政府總部
發展局
工務科
香港花園道美利大廈

Works Branch
Development Bureau
Government Secretariat
Murray Building, Garden Road,
Hong Kong

本局檔號 Our Ref.

來函檔號 Your Ref. L/M(2) to DEVB(PM)961 Pt. 6

Tel No: 2848 2439
Fax No: 2523 5327

17 November 2008

Clerk to the Public Works Committee
(Attn: Miss Angel SHEK)
Legislative Council Secretariat
Legislative Council Building
8 Jackson Road, Central

By Fax

Dear Miss SHEK,

Public Works Subcommittee
Follow-up to meeting on 7 November 2008
PWSC(2008-09)38

We refer to your letter referenced CB1/F/2/6 and dated 10 November 2008, which was addressed to the Secretary for Financial Services and the Treasury.

As requested by Hon Fred LI, Hon Cyd HO, and Hon IP Kwok-him, a detailed breakdown of the increases in the project estimates together with justifications are given in Annex A.

We did not foresee the sharp increase in tender prices and had not made adequate provision in the original project estimates in the PWSC submission because the 10 projects in question were considered by the PWSC at various dates, between June 2007 and June 2008. When the cost estimates were prepared for these PWSC submissions, reference was made to the market price prevailing at that time, notably the cost indices published by the Census and Statistics Department. For building projects, reference was also made to

the Tender Price Index (TPI) compiled by the Architectural Services Department.

As shown in Enclosure 2 and 3 to PWSC(2008-09)38, there were steady increases in the cost of construction materials and TPI since 2004, but from mid-2007 onwards, there were accelerated increases. As a result, the eight projects tendered (seven building projects and one highway projects) would require increase in APE before the respective tenders can be awarded. As regards the two time-critical university campus development projects, foundation works have started and tenders for the construction of superstructure will be invited in end November 2008. Our proposed increase in the project estimate was again based on the latest TPI. The revised pre-tender estimates for these two projects far exceed their respective APE. The respective APE will therefore need to be increased before the projects can proceed with the construction of the superstructure.

In addition and in response to request from Members, we attached at Annex B a worked example to show a step by step calculation of contract price fluctuation payments. The worked example is based on an actual contract for a building project.

Yours faithfully,

(K C Lam)
for Secretary for Development

PWSC(2008-09)38

HEAD 703 – BUILDINGS
HEAD 706 – HIGHWAYS
HEAD 708 (PART) – CAPITAL SUBVENTIONS
Increase in Approved Project Estimates for ten Category A projects

Detailed breakdown for cost increase

HEAD 703 – BUILDINGS
Education – Primary
304EP – A 24-classroom primary school at Wylie Road, Kowloon

Background

In February 2008, the Finance Committee approved the upgrading of **304EP** "A 24-classroom primary school at Wylie Road, Kowloon" to Category A at an estimated cost of $150.0 million in money-of-the-day (MOD) prices for the demolition of two blocks of existing quarters on site and construction of a 24-classroom primary school. We commenced demolition of the two existing quarters on site in March 2008 for completion in November 2008.

2. We invited tenders for the construction of the project on 13 June 2008. Upon the close of the tender period on 25 July 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). We consider it necessary to increase the APE of **304EP** from $150.0 million by $70.0 million to $220.0 million in MOD prices to meet the additional expenditure required under the project.

Cost Comparison

3. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
(a)	Demolition	10.3	12.0	1.7
(b)	Geotechnical works	6.7	18.4	11.7
(c)	Piling	23.1	59.9	36.8
(d)	Building	60.1	80.8	20.7
(e)	Building services	14.8	17.4	2.6
(f)	Drainage	2.6	3.8	1.2
(g)	External works	10.1	11.4	1.3

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
(h)	Furniture and equipment	3.0	3.0	-
(i)	Consultants' fees for	6.0	6.0	-
	(i) contract administration	2.0	2.0	-
	(ii) site supervision	4.0	4.0	-
(j)	Contingencies	13.3	7.3	(6.0)
	Total	**150.0**	**220.0**	**70.0**

4. As regards **3(a) (Demolition)**, the increase of $1.7 million is based on the actual costs derived from the works done on site to meet the actual site conditions.

5. As regards **3(b) (Geotechnical works)**, the increase of $11.7 million is mainly due to higher-than-expected rates submitted by the contractor for the geotechnical works especially the unexpected drastic increase in structural steelwork material cost for the shoring system and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. From the construction cost indices published by the Census and Statistic Department, there is a substantial rise of 48% in the material cost for galvanized mild steel in the same period. The rapid rise in the cost of this material has inflated the price of structural steel for the shoring work particularly. The higher-than-expected rates are also attributable to the risk allowed by the contractor for the works to be executed in close proximity of a residential development in order to allow for adequate measures to prevent jeopardizing the structural stability of the adjacent buildings during site formation and piling works. Furthermore, as the construction contract has no provision for price fluctuation adjustment, it may cause the contractor to allow an additional premium in his bid for a fixed price contract to cater for any possible change of material and labour costs during the construction period.

6. As regards **3(c) (Piling)**, the increase of $36.8 million is mainly due to higher-than-expected rates submitted by the contractor for the piling works especially the unexpected drastic increase in steel H-piles material cost. The higher-than- expected rates are attributable to the reasons as stated in paragraph 5 above. In addition, the higher-than-expected rates are also attributable to the high risk allowed by the contractor for the piling works to be executed through the existing reinforced concrete foundations of the demolished buildings.

7. As regards **3(d) (Building)**, the increase of $20.7 million is mainly due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the significant increase in the construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. From the construction cost indices published by the Census and Statistic Department, there is a particularly substantial rise of 48 %, 81% and 51% in the material cost for galvanized mild steel, steel reinforcement and sand respectively in the same period. The rapid rise in the cost of these raw materials, being the major component of the reinforced concrete structure of the school building, has inflated the prices of the reinforced concrete structure by $13.3 million. Furthermore, as the construction contract has no provision for price fluctuation adjustment, it may cause the contractor to allow an additional premium in his bid for a fixed price contract to cater for any possible change of material and labour costs during the construction period.

8. As regards **3(e) (Building services)**, the increase of $2.6 million is due to higher-than-expected rates submitted by the contractor which are mainly attributable to the increase in material prices such as copper products (electric cables).

9. As regards **3(f) (Drainage)**, the increase of $1.2 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are mainly attributable to the rapid rise in the construction material costs and the high risk allowance for any unforeseen underground conditions such as encountering rock obstruction in the laying of underground drains by the contractor.

10. As regards **3(g) (External works)**, the increase of $1.3 million is due to higher-than-expected rates submitted by the contractor.

11. As regards **3(j) (Contingencies)**, the decrease of $6.0 million is used to offset part of the increases in items 3(a) to 3(g).

HEAD 703 – BUILDINGS
Education – Primary
347EP – A 24-classroom primary school at Phase 4, Shek Kip Mei Redevelopment, Sham Shui Po

Background

In May 2008, the Finance Committee approved the upgrading of **347EP** "A 24-classroom primary school at Phase 4, Shek Kip Mei Redevelopment, Sham Shui Po" to Category A at an estimated cost of $148.1 million in money-of-the-day (MOD) prices. We invited tenders for the construction of the project on 25 July 2008. Upon the close of the tender period on 5 September 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). We consider it necessary to increase the APE of **347EP** from $148.1 million by $43.9 million to $192.0 million in MOD prices to meet the additional expenditure required under the project.

Cost Comparison

2. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate ($ million)	**(B) Revised Estimate ($ million)**	**(B) - (A) Difference ($ million)**
(a)	Site formation	5.5	6.5	1.0
(b)	Piling	16.5	35.8	19.3
(c)	Building	63.6	83.0	19.4
(d)	Building services	17.6	20.2	2.6
(e)	Drainage	2.3	3.8	1.5
(f)	External works	8.3	9.8	1.5
(g)	Furniture and equipment	3.0	3.0	-

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
(h)	Consultants' fees for	6.0	6.0	-
	(i) contract administration	1.7	1.7	-
	(ii) site supervision	4.3	4.3	-
(i)	Contingencies	11.4	7.5	(3.9)
(j)	Provision for price adjustment	13.9	16.4	2.5
	Total	**148.1**	**192.0**	**43.9**

3. As regards **2(a) (Site formation)**, the increase of $1.0 million is due to higher-than-expected rates submitted by the contractor.

4.. As regards **2(b) (Piling)**, the increase of $19.3 million is mainly due to higher-than-expected rates submitted by the contractor for the piling works especially the unexpected drastic increase in structural steelwork material cost for the steel H-piling system and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. From the construction cost indices published by the Census and Statistic Department, there is a substantial rise of 49% in the material cost for galvanized mild steel in the same period. The rapid rise in the cost of this raw material has inflated the price of steel H-pile particularly. The higher-than-expected rates are also attributable to the high risk allowance by the contractor for the stepped site which may impose additional constraints to site activities and transportation, and the provisions of temporary measures to ensure stabilization of the stepped terrains during construction.

5. As regards **2(c) (Building),** the increase of $19.4 million is mainly due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the significant increase in the construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. From the construction cost indices published by the Census and Statistic Department, there is substantial rise of 49%, 76% and 49% in the material cost for galvanized mild steel, steel reinforcement and sand respectively in the same period. The rapid rise in the cost of these raw materials, being the major component of the reinforced concrete structure of

the school building, has inflated the prices of the reinforced concrete structure by $12.9 million.

6. As regards **2(d) (Building services)**, the increase of $2.6 million is due to higher-than-expected rates submitted by the contractor which are mainly attributable to the increase in material prices such as copper products (electric cables).

7. As regards **2(e) (Drainage)**, the increase of $1.5 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are mainly attributable to the rapid rise in the construction material costs and the high risk allowance for any unforeseen underground conditions such as encountering rock obstruction in the laying of underground drains by the contractor.

8. As regards **2(f) (External works)**, the increase of $1.5 million is due to higher-than-expected rates submitted by the contractor.

9. As regards **2(i) (Contingencies)**, the decrease of $3.9 million is used to offset part of the increases in items 2(a) to 2(f).

10. As regards **2(j) (Provision for price adjustment)**, the increase of $2.5 million is provision allowed to cover the contract price fluctuation payments to the contractor during the construction period. The total construction cost subject to price adjustment was increased from $113.8M (i.e. items 2(a) and 2 (f) above) allowed in the APE to $159.1M required in the revised estimates It is considered prudent to increase the provision for price adjustment allowed from $13.9 million by $2.5 million to $16.4 million.

HEAD 703 – BUILDINGS

Education – Others

104ET – A direct subsidy scheme school (secondary-cum-primary) in Area 13, Yuen Long

Background

In July 2008, the Finance Committee approved the upgrading of **104ET** "A direct subsidy scheme school (secondary-cum-primary) in Area 13, Yuen Long" to Category A at an estimated cost of $242.9 million in money-of-the-day (MOD) prices. We invited tenders for the construction of the project on 8 August 2008. Upon the close of the tender period on 19 September 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). We consider it necessary to increase the APE of **104ET** from $242.9 million by $33.8 million to $276.7 million in MOD prices in order to cover the additional cost of works under the project.

Cost Comparison

2. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
(a)	Piling	42.0	61.7	19.7
(b)	Building	98.2	111.3	13.1
(c)	Building services	32.0	35.6	3.6
(d)	Drainage and external works	21.5	23.5	2.0
(e)	Consultants' fees for	7.2	7.2	-
(i)	contract administration	3.0	3.0	-
(ii)	site supervision	4.2	4.2	-
(f)	Contingencies	19.4	14.5	(4.9)

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
(g)	Provision for price adjustment	22.6	22.9	0.3
	Total	**242.9**	**276.7**	**33.8**

3. As regards **2(a) (Piling)**, the increase of $19.7 million is due to higher-than-expected rates submitted by the contractor attributable to the high risk allowance in respect of piling technical difficulties in the vicinity of Yuen Long region where there are underlain by marble strata with possible cavity problems for the proposed contractor's design and construction of the piling system. It is also attributable to the increase in cost of steel reinforcement. From the construction cost indices published by the Census and Statistic Department, there is a substantial rise of 76% in the material cost for steel reinforcement from the date of the baseline project estimate to the date of return of tenders.

4. As regards **2(b) (Building)**, the increase of $13.1 million is mainly due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the significant increase in the construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. From the construction cost indices published by the Census and Statistic Department, there is a substantial rise of 49%, 76% and 49% in the material cost for galvanized mild steel, steel reinforcement and sand respectively in the same period. The rapid rise in the cost of these raw materials, being the major component of the reinforced concrete structure of the school building, has inflated the prices of the reinforced concrete structure by $7.8 million.

5. As regards **2(c) (Building services)**, the increase of $3.6 million is due to higher-than-expected rates submitted by the contractor which are mainly attributable to the increase in material prices such as copper products (electric cables).

6. As regards **2(d) (Drainage and external works)**, the increase of $2.0 million is due to higher-than-expected rates submitted by the contractor.

7. As regards **2(f) (Contingencies)**, the decrease of $4.9 million is used to offset part of the increases in items 2(a) to 2(d).

8. As regards **2(g) (Provision for price adjustment)**, the increase of $0.3 million is provision allowed to cover the contract price fluctuation (CPF) payments to the contractor during the construction period. The total construction cost subject to price adjustment was increased from $193.7M (i.e. items 2(a) and 2(d) above) allowed in the APE to $232.1M required in the revised estimates It is considered prudent to increase the provision for price adjustment allowed from $22.6 million by $0.3 million to $22.9 million.

HEAD 703 – BUILDINGS
Recreation, Culture and Amenities – Sports facilities
260RS – Swimming pool complex in Area 2, Tung Chung, Lantau

Background

In July 2007, the Finance Committee approved the upgrading of **260RS** "Swimming pool complex in Area 2, Tung Chung, Lantau" to Category A at an estimated cost of $410.2 million in money-of-the-day (MOD) prices. We commenced foundation works in September 2007 and completed in September 2008. We invited tenders for the construction of the superstructure works on 11 April 2008. Upon the close of the tender period on 23 May 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). We consider it necessary to increase the APE of **260RS** from $410.2 million by $31.2 million to $441.4 million in MOD prices in order to cover the additional cost of works under the project.

Cost Comparison

2. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
(a)	Site works and slope works	4.1	4.1	-
(b)	Piling	37.8	34.4	(3.4)
(c)	Building	186.5	226.6	40.1
(d)	Building services	106.7	110.2	3.5
(e)	Drainage works	2.5	2.6	0.1
(f)	External works	19.5	19.5	-
(g)	Consultants' fees for	17.2	17.2	-
	(i) contract administration	8.3	8.3	-

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) - (A) Difference ($ million)
	(ii) site supervision	8.9	8.9	-
(h)	Furniture and equipment	1.2	1.2	-
(i)	Contingencies	34.7	25.6	(9.1)
	Total	**410.2**	**441.4**	**31.2**

3. As regards **2(b) (Piling)**, the decrease of $3.4 million is due to competitive prices submitted by the piling contractor in July 2007.

4. As regards **2(c) (Building)**, the increase of $40.1 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the significant increase in construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction of the superstructure of the project. From the construction cost indices published by the Census and Statistics Department, there is a particularly substantial rise of around 77%, 158% and 103% in the material costs for galvanised mild steel, steel reinforcement and sand respectively in the same period. The rapid rise in the cost of raw material has inflated the price particularly for the following elements within the Building:

- Fabric roof with metal roof truss for the indoor heated swimming pool increased by $9.7 million;
- Curtain wall and skylight system increased by $20.6 million; and
- Reinforced concrete structure increased by $6.1 million.

5. Under this high inflation market environment, contractors were expected to tender conservatively with a greater allowance for all possible risks. In addition, as the superstructure contract has no provision for price fluctuation adjustment, it may cause the contractor to allow an additional premium in his bid for a fixed price contract to cater for unexpected sharp rise of building materials and labour costs.

6. As regards **2(d) (Building services),** the increase of $3.5 million is due to higher-than-expected rates submitted by the contractor.

7. As regards **2(e) (Drainage works)**, the increase of $0.1 million is due to higher-than-expected rates submitted by the contractor.

8. As regards **2(i) (Contingencies)**, the decrease of $9.1 million is used to offset part of the increases in items 2(c) to 2(e).

HEAD 703 – BUILDINGS
Recreation, Culture and Amenities – Sports facilities
261RS – Sports centre in Area 28A, Fanling / Sheung Shui

Background

In April 2008, the Finance Committee approved the upgrading of **261RS** "Sports centre in Area 28A, Fanling / Sheung Shui" to Category A at an estimated cost of $249.5 million in money-of-the-day (MOD) prices. We invited tenders for the construction of the project on 25 April 2008. Upon the close of the tender period on 6 June 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). We consider it necessary to increase the APE of **261RS** from $249.5 million by $110.5 million to $360.0 million in MOD prices in order to cover the additional costs under the project.

Cost Comparison

2. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) – (A) Difference ($ million)
(a) Site works		3.5	3.7	0.2
(b) Piling		43.1	79.5	36.4
(c)	Building	102.6	137.1	34.5
(d)	Building services	44.2	45.4	1.2
(e)	Drainage works	4.1	4.8	0.7
(f)	External works	4.0	10.1	6.1
(g)	Consultants' fees for	18.1	18.1	-
	(i) contract administration	8.5	8.5	-
	(ii) site supervision	9.6	9.6	-
(h)	Furniture and equipment	2.4	2.4	-

		(A) Approved Estimate ($ million)	(B) Revised Estimate ($ million)	(B) – (A) Difference ($ million)
(i)	Contingencies	20.2	13.0	(7.2)
(j)	Provision for price adjustment	7.3	45.9	38.6
	Total	**249.5**	**360.0**	**110.5**

3. As regards **2(a) (Site works)**, the increase of $0.2 million is due to higher-than-expected rates submitted by the contractor.

4. As regards **2(b) (Piling)**, the increase of $36.4 million is due to higher-than-expected rates submitted by contractor for piling works especially the unexpected drastic increase in steel H-piles material cost. The higher-than-expected rates are attributable to the significant increase in construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction of the project. From the construction cost indices published by the Census and Statistics Department, there is a particularly substantial rise of around 43% in the material cost for galvanised mild steel in the same period. The rapid rise in the cost of this raw material has inflated the price of steel H-piles particularly. The volatile and rapidly increasing trend of costs of steel H-piles may cause the contractor to tender conservatively with a greater allowance for the risk of further upsurge of material prices.

5. As regards **2(c) (Building)**, the increase of $34.5 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the significant increase in construction material prices and changes in market sentiments. From the construction cost indices published by the Census and Statistics Department, there is a particularly substantial rise of around 43%, 79% and 53% in the material costs for galvanized mild steel, steel reinforcement and sand respectively from the date of the baseline project estimate to the date of return of tenders. The rapid rise in the cost of these raw materials has inflated the prices particularly for the following elements within the building:

- Metal roof truss for the main arena increased by $11.1 million;
- Glazed wall system increased by $1.3 million; and
- Reinforced concrete structure increased by $19.7 million.

6. As regards **2(d) (Building services)**, the increase of $1.2 million is due to higher-than-expected rates submitted by the contractor.

7. As regards **2(e) (Drainage works)**, the increase of $0.7 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the rapid rise in the material costs for steel reinforcement and sand, which has inflated the prices particularly for the reinforced concrete base for the sub-soil drain pipes in drainage works.

8. As regards **2(f) (External works)**, the increase of $6.1 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the rapid rise in the material costs for galvanized mild steel, steel reinforcement and sand, which has inflated the prices particularly for the metal hoarding, reinforced concrete slab (below clay pavers to withstand heavy loading in the emergency vehicular access and carpark area) and planter wall in external works.

9. As regards **2(i) (Contingencies)**, the decrease of $7.2 million is used to offset part of the increases in items 2(a) to 2(f).

10. As regards **2(j) (Provision for price adjustment)**, the increase of $38.6 million is due to the expected upsurge in contract price fluctuation (CPF) payment to the contractor during the construction period. At the time when **261RS** was submitted to Public Works Sub-committee in March 2008, the prices of public sector building and construction output were envisaged to have no change in 2007 and increase by 1.0% per annum over the period 2008 to 2011 It results in a provision of $7.3 million for price adjustment under the project. The tender was invited in April 2008 and the increases in construction prices during this tendering period turned out to be much greater than the price trend originally envisaged for reasons as mentioned in paragraph 4 above. It may take some time for the cost indices to drop below the April 2008 level. Moreover the total construction cost subject to price adjustment (*i.e.* items 2(a) to 2(f)) was increased from $201.5 million allowed in the APE to $280.6 million required in the revised estimate. It is considered prudent to increase the provision for price adjustment allowed from $7.3 million by $38.6 million to about $45.9 million.

HEAD 706 – HIGHWAYS
Transport – Footbridges and pedestrian tunnels
162TB – Extension of footbridge network in Tsuen Wan – Footbridge A along Tai Ho Road

Background

In January 2008, the Finance Committee approved the upgrading of **162TB** "Extension of footbridge network in Tsuen Wan – Footbridge A along Tai Ho Road" to Category A at an estimated cost of $109.6 million in money-of-the-day (MOD) prices. We invited tenders for the construction works on 28 March 2008. Upon the close of the tender period on 9 May 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). We consider it necessary to increase the APE of **162TB** from $109.6 million by $59.4 million to $169.0 million in MOD prices to meet the additional expenditure required under the project.

Cost Comparison

2. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

			(A) Approved estimate ($ million)		**(B) Revised estimate ($ million)**		**(B) - (A) Difference ($ million)**
(a)	Footbridge A		82.4		111.6		29.2
	(i) civil works	80.0		108.9		28.9	
	(ii) E&M works	2.4		2.7		0.3	
(b)	Road and drainage, landscaping works, structural modification, utility diversions		2.3		2.2		(0.1)
(c)	Electrical and Mechanical Services Trading Fund charges		0.2		0.2		0.0
(d)	Consultants' fees		12.3		12.3		0.0

	(i) construction supervision and contract administration	0.8		0.8	
	(ii) resident site staff	11.5		11.5	
(e)	Contingencies		9.9	12.6	2.7
(f)	Provision for price adjustment		2.5	30.1	27.6
	Total		109.6	169.0	59.4

3. As regards **2(a) (Footbridge A)**, the increase of $29.2 million is attributable to the sharp increase in steel price for this steel truss bridge which resulted in higher-than-expected rates in the tender price. We invited tenders for the construction of the project on 28 March 2008. Upon the close of the tender period on 9 May 2008, we received four tenders. The prices of all these four tenders were higher than our original estimate. The higher-than-expected tender price when compared with the one allowed in the APE is attributable to the significant increase in construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. From the construction cost indices published by the Census and Statistics Department, there is a particularly substantial rise of around 39% and 72% in the material costs for galvanised mild steel and steel reinforcement respectively in the same period. The rapid rise in the cost of these raw materials, being the major elements of the project[1], inflated the tender price particularly. In addition, the limited number of tenders received (four) reveals the potential contractors' concerns over the recent rapidly increasing but volatile trend of construction costs, especially the costs of galvanised mild steel and steel reinforcement. Under this high inflation risk, they were expected to tender conservatively with a greater allowance for the risk.

4. As regards **2(b) (Road and drainage, landscaping works, structural modification, utility diversions)**, the decrease of $0.1 million is due to slightly lower rates submitted by the contractor.

5. As regards **2(e) (Contingencies),** the provision for contingencies in the APE is $9.9 million to cater for risks that may materialise during the duration of the project. As the tender price is higher than expected and works of contingencies if required will be carried out and paid based on the rates in

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[1] The galvanised mild steel and steel reinforcement are two elements forming a majority part of the footbridge civil works. Based on the recommended tender, they amount to about 35% of the cost of the works. The additional cost of these two elements is $25 million in total, constituting about 42% of the total increase amount of $59.4 million.

the tender, we consider it necessary to increase the project contingencies from $9.9 million by $2.7 million to $12.6 million.

6. As regards **2(f) (Provision for price adjustment),** the net increase of $27.6 million is due to the upsurge in contract price fluctuation (CPF) payment to the contractor during the construction period. At the time when **162TB** was submitted to Public Works Sub-committee in December 2007, the prices of public sector building and construction output were envisaged to have no change in 2007 and increase by 1.0% per annum over the period 2008 to 2011. It resulted in a minimal provision of $2.5 million for price adjustment under the project. The tender was invited in March 2008 and the increases in construction prices during this tendering period turned out to be much greater than the price movement originally envisaged. for reasons as mentioned in paragraph 3 above. It may take some time for the cost indices to drop below the March 2008 level. Moreover, the total construction cost subject to price adjustment was increased from $84.7M (i.e. items 2(a) and 2(b) above) allowed in the APE to $113.8M required in the revised estimates It is considered prudent to increase the provision for price adjustment allowed from $2.5 million by $27.6 million to $30.1 million.

Head 708 (PART) – Capital Subventions
The Chinese University of Hong Kong (CUHK)
53EF – 1 500-place student hostel

Background

In April 2008, the Finance Committee approved the upgrading of **53EF** "1 500-place student hostel" to Category A at an estimated cost of $338.2 million in money-of-the-day (MOD) prices. The original estimated project cost is $759.9 million, which comprises an Approved Project Estimate (APE) of $338.2 million and contribution by CUHK of $421.7 million. CUHK tendered the site formation and foundation works for one of the two sites in April 2008 and works commenced in August 2008. It was expected at the time of procuring the site formation and foundation works that the APE would be sufficient for completing the whole project.

2. CUHK plans to tender the remaining works including superstructure works in late 2008. In view of the recent sharp price increase in the construction industry, CUHK has reviewed the estimated project cost. It is considered that the total estimated project cost requires adjustment up to $1,113.5 million in MOD prices, *i.e.* an increase of $345.8 million to cater for higher pre-tender estimates for the remaining works, and $7.8 million to maintain a reasonable level of project contingencies. The total required increase in estimated project cost is $353.6 million, *i.e.* 46.5% against the original estimated project cost of $759.9 million.

3. In order to reduce the level of increase in the project cost, CUHK has carried out a cost saving exercise in respect of the remaining works and identified savings of $19.0 million by means of revising the project design and adopting alternative site formation and foundation system, while maintaining the scope and scale of the project. As the project is still at the early construction stage, CUHK considers it prudent to keep a suitable level of project contingencies to cater for unforeseen circumstances so as to ensure smooth progress of the project. The level of project contingencies is therefore increased by $7.8 million from $33.3 million to $41.1 million. In addition, CUHK will increase its contribution of $421.7 million by 48.9%, *i.e.* increase from $206.4 million to $628.1 million to finance 81 hostel places, 25% of the construction cost for the publicly-funded hostel places and the ancillary facilities, as well as the full cost of the enhanced communal facilities through its private sources of funding. Following the cost saving exercise, it is still considered necessary to increase the APE of **53EF** from $338.2 million by $128.2 million to $466.4 million in MOD prices, *i.e.* an increase of 38%.

Cost Comparison

4. A comparison of the cost breakdown of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate $ million	(B) Revised Estimate $ million	(B) - (A) Difference $ million
(a)	Site formation and development	44.3	45.7	1.4
(b)	Building	253.3	396.4	143.1
(c)	Building services	71.4	89.2	17.8
(d)	Drainage, external work, utilities and services	22.4	32.9	10.5
(e)	Consultants' fees	11.6	11.6	-
(f)	Furniture and equipment	40.5	40.5	-
(g)	Contingencies	33.3	41.1	7.8
(h)	Enhanced communal facilities	283.1	437.1	154.0
	Sub-total	759.9	1,094.5	334.6
(i)	Less contribution by CUHK	(421.7)	(628.1)	(206.4)
	Total	**338.2**	**466.4**	**128.2**

5. As regards **4(a) (Site formation and development)**, the increase of $1.4 million (3%) is to meet the anticipated increase in costs for the site at the north-west of central campus with reference to the tender returns for the site at the east of central campus.

6. As regards **4(b) (Building), 4(c) (Building services), 4(d) (Drainage, external work, utilities and services)**, the increases of $171.4 million (some 49% on average) are attributable to the higher pre-tender estimates for the remaining site formation, foundation and superstructure works in the light of the significant increase in construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. The Architectural Services Department Tender Price Index for the fourth quarter of 2008 (*i.e.* the date of return of tender) has risen by some 60% as compared to the price level when the project estimate was prepared. According to the construction cost indices published by the Census and Statistics Department, there is a substantial rise of 76% in the costs of steel reinforcement, and the cost indices for galvanized mild steel pipes also increased by 56% over the same period. The pre-tender estimate is made based on the best information currently available and the current market trend.

7. As regards **4(g) (Contingencies)**, the increase of $7.8 million is to keep a suitable level of contingencies to cater for unforeseen circumstances as the project is still at the early construction stage. Nevertheless, the level of contingencies has been reduced from 7.5% of the original estimate to 6.7% of the revised estimate.

8. As regards **4(h) (Enhanced communal facilities)**, the increase of $154.0 million is to meet the increase in construction costs of the facilities wholly financed by CUHK's private sources of funding.

9. As regards **4(i) (Contribution by CUHK)**, the increase of $206.4 million is to maintain its original share of project cost, *i.e.* to finance 81 hostel places, 25% of the construction cost for the publicly-funded hostel places and the ancillary facilities, as well as the full cost of the enhanced communal facilities through its private sources of funding.

Head 708 (PART) – Capital Subventions
The University of Hong Kong (HKU)
52EG – Human Research Institute – phase 1

Background

In February 2008, the Finance Committee approved the upgrading of **52EG** "Human Research Institute – phase 1" to Category A at an estimated cost of $133.2 million in money-of-the-day (MOD) prices. The original estimated project cost is $266.4 million comprising an Approved Project Estimate (APE) of $133.2 million and HKU's contribution by the same amount. HKU tendered the site formation and foundation works in March 2008 and works commenced in September 2008. It was expected at the time of procuring foundation works that the APE would be sufficient for completing the whole project.

2. HKU plans to tender the superstructure works in November 2008 and to start the superstructure construction works in July 2009. In view of the recent sharp price increase in the construction industry, HKU has reviewed the estimated project cost. It is considered that the total estimated project cost of **52EG** requires adjustment up to $376.9 million in MOD prices, *i.e.* an increase of $104.1 million to cater for higher pre-tender estimates for the remaining works and $6.4 million to maintain a reasonable level of project contingencies. The total required increase in estimated project cost is $110.5 million or 41% against the original estimated project cost of $266.4 million.

3. HKU considers that as the project is still at the early construction stage, it is prudent to maintain a suitable level of project contingencies to cater for unforeseen circumstances so as to ensure smooth progress of the project. The level of project contingencies is therefore increased by $6.4 million from $17.5 million to $23.9 million. In addition, HKU will increase its contribution of $133.2 million by $55.2 million to $188.4 million to meet 50% of the construction cost through its further effort of soliciting private sources of funding. As a result, it is still considered necessary to increase the APE of **52EG** from $133.2 million by $55.3 million to $188.5 million in MOD prices, *i.e.* an increase of 42%.

Cost Comparison

4. A comparison of the cost breakdown of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate $ million	**(B) Revised Estimate $ million**	**(B) - (A) Difference $ million**
(a)	Site preparation and site formation	12.6	14.7	2.1
(b)	Building	122.4	179.1	56.7
(c)	Building services	71.4	105.0	33.6
(d)	Drainage and external works	9.5	16.3	6.8
(e)	Consultants' fees	9.5	9.5	-
(f)	Furniture and equipment	23.5	28.4	4.9
(g)	Contingencies	17.5	23.9	6.4
	Sub-total	266.4	376.9	110.5
(h)	Less contribution by HKU	(133.2)	(188.4)	(55.2)
	Total	**133.2**	**188.5**	**55.3**

5. As regards **4(a) (Site preparation and site formation)**, the increase of $2.1 million is due to the higher-than-expected price submitted by contractor for piling works which is attributable to the continuing drastic increase in the costs of steel.

6. As regards **4(b) (Building), 4(c) (Building services), and 4(d) (Drainage and external works)**, the increases of $97.1 million (some 48% on average) for these related items are attributable to the higher pre-tender estimates in the light of the significant increase in construction material prices and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. The Architectural Services Department Tender Price Index for the fourth quarter of 2008 (*i.e.* the date of return of tender) has risen by 69% as compared to the price level when the project estimate was prepared. According to the construction cost indices published by the Census and Statistics Department, there is a substantial rise of 76% for steel reinforcement, and the cost indices for galvanized mild steel pipes also increased by 56% in the same period. The pre-tender estimate is made based on the best information currently available and the current market trend.

7. As regards **4(f) (Furniture and equipment)**, the increase of $4.9 million is due to higher estimated cost for laboratory bench and fume cupboards.

8. As regards **4(g) (Contingencies)**, the increase of $6.4 million is to keep a suitable level of contingencies to cater for unforeseen circumstances as the project is still at the early construction stage. Nevertheless, the level of contingencies has been reduced from 7% of the original estimate to 6.8% of the revised estimate.

9. As regards **4(h) (Contribution by HKU)**, the increase of $55.2 million in contribution by HKU is to partially meet the increase in project cost and maintain its share of 50% of the total project cost.

Head 708 (PART) – Capital Subventions
The University of Hong Kong (HKU)
53EG – 1 800-place student residences at Lung Wah Street, Kennedy Town

Background

In February 2008, the Finance Committee approved the upgrading of **53EG** "1 800-place student residences at Lung Wah Street, Kennedy Town" to Category A at an estimated cost of $459.7 million in money-of-the-day (MOD) prices. The total project cost of the project was estimated to be $606.3 million and HKU would contribute $146.6 million through its private sources of funding. HKU tendered the construction works (including site formation, foundation and superstructure works) in early July 2008. Upon the close of the tender period on 29 August 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). To cater for the price increase, the total estimated project cost of **53EG** requires adjustment up to $976.3 million in MOD prices, *i.e.* an increase of $370 million or 61% against the original estimated project cost of $606.3 million.

2. In order to reduce the level of increase in the project cost, HKU has carried out a cost saving exercise and identified savings of $17.9 million by means of revising the project design and material specifications, while maintaining the scope and scale of the project. As tenders have been returned and project risk lessened, the level of project contingencies is also reduced by $14.0 million from $41.7 million to $27.7 million.

3. In addition, to partially meet the increase in the project cost, HKU will increase its contribution by 105%, *i.e.* from $146.6 million by $154.2 million to $300.8 million through its further effort of soliciting private sources of funding. Taking the cost saving exercise and the increase in HKU's contribution to the project, it is still considered necessary to increase the APE of **53EG** from $459.7 million by $183.9 million to $643.6 million in MOD prices, *i.e.* an increase of 40%.

Cost Comparison

4. A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate $ million	(B) Revised Estimate $ million	(B) - (A) Difference $ million
(a)	Area and site development	65.0	215.6	150.6
(b)	Building	320.6	444.6	124.0
(c)	Building services	94.0	170.9	76.9
(d)	External works and drainage	22.4	23.0	0.6
(e)	Consultants' fees	18.0	18.0	-
(f)	Furniture and equipment	44.6	44.6	-
(g)	Contingencies	41.7	27.7	(14.0)
	Sub-total	606.3	944.4	338.1
(h)	Less contribution by HKU	(146.6)	(300.8)	(154.2)
	Total	**459.7**	**643.6**	**183.9**

5. As regards **4 (a) (Area and site development), 4 (b) (Building) and 4(c) (Building services),** the increases of $351.5 million (some 73% on average) for these related items are attributable to the higher-than-expected price quoted by the recommended returned tender in the light of the significant increase in construction material prices, complicated works involved, and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. According to the construction cost indices published by the Census and Statistics Department, there is a substantial rise of 76% in the cost of steel reinforcement, and the cost indices for galvanized mild steel pipes increased by 56% over the same period. The Architectural Services Department Tender Price Index for the third quarter of 2008 (*i.e.* the date of return of tender) has also risen by 63% as compared to the price level when the project estimate was prepared. The sudden substantial

increase in material costs is beyond anticipation and the bidders might have built in greater allowance for the risk of price fluctuation in plant, labour and material cost over the duration of the contract in their tenders in view of future unknown risk factors.

6. In addition, the increase of some $150.6 million (about 230%) for **4 (a) (Area and site development)** is attributable to extensive works on sloping ground, extensive temporary working platform and shoring. The cost would vary according to different method/procedure proposed by the tenderers according to their expertise and professional knowledge especially on the temporary steel working platform, means of internal transportation of construction material, *etc.* The complexity of construction work on the sloping site terrain, together with the provision of temporary works platform make accurate estimation very difficult. The bidders would consider their respective level of risk acceptance, capability, experience, expertise, *etc.* to work out their tender offers.

7. In view of the increase in the cost of materials, the sloping site terrain and the need to mobilize additional resources to meet the tight construction programme for completion in the second quarter of 2012 to meet the existing shortfall urgently, the bidders have come up with tender returns which are beyond HKU's original estimation based on the best information available at the time of preparation of the budget. In view of the unexpected increase in the area and site development, building and building services costs after the tendering, HKU has carried out a cost saving exercise and identified savings of $17.9 million by means of revising the project design and material specifications, while maintaining the scope and scale of the project. Meanwhile, HKU will contribute additional $69.7 million from its source of private funding to partially cover the additional costs.

8. In a tendering exercise, bidders make offers based on their estimation of price fluctuations in plant, labour and raw material over the entire duration of the contract, as well as the project risk level having regard to the scope and scale of the project, the site difficulties and the time factor, *etc.* Since individual bidders may have different capability, expertise and level of risk acceptance in different areas of works, the tender prices are subject to the bidders' evaluation of their own circumstances in response to the market situation. It is therefore difficult for the institution to ascertain the perception of individual bidders in formulating their respective tendering strategies. Notwithstanding the above, the institution has tried to analyse and explain the cost difference in paragraphs 5 to 7 above.

9. As regards **4(d) (External works and drainage)**, it mainly involves the soft and hard landscape work and is slightly affected by the recent upsurge of construction and material costs.

10. As regards **4(g) (Contingencies)**, the decrease of $14.0 million in contingencies to meet part of the increase in project cost is possible as tenders have been returned and project risk lessened.

11. As regards **4(h) (Contribution by HKU)**, the increase of $154.2 million in contribution by HKU is to partially meet the unexpected increase in project cost. As a result, HKU's share of the project costs has increased to around 32%.

Head 708 (PART) – Capital Subventions
The Hong Kong University of Science and Technology (HKUST)
11EL – Extension to the existing Academic Building

Background

In January 2008, the Finance Committee approved the upgrading of **11EL** "Extension to the existing Academic Building" to Category A at an estimated cost of $90.8 million in money-of-the-day (MOD) prices. HKUST tendered the construction works (including site formation, foundation and superstructure works) in early June 2008. Upon the close of the tender period on 3 July 2008, the recommended tender return was higher than the original estimate allowed in the Approved Project Estimate (APE). To cater for the price increase, the total estimated project cost of **11EL** requires adjustment up to $130.0 million in MOD prices, *i.e.* an increase of $39.2 million or 43% against the approved project estimate of $90.8 million.

2. In order to minimise the increase in the project cost, HKUST has carried out a cost saving exercise and identified savings of $13.3 million by means of revising the project design and material specifications, while maintaining the scope and scale of the project. As tenders have been returned and project risk lessened, the level of project contingencies is also reduced by $0.6 million from $6.3 million to $5.7 million. Following the cost saving exercise, it is still considered necessary to increase the APE of **11EL** from $90.8 million by $25.3 million to $116.1 million, *i.e.* an increase of 28%.

Cost Comparison

3. A comparison of the cost breakdown of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate $ million	**(B) Revised Estimate $ million**	**(B) - (A) Difference $ million**
(a)	Site development including piling and interfacing works	4.1	8.1	4.0
(b)	Building	43.2	53.9	10.7

		(A) Approved Estimate $ million	(B) Revised Estimate $ million	(B) - (A) Difference $ million
(c)	Building services	21.6	31.0	9.4
(d)	Drainage and external works	4.4	6.2	1.8
(e)	Consultant's fees	3.1	3.1	-
(f)	Furniture and equipment	8.1	8.1	-
(g)	Contingencies	6.3	5.7	(0.6)
	Total	**90.8**	**116.1**	**25.3**

4. As regards **3(a) (Site development), 3(b) Building, 3(c) Building services, and 3(d) (Drainage and external works)**, the increases of $25.9 million (some 35% on average) for these related items are attributable to the higher-than-expected price quoted by the recommended returned tender in the light of the significant increase in construction material prices, and changes in market sentiments from the date of the baseline project estimate to the date of return of tenders for the construction contract of the project. According to the construction cost indices published by the Census and Statistics Department, there is a substantial rise of 81% in the cost of steel reinforcement, and 51% in the cost for galvanized mild steel pipes in the same period. The Architectural Services Department Tender Price Index for the third quarter of 2008 (*i.e.* the date of return of tender) has also risen by 48% as compared to the price level when the project estimate was prepared.

5. As for the increase of some 98% for site development, the complexity of construction work immediately adjacent to the existing Library building (e.g. minimal disruption to the normal operation of library and restricted site access), together with the provision of temporary works required by Building Department (e.g. shoring and stock-piling fill materials), make accurate estimation difficult, and the risk interpretation varies among bidders. Furthermore, the construction cost depends on the proposed work method which vary among different contractors. As reflected in the returned tender prices, it appears that tenderers might have considered this element of the work to be high risk and have priced accordingly. All these factors contribute to the $4.0

million difference between the approved and revised estimate. In general, the volatile nature of the construction market, currency fluctuations and the sharp increase in commodity prices are likely to have influenced the tenderers perception of risk.

6. In a tendering exercise, bidders make offers based on their estimation of price fluctuations in plant, labour and raw material over the entire duration of the contract, as well as the project risk level having regard to the scope and scale of the project, the site difficulties and the time factor, *etc.* Since individual bidders may have different capability, expertise and level of risk acceptance in different areas of works, the tender prices are subject to the bidders' evaluation of their own circumstances in response to the market situation. It is therefore difficult for the institution to ascertain the perception of individual bidders in formulating their respective tendering strategies. Notwithstanding the above, the institution has tried to analyse and explain the cost difference as stated in paragraphs 4 to 5 above.

7. As regards **3(g) (Contingencies)**, the decrease of $0.6 million in contingencies to meet part of the increase in project cost is possible as tenders have been returned and project risk lessened.

Annex B

Worked Example for Contract Price Fluctuation (CPF) Calculation

1. The CPF for a waterfront promenade project is used as a worked example.

2. **Annex B-1** is a standard form used by tenderers to show the "Schedule of Proportions" for calculating the price fluctuation factor (PFF) for use in the particular contract. The contractor during the tender stage inserted his predicted percentage in column (3) of the form based on the nature of the project and his planned working methods. Column (4) is then calculated and will be used for CPF calculation for the subject contract.

3. **Annex B-2** and **Annex B-3** show the actual calculation for CPF in October 2007 and August 2008 respectively, with reference to the base month of May 2007. The base month and the current month indices are given in columns (1) and (2) of the table. These were based on the indices issued by Census and Statistics Department (C&SD) for the month of May 2007, October 2007 and August 2008. The index fraction in column (3) shows the increase between the current month and the base month.

4. With the index proportion in column (4) in **Annex B-1**, the price fluctuation factor (PFF) is calculated and tabulated in column (5). The PFF is a negative value of -0.005972 for October 2007 and 0.101238 for August 2008.

5. The CPF payment for each of the two months is the value of works done in that month multiplied by the PFF. Thus, if the value of works done for October 2007 was $2 million, and for August 2008 was $3 million, the respective CPF payment would be :-

   October 2007: $2.0M x (-0.005972) = -$11,944, that is, a deduction of $11,944 from the payment of $2M.

   August 2008: $3.0M x (0.101238) = $303,714, that is, the payment of $3.0M will be increased by $303,714.

Annex B-1

Schedule of Proportions to be used in
Calculating the PRICE FLUCTUATION FACTOR (PFF)
for Building Works

Item of Labour and Selected Materials applicable to this Contract	Percentage of "Effective Value" of the Works			Calculated Proportions
	LIMITS		TENDER	Index Proportion (#) (0.0085×(3))
	Max.	Min.	(whole number) (*)	
(Column No.)	(1)	(2)	(3)	(4)
Composite labour for building contracts	47	35	47	0.3995
Aggregates	4	1	2	0.0170
Portland cement (ordinary)	13	8	9	0.0765
Concrete blocks	2	1	2	0.0170
Sand	2	1	2	0.0170
Steel reinforcement	9	5	6	0.0510
Galvanised mild steel	16	1	8	0.0680
Timber formwork	16	13	14	0.1190
Hardwood	2	1	2	0.0170
Teak	2	1	2	0.0170
Glazed ceramic wall tiles	2	1	1	0.0085
uPVC lined GMS pipes	2	1	1	0.0085
uPVC pipes	2	1	1	0.0085
Glass	3	1	1	0.0085
Paint	4	1	2	0.0170
All other costs not subject to adjustment	-	-	-	0.1500
TOTAL	-	-	100	1.0000

(*) Column (3) to be filled in by tenderer within the limits set out in columns (1) and (2)

(#) 15% of the "Effective Value" of works will not be subject to fluctuation adjustment. Hence the percentage of "Effective Value" of the works as inserted by the contractor are multiplied by 0.0085.

Annex B-2

CALCULATION OF PRICE FLUCTUATION FACTOR FOR BUILDING WORKS
(October 2007)

Base Index Month : May-07 For period : Oct-07
Current Index Month : Oct-07

Items of Labour and Selected Materials applicable to this Contract	Index Figures		Index Fraction (Current - Base) / Base	Calculated Proportion (*)	FACTOR +/- (3) x (4)
	Base Index May 07	Current Index Oct 07			
(Column No.)	(1)	(2)	(3)	(4)	(5)
Composite labour for building contracts	88.80	83.60	(0.058559)	0.399500	(0.02339432)
Aggregates	92.10	89.30	(0.030402)	0.017000	(0.00051683)
Portland cement (ordinary)	100.90	102.30	0.013875	0.076500	0.00106144
Concrete blocks	100.10	102.10	0.019980	0.017000	0.00033966
Sand	194.40	193.30	(0.005658)	0.017000	(0.00009619)
Steel reinforcement	176.80	192.90	0.091063	0.051000	0.00464421
Galvanised mild steel	218.00	237.30	0.088532	0.068000	0.00602018
Timber formwork	129.70	133.20	0.026985	0.119000	0.00321122
Hardwood	130.20	134.70	0.034562	0.017000	0.00058755
Teak	131.10	142.60	0.087719	0.017000	0.00149122
Glazed ceramic wall tiles	113.70	116.80	0.027265	0.008500	0.00023175
uPVC lined GMS pipes	109.80	109.80	0.000000	0.008500	0.00000000
uPVC pipes	126.10	127.40	0.010309	0.008500	0.00008763
Glass	101.20	101.40	0.001976	0.008500	0.00001680
Paint	108.70	110.90	0.020239	0.017000	0.00034406
				PRICE FLUCTUATION FACTOR (PFF)	(0.005972)

(*) Calculated proportions from Column (4) of Annex B-1.

Annex B-3

CALCULATION OF PRICE FLUCTUATION FACTOR FOR BUILDING WORKS
(August 2008)

Base Index Month : May-07 For period : Aug-08
Current Index Month : Aug-08

Items of Labour and Selected Materials applicable to this Contract	Index Figures		Index Fraction (Current - Base) Base	Calculated Proportion (*)	FACTOR +/- (3) x (4)
	Base Index May 07	Current Index Aug 08			
(Column No.)	(1)	(2)	(3)	(4)	(5)
Composite labour for building contracts	88.80	81.70	(0.079955)	0.399500	(0.03194202)
Aggregates	92.10	108.10	0.173724	0.017000	0.00295331
Portland cement (ordinary)	100.90	108.80	0.078295	0.076500	0.00598957
Concrete blocks	100.10	141.40	0.412587	0.017000	0.00701398
Sand	194.40	289.20	0.487654	0.017000	0.00829012
Steel reinforcement	176.80	336.40	0.902715	0.051000	0.04603847
Galvanised mild steel	218.00	353.00	0.619266	0.068000	0.04211009
Timber formwork	129.70	142.40	0.097918	0.119000	0.01165224
Hardwood	130.20	149.40	0.147465	0.017000	0.00250691
Teak	131.10	142.60	0.087719	0.017000	0.00149122
Glazed ceramic wall tiles	113.70	133.90	0.177661	0.008500	0.00151012
uPVC lined GMS pipes	109.80	116.70	0.062842	0.008500	0.00053416
uPVC pipes	126.10	134.80	0.068993	0.008500	0.00058644
Glass	101.20	110.90	0.095850	0.008500	0.00081473
Paint	108.70	119.50	0.099356	0.017000	0.00168905
PRICE FLUCTUATION FACTOR (PFF)					0.101238

(*) Calculated proportions from Column (4) of Annex B-1