
UNIVERSITI SAINS MALAYSIA

First Semester Examination
Academic Session 2006/2007

October/November 2006

RMK 359 – Construction Economics 1
(*Ekonomi Binaan 1*)

Duration: 3 hours
(*Masa: 3 jam*)

Please check that this examination paper consists of **FORTY THREE** pages of printed material before you begin the examination.

*Sila pastikan bahawa kertas peperiksaan ini mengandungi **EMPAT PULUH TIGA** muka surat yang tercetak sebelum anda memulakan peperiksaan ini.*

Students are allowed to answer all questions in English OR in Bahasa Malaysia.

Pelajar dibenarkan menjawab semua soalan dalam Bahasa Inggeris ATAU Bahasa Malaysia.

Answer **THREE** questions only. **Question 1** is **COMPULSORY** and answer any **TWO** other questions.

*Jawab **TIGA** soalan sahaja. **Soalan 1** adalah **WAJIB** dan jawab mana-mana **DUA** soalan lain.*

- 2 -

1. In August 2006, your firm has been appointed Quantity Surveyors for a project as indicated in the 'Concept Sketches'; in "**Lampiran A1**". Details of the project are as follows:-

- Project : Proposed Administrative Office
- Classification : Administrative Building
- Place : Jalan Langgar, Alor Setar, Kedah
- General Project Information :
 - Use the dimensions as indicated in the sketches to obtain the Gross Floor Area (GFA).
 - The client wants to add new spaces by adding two (2) levels of basement for carparks.
 - Sketches for the rooms (Intermediate floor) are now changed to offices.
 - Site area – 0.5 hectare
 - Form of Contract – CIDB 2000

Based on the 'Concept Sketches' (**Lampiran A1**) and referring to the guide cost analysis and Special Release 2 Index (**Lampiran A2 - A3**) as well as the details provided under **Lampiran B**.

- (a) Prepare an Elemental Cost Plan that is complete by utilizing the form provided (**Lampiran C**) and advise the client on the following:-
- (i) Total Building Cost (including Preliminaries and Contingencies).
 - (ii) Total Cost of Overall Development.
 - (iii) Computations of the Gross Floor Area (GFA) in detail.

(20 marks/markah)

...3/-

- (b) Indicate clearly the indices and index numbers that have been adopted.

(4 marks/markah)

- (c) The Client has made several changes to the initial sketches, i.e. adding two (2) basement floors and changing the function from a hotel to an office. Explain from a Building Economics perspective, the effects of these changes with regards to:-

- Finishes
- Method of Construction
- Services
- Work Below Ground Level

(12 marks/markah)

- (d) The client has capped the budget in the region of RM 6.3 million (including land cost); explain how this budgetary cap may be achieved and the steps required to fulfill the client's needs.

(6 marks/markah)

- (e) Explain how the use of the CIDB 2000 Standard Form of Contract can influence the costs of this project.

(4 marks/markah)

- (f) Differentiate between the Cost Plan prepared and that of an estimate.

(4 marks/markah)

*Pada bulan Ogos 2006, firma anda telah dilantik sebagai Juruukur Bahan untuk melaksanakan sebuah projek sepertimana 'Concept Sketches' dalam **Lampiran A1**. Butiran-butiran projek adalah seperti berikut:-*

- *Projek* : *Cadangan Pejabat Pentadbiran*
- *Pengkelasan* : *Bangunan Pentadbiran*
- *Tempat* : *Jalan Langgar, Alor Setar, Kedah*
- *Maklumat Am Projek* :
 - *Gunakan dimensi seperti mana tertera dalam lakaran untuk mendapatkan luasan lantai kasar (GFA).*
 - *Pihak Klien mahukan ruang ditambahkan melalui dua tingkat basement untuk kegunaan carpark.*
 - *Lakaran untuk bilik-bilik (Intermediate floor) ditukar menjadi ruang-ruang pejabat.*
 - *Keluasan – 0.5 hektar*
 - *Borang Kontrak – CIDB 2000*

*Berpandukan 'Concept Sketches' (**Lampiran A1**) serta merujuk kepada analisis kos panduan dan indeks Siaran Khas 2 (**Lampiran A2 - A3**) dan butiran-butiran lanjutan (**Lampiran B**) yang dibekalkan.*

- (a) *Sediakan Pelan Kos Berelemen yang kemas dan lengkap dengan mengisi boring yang disediakan (**Lampiran C**) dan nasihatkan pihak klien tentang:-*
- (i) *Jumlah Kos Bangunan (termasuk 'Preliminaries' and Kontingensi).*
 - (ii) *Jumlah Kos Pembangunan Keseluruhan*
 - (iii) *Perkiraan Luasan Lantai Kasar (GFA) secara terperinci*

(20 marks/markah)

- 5 -

- (b) *Tunjukkan dengan jelas kaedah penyelarasan indeks-indeks yang telah dikenalpasti.*

(4 marks/markah)

- (c) *Pihak klien telah membuat beberapa perubahan daripada lakaran asal, iaitu menambah dua tingkat 'basement' dan menukar fungsi asal daripada sebuah hotel kepada sebuah pejabat. Jelaskan dari sudut Ekonomi Bangunan kesan-kesan perubahan ini yang bersabit dengan:-*

- *Kemasan-kemasan*
- *Kaedah Pembinaan*
- *Perkhidmatan*
- *Kerja-kerja di bawah tanah*

(12 marks/markah)

- (d) *Pihak klien telah menetapkan belanjawan projek dihadkan dalam lingkungan RM 6.3 juta (termasuk harga tanah); jelaskan samada had belanjawan ini boleh dicapai serta nyatakan langkah-langkah yang perlu diambil bagi memenuhi kehendak klien ini.*

(6 marks/markah)

- (e) *Jelaskan bagaimana penggunaan Borang Kontrak CIDB 2000 boleh mempengaruhi kos projek ini.*

(4 marks/markah)

- (f) *Bezakan Rancangan Kos yang telah disediakan dengan anggaran biasa.*

(4 marks/markah)

...6/-

2. (a) By using appropriate illustrations, prepare a chart consisting of cost activities and functions based upon the RIBA Plan of Work. Elaborate with regards to the various important documents prepared by the Quantity Surveyor at the various phases.
(12 marks/markah)
- (b) Describe the main characteristics inherent in a Building Economics Report and relate them to the 'Elemental Cost Analysis' (ECA).
(8 marks/markah)
- (c) Briefly, discuss the differences between the RIBA Plan of Work and NPWC nomenclatures.
(5 marks/markah)
- (a) *Dengan menggunakan gambarajah, sediakan suatu carta aktiviti dan fungsi kos yang berpandukan RIBA Plan of Work. Jelaskan juga tentang dokumen-dokumen yang penting yang disediakan oleh seorang Juruukur Bahan ditahap-tahap tertentu.*
(12 marks/markah)
- (b) *Nyatakan ciri-ciri utama yang harus ada dalam penyediaan suatu laporan Ekonomi Bangunan serta kaitkannya dengan 'Elemental Cost Analysis' (ECA).*
(8 marks/markah)
- (c) *Bezakan secara ringkas nomenklatur RIBA Plan of Work dengan yang diajukan oleh NPWC.*
(5 marks/markah)

3. (a) Discuss the concept of Construction Economics with regards to its purpose, objectives and aims in relation to deriving projects that are optimum in terms of cost. Use appropriate illustrations in your answers.

(9 marks/markah)

- (b) "The Principles of Cost Control ensures that appropriate costing input will be focused at various levels of activities encompassing all phases".

Discuss.

(9 marks/markah)

- (c) Briefly describe:-

- (i) the purposes of Estimates
(ii) the Cost Planning Concept Map, with sketches.

(7 marks/markah)

- (a) *Bincangkan tentang konsep Ekonomi Binaan serta matlamat, objektif dan tujuannya dari sudut penghasilan suatu projek yang optimum dari segi kos. Gunakan lakaran yang wajar dalam jawapan anda.*

(9 marks/markah)

- (b) *"Prinsip-prinsip Kawalan Kos memastikan bahawa kegiatan-kegiatan di kesemua tahap akan mendapat tumpuan kos yang sewajarnya"*

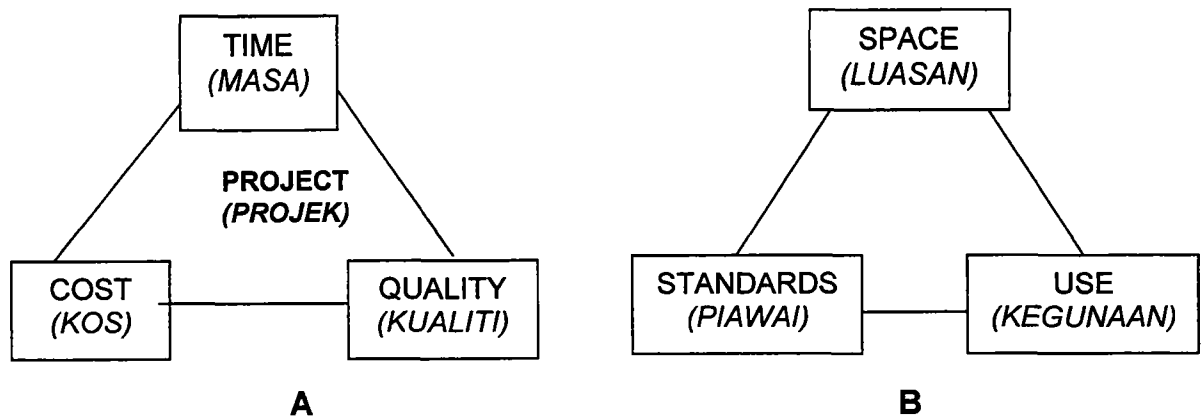
Bincangkan.

(9 marks/markah)

- (c) *Nyatakan dengan ringkas:-*

- (i) *Tujuan membuat anggaran*
(ii) *Peta Konsep Perancangan Kos, dengan menggunakan gambarajah.*

(7 marks/markah)



4. (a) Discuss the following:-

- Sketch A with regards to making decisions to commence construction.
- Sketch B with regards ensuring the viability of a particular project.

(10 marks/markah)

- (b) By using illustrations, describe the Total Strategic Cost Management Process comprehensively and adequately and reconcile with Value Management aspects.

(10 marks/markah)

- (c) Briefly describe the factors that influence costs at the design stage.

(5 marks/markah)

- (a) *Bincangkan tentang kedua-dua lakaran di atas:-*

- *Lakaran A dari sudut untuk membuat keputusan untuk membina.*
- *Lakaran B dari sudut memastikan sesuatu projek itu berdaya maju.*

(10 marks/markah)

- (b) *Dengan menggunakan lakaran, jelaskan tentang Proses Pengurusan Kos Strategik yang komprehensif dan lengkap serta kaitkan dengan aspek Pengurusan Nilai.*

(10 marks/markah)

- (c) *Dengan ringkas, nyatakan faktor-faktor yang mempengaruhi kos ditahap reka bentuk.*

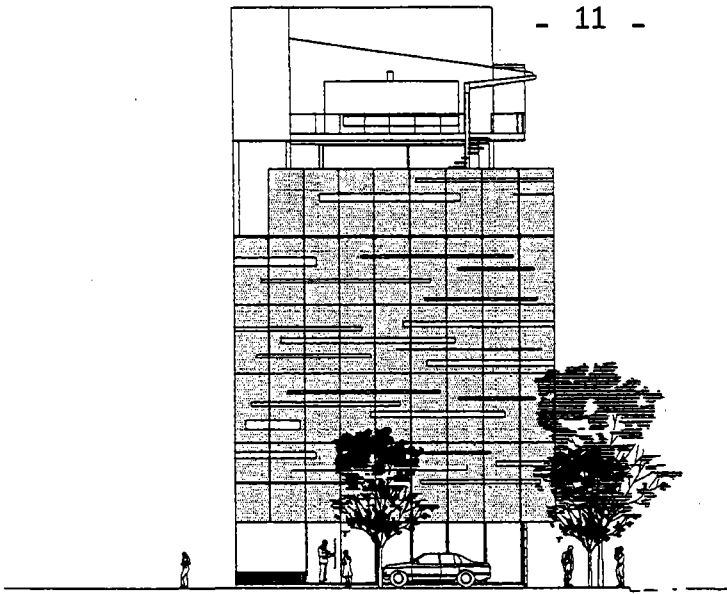
(5 marks/markah)

LAMPIRAN

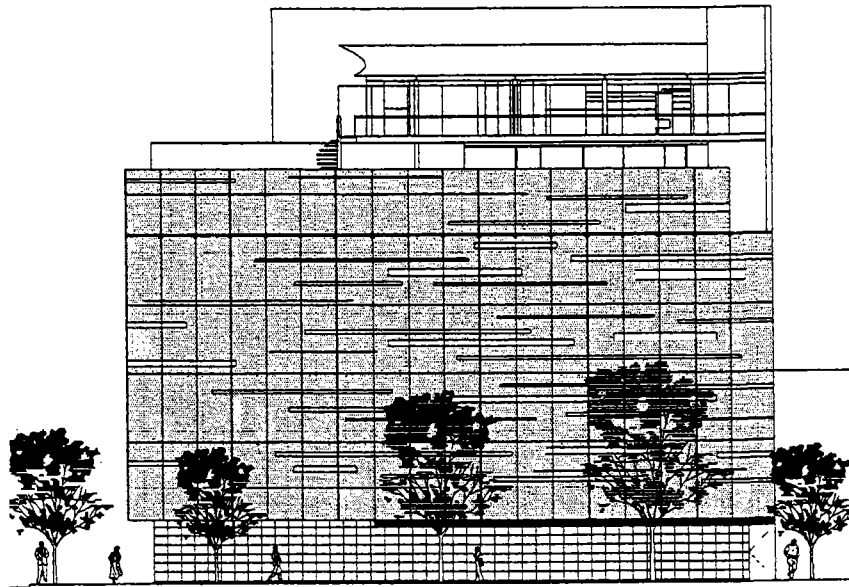
- LAMPIRAN A1** - **'CONCEPT SKETCHES'**
Proposed Administrative Office
- LAMPIRAN A2** - **Guide Cost Analysis**
(Analisis Kos Panduan)
- LAMPIRAN A3** - **Building Indices for the**
Years 2006 and 2004
(Indeks Bangunan Bagi
Tahun 2006 dan Tahun 2004)
- LAMPIRAN B** - **Additional Details**
(Butiran-Butiran Lanjutan)
- LAMPIRAN C** - **Cost Plan Form**
(Borang Pelan Kos)

LAMPIRAN A1

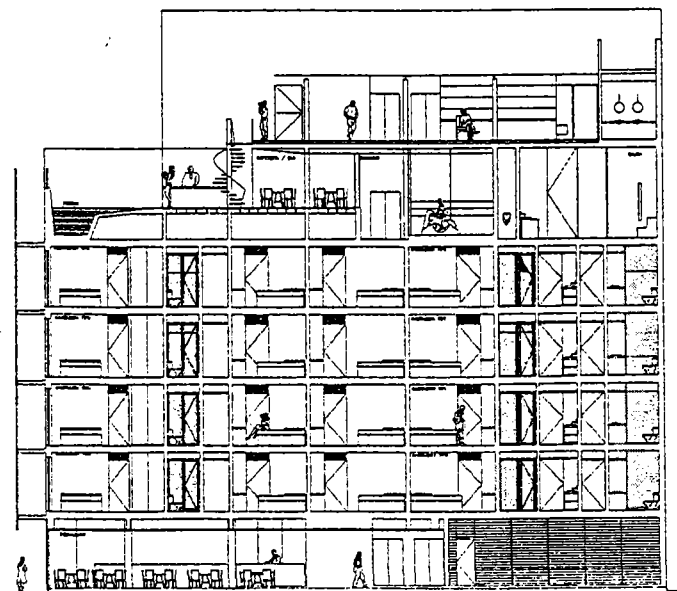
'CONCEPT SKETCHES' Proposed Administrative Office



South façade

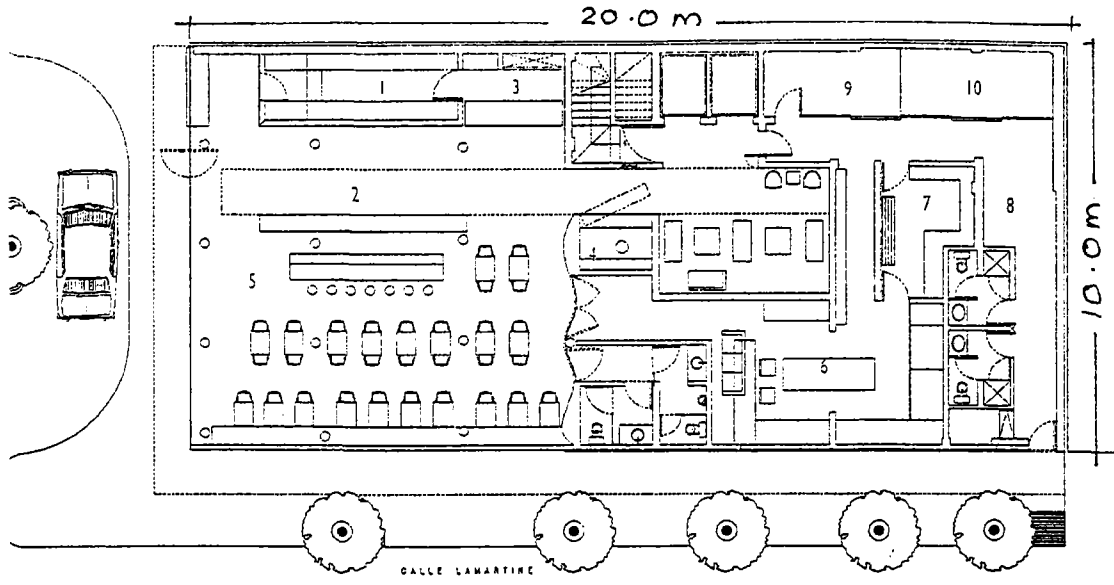


East façade

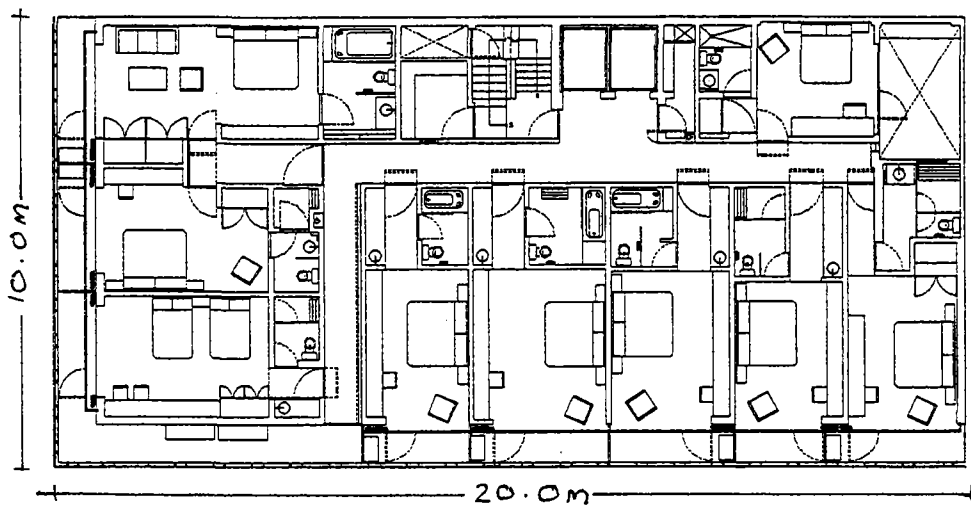


LONGITUDINAL SI

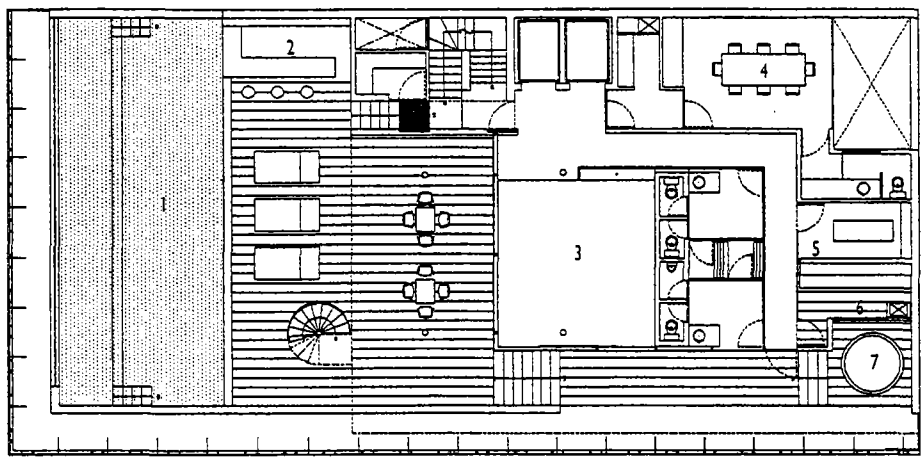
Longitudinal section



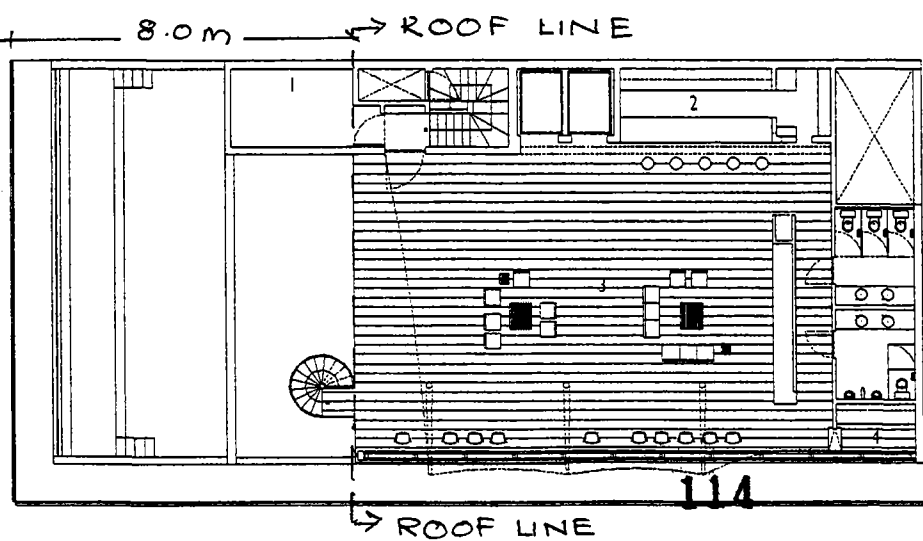
- Ground floor plan
1. Administration
 2. Entry hall
 3. Reception
 4. Concierge
 5. Restaurant / Bar
 6. Kitchen
 7. Storage
 8. Services
 9. Transformers
 10. Electrical substation



Intermediate floor, room distribution



- Upper floor
1. Swimming pool
 2. Bar
 3. Gym
 4. Conference room
 5. Massage room
 6. Sauna
 7. Jacuzzi



- Terraza
1. Cuarto de máquinas
 2. Bar
 3. Terraza
 4. Cocineta

LAMPIRAN A2

Guide Cost Analysis (*Analisis Kos Panduan*)

ELEMENTAL COST ANALYSIS - Form 1		3 - Administrative Buildings	
		A - 1 - 904	
JOB TITLE	Proposed Jabatan Pengangkutan Jalan Regional Office, Kuching	CLIENT:	Government
LOCATION:	Kuching, Sarawak	TENDER DATE:	25-Jan-2004

INFORMATION ON TOTAL PROJECT

Project and Contract Information

Project Details and Site Conditions:

Construction of Administrative Buildings, Tester Office, Canteen, Waiting Shelters, Weighbridge Control, Guard House, Surau and Shelter for JPJ including infrastructure works. The site is located approximately 11 mile from Kuching city and is accessible.

Contract:

JKR with Quantities

Market Conditions: **COMPETITIVE**

Contract Particulars:

Type of Contract:

Yes

No

Basis of Tender

Bills of Quantities Open/Selected Competition

Bills of Approx. Quant. Negotiated

Sched. Of Rates/ Spec & Drawings Serial

Contract Period Stip. By Client: 18 months

Contract Period Offered by Builders: 18 months

Number of Tenders Issued: 23

Number of Tenders Received: 23

Cost Fluctuation

Government

Private

Provisional Sum RM 670,000.00

Prime Cost Sum RM --

Preliminaries RM 296,289.50

Contingencies RM 220,000.00

Contract Sum RM 10,700,000.00

Competitive Tender List

RM	Int/JV/L
17,015,538.43	L
:	
:	
11,652,000.00	L
11,300,000.00	L
11,289,000.00	L
11,234,117.00	L
10,700,000.00	L

ANALYSIS OF SINGLE BUILDING

Design/Shape Information

Accommodation and Design Features:

Single storey building (Enforcement Office), reinforced concrete framed structure with metal deck roofing on steel pipe trusses and reinforced concrete gutters. The building comprise of General Office, Public Hall, Enforcement/Batching Store, Docket Room and toilets.

Areas	Functional Unit:	Design/Shape
Lower Ground Floor - m2	643 m2	Percentage of Gross Floor Area:
Ground Floor 904 m2		
Upper Floor - m2	External Wall Area = 656	a) Below Ground Floor Construction %
GROSS FLOOR AREA 904 m2	Gross Floor Area = 904	b) Single Storey Construction 100%
	= 0.726	c) 2-Storey Construction %
Usable Area 643 m2	<u>Storey Heights</u>	d) 3-Storey Construction %
Circulation Area 176 m2		
Ancillary Area 70 m2	Av. Below Ground Floor -- m	e) 4-Storey Construction %
Internal Division 15 m2	At Ground Floor 3.35 m	
GROSS FLOOR AREA 904 m2	Above Ground Floor -- m	
Floor Space NOT Enclosed: 158 m2		
Roof Area: 904 m2 (Structural & Plant Rooms)		

Brief Cost Information

Contract Sum	RM 1,376,408.53	Functional Unit Cost excl external works: (RM/m2)	1,271.38
Provisional Sum	RM nil		
Prime Cost Sum	RM nil		
Preliminaries	RM 38,113.59 being 2.91% of remainder		
Contingencies	RM 28,299.99 being 2.16% Contract Sum		
Contract Sum less Contingencies	RM 1,348,108.54		

THE INSTITUTION OF SURVEYORS MALAYSIA
BUILDING COST INFORMATION CENTRE

ELEMENTAL COST ANALYSIS - Form 2							3 - Administrative Buildings		
							A - 1 - 904		
SUMMARY OF ELEMENTAL COSTS									
GROSS FLOOR AREA:		904 m2			TENDER DATE:		25-Jan-2004		
Element	Preliminaries Shown Separately								
	Total Cost of Element RM	Cost/m2 GFA RM	Elemental Unit Quantity	Elemental Unit Rate RM	Elemental Ratio per m2 GFA	Reinforced Concrete m3	Reinforcement kg	Formwork m2	
1 Substructure									
1A Piling									
1B Work Below Lowest Floor Finish	186,336.70	206.12	904 m2	206.12	1.00	396	44,785	1,401	
Group Elemental Total	186,336.70	206.12							
2 Superstructure									
2A Frame	87,246.50	96.51	904 m2	96.51	1.00	129	19,770	1,332	
2B Upper Floors	0.00	0.00	0 m2	#DIV/0!	0.00				
2C Roof	166,782.00	184.49	1,017 m2	163.99	1.13	43	5,620	372	
2D Stairs	0.00	0.00							
2E External Walls	18,070.70	19.99	444 m2	40.70	0.49				
2F Windows & External Doors	50,688.40	56.07	212 m2	239.10	0.23				
2G Internal Walls & Partitions	10,412.40	11.52	467 m2	22.30	0.52				
2H Internal Doors	23,345.60	25.82	48 m2	486.37	0.05				
Group Elemental Total	356,545.60	394.41					25,390	1,704	
3 Finishes									
3A Internal Wall Finishes	28,468.00	31.49	1,371 m2	20.76	1.52				
3B Internal Floor Finishes	40,935.60	45.28	904 m2	45.28	1.00				
3C Internal Ceiling Finishes	39,401.00	43.59	890 m2	44.27	0.98				
3D External Finishes	21,219.00	23.47							
Group Elemental Total	130,023.60	143.83							
4 Fittings and Furnishings	1,948.00	2.15							
5 Services									
5A Sanitary Appliances	4,423.00	4.89	12 No	368.58	0.01				
5B Plumbing Installation	12,055.00	13.34							
5C Refuse Disposal									
5D Air-Conditioning & Ventilation System									
5E Electrical Installation	77,110.00	85.30							
5F Fire Protection Installation									
5G Lift & Conveyor Installation									
5H Communication Installation	9,701.00	10.73							
5J Special Installation									
5K Builder's Profit & Attendance on Services									
5L Builder's Work In Connection with Services	1,240.00	1.37							
Group Elemental Total	104,529.00	115.63							
Sub-Total exc. External Works, Preliminaries & Contingencies	779,382.90	862.15							
6 External Works									
6A Site Work	375,970.08	415.90							
6B Drainage	137,533.21	152.14							
6C External Services	8,935.52	9.88							
6D Ancillary Buildings	2,050.23	2.27							
6E Recreational Facilities	6,123.01	6.77							
Group Elemental Total	530,612.05	586.96							
Preliminaries	38,113.59	42.16							
TOTAL (less Contingencies)	1,348,108.54	1,491.27							

ELEMENTAL COST ANALYSIS - Form 3		3 - Administrative Buildings
		A - 1 - 904
BRIEF SPECIFICATION		
GROSS FLOOR AREA:	904 m2	TENDER DATE: 25-Jan-2004
ELEMENT	SPECIFICATION	
1 Substructure		
1A Piling	By Others	
1B Work Below Lowest Floor Finish	Reinforced concrete pile caps, ground beams, stumps, ground floor slab and ramp	
2 Superstructure		
2A Frame	Reinforced concrete column and beam construction	
2B Upper Floors		
2C Roof	Pitched roof with Lysaght Colorbond Spandek metal roof sheeting on Lysaght galvanised steel purlins and steel portal roof frames, double sided sisalation, wool insulation, flashings, cappings, rc roof slab and gutters with waterproofing, UPVC rainwater downpipe	
2D Stairs		
2E External Walls	Generally 115mm thick common brickwalls	
2F Windows & External Doors	Natural anodised finish aluminium frame windows glazed with 6mm thick tinted float glass, solid core and hollow core plywood flush door and one hour fire rated door with timber door frames and Winkhaus and Yank ironmongeries	
2G Internal Walls & Partitions	Generally 115mm thick common brickwalls construction	
2H Internal Doors	Hollow core plywood flush door, one hour fire rated door to service rooms, timber door frames and Winkhaus and Yank ironmongery	
3 Finishes		
3A Internal Wall Finishes	Plastering and Jotun paint to walls and columns, full height Kim Hin ceramic wall tiles to Toilet and Kitchen areas.	
3B Internal Floor Finishes	Kin Hin homogeneous floor tiles and cement and sand screeded floor to service rooms	
3C Internal Ceiling Finishes	Armstrong RH90 Second Look II mineral fibre board suspended ceiling system to Office & Hall areas, UAC Superflex ceiling on timber ceiling framing to Toilets, store rooms and service rooms.	
3D External Finishes	Included in Internal Finishes	
4 Fittings and Furnishings	Timber benches	
5 Services		
5A Sanitary Appliances	Sime Inax range sanitary wares and fittings	
5B Plumbing Installation	Cold water services and sanitary plumbing	
5C Refuse Disposal		
5D Air-Conditioning & Ventilation System		
5E Electrical Installation	Electrical cabling, wiring and light fittings.	
5F Fire Protection Installation		
5G Lift & Conveyor Installation		
5H Communication Installation	Telephone wiring and PABX system	
5J Special Installation		
5K Builder's Profit & Attendance on Services		
5L Builder's Work In Connection with Services	Reinforced concrete vanity and counter top and squatting toilet plinth finished with Kim Hin homogeneous tiles	
6 External Works		
6A Site Work	Site clearing, earthfilling, road & carpark, Fencing & Gate, landscaping & turfing	
6B Drainage	Surface water drainage and foul drainage	
6C External Services	External water supply	
6D Ancillary Buildings	Refuse centre and substation	
6E Recreational Facilities	Parade Ground	

LAMPIRAN A3

**Building Indices for the
Years 2006 and 2004
(*Indeks Bangunan Bagi
Tahun 2006 dan Tahun 2004*)**



SIARAN KHAS

Special Release

2

SEMENANJUNG MALAYSIA

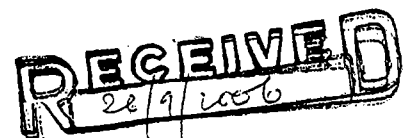
(UNTUK KERJA-KERJA PEMBINAAN BANGUNAN DAN STRUKTUR)

(For Building and Structural Works)

OGOS 2006

JABATAN PERANGKAAN MALAYSIA

DEPARTMENT OF STATISTICS, MALAYSIA



Tarikh:

Date :

15 September 2006

**KETERANGAN TAMBAHAN TENTANG INDEKS KOS BAHAN BINAAN
BANGUNAN SEMENANJUNG MALAYSIA (JULAI 2002 = 100)**

Bermula dengan penerbitan Januari 2005, siri ini adalah berasaskan kepada tahun asas yang ditukar daripada 1991 (Januari 1991 = 100) kepada 2002 (Julai 2002 = 100) serta pemilihan barangan dan pemberat yang disemak semula oleh JKR.

Bagi kontrak-kontrak yang telah ditandatangani sebelum Januari 2005, sila lihat 'Jadual Faktor Pelarasan' (Lampiran A) dan 'Contoh Mengira Indeks Lama Kos Bahan Binaan Bangunan' (Lampiran B) untuk panduan dalam melaksanakan Syarat Perubahan Harga.

Bagi kontrak-kontrak mulai Januari 2005 dan seterusnya, indeks baru hendaklah digunakan terus tanpa sebarang pelarasan.

***ADDITIONAL EXPLANATION OF THE BUILDING MATERIAL COST
INDEX FOR PENINSULAR MALAYSIA (JULY 2002 = 100)***

Starting from January 2005 publication, the series is based on the revised base year which has been changed from 1991 (January 1991 = 100) to 2002 (July 2002 = 100) as well as the selection of new items and weights by JKR.

For contracts signed before January 2005, please refer to the 'Adjustment Factor Table' (Appendix A) and the 'Example For Calculating The Old Building Material Cost Index' (Appendix B) for the implementation of the Variation of Price Clause.

For contracts commencing January 2005 and thereafter, the new index is to be used without any further adjustment.

**KETERANGAN RINGKAS TENTANG INDEKS KOS BAHAN BINAAN
BANGUNAN SEMENANJUNG MALAYSIA
(JULAI 2002=100)**

Indeks Kos Bahan Binaan Bangunan (IKB) adalah suatu indeks untuk tujuan khusus yang berasaskan formula Laspeyres. Ianya dibentuk untuk mengukur kadar perubahan purata harga bahan-bahan binaan terpilih yang digunakan dalam lapan kategori bangunan untuk enam kawasan di Semenanjung Malaysia.

IKB adalah sesuai untuk penggunaan Syarat Perubahan Harga dalam kontrak-kontrak bangunan kerajaan sahaja. Spesifikasi dan pemberat untuk bahan-bahan binaan terpilih mengikut kategori bangunan, disediakan oleh Jabatan kerja Raya (JKR). Anggaran 4,300 sebutharga dipungut setiap bulan daripada lebih kurang 760 outlet untuk 130 jenis bahan binaan terpilih.

NOTA TENTANG PENGIRAAN PERUBAHAN INDEKS

Indeks Kos Binaan Bangunan mengukur perubahan harga dari suatu tempoh rujukan yang ditetapkan, Julai 2002 yang mana menyamai 100.

Pergerakan Indeks Kos Bahan Binaan Bangunan dari satu bulan ke satu bulan yang lain dinyatakan sebagai perubahan peratus dan bukan perubahan mata indeks (*index points*) kerana perubahan mata indeks dipengaruhi oleh aras indeks yang berkaitan dengan tempoh asasnya, manakala perubahan peratus tidak mempunyai pengaruh sedemikian. Contoh berikut menunjukkan cara pengiraan perubahan peratus mata indeks dan perubahan peratus.

Peratus Mata Indeks

Indeks Kos Bahan Binaan Bangunan 130.5

Tolak indeks sebelumnya 129.3

$$\frac{130.5 - 129.3}{129.3}$$

Perubahan Peratus

Perubahan mata indeks dibahagi dengan indeks sebelumnya, didarab dengan seratus

$$\frac{130.5 - 129.3}{129.3} \times 100 = 0.9\%$$

**BRIEF EXPLANATION OF THE BUILDING MATERIAL COST INDEX
FOR PENINSULAR MALAYSIA
(JULY 2002 = 100)**

The Building Material Cost Index (BCI) is a special purpose index which is based on the Laspeyres formula. It is designated to measure the average rate of change in prices of selected building materials utilized in eight categories of building in six regions of Peninsular Malaysia.

The BCI is relevant only for application of the Price variation Clause in government building contracts. The specifications and weightage pattern for selected building materials by category of building are determined by Public Works Department (JKR). Approximately 4,300 price quotations are collected monthly from about 760 outlets for 130 selected building material items.

NOTE ON CALCULATING INDEX CHANGES

The Building Cost Index measures price changes from a designated period, July 2002, which equals 100.

Movements of the Building Cost Index from one month to another are expressed as percentage changes rather than changes in index points because "index point" changes are affected by the level of the index in relation to its base period while percentage changes are not. The following example illustrates the computation of index point and percentage changes.

Index Point Change	Percentage Change
Building Material Cost Index 130.5	Index point difference divided by the previous index, multiplied by one hundred
Less previous index 129.3	
<hr style="width: 50%; margin-left: 0;"/>	
1.2	$\frac{130.5 - 129.3}{129.3} \times 100 = 0.9\%$

JADUAL 1 - INDEKS KOS BAHAN BINAAN BANGUNAN MENGIKUT KATEGORI BANGUNAN DAN KAWASAN

Table 1 - *Building Material Cost Index by Category of Building And Region*

(Julai 2002 = 100)

Kategori Bangunan <i>Category of Building</i>	Tempoh <i>Period</i>	Kawasan* <i>Region</i>						
		A	B	C	D	E	F	
(1) Bangunan (K.T) Satu tingkat <i>Single - Storey (R.C) Buildings</i>	2005	Dis.	116.8	117.6	116.7	117.7	118.6	116.9
	2006	Jan.	116.8	117.7	116.8	117.8	118.6	116.9
		Feb.	116.8	117.8	116.8	117.9	118.7	117.0
		Mac	117.2	118.0	116.9	118.4	119.0	117.1
		Apr.	118.0	118.3	117.2	118.9	119.1	117.4
		Mei	117.6	118.1	116.8	118.8	118.6	117.2
		Jun	117.8	118.5	117.0	119.3	118.7	117.4
		Jul.	118.4	118.9	117.3	119.7	118.9	117.5
		Ogo.	118.4	119.0	117.5	119.9	119.0	117.7
		Sep.						
		Okt.						
		Nov.						
		Dis.						
(2) Bangunan (K.T) 2-4 tingkat (berbumbung rata) <i>2-4 Storey (R.C) Buildings (flat roof)</i>	2005	Dis.	118.5	119.7	119.3	118.7	121.2	119.4
	2006	Jan.	118.4	119.8	119.4	118.9	121.2	119.4
		Feb.	118.4	119.8	119.4	119.0	121.2	119.5
		Mac	118.9	120.1	119.4	119.5	121.5	119.6
		Apr.	119.7	120.4	119.8	119.9	121.5	119.9
		Mei	119.5	120.4	119.6	120.0	121.1	120.0
		Jun	119.9	121.0	119.9	120.4	121.3	120.2
		Jul.	120.6	121.2	120.4	120.8	121.4	120.3
		Ogo.	120.6	121.2	120.5	120.9	121.4	120.4
		Sep.						
		Okt.						
		Nov.						
		Dis.						
(3) Bangunan (K.T) 2-4 tingkat (berbumbung curam) <i>2-4 Storey (R.C) Buildings (pitched roof)</i>	2005	Dis.	117.8	119.3	118.4	118.6	120.5	118.7
	2006	Jan.	117.7	119.3	118.5	118.7	120.6	118.7
		Feb.	117.8	119.4	118.4	118.8	120.6	118.8
		Mac	118.2	119.7	118.5	119.3	120.8	118.9
		Apr.	119.0	119.9	118.9	119.8	120.9	119.2
		Mei	118.9	119.9	118.6	119.9	120.5	119.2
		Jun	119.1	120.4	118.9	120.4	120.7	119.4
		Jul.	119.8	120.7	119.4	120.9	120.8	119.6
		Ogo.	119.8	120.8	119.5	121.1	120.9	119.7
		Sep.						
		Okt.						
		Nov.						
		Dis.						

K.T. = Konkrit Bertetulang / R.C. = Reinforced Concrete

* Lihat nota kaki di hujung jadual 2 / See footnotes at end of table 2

**JADUAL 1 (SAMB.) - INDEKS KOS BAHAN BINAAN BANGUNAN MENGIKUT
KATEGORI BANGUNAN DAN KAWASAN**

Table 1 (Cont'd) - Building Material Cost Index by Category of Building And Region

(Julai 2002 = 100)

Kategori Bangunan <i>Category of Building</i>	Tempoh <i>Period</i>	Kawasan* <i>Region</i>						
		A	B	C	D	E	F	
(4) Bangunan (K.T) 5 tingkat dan lebih (untuk penginapan) 5 Storey and above (R.C) Buildings (for accommodation)	2005	Dis.	118.1	120.4	119.1	119.0	121.8	119.5
	2006	Jan.	118.1	120.4	119.2	119.1	121.8	119.5
		Feb.	118.2	120.4	119.1	119.2	121.8	119.5
		Mac	118.7	120.7	119.2	119.6	122.0	119.7
		Apr.	119.5	121.0	119.5	120.2	122.0	120.0
		Mei	119.4	121.1	119.4	120.3	121.8	120.1
		Jun	119.8	121.7	119.7	120.8	121.9	120.4
		Jul.	120.3	122.0	120.2	121.3	122.1	120.6
		Ogo.	120.4	122.1	120.4	121.5	122.1	120.6
		Sep.						
		Okt.						
		Nov.						
		Dis.						
(5) Bangunan (K.T) 5 tingkat dan lebih (untuk pejabat) 5 Storey and above (R.C) Buildings (for office)	2005	Dis.	118.2	119.6	118.9	118.4	121.0	119.2
	2006	Jan.	118.0	119.7	119.0	118.6	121.0	119.2
		Feb.	118.0	119.7	118.9	118.8	121.0	119.2
		Mac	118.5	120.1	118.9	119.3	121.3	119.3
		Apr.	119.4	120.3	119.4	119.8	121.3	119.6
		Mei	119.4	120.5	119.3	120.1	121.1	119.9
		Jun	119.7	121.1	119.6	120.6	121.2	120.0
		Jul.	120.5	121.3	120.2	121.1	121.3	120.2
		Ogo.	120.5	121.4	120.3	121.2	121.3	120.3
		Sep.						
		Okt.						
		Nov.						
		Dis.						
(6) Bangunan Kayu Timber Buildings	2005	Dis.	121.5	121.8	121.0	122.5	121.9	121.3
	2006	Jan.	121.5	121.9	121.0	122.5	121.9	121.3
		Feb.	121.6	121.9	121.0	122.5	121.9	121.3
		Mac	121.6	121.9	121.0	122.7	122.0	121.4
		Apr.	121.8	122.0	121.1	122.8	122.0	121.5
		Mei	120.6	120.9	119.9	121.9	120.9	120.3
		Jun	120.7	121.1	120.0	122.2	120.9	120.5
		Jul.	120.8	121.3	120.1	122.4	121.1	120.5
		Ogo.	120.9	121.5	120.2	122.6	121.2	120.6
		Sep.						
		Okt.						
		Nov.						
		Dis.						

K.T. = Konkrit Bertetulang / R.C. = Reinforced Concrete

* Lihat nota kaki di hujung jadual 2 / See footnotes at end of table 2

**JADUAL 1 (SAMB.) - INDEKS KOS BAHAN BINAAN BANGUNAN MENGIKUT
KATEGORI BANGUNAN DAN KAWASAN**

Table 1 (Cont'd) - Building Material Cost Index by Category of Building And Region

(Julai 2002 = 100)

Kategori Bangunan <i>Category of Building</i>	Tempoh <i>Period</i>	Kawasan* <i>Region</i>						
		A	B	C	D	E	F	
(7) Cerucuk Kayu <i>Timber Piling</i>	2005	Dis.	125.4	125.4	125.3	125.4	125.4	125.4
	2006	Jan.	125.4	125.4	125.3	125.4	125.4	125.4
		Feb.	125.4	125.4	125.4	125.4	125.4	125.4
		Mac	125.4	125.4	125.4	125.4	125.4	125.4
		Apr.	125.4	125.4	125.4	125.4	125.4	125.4
		Mei	123.6	123.6	123.6	123.6	123.6	123.6
		Jun	123.6	123.6	123.6	123.6	123.6	123.6
		Jul.	123.6	123.6	123.6	123.6	123.6	123.6
		Ogo.	123.8	123.8	123.8	123.8	123.8	123.8
		Sep.						
		Okt.						
		Nov.						
		Dis.						
(8) Cerucuk K.T. <i>R.C Piling</i>	2005	Dis.	124.0	124.7	124.2	126.0	124.3	126.5
	2006	Jan.	124.4	124.7	124.2	126.0	124.3	126.5
		Feb.	124.7	124.7	124.3	126.0	124.3	126.5
		Mac	125.2	124.9	124.2	126.2	124.4	126.6
		Apr.	125.4	125.0	124.3	126.3	124.4	126.7
		Mei	125.4	124.9	124.3	126.2	124.4	126.6
		Jun	125.5	125.1	124.6	126.4	124.5	126.6
		Jul.	125.5	125.5	125.2	126.4	124.5	126.9
		Ogo.	125.7	125.5	125.4	126.8	124.5	126.9
		Sep.						
		Okt.						
		Nov.						
		Dis.						

K.T. = Konkrit Bertetulang / R.C. = Reinforced Concrete

* Lihat nota kaki di hujung jadual 2 / See footnotes at end of table 2

JADUAL FAKTOR PERLARASAN
Adjustment Factor Table

Kategori <i>Categori</i>	Faktor Perlarasan Mengikut Kawasan <i>Adjustment Factor By Region</i>					
	A	B	C	D	E	F
1. Bangunan (K.T) Satu tingkat <i>Single Storey (R.C) Buildings</i>	1.3534	1.3554	1.3372 ⁺⁺	1.3476	1.3398	1.3435
2. Bangunan (K.T) 2 - 4 tingkat (berbumbung rata) <i>2 - 4 Storey (R.C) Buildings (flat roof)</i>	1.3079	1.3008	1.2792 ⁺⁺	1.2980	1.2817	1.2863
3. Bangunan (K.T) 2 - 4 tingkat (berbumbung curam) <i>2 - 4 Storey (R.C) Buildings (pitched roof)</i>	1.2954	1.2823	1.2625 ⁺⁺	1.2789	1.2653	1.2692
4. Bangunan (K.T) 5 tingkat dan lebih (untuk penginapan) <i>5 Storey and above (R.C) Buildings (for accomodation)</i>	1.2607	1.2429	1.2237 ⁺⁺	1.2491	1.2261	1.2292
5. Bangunan (K.T) 5 tingkat dan lebih (untuk pejabat) <i>5 Storey and above (R.C) Buildings (for office)</i>	1.2476 ⁺⁺	1.2364	1.2177 ⁺⁺	1.2332	1.2188	1.2219
6. Bangunan Kayu <i>Timber Buildings</i>	1.8505	1.8488	1.8238 ⁺⁺	1.8381	1.8348	1.8299
7. Cerucuk Kayu <i>Timber Piling</i>	2.2789	2.2726	2.2380	2.2673	2.2425	2.2529
8. Cerucuk (K.T) <i>(R.C) Piling</i>	1.0908	1.0839	1.0710 ⁺⁺	1.0626	1.0820	1.0541

(K.T) = Konkrit Bertetulang / (R.C) = Reinforced Concrete

++ Faktor perlarasan yang dikaji semula / Revised adjustment factor

LAMPIRAN B
APPENDIX B

**CONTOH MENGIRA INDEKS LAMA KOS BAHAN BINAAN BANGUNAN
(JANUARI 1991 = 100) DENGAN MENGGUNAKAN INDEKS BARU KOS
BAHAN BINAAN BANGUNAN (JULAI 2002 = 100)**

- (i) Contoh mengira Indeks lama bagi bulan Januari 2005 untuk kategori Bangunan (K.T) Satu Tingkat bagi kawasan B adalah seperti berikut :-

$$\begin{aligned} {}^j I \text{ lama Januari 2005} &= \text{FP (seperti di Lampiran A)} \times {}^j I \text{ baru Januari 2005} \\ \text{iaitu, Indeks lama Januari 2005} &= 1.3554 \times 112.1 \\ &= 151.9403 \\ &= 151.9 \end{aligned}$$

- (ii) Contoh mengira Indeks lama bagi bulan Januari 2005 untuk kategori Bangunan Kayu bagi Kawasan E adalah seperti berikut :-

$$\begin{aligned} {}^j I \text{ lama Januari 2005} &= \text{FP (seperti di Lampiran A)} \times {}^j I \text{ baru Januari 2005} \\ \text{iaitu, Indeks lama Januari 2005} &= 1.8348 \times 111.5 \\ &= 204.5802 \\ &= 204.6 \end{aligned}$$

di mana,

FP = Faktor Pelarasan

${}^j I$ = Indeks bagi kategori bangunan j

j = 1, 8

**EXAMPLE FOR CALCULATING THE OLD BUILDING MATERIAL COST INDEX
(JANUARY 1991 = 100) USING THE NEW BUILDING MATERIAL COST INDEX
(JULY 2002 = 100)**

- (i) *Example for calculating the old Index for the month of January 2005 for Single Storey (R.C) Buildings in region B is as follows :-*

$$\begin{aligned} \text{Old } {}^j I \text{ for January 2005} &= \text{AF (as in Appendix A)} \times \text{new } {}^j I \text{ for January 2005} \\ \text{i.e. old Index for January 2005} &= 1.3554 \times 112.1 \\ &= 151.9403 \\ &= 151.9 \end{aligned}$$

- (ii) *Example for calculating the old Index for the month of January 2005 for Timber Buildings in region E is as follows :-*

$$\begin{aligned} \text{Old } {}^j I \text{ for January 2005} &= \text{AF (as in Appendix A)} \times \text{new } {}^j I \text{ for January 2005} \\ \text{i.e. old Index for January 2005} &= 1.8348 \times 111.5 \\ &= 204.5802 \\ &= 204.6 \end{aligned}$$

where,

AF = Adjustment Factor

${}^j I$ = Index for Buildings category j

j = 1, 8

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SIARAN KHAS

Special Release

2

SEMENANJUNG MALAYSIA

(UNTUK KERJA-KERJA PEMBINAAN BANGUNAN DAN STRUKTUR)

(For Building and Structural Works)

DISEMBER 2004

JABATAN PERANGKAAN MALAYSIA

DEPARTMENT OF STATISTICS, MALAYSIA

Tarikh:

Date :

17 Januari 2005

**KETERANGAN TAMBAHAN MENGENAI INDEKS KOS BAHAN BINAAN
BANGUNAN SEMENANJUNG MALAYSIA (JAN. 1991 = 100)**

Bermula dengan penerbitan Januari 1995, siri ini adalah berasaskan kepada tahun asas yang ditukar daripada 1980 (Januari 1980 = 100) kepada 1991 (Januari 1991 = 100) serta pemilihan barangan dan pemberat yang disemak semula oleh JKR.

Bagi kontrak-kontrak yang telah ditandatangani sebelum Januari 1995, sila lihat 'Jadual Faktor Pelarasan' (Lampiran A) dan 'Contoh Mengira Indeks Lama Kos Bahan Binaan Bangunan' (Lampiran B), untuk panduan dalam melaksanakan Syarat Perubahan Harga.

Bagi kontrak-kontrak mulai Januari 1995 dan seterusnya, indeks baru hendaklah digunakan terus tanpa sebarang pelarasan.

**ADDITIONAL EXPLANATION OF THE BUILDING MATERIAL COST
INDEX FOR PENINSULAR MALAYSIA (JAN. 1991 = 100)**

Starting with the January 1995 publication, the series is based on the revised base year which has been changed from 1980 (Jan. 1980 = 100) to 1991 (Jan. 1991 = 100) as well as the selection of new items and weights carried out by JKR.

For contracts signed before January 1995, please refer to the 'Adjustment Factor Table' (Appendix A) and the 'Example For Calculating The Old (1980 base) Building Material Cost Index' (Appendix B) for the implementation of the Variation of Price Clause.

For contracts commencing January 1995 and thereafter, the new index is to be used without any further adjustment.

KETERANGAN RINGKAS MENGENAI INDEKS KOS BAHAN BINAAN BANGUNAN SEMENANJUNG MALAYSIA (JAN. 1991 = 100)

Indeks Kos Bahan Binaan Bangunan (IKB) adalah suatu indeks untuk tujuan khusus yang berdasarkan formula Laspeyres. Ianya dibentuk untuk mengira kadar perubahan purata harga bahan-bahan binaan terpilih yang digunakan dalam lapan kategori bangunan untuk enam kawasan di Semenanjung Malaysia.

IKB adalah sesuai untuk penggunaan Syarat Perubahan Harga dalam kontrak-kontrak bangunan kerajaan sahaja. Spesifikasi dan pemberat untuk bahan-bahan binaan terpilih mengikut kategori bangunan, disediakan oleh Jabatan Kerja Raya. Anggaran 3,000 sebutharga dipungut setiap bulan daripada lebih kurang 550 outlet untuk 130 jenis bahan binaan terpilih.

NOTA TENTANG MENGIRA PERUBAHAN-PERUBAHAN INDEKS

IKB mengukur perubahan harga dari suatu tempoh rujukan yang ditetapkan, Januari 1991 yang mana menyamai 100.

Pergerakan Indeks Kos Bahan Binaan Bangunan dari sebulan ke sebulan yang lain dinyatakan sebagai perubahan peratus dan bukan perubahan mata indeks (index point) kerana perubahan mata indeks dipengaruhi oleh aras indeks yang berkaitan dengan tempoh asasnya, manakala perubahan peratus tidak mempunyai pengaruh sedemikian. Contoh berikut menunjukkan cara pengiraan perubahan mata indeks dan perubahan peratus.

Perubahan Mata Indeks

Perubahan Peratus

Indeks Kos Bahan Binaan Bangunan

130.5

Perubahan mata indeks dibahagikan dengan indeks sebelumnya, didarab dengan seratus

Tolak

Indeks Sebelumnya

129.3

$\frac{130.5 - 129.3}{129.3} \times 100$

1.2

129.3

= 0.9%

**BRIEF EXPLANATION OF THE BUILDING MATERIAL COST INDEX
FOR PENINSULAR MALAYSIA (JAN. 1991 = 100)**

The Building Material Cost Index (BCI) is a special purpose index which is based on the Laspeyres formula. It is designed to measure the average rate of change in prices of selected building materials utilised in eight categories of building in six regions of Peninsular Malaysia.

The BCI is relevant only for application of the Price Variation Clause in government building contracts. The specifications and weightage pattern of selected building materials by category of building, are determined by Jabatan Kerja Raya. Approximately 3,000 price quotations are collected monthly from about 550 outlets for 130 selected building material items.

NOTE ON CALCULATING INDEX CHANGES

The BCI measures price changes from a designated period, January 1991 which equals 100.

Movements of the Building Material Cost Index from one month to another are expressed as percentage changes rather than changes in index points because 'index point' changes are affected by the level of the index in relation to the base period while percentage changes are not. The following example illustrates the computation of index point and percentage changes.

Index Point Change

Building Material Cost Index 130.5

Less

Previous Index

129.3

1.2

Percentage Change

Index point difference
divided by the previous
index, multiplied by one
hundred

$\frac{130.5 - 129.3}{129.3} \times 100$

129.3

= 0.9%

**JADUAL 1 - INDEKS KOS BAHAN BINAAN BANGUNAN MENGIKUT
KATEGORI BANGUNAN DAN KAWASAN**

Table 1 - Building Material Cost Index by Category of Building and Region

(Jan. 1991 = 100)

Perkara Item	Tempoh Period	Kawasan* Region						
		A	B	C	D	E	F	
Kategori Bangunan <i>Category of Building</i>								
(1) Bangunan (K.T) Satu tingkat <i>Single - Storey (R.C)</i> Buildings	2003	Dis.	144.0	144.7	142.2	144.0	144.5	143.3
	2004	Jan.	144.1	145.0	142.4	144.2	144.7	143.6
		Feb.	144.1	145.0	142.3	144.1	144.5	143.5
		Mac	146.0	146.9	144.1	145.9	146.4	145.3
		Apr.	146.5	147.4	144.5	146.5	146.9	145.8
		Mei	151.3	152.3	149.3	151.5	151.7	150.6
		Jun	151.3	152.4	149.4	151.6	151.8	150.6
		Jul.	150.4	151.4	148.6	150.8	151.0	149.8
		Ogo.	149.8	150.9	148.0	150.2	150.4	149.2
		Sept.	149.9	150.9	148.0	150.2	150.4	149.2
		Okt.	150.3	151.3	148.4	150.6	150.8	149.6
		Nov.	150.5	151.4	148.7	150.9	151.0	149.8
		Dis.	150.5	151.4	148.7	150.8	151.0	149.8
		(2) Bangunan (K.T) 2-4 tingkat (Berbumbung rata) <i>2-4 Storey (R.C)</i> Buildings (Flat roof)	2003	Dis.	138.4	138.4	135.9	137.3
2004	Jan.		138.6	138.7	136.2	137.6	138.3	137.4
	Feb.		138.6	138.8	136.1	137.5	138.2	137.4
	Mac		141.0	141.2	138.4	139.8	140.6	139.7
	Apr.		141.5	141.8	138.9	140.3	141.1	140.2
	Mei		150.0	150.3	147.4	149.0	149.6	148.7
	Jun		150.0	150.3	147.4	149.0	149.6	148.7
	Jul.		148.8	149.1	146.3	147.9	148.5	147.6
	Ogo.		148.3	148.6	145.8	147.4	148.0	147.1
	Sept.		148.3	148.5	145.7	147.3	147.9	147.0
	Okt.		148.8	149.0	146.3	147.9	148.4	147.5
	Nov.		149.1	149.2	146.6	148.2	148.8	147.8
	Dis.		149.1	149.2	146.6	148.1	148.8	147.8
	(3) Bangunan (K.T) 2-4 tingkat (Berbumbung curam) <i>2-4 Storey (R.C)</i> Buildings (pitched roof)		2003	Dis.	137.0	136.8	134.0	135.8
2004		Jan.	137.2	137.1	134.3	136.0	136.7	135.7
		Feb.	137.2	137.1	134.2	136.0	136.6	135.6
		Mac	139.3	139.3	136.2	138.0	138.7	137.6
		Apr.	139.7	139.8	136.6	138.5	139.1	138.1
		Mei	147.6	147.7	144.5	146.6	147.0	146.0
		Jun	147.6	147.8	144.5	146.6	147.1	146.0
		Jul.	146.7	146.7	143.6	145.6	146.1	145.0
		Ogo.	146.2	146.2	143.1	145.2	145.7	144.6
		Sept.	146.2	146.2	143.1	145.2	145.7	144.5
		Okt.	146.7	146.6	143.5	145.6	146.1	145.0
		Nov.	146.9	146.7	143.8	145.9	146.4	145.2
		Dis.	146.9	146.7	143.8	145.8	146.4	145.2

K.T. = Konkrit Bertetulang / R.C. = Reinforced Concrete

* Lihat nota kaki di hujung jadual 2 / See footnotes at end of table 2

**JADUAL 1 (SAMB) - INDEKS KOS BAHAN BINAAN BANGUNAN MENGIKUT
KATEGORI BANGUNAN DAN KAWASAN**

Table 1 (Cont'd) - Building Material Cost Index by Category of Building and Region

(Jan. 1991 = 100)

Perkara Item	Tempoh Period	Kawasan* Region						
		A	B	C	D	E	F	
Kategori Bangunan <i>Category of Building</i>								
(4) Bangunan (K.T) 5 tingkat dan lebih (untuk penginapan) <i>5 Storey and above (R.C) Buildings (for accommodation)</i>	2003	Dis.	132.8	133.3	129.8	132.1	132.6	131.2
	2004	Jan.	133.0	133.6	130.0	132.3	132.8	131.4
		Feb.	133.1	133.6	129.9	132.3	132.7	131.4
		Mac	135.0	135.4	131.6	134.0	134.5	133.1
		Apr.	135.5	135.9	132.0	134.5	134.9	133.6
		Mei	144.5	145.1	141.1	143.9	144.0	142.7
		Jun	144.5	145.2	141.1	144.0	144.1	142.7
		Jul.	143.8	144.3	140.4	143.2	143.4	142.0
		Ogo.	143.4	143.9	140.0	142.8	143.0	141.6
		Sept.	143.5	143.9	140.0	142.8	143.0	141.5
		Okt.	143.9	144.3	140.4	143.2	143.3	141.9
		Nov.	144.1	144.3	140.6	143.4	143.7	142.1
		Dis.	144.1	144.3	140.6	143.4	143.7	142.1
(5) Bangunan (K.T) 5 tingkat dan lebih (untuk pejabat) <i>5 Storey and above (R.C) Buildings (for office)</i>	2003	Dis.	131.3	131.0	128.7	129.9	130.7	129.8
	2004	Jan.	131.6	131.4	129.1	130.2	131.1	130.2
		Feb.	131.9	131.4	129.0	130.2	131.0	130.1
		Mac	134.2	134.2	131.5	132.7	133.7	132.6
		Apr.	134.6	134.6	131.9	133.2	134.1	133.1
		Mei	143.9	143.9	141.2	142.6	143.4	142.4
		Jun	143.9	143.9	141.3	142.6	143.4	142.4
		Jul.	142.6	142.5	140.0	141.3	142.1	141.1
		Ogo.	142.1	142.0	139.5	140.9	141.7	140.6
		Sept.	142.2	142.0	139.5	140.8	141.6	140.6
		Okt.	142.8	142.0	140.1	141.5	142.2	141.2
		Nov.	143.1	142.3	140.4	141.8	142.6	141.5
		Dis.	143.1	142.8	140.4	141.7	142.6	141.5
(6) Bangunan Kayu <i>Timber Buildings</i>	2003	Dis.	203.2	203.3	199.9	203.2	202.3	201.3
	2004	Jan.	203.2	203.3	200.0	203.2	202.4	201.5
		Feb.	203.0	203.0	199.7	202.9	202.1	201.2
		Mac	204.4	204.4	201.0	204.3	203.4	202.5
		Apr.	205.4	205.5	201.9	205.3	204.4	203.5
		Mei	206.8	206.9	203.3	206.9	205.8	204.8
		Jun	206.8	206.9	203.3	206.9	205.8	204.8
		Jul.	206.3	206.4	202.9	206.4	205.4	204.4
		Ogo.	205.2	205.2	201.7	205.3	204.2	203.2
		Sept.	205.2	205.2	201.7	205.2	204.2	203.2
		Okt.	205.3	205.3	201.8	205.4	204.3	203.3
		Nov.	205.3	205.4	201.9	205.5	204.4	203.3
		Dis.	205.4	205.4	201.9	205.5	204.4	203.3

K.T. = Konkrit Bertetulang / R.C. = Reinforced Concrete

* Lihat nota kaki di hujung jadual 2 / See footnotes at end of table 2

JADUAL 2 - INDEKS HARGA SEUNIT BAGI BATU BATA, KACA, BATU BAUR, BAHAN SILING, BAHAN BUMBUNG, KAYU, PAPAN LAPIS, LENGKAPAN KEBERSIHAN, JUBIN LANTAI DAN DINDING, BAHAN KERJA PAIP, KERATAN KELULI LOGAM, PASIR DAN CAT

Table 2 - Unit Price Index for Bricks, Glass, Aggregates, Ceiling Materials, Roofing Materials, Timber, Plywood, Sanitary Fittings, Floor and Wall Tiles, Plumbing Materials, Steel And Metal Sections, Sand and Paints

(Jan. 1991 = 100)

Perkara Item.	Tempoh Period	Kawasan * Region						
		A	B	C	D	E	F	
Bahan Binaan <i>Building Materials</i>								
(1) Batu Bata <i>Bricks</i>	2003	Dis.	102.7	113.3	109.9	112.4	115.8	126.0
	2004	Jan.	103.0	114.0	109.9	112.4	115.8	126.0
		Feb.	103.0	114.0	109.9	112.9	115.8	126.0
		Mac	103.0	114.4	109.9	113.1	115.8	126.5
		Apr.	103.0	114.4	109.9	112.7	115.3	126.5
		Mei	103.0	114.4	109.9	112.7	115.8	126.5
		Jun	103.0	115.8	109.9	113.8	115.3	126.5
		Jul.	103.0	115.8	111.1	113.8	115.2	126.5
		Ogo.	103.0	115.8	111.1	113.0	115.2	126.5
		Sept.	103.0	115.8	111.1	113.0	115.2	126.5
		Okt.	103.0	115.8	111.1	113.0	115.2	126.5
		Nov.	103.0	115.8	111.1	111.4	114.6	126.5
		Dis.	103.3	115.8	111.1	111.4	114.6	126.5
(2) Kaca <i>Glass</i>	2003	Dis.	93.7	103.1	110.8	109.8	132.1	118.9
	2004	Jan.	93.7	103.1	110.9	109.8	132.1	118.9
		Feb.	93.7	103.1	110.9	109.8	132.1	118.9
		Mac	93.7	103.1	110.9	109.8	132.1	118.9
		Apr.	93.7	103.1	110.9	111.6	133.3	118.9
		Mei	93.7	103.1	110.9	113.4	133.3	118.9
		Jun	93.7	103.1	110.9	113.4	133.3	118.9
		Jul.	93.7	103.1	110.8	113.4	133.3	118.9
		Ogo.	93.7	103.1	110.8	113.4	133.3	118.9
		Sept.	93.7	103.1	110.8	113.4	133.3	118.9
		Okt.	93.7	103.1	110.8	113.4	133.3	118.9
		Nov.	93.7	103.1	110.8	116.1	133.3	117.5
		Dis.	93.7	103.1	110.8	116.1	133.3	117.5
(3) Batu Baur <i>Aggregates</i>	2003	Dis.	112.4	95.9	79.2	90.3	105.8	98.1
	2004	Jan.	112.4	95.9	79.2	89.8	105.8	98.1
		Feb.	112.4	95.9	79.2	89.8	105.8	97.7
		Mac	112.4	95.9	79.2	89.8	105.8	98.4
		Apr.	112.4	95.9	79.2	89.8	105.8	98.4
		Mei	112.4	95.9	79.2	89.8	105.8	98.8
		Jun	112.4	95.9	79.2	89.3	105.8	98.8
		Jul.	112.4	95.9	78.8	89.3	105.8	98.8
		Ogo.	112.4	95.9	78.8	90.0	105.8	98.8
		Sept.	112.4	95.9	78.8	90.0	105.8	98.8
		Okt.	112.4	95.9	78.8	90.0	105.8	98.8
		Nov.	112.4	93.7	78.8	90.0	105.8	98.8
		Dis.	112.4	93.7	78.8	89.0	105.8	98.8

* Lihat nota kaki di hujung jadual 2 / See footnotes at end of table 2

**JADUAL 1 (SAMB.) - INDEKS KOS BAHAN BINAAN BANGUNAN MENGIKUT
KATEGORI BANGUNAN DAN KAWASAN**

Table 1 (Cont'd.)- Building Material Cost Index by Category of Building and Region

(Jan. 1991 = 100)

Perkara Item	Tempoh Period	Kawasan* Region						
		A	B	C	D	E	F	
Kategori Bangunan <i>Category of Building</i>								
(7) Cerucuk Kayu <i>Timber Piling</i>	2003	Dis.	255.7	255.0	251.1	254.4	251.6	252.8
	2004	Jan.	255.7	255.0	251.1	254.4	251.6	252.8
		Feb.	255.1	254.4	250.6	253.8	251.0	252.2
		Mac	256.6	255.9	252.0	255.3	252.5	253.7
		Apr.	258.1	257.4	253.4	256.7	253.9	255.1
		Mei	259.0	258.3	254.3	257.6	254.9	256.1
		Jun	259.0	258.3	254.3	257.6	254.9	256.1
		Jul.	258.5	257.9	253.9	257.2	254.4	255.6
		Ogo.	256.6	255.9	252.0	255.3	252.5	253.7
		Sept.	256.6	255.9	252.0	255.3	252.5	253.7
		Okt.	256.6	255.9	252.0	255.3	252.5	253.7
		Nov.	256.6	255.9	252.0	255.3	252.5	253.7
		Dis.	256.6	255.9	252.0	255.3	252.5	253.7
	(8) Cerucuk K.T. <i>R.C Piling</i>	2003	Dis.	115.1	113.8	111.9	113.0	113.8
2004		Jan.	115.1	113.8	111.9	113.0	113.8	112.9
		Feb.	115.1	113.8	111.8	113.0	113.8	112.8
		Mac	115.1	113.8	111.9	113.0	113.8	112.9
		Apr.	115.2	113.9	111.9	113.0	113.9	113.0
		Mei	134.6	133.3	131.4	132.5	133.3	132.5
		Jun	134.6	133.3	131.4	132.5	133.3	132.5
		Jul.	134.7	133.3	131.4	132.5	133.3	132.4
		Ogo.	134.6	133.3	131.3	132.5	133.3	132.4
		Sept.	134.6	133.2	131.3	132.5	133.3	132.4
		Okt.	134.6	133.2	131.3	132.5	133.3	132.4
		Nov.	134.6	133.1	131.3	132.5	133.3	132.4
		Dis.	134.6	133.1	131.3	132.4	133.3	132.4

*Region (Kawasan)	A	=	PULAU PINANG, KEDAH DAN PERLIS
	B	=	PERAK
	C	=	WILAYAH PERSEKUTUAN, SELANGOR, NEGERI SEMBILAN DAN MELAKA
	D	=	JOHOR
	E	=	PAHANG
	F	=	KELANTAN DAN TERENGGANU

...35/-

LAMPIRAN B

Additional Details
(Butiran-Butiran Lanjutan)

LAMPIRAN B**Additional Details**

1. Professional Fees – 10% of the Overall Total Costs.
2. Preliminaries – 3% of the Total Construction Costs.
3. Contingencies – 5% of the Total Construction Costs (including Preliminaries).
4. Contractor's 'Profit & Attendance' on services – 3% of the Total Costs of Services.
5. Builder's work in Connection with Services – 3% of the Total Costs of Services.
6. Plan Fees and Development charges RM10.00 per metre square based on Gross Floor Area (GFA).
7. Contributions to Local Authorities – RM300,000.00.
8. Land Costs – RM650/- per metre sq.
9. Quantity Surveyor's new estimates:-
 - (a) Services – P.C. Sums
 - Sanitary Installation - RM20,000.00
 - Plumbing Installation - RM40,000.00
 - Air Condition/Ventilation Installation - RM75,000.00
 - Electrical Installation - RM165,000.00
 - Fire-Fighting Installation - RM50,000.00
 - Special Installation
 - Security System - RM25,000.00
 - Communication Installation - RM15,000.00

Sambungan... **LAMPIRAN B**

(b) Other Elements

• Piling Works	- RM60,000.00
• Basement Works	- Add RM150,000.00 to the new elemental costs
• Upper Floors	- RM150/- per m ²
• Stairs	- RM18,000.00
• Roof	- RM208,000.00
• External Walls	- RM230,000.00
• Fittings & Furnishings	- RM180,000.00
• Site Works	- RM20,000.00
• Drainage	- RM70,000.00
• Ext. Works by TNB, Telecoms	- RM60,000.00
• Therapeutic Pool	- RM50,000.00

10. Others

- The Guide Cost Analysis contains specifications similar to the new project.
- You are required to use the building index which closely reflects the same building classification and ensure the indices are reconciled appropriately.
- Assume that the referred indices can be utilized 'intra-regional'.
- For computation of the base index, utilize the index of Month/Year 2004, Kuala Lumpur region, but add 8.0 index points.

LAMPIRAN B**Butiran-Butiran Lanjutan**

1. *Bayaran Ikhtisas – 10% daripada Jumlah Kos Keseluruhan.*
2. *Preliminaries – 3% daripada Jumlah Kos Pembinaan.*
3. *Kontingensi – 5% daripada Jumlah Kos Pembinaan (termasuk Preliminaries).*
4. *'Profit & Attendance' Pembina terhadap perkhidmatan – 2% daripada Jumlah Kos Perkhidmatan-Perkhidmatan.*
5. *Kerja-Kerja Pembina yang bersangkutan dengan perkhidmatan – 3% daripada Jumlah Kos Perkhidmatan-Perkhidmatan.*
6. *Yuran Pelan dan Pembangunan kadarnya adalah RM10.00 semeter persegi berasaskan Jumlah Keluasan Lantai Kasar (GFA).*
7. *Bayaran sumbangan kepada pihak-pihak berkuasa – RM300,000.00.*
8. *Harga Tanah – RM 650/- per metre sq.*
9. *Anggaran-Anggaran Terbaru oleh Juruukur Bahan.*
 - (a) *Perkhidmatan-Perkhidmatan – P.C. Sums*
 - *Pemasangan Sanitari - RM20,000.00*
 - *Pemasangan Air - RM40,000.00*
 - *Pemasangan-Pemasangan Khas*
 - *Sistem Sekuriti - RM25,000.00*
 - *Pemasangan Elektrik - RM165,000.00*
 - *Pemasangan Cegah Kebakaran - RM50,000.00*
 - *Penghawa Dingin/ Sistem Pengudaraan - RM75,000.00*
 - *Pemasangan Komunikasi - RM15,000.00*

Sambungan... **LAMPIRAN B**(b) *Elemen-Elemen Lain*

- *Kerja-Kerja Cerucuk* - RM60,000.00
- *Kerja 'Basement'* - *Tambah RM150,000.00 kepada Jumlah Kos Elemen Terbaru*
- *Lantai-Lantai Atasan* - RM150/- per m²
- *Tangga* - RM18,000.00
- *Bumbung* - RM208,000.00
- *Dinding Luar* - RM230,000.00
- *Pasangan Keperabotan* - RM180,000.00
- *Kerja-kerja luar (tapak)* - RM20,000.00
- *Perparitan/Saliran* - RM70,000.00
- *Kerja-Kerja Luar TNB, Telekom* - RM60,000.00
- *Kolam Terapi* - RM50,000.00

10. *Lain-Lain*

- *Analisis Kos Panduan mempunyai penentuan yang lebih kurang sama dengan projek baru ini.*
- *Anda dikehendaki menggunakan indeks bangunan yang hampir sekali dari segi pengkelasannya serta pastikan indeks diselaraskan dengan wajar.*
- *Indeks yang dirujuk, tidak boleh digunakan secara 'intra-regional'.*
- *Untuk dapatkan indeks asas, gunakan indeks Bulan/Tahun 2004 Kawasan Kuala Lumpur, tapi **tambahkan** sebanyak 8.0 mata.*

LAMPIRAN C

Cost Plan Form (*Borang Pelan Kos*)

LAMPIRAN C(1)

ANGKA GILIRAN: _____

PROJEK: _____

RINGKASAN KOS-KOS ELEMEN		
Keluasan Lantai Kasar:.....m ²		Tarikh:.....2006
Elemen	Jumlah Kos Elemen RM	Kos/m ² Keluasan Lantai Kasar RM
1. SUBSTRUKTUR		
a. Kerja-Kerja Cerucuk		
b. Kerja-Kerja Bawah Kemas Lantai		
• Jumlah Elemen Terkumpul		
2. SUPERSTRUKTUR		
a. Rangka		
b. Lantai-Lantai Atasan		
c. Bumbung		
d. Tangga		
e. Dinding Luar		
f. Tingkap dan Pintu Luar		
g. Dinding Dalam dan Dinding Sekatan		
h. Pintu-Pintu Dalam		
• Jumlah Elemen Terkumpul		

LAMPIRAN C(2)

Elemen	Jumlah Kos Elemen RM	Kos/m ² Keluasan Lantai Kasar RM
3. KEMASAN a. Kemas Dinding Dalam b. Kemas Lantai Dalam c. Kemas Siling Dalam d. Kemas Luar • Jumlah Elemen Terkumpul		
4. PEMASANGAN & KEPERABOTAN		
5. PERKHIDMATAN a. Pemasangan Sanitari b. Pemasangan Air c. Pembuangan Sampah d. Penghawa Dingin dan Sistem Pengudaraan e. Pemasangan Elektrik f. Pemasangan Pencegah Kebakaran g. Pemasangan Lif dan Konveyor h. Pemasangan Komunikasi i. Pemasangan Khas (contoh: alat-alat dapur, automasi bangunan, sistem sekuriti, pemasangan gas dsb.). j. 'Profit & Attendance' Pembina Terhadap Perkhidmatan. k. Kerja-Kerja Pembina Bersangkutan Dengan Perkhidmatan. • Jumlah Elemen Terkumpul		

LAMPIRAN C(3)

Elemen	Jumlah Kos Elemen RM	Kos/m ² Keluasan Lantai Kasar RM
JUMLAH KECIL tidak termasuk kerja-kerja luar, preliminaries dan kontingensi		
6. KERJA-KERJA LUAR		
a. Kerja-Kerja Tapak		
b. Perparitan dan Saliran		
c. Perkhidmatan Luar		
d. Bangunan-Bangunan Tambahan		
e. Kemudahan Riadah		
• Jumlah Elemen Berkumpul		
'PRELIMINARIES'		
KONTINGENSI		
JUMLAH KESELURUHAN		