upgrading of **37EF** to Category A at an estimated cost of \$263.18 million in money-of-the-day prices for the construction of extension facilities for the clinical departments of the Faculty of Medicine at Prince of Wales Hospital for the Chinese University of Hong Kong.

PROBLEM

The clinical departments of the Faculty of Medicine of the Chinese University of Hong Kong (CUHK) require additional accommodation and facilities to meet their teaching and research needs.

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 **37EF** to Category A at an estimated cost of \$263.18 million in money-of-the-day (MOD) prices for the construction of extension facilities for CUHK's clinical departments of the Faculty of Medicine at Prince of Wales Hospital (PWH).

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of project **37EF** comprises the following -
- (a) construction of a new 13-storey building in an existing open carpark and circulation area of PWH;
 - (b) construction of footbridges linking the new building to the existing Clinical Sciences Building as well as a vehicular access ramp; and
 - (c) provision of an underground utility service tunnel and reprovisioning 82 car parking spaces.

4. The development will provide a net operational floor area¹ (NOFA) of about 6 550 square metres to meet the current shortfall of the clinical departments of the Faculty of Medicine. When completed, it will be a self-contained complex to house the administration office, seminar rooms, computer rooms, and laboratories for clinical research and pathology teaching with the provision of a specially fitted out bio-safety laboratory. A site plan is at Enclosure 1. CUHK plans to commence the construction works in October 2002 for completion in October 2004.

JUSTIFICATION

5. According to a study on space and accommodation at UGC-funded institutions completed in February 2000, CUHK has a 22% shortfall in accommodation provision equivalent to 36 937 square metres in NOFA. The completion of **38EF** "Engineering Building Complex, phase 2" in August 2004 (upgraded to Category A in May 2001) will reduce the shortfall to 31 937 square metres in NOFA. 6 578 square metres of this residual shortfall fall on the clinical departments of the Faculty of Medicine.

6. The Faculty of Medicine of CUHK, founded in 1981 with 13 departments/units, has its clinical teaching and research facilities in the existing Clinical Sciences Building of PWH, and its pre-clinical teaching in the Choh-ming Li Building at the main campus of CUHK. The facilities in the Clinical Services Building were designed in the late seventies together with the main facilities of the hospital, based on an intake contingent of 100 medical students per annum, which will be maintained at 140 by the 2002/03 school year.

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¹ For the purpose of this submission, we define NOFA as the net floor area of all rooms and spaces provided for the primary function and purpose of the building and excluding any structure and partitions, circulation, staircase, staircase halls, lift landings, space occupied by toilet and shower facilities, mechanical and electrical services such as lifts and air-conditioning systems.

7. With new developments in the medical field, the Faculty of Medicine has now expanded to 23 departments/units, requiring various degrees of clinical teaching. These departments/units include -

Departments/units	Approximate number of students	% of clinical teaching
17 clinical departments/units	500	100
4 pre-clinical departments	300	about 15
Department of Nursing	400	about 30
School of Pharmacy	90	about 20

8. Medical education requires the provision of a wide range of clinical teaching to students through research and laboratory works. The existing premises and facilities in the Clinical Sciences Building at PWH are grossly inadequate to meet the current standard of a Faculty of Medicine. The proposed building equipped with the tailor-made facilities will provide the space to meet the necessary expansion in teaching and research activities, the expansion needs of the Medical Library and the increase in collaborative projects and clinical trials in the new medical specialties. The UGC supports the construction of a new extension building.

FINANCIAL IMPLICATIONS

9. SG, UGC, on the advice of D Arch S, recommends approval of the project at a cost of \$263.18 million in MOD prices (see paragraph 12 below), made up as follows -

	\$ million
(a) Link footbridges and vehicular access ramp	4.82
(b) Building	96.50
(c) Building services	78.49
(d) Drainage, external works and utilities	15.17

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\$ million		
(e)	Consultants' fees ² -	10.02
(i)	Assessment of tenders	0.78
(ii)	Contract administration	4.78
(iii)	Site supervision	4.21
(iv)	Out-of-pocket expenses	0.25
(f)	Furniture and equipment ³	38.11
(g)	Contingencies	24.31
	Sub-total	267.42 (in September 2001 prices)
(h)	Provision for price adjustment	(4.24)
	Total	263.18 (in MOD prices)

10. The construction floor area⁴ (CFA) of this project is 14 931 square metres. The estimated construction unit cost, represented by building and building services costs, is \$11,720 per square metre of CFA in September 2001 prices. D Arch S considers the estimated unit costs to be reasonable and comparable with those of similar projects, such as **45EG** "Development of Faculty of Medicine at the existing site of Northcote Campus of the Hong Kong Institute of Education

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² \$790,000 of the total consultants' fees of \$10.02 million is calculated on a scale fee basis. CUHK commissioned that part of the consultancy services on a scale fee basis in March 1998. The scale fees situation had been reported to Members in April 2001 vide PWSC(2001-02)1 on **38EF** "Engineering Building Complex, phase 2".

³ Based on 12.5% of the building and building services cost of the project estimate plus an estimate on the specialist equipment required. Examples of specialist equipment include fume cupboards, laboratory benches and bio-safety cabinets.

⁴ CFA is a technical term describing the amount of building works completed. It is the sum of all areas at all floor levels (including basements, mezzanine floors, balconies and enclosed rooftop structures), measured to the outer face of the external walls including external cladding (i.e. the main building line, and measured over all partitions, columns, internal or external structures and load-bearing walls, party walls, stair wells, lift wells, escalator openings, pipe and drain ducts, cable riser shafts and the like). The areas of bay windows are also included. Generally, decorative features which project beyond the outer face of external walls such as fins, architraves, solar shading devices and the like are excluded from the calculation of CFA. Also excluded are uncovered trafficable roof areas such as external playgrounds and landscaped areas.

of the University of Hong Kong” (upgraded to Category A in February 1997), the estimated construction unit cost of which was \$12,756 per square metre of CFA in September 2001 prices. A detailed account of CFA and NOFA vis-a-vis the construction cost is at Enclosure 2.

11. A detailed breakdown of the estimate for consultants’ fees is at Enclosure 3.

12. Subject to approval, CUHK will phase the expenditure as follows -

Year	\$ million (Sept 2001)	Price adjustment factor	\$ million (MOD)
2002 - 03	36.70	0.98625	36.20
2003 - 04	102.20	0.98378	100.54
2004 - 05	100.49	0.98378	98.86
2005 - 06	28.03	0.98378	27.58
	<u>267.42</u>		<u>263.18</u>

13. As from 1 April 2002, we have applied a new set of price adjustment factors for converting estimate expense in constant September 2001 prices to MOD prices. The basis for the update is set out in PWSCI(2001-02)54. As a result of the update, the amount sought for this project has been adjusted from \$269.35 million in the earlier submission referenced PWSC(2001-02)82 to \$263.18 million in MOD prices in this submission. CUHK will deliver the works through a fixed-price lump-sum contract because it can clearly define the scope of works in advance, leaving little room for uncertainty.

14. The project will have no impact on tuition fees. CUHK has confirmed that it will meet the additional recurrent costs associated with this project from its recurrent grants.

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PUBLIC CONSULTATION

15. Consent for the project has been secured from both PWH and the Hospital Authority (HA). At the meeting of the Public Works Subcommittee on 28 November 2001, Members had questions over the need for the clinical departments building given that there were vacant quarters at PWH. We have further consulted HA and the Government Property Administrator. Of the total 180 units in Blocks B and E of PWH previously identified by the Director of Audit to have vacant quarters which were considered not cost-effective to be converted for non-residential use, five units in Block B are now used for clinic services; 69 units in Block B are used as ancillary accommodation including offices and call rooms to support hospital operations; 24 units in Block E are let out for welfare purposes; and the remaining 26 units in Block B and 56 units in Block E are rented out at market rates for residential use.

16. At the same meeting, Members requested the Administration to reconsider whether Sha Tin District Council should be consulted. We subsequently consulted the District Council in March 2002. Members of the District Council supported the proposed project.

ENVIRONMENTAL IMPLICATIONS

17. CUHK completed a Preliminary Environmental Review (PER) for the project in August 1997. The PER concluded that the project would have no long-term environmental impact. The Director of Environmental Protection vetted the PER and agreed that an Environmental Impact Assessment would not be required.

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. At the planning and design stages, we have considered measures to reduce the generation of construction and demolition (C&D) materials. CUHK will use suitable excavated materials for filling within the site to minimise off-site disposal. To further minimise the generation of C&D materials, CUHK will encourage the contractors to use non-timber formwork and recyclable materials for temporary works. 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 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 C&D materials. CUHK will ensure that the day-to-day operations on site comply with the approved WMP. CUHK will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. The contractor will be required to separate public fill from C&D waste for disposal at appropriate facilities. CUHK will record the disposal, reuse and recycling of C&D materials for monitoring purposes. CUHK estimate that the project will generate about 1 800 cubic metres (m³) of C&D materials. Of these, CUHK will reuse about 450 m³ (25%) on site, 1 070 m³ (59%) as fill in public filling areas⁵, and dispose of 280 m³ (16%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$35,000 for this project (based on a notional unit cost⁶ of \$125/m³).

LAND ACQUISITION

21. The project does not require land acquisition.

BACKGROUND INFORMATION

22. 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 Government. 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 2 above. A comparison of the project estimate proposed by CUHK and the revised estimate recommended by the UGC and agreed by CUHK is at Enclosure 4.

23. We upgrade **37EF** to Category B in August 1998. With an allocation of \$10.88 million from block allocation **Subhead 8100EX** "Alternations, additions, repairs and improvements to the campuses of the UGC-funded institutions", consultants engaged by the CUHK have completed the pre-tender consultancy service including feasibility study, site investigation and detailed design. CUHK is finalizing tender documents for the project.

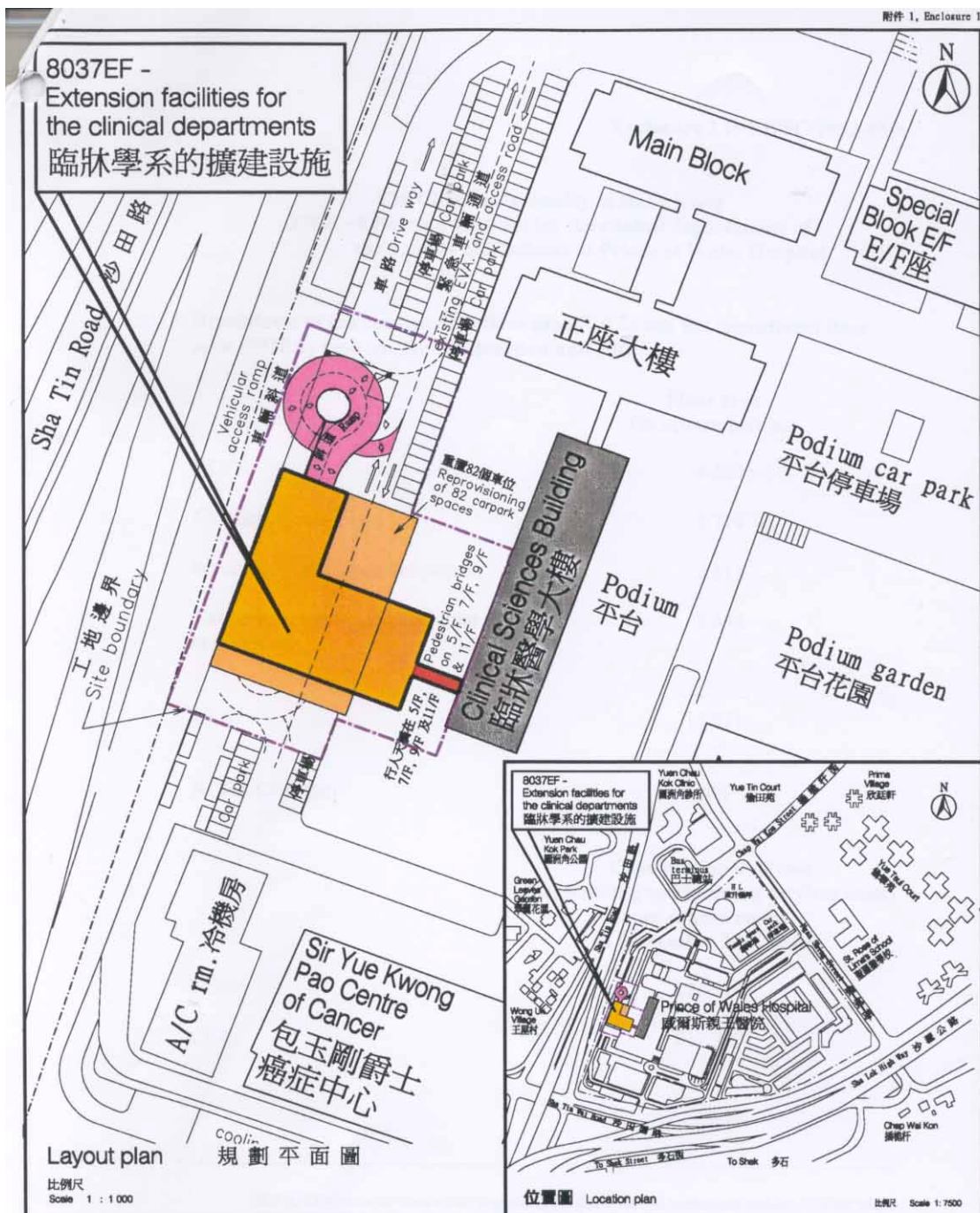
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⁵ A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

⁶ 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 are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

24. CUHK estimates that the proposed works under **37EF** will create some 230 jobs, with a total of 4 480 man-months, comprising five professional staff, ten technical staff and 215 labourers.

Education and Manpower Bureau
March 2002



DRAWING TITLE 圖則名稱

8037EF - Extension facilities for the clinical departments of the Faculty of Medicine at Prince of Wales Hospital

醫學院設於威爾斯親王醫院的臨牀學系的擴建設施

REVISED 修訂

Rev.	Description	Date
a	Amended building name	28-9-01
b	Add EVA access road & changed scale	8-10-01
c	Amended words & add site boundary	26-10-01
d	Amended Chinese & English words	15-11-01



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

Drawn by 繪圖	C. Wong	Date 日期	Nov., 2001
Checked by 審核	V. Chan	Scale 比例	As shown
CAD file 電腦記錄	8-F-0v	Drawing No. 圖號	8F-0d

The Chinese University of Hong Kong
37EF - Extension facilities for the clinical departments of
the Faculty of Medicine at Prince of Wales Hospital

Breakdown of the construction floor area (CFA) and net operational floor area (NOFA) vis-a-vis the construction unit cost

	Floor area (in square metres)
NOFA	6 550
Circulation and toilets	2 714
Mechanical and electrical plants	2 311
Car parking spaces and vehicular access ramp	3 356
CFA	<div style="border-top: 1px solid black; border-bottom: 3px double black;">14 931</div>
NOFA/CFA ratio ⁷	44%

	Construction unit cost (i.e. building and building services costs) per square metre in September 2001 prices
NOFA	\$26,716
CFA	\$11,720

⁷ NOFA/CFA ratios of comparable projects in the UGC-funded institutions include 55% for **45EG** "Development of Faculty of Medicine at the existing site of Northcote Campus of the Hong Kong Institute of Education" (upgraded to Category A in February 1997), 45% for **38EF** "Engineering Building Complex, phase 2" (upgraded to Category A in May 2001) and 47% for **43EF** "A purpose-designed building for centralised science laboratories" (pending upgrading to Category A in April 2002). These figures will be reported to Members in March 2002 vide PWSCI(2001-02)56.

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the Faculty of Medicine at Prince of Wales Hospital

Breakdown of the estimate for consultants' fees

		Estimated man- months	Average MPS* salary point	Multiplier	Estimated fee (\$ million)
(a) Consultants' staff costs					
(i) Assessment of tenders by -					
♦ architectural, quantity surveying and mechanical & electrical engineering consultants	Professional	4.6	38	2.4	0.67
♦ structural & geotechnical engineering consultants#					0.11
(ii) Contract administration by -					
♦ architectural, quantity surveying and mechanical & electrical engineering consultants	Professional	24.0	38	2.4	3.48
	Technical	13.2	14	2.4	0.62
♦ structural & geotechnical engineering consultants#					0.68
(b) Site supervision by resident site staff employed directly by CUHK					
	Professional	28.0	38	1.7	2.87
	Technical	40.5	14	1.7	1.34
				Sub-total	9.77
(c) Out-of-pocket expenses					
Lithography and other direct expenses					0.25
				Sub-total	0.25
				Total	10.02

* MPS = Master Pay Scale

Calculated on a scale fee basis (see also Footnote 2)

Notes

1. A multiplier of 2.4 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. A multiplier of 1.7 is applied in the case of contract staff employed by CUHK direct on the project. (At 1 April 2001, MPS point 38 is \$60,395 per month and MPS point 14 is \$19,510 per month.)
2. 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.
3. The figures given above are based on estimates prepared by CUHK. D Arch S has examined the figures and considered them reasonable.

**A comparison of the project estimate proposed by CUHK
with the estimate recommended by UGC**

\$ million (in Sept 2001 prices)			
Project	Amount proposed by CUHK	Amount recommended by UGC	Amount of reduction
CUHK - Extension facilities for the clinical departments of the Faculty of Medicine at Prince of Wales Hospital	268.59	267.42	1.17

Note

The net reduction of \$1.17 million results from trimming the estimate on -

- (a) construction cost by \$950,000;
- (b) consultant's fees by \$20,000;
- (c) furniture and equipment by \$90,000; and
- (d) contingencies by \$110,000.