

For discussion  
on 20 June 2007

PWSC(2007-08)44

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

#### **Universities**

**City University of Hong Kong**

**20EJ – Multi-media Building – stage 2**

Members are invited to recommend to Finance Committee the upgrading of **20EJ** to Category A at an estimated cost of \$437.0 million in the money-of-the-day prices for the construction of a Multi-media Building at the northern part of the campus of City University of Hong Kong.

#### **PROBLEM**

City University of Hong Kong (CityU) requires additional accommodation to house specialized facilities to support the development of creative media programmes and activities.

#### **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 **20EJ** to Category A at an estimated cost of \$437.0 million in money-of-the-day (MOD) prices for the construction of CityU's Multi-media Building.

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## PROJECT SCOPE AND NATURE

3. The scope of the stage 2 construction works under 20EJ involves construction of a new nine-storey teaching and research complex of 13 400 square metres (m<sup>2</sup>) in net operational floor area (NOFA) at the northern part of the CityU campus.

4. A site plan is at Enclosure 1. The proposed building has 11 classrooms, three lecture theatres, 27 teaching laboratories, one open laboratory and 20 research laboratories. There are also study space, staff offices, student/staff amenities and support facilities, and 46 carparking spaces. A list of the facilities, the sectional plan and view of the complex (artist's impression) are at Enclosures 2 to 4 respectively. With the stage 1 works under 22EJ (mainly site formation works and pre-contract consultancy) nearing completion, CityU plans to start the construction works in January 2008 for completion in the fourth quarter of 2009.

## JUSTIFICATION

5. The existing campus of CityU has been used for nearly 20 years. With the developments over time, CityU lacks adequate space to carry out teaching and research activities. To address the problem, CityU has relocated some of its administrative and academic support units to leased premises nearby, so as to release space in the main campus for the provision of additional classrooms, laboratories, student and staff amenities, specialist laboratories, research centres and applied strategic development centres. Furthermore, to support the further development of creative media programmes which is an area of strength of the University, CityU had converted one floor of its covered carpark in 1998 for use by the School of Creative Media (the School) as a temporary arrangement. This is highly unsatisfactory, particularly as the School starts to take in more undergraduate students and expands its applied research activities.

6. After reviewing the space and accommodation requirements of UGC-funded institutions in 2006, the UGC confirmed that CityU would have a projected space shortfall of some 16% (equivalent to around 17 700 m<sup>2</sup> in NOFA) by the 2007/08 academic year. To alleviate the space shortfall and to provide permanent and proper accommodation for the School of Creative Media, CityU proposes to construct a building of 13 400 m<sup>2</sup> to provide additional teaching and study space, laboratories, offices, amenities and support facilities for use by the School and other departments. The space vacated by the School will be allocated to other faculties and departments to relieve their space shortage problem.

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7. Apart from addressing the existing space shortfall of CityU to a large extent, the purpose-built Multi-media Building will provide the School with the necessary space for the installation of specialist audio/visual equipment and appliances to support specialized teaching and research activities in creative media. Such facilities are instrumental to training students to become multi-media specialists and professionals who are not only equipped with the technical knowledge of digital media but also well-versed with the art of story-telling. Furthermore, the training and research activities to be conducted at the Multi-media Building will facilitate the integration of different media forms and better prepare students for the rapid technological changes in the multi-media industries. The Multi-media Building will also serve as a first-class laboratory for conducting applied empirical research on how people interact with new media technologies, and for generating theoretical and practical knowledge for advancing the technology and design of future systems.

8. As a state-of-the-art infrastructure, the Multi-media Building will adopt a design that will inspire creativity, innovation and productivity. It will provide a focus and platform for the further development of creative digital media (as well as related arts and technologies) in Hong Kong. The Multi-media Building will also strengthen CityU's role as a leading training centre in creative media, thereby enhancing Hong Kong's regional competitiveness in this respect.

## **FINANCIAL IMPLICATIONS**

9. The total estimated cost of the Multi-media Building is \$451.3 million in MOD prices, of which \$14.3 million will be funded by CityU's own source of funding.

10. SG, UGC, on the advice of D Arch S, recommends a capital funding of \$437.0 million in MOD prices to be provided by the Government (see paragraph 13 below), made up as follows –

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		<b>\$ million</b>	
(a)	Building	165.8	
(b)	Building services	126.7	
(c)	Special building element <sup>1</sup>	14.2	
(d)	Drainage	3.2	
(e)	External works	10.7	
(f)	Consultants' fees for	16.8	
	(i) Tender assessment	1.0	
	(ii) Contract administration	9.7	
	(iii) Site supervision	6.1	
(g)	Furniture and equipment <sup>2</sup>	36.6	
(h)	Specialist equipment <sup>3</sup>	30.8	
(i)	Contingencies	<u>39.1</u>	
	Sub-total	443.9	(in September 2006 prices)
(j)	Provision for price adjustment	<u>7.4</u>	
	Sub-total	451.3	(in MOD prices)
(k)	Less CityU's contribution <sup>1</sup>	<u>(14.3)</u>	
	Total	<u>437.0</u>	(in MOD prices)

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1 The additional building cost due to the design of the building in a crystalline shape is \$14.2m (in September 2006 prices). CityU contributes \$14.3m (in MOD prices) from private source of funding to support the additional building cost.

2 Based on 12.5% of the building and building services costs of the project estimate.

3 Based on a list of specialist equipment required by CityU. Examples of the specialist equipment include digital cinema equipment (e.g. film server, digital encoder and decoder, digital film projector, audio encoder, etc), audio recording equipment (e.g. mixing console, digital media playback, professional multi-format audio compressor, etc), AV editing stations, TV broadcast and production system, moving image audio visual and lighting system for broadcasting and performing, video wall, LED Mesh display etc.

11. CityU will engage consultants to undertake tender assessment, contract administration and site supervision of the construction of the super-structure. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 5.

12. The construction floor area (CFA) of this project is 24 580 m<sup>2</sup>. The estimated construction unit cost, represented by the building and building services cost, is \$11,900 per m<sup>2</sup> of CFA in September 2006 prices. D Arch S considers the estimated construction unit cost reasonable and comparable to those of similar projects for UGC-funded institutions such as 46EF "Teaching complex at western campus" of CUHK (with an estimated construction unit cost of \$11,604 per m<sup>2</sup> of CFA in September 2006 prices). A detailed account of the CFA vis-à-vis the construction unit cost of 20EJ is at Enclosure 6.

13. Subject to approval, CityU will phase the expenditure as follow -

Year	\$ million (Sept 2006)	Price adjustment factor	\$ million (MOD)	Contribution by CityU \$ million	20EJ \$ million (MOD)
2007 - 08	2.4	0.99900	2.4	2.4	-
2008 - 09	118.1	1.00649	118.9	11.9	107.0
2009 - 10	205.3	1.01656	208.7	-	208.7
2010 - 11	109.8	1.02672	112.7	-	112.7
2011 - 12	8.3	1.03699	8.6	-	8.6
	<u>443.9</u>		<u>451.3</u>	<u>14.3</u>	<u>437.0</u>

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 buildings and construction output for the period 2007 to 2012. CityU will tender the works through a fixed-price lump-sum contract because it can clearly define the scope of works in advance.

15. The project has no impact on tuition fees. The additional recurrent cost associated with this project will be funded by CityU. The proposal has no additional recurrent implication on the Government.

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## PUBLIC CONSULTATION

16. While construction works for the project will be carried out within CityU's campus, the University had presented the stage 2 project to the Sham Shui Po District Council (SSPDC) on 3 April 2007. The project received favourable comments from members of the SSPDC. When the Legislative Council Panel on Education was consulted on the proposed project (stage 1) on 18 March 2002, Members indicated no objection to the stage 2 project.

## ENVIRONMENTAL IMPLICATIONS

17. During construction, CityU 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, acoustics lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

18. CityU has considered measures (e.g. use metal site hoardings and signboards so that these materials can be recycled or reused in other projects) in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, CityU will require the contractor to reuse inert C&D materials on site or in other suitable construction sites as far as possible, in order to minimize the disposal of C&D materials to public fill reception facilities<sup>4</sup>. CityU will encourage the contractor to maximize the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimize the generation of construction waste.

19. CityU 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. CityU will ensure that the day-to-day operations on site comply with the approved WMP. CityU will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. CityU will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities and will record the disposal, reuse and recycle the C&D materials for monitoring purposes.

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<sup>4</sup> Public filling reception facilities is specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering and Development.

20. CityU estimates that the project will generate about 27 060 tonnes of C&D materials. Of these, CityU will reuse about 10 553 tonnes (39%) on site, deliver 14 342 tonnes (53%) to public fill reception facilities for subsequent reuse, and dispose of 2 165 tonnes (8%) at landfills. The total cost of accommodating C&D waste at public fill reception facilities and landfill sites is estimated to be \$657,859 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne<sup>5</sup> at landfills).

## LAND ACQUISITION

21. The project does not require any 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, and refers those supported proposals to the Government for consideration of bidding of funds under the established mechanism. Having examined CityU's proposal, SG, UGC has, in consultation with D Arch S, adjusted the project estimate proposed by CityU to arrive at the project estimate set out in paragraph 10 above.

23. We upgraded **22EJ** - Multi-media Building – stage 1 to Category A in May 2002 at an approved project estimate of \$46.4 million (in MOD prices). CityU engaged consultants to carry out site investigation and preliminary design work in September 2003 and to prepare detailed design and tender documents for the site formation contract in May 2006. The consultants have completed the site investigation, preliminary design and detailed design of the project. Site formation works is in progress and is expected to be completed in December 2007.

24. The proposed construction of the Multi-media Building – stage 2 will not involve any tree removal proposal. CityU will incorporate a planting proposal as part of the project, including an estimated 430 trees, 50 m<sup>2</sup> of bamboo planting, 290 m<sup>2</sup> of shrub and another 3 850 m<sup>2</sup> of shrub and groundcover to the cut slope.

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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/m<sup>3</sup>), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled.

25. CityU estimates that the proposed works will create about 315 jobs (285 for labourers and another 30 for professional/technical staff) providing a total employment of 6 800 man-months.

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Education and Manpower Bureau

June 2007



City University of Hong Kong  
20EJ – Multi-media Building - stage 2  
香港城市大學  
20EJ — 多媒體大樓-第 2 階段



達之路  
Tat Chee Avenue

歌和老街  
Cornwall Street

龍翔道  
Lung Cheung Road



多媒體大樓  
Multi-media Building

Enclosure 2 to PWSC(2007-08)44

City University of Hong Kong  
20EJ Multi-media Building – stage 2

List of Facilities

Facilities	Estimated floor area in net operational floor area (NOFA) (m <sup>2</sup> )
(a) Classroom Facilities - classroom and lecture theatres	1 700
(b) Study Space - individual study area, group study area and general use computing area	900
(c) Teaching Laboratories - moving image laboratories, screening rooms, sound dubbing theatre, animation laboratories, audio laboratories, basic editing laboratory, darkroom studios and general teaching laboratories	3 670
(d) Open Laboratories	300
(e) Research Laboratories - mobile multi-media laboratory, smart home and classroom laboratory, virtual and immersive reality laboratory, audio recording and editing laboratories, television studio, new media laboratories, and advanced editing research laboratory	3 640
(f) Office Facilities	1 360
(g) Student / Staff Amenities - exhibition, event, and common areas	1 160
(h) Support Facilities	670
Total	<hr/> 13 400 <hr/>

City University of Hong Kong  
20EJ – Multi-media Building - stage 2



多媒體大樓  
Multi-media Building

LEGEND:

L1	Moving Image Lab 1 Event Space	錄影實驗室一 活動場地	Moving Image Lab 2 Reception	錄影實驗室二 接待處
L2	Teaching Lab	教學實驗室		
L3	Event Space	活動場地	Exhibition & Assessment Area	展覽及評論空間
L4	Classrooms	課室	General Computing	電腦室
L5	Design & Shooting Lab Media Lab Meeting Room Coffee Area	設計及攝影實驗室 媒體實驗室 會議室 咖啡廳	TV Studio News Room Project Lab	電視製作中心 新聞工作室 項目實驗室
L6	Clusters Recording Studio Dance & Motion Capture	實驗及工作組群 錄音製作中心 影像捕捉工作室	Screening Rooms Audio Lab	放映室 影音實驗室
L7	Teaching Labs IT Centre Dept Office	教學實驗室 科技及技術中心 辦公室	Editing Lab Animation Studio	編輯工作室 動畫製作中心
L8	Function Room	活動室	Office	實驗及工作組群
L9	Garden Terrace University Stair	花園平臺 大學梯階	Teaching Lab	教學實驗室

City University of Hong Kong  
20EJ – Multi-media Building - stage 2  
香港城市大學  
20EJ — 多媒體大樓-第 2 階段



多媒體大樓  
Multi-media Building

**Enclosure 5 to PWSC(2007-08)44**

**City University of Hong Kong  
20EJ – Multi-media Building – stage 2**

**Breakdown of the estimate for consultants' fee<sup>(Note 1)</sup>**

		<b>Estimated man-months</b>	<b>Average MPS* salary point</b>	<b>Multiplier (Note 2)</b>	<b>Estimated fees (\$ million) (Sept 2006)</b>
<b>Consultants' staff costs</b>					
(a) Tender assessment <sup>(Note 3)</sup>	Professional	-	-	-	0.8
	Technical	-	-	-	0.2
(b) Contract administration <sup>(Note 3)</sup>	Professional	-	-	-	7.0
	Technical	-	-	-	2.7
(c) Site supervision <sup>(Note 4)</sup>	Professional	48.4	38	1.6	4.2
	Technical	65.9	14	1.6	1.9
				Total	<hr/> 16.8 <hr/>

**\*MPS = Master Pay Scale**

**Notes**

1. Having examined the consultants' fees estimated by CityU, the Director of Architectural Services considers the figures acceptable.
2. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff employed by University. (As at 1 January 2007, MPS point 38 = \$54,255 per month, MPS point 14 = \$18,010 per month.)
3. The consultants' staff cost for tender assessment and contract administration are calculated in accordance with the existing consultancy agreement obtained through competitive tendering for the design and construction for **20EJ**. The construction stage of the assignment will only be executed subject to Finance Committee's approval to upgrade **20EJ** to Category A.
4. We will only know the actual man-months and actual costs after completion of the construction works.

**City University of Hong Kong  
20EJ - Multi-media Building – stage 2**

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

(a)	Breakdown of CFA	<b>Estimated floor area (m<sup>2</sup>)</b>
	Net operational floor area (NOFA)	13 400
	Circulation areas and toilets	10 200
	Mechanical and electrical plants	980
	CFA	<hr/> 24 580
(b)	NOFA / CFA ratio	55%
(c)	Estimated construction unit cost (represented by the building and building services costs)	\$11,900 per m <sup>2</sup> of CFA (in September 2006 prices)