LABOUR COSTS AND LABOUR OUTPUT INFORMATION FOR BUILDING CONSTRUCTION 2006

Kuala Lumpur, Selangor and Negeri Sembilan First Edition of 2007



Lembaga Pembangunan Industri Pembinaan Malaysia Construction Industry development Board Malaysia

leu Pejabat CIDB, Tingkat 7, Grand Seasons Avenue, No, 72, Jalan Pahang, 53000 Kuala Lumpur, P.O. Box 12278, 50772 Kuala Lumpur, Tel: 603-2617 0200, Fax: 603-2617 0220 http://www.cidb.gov.my

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INTRODUCTION

This is the 1st publication by CIDB that provides information on labour daily wage rates, labour unit rates and labour output for selected common trades in the building construction works. The information is based on a survey conducted on building construction projects randomly selected in Kuala Lumpur, Selangor and Negeri Sembilan for the 2nd and 3rd quarter of 2006. The respondents are contractors registered with CIDB in Grades G5, G6 and G7.

The selected common trades in this publication comprise concretor, bricklayer, roofer, carpenter, joiner, steel and ironworker, plasterer and painter where its labour components are normally subcontracted or by direct labour as practised in the building construction works.

The information provided in this publication was generated from data collected from building projects registered in CIDB project database that have a contract value of more than RM3.0 million each. The 5 building categories of projects covered in this publication comprise high rise residential, low rise residential, administrative, industrial and commercial.

The data were collected through interviews with participating respondents who are experienced and well versed in costing and/or labour resources planning. The respondents are contract managers, quantity surveyors, cost estimators, engineers and project managers working in contracting firms having building projects in Kuala Lumpur, Selangor and Negeri Sembilan.

This publication is an effort by CIDB in fulfilling one of its functions to initiate and maintain a construction industry information system; CIDB has identified cost information on construction resources as one of the focus areas. This publication on labour costs and labour output information for the building complements other CIDB publications on cost information such as the Average Construction Material Prices and Construction Material Cost Index.

SECTION ONE: -

Labour Daily Wage Rates For Building Construction ot

A. Skilled and General Workers



Explanatory Notes

Introduction

The labour daily wage rates provided in this publication are the weighted mean labour wages and lower and upper range for the common trades in building construction. The rates are based on data obtained from the survey for the 2nd and 3rd quarter of 2006 in Kuala Lumpur, Selangor and Negeri Sembilan.

This section covers 28 items of Labour Daily Wage Rates.

Definition of Labour Daily Wage Rates

The labour daily wage rates are meant to be the basic labour rate payable to daily paid workers for eight (8) hours of work from 8.00am to 5.00pm with a one hour lunch break per day for normal working days from Monday to Saturday.

The labour daily wage rates cover all nationalities for skilled workers and general workers.

Definition of Skilled Workers

The National Occupational Skill Standard's (NOSS) definitions of workers with SKILL LEVEL 1 and SKILL LEVEL 2 are adopted in this publication.

- Skill Level 1: Competent in performing a range of varied work activities most of which are routine and predictable.
- Skill Level 2: Competent in performing a significant range of work activities under various contexts. Some of the activities are non-routine and require individual responsibility and ability to work independently.

Definition of General Workers

General Worker: Do not have any specific skills and do general work only.

Inclusion

The labour daily wage rates include costs for the following:

- a. CIDB green card
- b. Foreign workers work permit
- c. Foreign workers levy charges
- d. Foreign workers insurance

The above costs are borne by the workers and are deductible from their labour daily wages.



Exclusion

The labour daily wage rates exclude costs for the following:-

- a. Profit and overheads to contractors
- b. Medical expenses
- c. Social Security Scheme (SOCSO)
- d. Insurance for Workmen Compensation
- e. Workmen accommodation
- f. Transportation to and from site
- g. Annual leave and sick leave (daily paid workers are not entitled to paid leave)

Qualification

The information on labour daily wage rates must be adjusted to account for factors that may affect the supply and demand of labour.



Labour Daily Wages Rates

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Skilled And General Workers 2nd and 3rd Quarter of 2006

Trade Labours	Skill Level	Unit	Weighted Mean (RM)	Range (RM)
1 Concretor Assistant	Level 1	Day	48.00	45.00 - 50.00
2 Concretor	Level 2	Day	59.00	56.00 - 62.00
3 Steel Bar Bender & Fixer Assistant	Level 1	Day	50.00	47.00 - 53.00
4 Steel Bar Bender & Fixer	Level 2	Day	62.00	59.00 - 66.00
5 Carpenter Assistant (Formwork)	Level 1	Day	51.00	49.00 - 54.00
6 Carpenter (Formwork)	Level 2	Day	65.00	62.00 - 68.00
7 Bricklayer Assistant	Level 1	Day	50.00	47.00 - 52.00
8 Bricklayer	Level 2	Day	62.00	59.00 - 65.00
9 Blocklayer Assistant	Level 1	Day	52.00	48.00 - 57.00
10 Blocklayer	Level 2	Day	65.00	59.00 - 71.00
11 Roofer Assistant	Level 1	Day	53.00	50.00 - 55.00
12 Roofer	Level 2	Day	68.00	65.00 - 71.00
13 Carpenter Assistant (Joinery)	Level 1	Day	55.00	52.00 - 57.00
14 Carpenter (Joinery)	Level 2	Day	78.00	74.00 - 82.00
15 Structural Steel Worker Assistant	Level 1	Day	60.00	55.00 - 65.00
16 Structural Steel Worker	Level 2	Day	88.00	82.00 - 94.00
17 Welder Assistant	Level 1	Day	66.00	61.00 - 71.00
18 Welder	Level 2	Day	93.00	82.00 - 101.00
19 Plumber Assistant	Level 1	Day	57.00	54.00 - 61.00
20 Plumber	Level 2	Day	79.00	75.00 - 83.00
21 Plasterer Assistant	Level 1	Day	54.00	51.00 - 57.00
22 Plasterer	Level 2	Day	71.00	67.00 - 75.00



Labour Daily Wages Rates

Skilled And General Workers 2^{nd} and 3^{rd} Quarter of 2006

Trade Labours	Skill Level	Unit	Weighted Mean (RM)	Range (RM)
23 Tiler Assistant	Level 1	Day	58.00	55.00 - 61.00
24 Tiler	Level 2	Day	81.00	77.00 - 85.00
25 Painter Assistant	Level 1	Day	52.00	49.00 - 55.00
26 Painter	Level 2	Day	67.00	63.00 - 70.00
27 Male Labourer	General Worker	Day	37.00	30.00 - 40.00
28 Female Labourer	General Worker	Day	31.00	28.00 - 35.00

SECTION TWO : -

Labour Unit Rates For Building Construction



- B. Bricklayer
- C. Roofer
- D. Carpenter
- E. Joiner
- F. Steel And Ironworker
- G. Plasterer



Introduction

The labour unit rates provided in this publication are in lower and upper range for the common trades in building construction. The rates are based on data obtained from the survey for the 2nd and 3rd quarter of 2006 in Kuala Lumpur, Selangor and Negeri Sembilan.

The selected trades in this section are the common trades where its labour components are normally subcontracted or by direct labour as practised in the building construction works.

This section covers 59 items of Labour Unit Rates.

Definition of Labour Unit Rates

The unit rates are meant to be the basic unit cost payable to labour sub-contractors as practised in the construction sector.

Inclusion

The labour unit rates include also sundry materials such as tying wire for bending, placing and fixing of reinforcements and use of light equipment, supervision, downtime and etc. Details of inclusions for each trade are described in the preambles of the respective trades.

Exclusion

The labour unit rates exclude profit and overheads to contractors. Details of exclusions for each trade are described in the preambles of the respective trades.

Qualification

The information on labour unit rates provided in this section must be adjusted to account for factors that may affect the supply and demand of labour.



 Des	crip	lion	

Range (RM)

CONCRETE : PLACE ONLY

	Costs are for place only ready-mixed concrete delivered to site and including preparatory works such as putting up temporary working platform/plank and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site. Use of small tools and light equipment including related petrol/diesel consumption is deemed included. Rates for stiffener and lintol are based on site mixed concrete. Cost for use of heavy equipment such as craneage using either mobile crane or tower crane and concrete pump is excluded.	Note Note	
	Lean concrete: 50mm thick including necessary trimming base of excavation		
1	To underside of pile cap, footing, ground beam, apron slab, ground floor slab, trench beam, trench slab, pit slab and the like	m2	2.12 - 2.60
2	Reinforced concrete including vibrating and trowelling to a smooth and uniform level in Pile cap, footing, column stump, ground beam, trench beam		
L	and lift pit	m3	19.16 - 20.64
3	Column	m3	19.92 - 21.97
4	Stiffener and lintol	m3	20.73 - 24.37
5	Roof beam	m3	20.25 - 23.49
6	150mm Thick ground floor slab and apron slab	m3	19.29 - 21.41
7	150mm Thick suspended floor slab and suspended floor beam	m3	19.47 - 21.43
8	150mm Thick roof slab	m3	19.49 - 21.45
9	200mm Thick concrete wall	m3	19.63 - 21.83

	Α
Labour Unit Rates	Concretor 2 nd and 3 rd Quarter of 2006

Item Description

Range (RM)

Unit

Note

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Note

Note

m2

REINFORCEMENT : BENDING, PLACING AND FIXING ONLY

Costs are for cutting, bending, tying, placing and fixing of standard size steel bars (without any pre-cut in factory), spacers, chairs and the like and including usage of small tools, bending machine and related petrol/diesel consumption. It includes also housekeeping in clearing away its own leftovers/ debris to a common dumping tip at site. Cost for use of heavy equipment such as craneage using either mobile crane or tower crane is excluded.

Cost for use of heavy equipment such as craneage using either mobile crane or tower crane is excluded.

Rods

12mm, 16mm, 20mm, 25mm, 32mm and 40mm Diameter

0.33 - 0.36 10 In foundation kg 0.33 - 0.36 11 In column kq 12 In beam kq 0.33 - 0.36 13 In slab kq 0.33 - 0.36 14 In wall kq 0.33 - 0.36

Stirrups and Links

15 6mm, 10mm and 12mm Diameter

BRC Fabric

Costs are for cutting, tying, placing and fixing of standard size wire mesh (without any pre-cut in factory), spacers, chairs and the like and including usage of small tools, bending machine and related petrol/diesel consumption. It includes also housekeeping in clearing away its own leftovers/debris to a common dumping tip at site.

Cost for use of heavy equipment such as craneage using either mobile crane or tower crane is excluded.

16 In ground floor slab, apron slab, trench slab, suspended floor slab and roof slab

1.34 - 1.58

0.33 - 0.36



Unit

Range (RM)

Item Description

	FORMWORK : FABRICATE, FIX AND STRIKING ONLY		
	Costs are for fabrication, fixing, strutting, applying of mould oil (supply of mould oil is excluded) and striking of timber formworks and also housekeeping in clearing away its own debris to a common dumping tip at site. It includes also sundry materials such as nails. Use of small tools with related petrol/diesel consumption is deemed included. (Costs are not applicable to system formwork)	Note	
	Cost for use of heavy equipment such as craneage using either mobile crane or tower crane is excluded.	Note	
	Generally, the rates are applicable for a strutting height not exceeding 3.50m	Note	
17	Timber Formwork To sides of pile cap, footing, column stump, ground beam, trench beam and lift pit	m2	13.52 - 14.54
18	To sides of column and stiffener	m2	13.56 - 14.57
19	To sides and soffits of suspended floor beam and roof beam	m2	13.61 - 14.71
20	To sides and soffits of suspended floor slab	m2 m2	13.20 - 14.07
21	To sloping soffit of staircase	1112	13.53 - 14.91



Range (RM)

Unit

BRICKWORK : LAY ONLY

	Costs are for laying only and include preparation of cement and sand mortar, labour to transfer bricks to location of block laying, all necessary plumbing, cutting, opening, raking out, pointing for joints, bedding, placing only reinforcement and all other sundry labour and housekeeping in clearing away leftovers/debris to a common dumping tip.Use of small tools including wheel barrow and mortar mixer is deemed included. The brickwall surface is to receive cement and sand plaster. Cost for use of heavy equipment such as craneage using mobile crane or tower crane or material hoist is excluded.	Note	
1	Cement and Sand Brick 110mm Thick wall	m2	7.60 - 8.05
2	Clay Brick 115mm Thick wall	m2	7.61 - 8.05

CONCRETE BLOCKWORK : LAY ONLY

Costs are for laying only and include preparation of cement and sand mortar, labour to transfer blocks to location of block laying, all necessary plumbing, cutting, opening, raking out, pointing for joints, bedding, placing only reinforcement and all other sundry labour, and housekeeping in clearing away leftovers/debris to a common dumping tip. Use of small tools including wheel barrow and mortar mixer is deemed included. The blockwall surface is to receive skim coating.	Note	
Cost for use of heavy equipment such as craneage using mobile crane or tower crane or material hoist is excluded.	Note	
Hollow Concrete Block 200mm Thick wall	m2	11.10 - 12.91

3



Description	Unit	Range (RM)
ROOF COVERINGS : LAYING ONLY		

	Costs are for laying only including cutting at eave, valley, hip, abutments, holes and etc, bedding and pointing and other sundry labour and include also sundry materials such as nails and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site. Use of small tools such as cutter is deemed included.	Note	
	Cost for use of heavy equipment such as craneage using either mobile crane or tower crane is excluded.	Note	
1	Concrete Roof Tile Laid to pitch not exceeding 30 degree	m2	5.82 - 7.25
2	Metal Roofing Deck Laid to pitch not exceeding 30 degrees	m2	4.68 - 5.79
	ROOFING UNDERLAYS : LAYING ONLY		
	Costs are for laying only including cutting, wrapping/ lapping at eave, valley, hip, abutments, holes, etc and other sundry labour and housekeeping in clearing away its own leftovers/		
	debris to a common dumping tip at site.	Note	
3	50mm Thick Fibre Wool Insulation & Wire Mesh Netting Laid to slope	m2	1.42 - 1.98
4	Sisalation Laid to slope	m2	1.03 - 1.30

ltem



14	- ·	4.1
ltem	Descri	ntion
nem	Descii	plion

1

2

Range (RM)

Unit

CEILING FRAMING & FINISHING: FIXING ONLY

Costs are for fixing only to timber framing including fixing of 50mm x 50mm timber noggings, cutting and fitting around column and along perimeter, forming 6mm wide gap or nailing of timber beading and other sundry labours and include also sundry materials such as nails, and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site. Use of small tools such as saw and cutter is deemed included.	Note	
Generally, the rates are applicable for a working height of not more than 3.0m	Note	
Non-Suspended Ceiling 1200mm x 600mm x 3.2mm Thick ceiling boards	m2	6.36 - 7.58
1200mm x 600mm x 4.5mm Thick ceiling boards	m2	6.86 - 8.67



Description	Unit	Range (RM)

WINDOW

Item

WINDOW FRAME : FIXING ONLY

Costs are for fixing only window frame complete with hardware and include also labour to transfer or distribute window frames to location of installation and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site. Use of small tools such as drilling tool is deemed included.	Note	
Timber Window Frame Overall size 300mm x 300mm High		9.53 - 11.46
	no	9.55 - 11.40
Overall size 1200mm x 1200mm High	no	12.80 - 15.33
DOOR		
DOOR FRAME : FIXING ONLY		
Costs are for fixing only door frame complete with hardware and include also labour to transfer or distribute window frames to location of installation and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site. Use of small tools such as drilling tool is deemed included.	Note	
-		
Timber Door Frame Overall size 900mm x 2100mm High	no	12.72 - 14.72
Overall size 1800mm x 2100mm High	no	18.85 - 22.92
Metal Door Frame		
Metal Door Frame Overall size 900mm x 2100mm High	no	13.01 - 14.67



Range (RM)

Unit

DOOR LEAF : FIXING ONLY

	Costs are for fixing only door leaf with hinges and normal/ standard lockset and include also labour to transfer or distribute door leave to location of installtion and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site. Use of small tools such as drilling tool is deemed included.	Note	
	Cost for use of heavy equipment such as craneage using either mobile crane or tower crane or material hoist is excluded.	Note	
7	Timber Hollow Core Door Standard hollow core flush door faced both sides with plywood; overall size 900mm x 2100mm high x 40mm Thick	no	16.68 - 18.85
8	Standard double leaf hollow core flush door faced both sides with plywood ; overall size 1800mm x 2100mm high x 40mm Thick	pair	27.80 - 33.05
9	Timber Solid Core Door Standard solid core flush door faced both sides with plywood; overall size 900mm x 2100mm high x 42mm Thick	no	29.76 - 35.99
10	Standard double leaf solid core flush door faced both sides with plywood ; overall size 1800mm x 2100mm high x 42mm Thick	pair	53.65 - 69.65
11	Timber Fire Door Standard one (1) hour fire-rated door; overall size 1070mm x 2100mm high x 50mm Thick	no	41.67 - 48.11
12	Standard double leaf one (1) hour fire-rated door; overall size 1800mm x 2100mm high x 50mm Thick	pair	74.03 - 89.24
	IRONMONGERY : FIXING ONLY		
	Costs are for fixing only ironmogery and includes use of small tools.	Note	
13	Ironmongery Door closer	no	9.03 - 10.95



ltem	Description	Unit	Range (RM)
-			

STRUCTURAL STEELWORK : FABRICATION, ERECTION AND FIXING ONLY

Costs are for labour only including shop fabrication, delivery, unloading, hoisting, erecting and fixing at site with bolts and		
nuts connection, welding, filing and necessary cutting and shaping and include also labour for painting in factory with one primer undercoating and one finishing coat with final touch-up		
upon erection and fixing and housekeeping in clearing away its own leftovers/debris to a common dumping tip at site.	Note	
Cost for use of heavy equipment such as craneage using either mobile crane or tower crane is generally deemed included.	Note	
Generally, these are the average rates applicable to building structures of different heights.	Note	
Heavy Section Universal Beam and Universal Column	kg	0.88 - 1.06
Hollow Section Square, rectangular and circular hollow sections	kg	0.96 - 1.11
Attached Connection Cleats, stiffeners and plates and the like	kg	0.94 - 1.11
Roof Truss Up to 10.0m span	ka	0.92 - 1.09
	kg	0.02 - 1.00
Above 10.0m span	kg	0.92 - 1.09



Description	

Range (RM)

Unit

PLASTERING : LABOUR ONLY

Costs are for labour only for plastering including mixing and preparation of cement and sand mortar, raking out joints of brickwall or hacking concrete surface for key where required and include also housekeeping in clearing away its own leftovers or debris to a common dumping tip at site. Use of small tools such as mortar mixer, wheel barrow and trowelling tool is deemed included.	Note	
Erection of working platform to a working height of not more than 3.0m is deemed included.	Note	
19mm Thick with wood float or sponge finish in two (2) coats		
Brickwall and concrete surface; externally	m2	7.87 - 8.84
19mm Thick with steel trowelled finish in two (2) coats Brickwall and concrete surface; internally	m2	7.15 - 7.84

1

2



Item	Description	Unit	Range (RM)

PAVING

3

4

FLOOR SCREED : LABOUR ONLY

Costs are for labour only for floor screeding laid on concrete surface including surface preparation, mixing and preparation of cement and sand mortar and housekeeping in clearing away its own leftovers or debris to a common dumping tip at site. Use of small tools such as mortar mixer, wheel barrow and trowelling tool is deemed included.	Note	
To Floor 25mm Thick cement and sand render with steel trowelled finish to a smooth and level surface	m2	5.29 - 5.79
20mm Thick cement and sand base screed with steel trowelled finish to a smooth and level surface to receive finishing	m2	5.28 - 5.73



Item	Description	Unit	

Range (RM)

TILING

WALL TILING : LABOUR ONLY

	Costs are for labour only for fixing of tiles, grouting and pointing of joints including mixing, preparation and laying of cement and sand backing screed, fixing of brackets and housekeeping in clearing away its own leftovers or debris to a common dumping tip at site. Use of small tools such as mortar mixer, wheel barrow and trowelling tool and cutter is deemed included.	Note	
	Erection of working platform to a working height of not more than 3.0m is deemed included.	Note	
5	To Wall 200mm x 200mm ceramic tile	m2	17.12 - 18.98
6	450mm x 450mm granite slab	m2	53.69 - 54.74
7	450mm x 450mm marble slab	m2	43.20 - 45.98
	FLOOR TILING : LABOUR ONLY		
	Costs are for labour only for bedding of tiles, grouting and pointing of joints including mixing, preparation and laying of of cement and sand base screed, applying coat of waterproofing at the back of tile and housekeeping in clearing away its own		

leftovers or debris to a common dumping tip at site. Use of small tools such as mortar mixer, wheel barrow and trowelling tool and cutter is deemed included.

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8	To Floor 300mm x 300mm ceramic tile	m2	17.45 - 19.05
9	300mm x 300mm homogeneous tile	m2	17.74 - 19.49
10	600mm x 600mm granite slab	m2	48.38 - 49.44
11	600mm x 600mm marble slab	m2	43.18 - 45.08

Note

SECTION THREE : -

Labour Output For Building Construction igsqcup



B. Bricklayer

- C. Roofer
- D. Carpenter
- E. Joiner
- F. Steel And Ironworker
- G. Plasterer
- H. Painter



Explanatory Notes

Introduction

The labour outputs provided in this publication are in lower and upper range for the common trades in building construction. The rates are based on data obtained from the survey for the 2nd and 3rd quarter of 2006 in Kuala Lumpur, Selangor and Negeri Sembilan.

The selected trades in this section are the common trades where its labour components are normally sub-contracted or by direct labour as practised in the building construction works.

This section covers 75 items of Labour Output data.

Definition of Labour Output

The labour output provided in this section is derived from a specific quantum of work measured in units of M3, M2, M or NO, PAIR and etc. executed over a specific number of man-hours worked by a trade gang of workers comprising the head of trade gang (commonly refer to "Kepala" at construction site), workers of Skill Levels 1 and 2 and General Workers.

The labour output can vary if the number of workers, quantum of work or conditions under which the works are executed, varies greatly, from one work to another similar work.

Qualification

The information on labour output provided in this section must be adjusted to account for factors that may affect the supply and demand of labour.

Labour Output



Concretor 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	CONCRETE : PLACE ONLY			
	Placing of ready-mixed concrete delivered to site as described in Section 2 for Labour Unit Rates For Building Construction		Note	
1	Lean concrete; 50mm thick including necessary trimming base of excavation To underside of pile cap, footing, ground beam, apron slab, ground floor slab, trench beam, trench slab, pit slab and the like	1	m2	5.00 - 5.90
2	Reinforced concrete including vibrating and trowelling to a smooth and uniform level in Pile cap, footing, column stump, ground beam, trench beam and lift pit	1	m3	0.54 - 0.65
3	Column	1	m3	0.43 - 0.51
4	Stiffener and lintol	1	m3	0.37 - 0.46
5	Roof beam	1	m3	0.44 - 0.52
6	150mm Thick ground floor slab and apron slab	1	m3	0.60 - 0.71
7	150mm Thick suspended floor slab and suspended floor beam	1	m3	0.59 - 0.70
8	150mm Thick roof slab	1	m3	0.58 - 0.69
9	200mm Thick concrete wall	1	m3	0.52 - 0.63





Concretor 2^{nd} and 3^{rd} Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	REINFORCEMENT : BENDING, PLACING AND FIXING ONLY			
	Bending, placing and fixing of reinforcements as described in Section 2 for Labour Unit Rates For Building Construction		Note	
	Rods 12mm, 16mm, 20mm, 25mm, 32mm and 40mm Diameter rod			
10	In foundation	1	kg	31.04 - 37.42
11	In column	1	kg	29.71 - 35.85
12	In beam	1	kg	29.93 - 36.01
13	In slab	1	kg	30.78 - 37.41
14	In wall	1	kg	30.12 - 37.15
15	Stirrups and links 6mm, 10mm and 12mm Diameter	1	kg	30.19 - 36.45
	BRC Fabric Cutting, tying, placing and fixing of standard size wire mesh as described in Section 2 for Labour Unit Rates For Building Construction		Note	
16	In ground floor slab, apron slab, trench slab, suspended floor slab and roof slab	1	m2	6.01 - 6.58
17	In wall	1	m2	5.90 - 6.31





Concretor 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output Man-hour
	FORMWORK : FABRICATE, FIX AND STRIKING ONLY			
	Fabricating, fixing and striking of timber formworks as described in Section 2 for Labour Unit Rates For Building Construction		Note	
18	Timber Formwork To sides of pile cap, footing, column stump, ground beam, trench beam and lift pit	1	m2	0.58 - 0.67
19	To sides of column and stiffener	1	m2	0.62 - 0.71
20	To sides and soffits of suspended floor beam and roof beam	1	m2	0.60 - 0.68
21	To sides and soffits of suspended floor slab	1	m2	0.63 - 0.74
22	To sloping soffit of staircase	1	m2	0.57 - 0.67





B Bricklayer 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	BRICKWORK : LAY ONLY			
	Laying of bricks as described in Section 2 for Labour Unit Rates For Building Construction		Note	
1	Cement and Sand Brick 110mm Thick wall	1	m2	1.01 - 1.09
2	Clay Brick 115mm Thick wall	1	m2	0.99 - 1.10
3	CONCRETE BLOCKWORK : LAY ONLY Laying of blockwork as described in Section 2 for Labour Unit Rates For Building Construction		Note	
4	Hollow Concrete Block 200mm Thick wall	1	m2	0.66 - 0.94





Roofer 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	ROOF COVERINGS : LAYING ONLY			
	Laying of roof covering as described in Section 2 for Labour Unit Rates For Building Construction		Note	
1	Concrete Roof Tile Laid to pitch not exceeding 30 degrees	1	m2	1.59 - 1.81
2	Metal Roofing Deck Laid to pitch not exceeding 30 degrees	1	m2	1.93 - 2.50
	ROOFING UNDERLAYS : LAYING ONLY			
	Laying only underlay as described in Section 2 for Labour Unit Rate For Building Construction		Note	
2	50mm Thick Fibre Wool Insulation & Wire Mesh Netting	1	m2	5.18 - 6.56
3	Laid to slope	I	mz	5.18 - 0.50
4	Sisalation Laid to slope	1	m2	6.75 - 7.95



D Carpenter 2nd and 3rd Quarter of 2006

ltem	Description	Man-	Unit	Range Labour Output per
	ROOF TRUSS : LABOUR ONLY	hour		Man-hour
	Hoisting, erecting and fixing at site with anchors, connectors and fixing accessories as descrided in the Section 2 for Labour Unit Rate For Building Construction		Note	
1	Prefabricated proprietary timber roof system Up to 10.0m span	1	m2	1.24 - 1.49
2	Above 10.0m span	1	m2	1.11 - 1.40
	CEILING FRAMING & FINISHING : FIXING ONLY			
	Fixing only ceiling as described in the Section 2 for Labour Unit Rates for Building Construction		Note	
3	Non-Suspended Ceiling 1200mm x 600mm x 3.2mm Thick ceiling boards	1	m2	1.33 - 1.64
4	1200mm x 600mm x 4.5mm Thick ceiling boards	1	m2	1.14 - 1.34
5	Suspended Ceiling 1200mm x 600mm x 12mm Thick mineral fibre board with exposed "T" bar suspension system fixed from soffit of slab	1	m2	1.33 - 1.61



E

Joiner 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	WINDOW			
	Fixing only as described in Section 2 for Labour Unit Rates For Building Construction		Note	
	WINDOW FRAME : FIXING ONLY			
1	Timber Window Frame Overall size 300mm x 300mm High	1	no	0.78 - 0.98
2	Overall size 1200mm x 1200mm High	1	no	0.61 - 0.74
	DOOR			
	DOOR FRAME :FIXING ONLY Fixing only as described in Section 2 for Labour Unit Cost For Building Construction		Note	
3	Timber Door Frame Overall size 900mm x 2100mm High	1	no	0.71 - 0.83
4	Overall size 1800mm x 2100mm High	1	no	0.53 - 0.61
5	Metal Door Frame Overall size 900mm x 2100mm High	1	no	0.71 - 0.81
6	Overall size 1800mm x 2100mm High	1	no	0.48 - 0.57
	DOOR LEAF : FIXING ONLY Fixing only as described in Section 2 for Labour Unit Cost For Building Construction		Note	
7	Timber Hollow Core Door Standard hollow core flush door faced both sides with plywood ; overall size 900mm x 2100mm High x 40mm Thick	1	no	0.60 - 0.72
8	Standard double leaf hollow core flush door faced both sides with plywood ; overall size 1800mm x 2100mm High x 40mm Thick	1	pair	0.41 - 0.48





Joiner 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	DOOR LEAF : FIXING ONLY			
	Fixing only as described in Section 2 for Labour Unit Cost For Building Construction		Note	
9	Timber Solid Core Door Standard solid core flush door faced both sides with plywood; overall size 900mm x 2100mm High x 42mm Thick	1	no	0.37 - 0.46
10	Standard double leaf solid core flush door faced both sides with plywood ; overall size 1800mm x 2100mm High x 42mm Thick	1	pair	0.23 - 0.27
11	Timber Fire Door Standard one (1) hour fire-rated door; overall size 1070mm x 2100mm High x 50mm Thick	1	no	0.30 - 0.36
12	Standard double leaf one (1) hour fire-rated door; overall size 1800mm x 2100mm High x 50mm Thick	1	pair	0.18 - 0.21





F

Steel And Ironworker 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	STRUCTURAL STEELWORK : FABRICATION, ERECTION AND FIXING ONLY			
	Fabrication, erecting and fixing in position as described in Section 2 for Labour Unit Rates for Building Construction		Note	
	Heavy Section - Universal Beam and Universal Column			
1	Fabrication only	1	kg	21.51 - 23.44
2	Erecting and fixing in position	1	kg	23.66 - 24.11
	Hollow Section - Square, rectangular and circular section			
3	Fabrication only	1	kg	20.58 - 23.78
4	Erecting and fixing in position	1	kg	18.40 - 19.19
	Roof Truss			
5	Up to 10.0m span Fabrication only	1	kg	19.59 - 21.70
6	Erecting and fixing in position	1	kg	24.45 - 24.99
7	Roof Truss above 10.0m span Fabrication only	1	kg	18.88 - 21.29
8	Erecting and fixing in position	1	kg	22.68 - 23.05
	Prefabricated proprietary steel roof system including associated roof framing and all relevant anchoring, connectors and fixing accessories, fixed in position			
	Erecting and fixing in position			
9	Up to 10.0m span	1	m2	1.31 - 1.43
10	Above 10.0m span	1	m2	1.30 - 1.43





Plasterer 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	PLASTERING : LABOUR ONLY			
	Plastering as described in Section 2 for Labour Unit Rate for Building Construction		Note	
1	19mm Thick with wood float or sponge finish in two (2) coats Brickwall and concrete surface; externally	1	m2	1.09 - 1.24
0	19mm Thick with steel trowelled finish in two (2) coats			
2	Brickwall and concrete surface; internally	1	m2	1.18 - 1.34
3	Skim-coat 4mm Thick to concrete surfaces of ceiling, associated beam, sloping soffit of staircase and plastered wall	1	m2	4.39 - 4.85



ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	PAVING			
	FLOOR SCREEDS : LABOUR ONLY			
	Paving as described in Section 2 for Labour Unit Rates for Building Construction		Note	
4	To Floor 25mm Thick cement and sand render with steel trowelled finish to a smooth and level surface	1	m2	1.76 - 2.09
5	20mm Thick cement and sand base screed with steel trowelled finish to a smooth and level surface to receive finishing	1	m2	1.72 - 1.99



Plasterer 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	TILING			
	WALL TILING : LABOUR ONLY			
	Fixing of tiles as described in Section 2 for Labour Unit Rates for Building Construction		Note	
6	To Wall 200mm x 200mm ceramic tiles	1	m2	0.63 - 0.73
7	450mm x 450mm granite slab	1	m2	0.50 - 0.61
8	450mm x 450mm marble slab	1	m2	0.40 - 0.50
	FLOOR TILING : LABOUR ONLY			
	Laying of tiles as described in Section 2 for Labour Unit Rates for Building Construction		Note	
9	To Floor 300mm x 300mm ceramic tiles	1	m2	0.63 - 0.74
10	300mm x 300mm homogeneous tile	1	m2	0.64 - 0.78
11	600mm x 600mm granite slab	1	m2	0.45 - 0.60
12	600mm x 600mm marble slab	1	m2	0.30 - 0.37



H Painter 2nd and 3rd Quarter of 2006

ltem	Description	Man- hour	Unit	Range Labour Output per Man-hour
	PAINTER : LABOUR ONLY			
	Labour only for painting works including surface preparation		Note	
1	Prepare and apply emulsion paint comprising one base coat sealer and two finishing coats internally on surfaces of Plastered sides of wall and associated columns	1	m2	6.88 - 7.94
2	Prepare and apply one coat sealer and two coats of elastomeric acrylic weathershield paint externally on surfaces of Plastered sides of wall and associated columns	1	m2	6.44 - 7.01
3	Prepare, knot, prime, stop and apply gloss enamel paint comprising one undercoat and two finishing coats internally on timber surfaces of Timber flush door; overall size 900mm x 2100mm High	1	no	0.91 - 1.07
4	Prepare, knot, prime, stop and apply gloss enamel paint comprising one undercoat and two finishing coats internally on timber surfaces of Window frame; overall size 300mm x 300mm High	1	no	1.92 - 2.28
5	Window frame; overall size 1200mm x 1200mm High	1	no	1.31 - 1.55
6	Timber door frame including architrave; overall size 900mm x 2100mm High	1	no	1.18 - 1.44
7	Prepare and apply one coat of metallic primer, one undercoat and finishing coats of gloss enamel paint internally on metal surfaces of Metal door frame; overall size 900mm x 1200mm High	1	no	0.87 - 1.05

APPENDIX : -

Suvey Methodology



Survey Methodology

1. INTRODUCTION

In this publication, CIDB has engaged a Consulting Quantity Surveying firm, M/S KH Alliance Quantity Surveyor to conduct a study based on survey among contracting firms for data on labour rates and output in building construction projects for the period of 2nd and 3rd quarter of 2006.

Generally, the survey involved the following processes: -

- i) Sample Design
- ii) Design of Questionnaires
- iii) Data Collection through Interviews with Contractors' Representatives
- iv) Data Validation, Generation and Interpretation of Descriptive Statistics

The survey which was based on person to person interviews was well received by the participating respondents. The response rate is 80% ie out of the 75 selected contractors, 60 of them had responded to the survey.

2. SAMPLE DESIGN

A single-stage stratified random sampling design was adopted for the survey. The sampling unit is the building construction projects.

a) Study Coverage

The building construction projects identified for the survey were randomly selected from building construction projects in Kuala Lumpur, Selangor and Negeri Sembilan. These were the on-going projects in 2nd and 3rd quarter of 2006. These projects were undertaken by contractors registered with CIDB in Grades G5, G6 and G7.

The locations of the selected sample projects are as follows:

- i) Kuala Lumpur
- ii) Selangor
 - a. Petaling Jaya
 - b. Shah Alam
 - c. Klang
 - d. Kajang
 - e. Rawang
 - f. Bangi
 - g. Puchong
 - h. Pulau Indah
 - i. Semenyih



Survey Methodology

- iii) Negeri Sembilan
 - a. Nilai
 - b. Seremban

b) Sampling Frame

The sampling frame was sourced from the CIDB database of on-going building construction projects as of August 2005.

CIDB has graded contractors based on their financial and technical capacity over a range of project values as follows: -

CIDB Grading	Contract Value	
G 1 - G 2 - G 3 - G 4 - G 5 - G 6 -	Not exceeding RM100, 000.00 Not exceeding RM500, 000.00 Not exceeding RM1 million Not exceeding RM3 million Not exceeding RM5 million Not exceeding RM10 million	
G7 -	No Limit	

For this survey, only 425 building construction projects (RM 3.0 millions and above) out of the 8000 listed projects in CIDB database undertaken by Grades G5, G6 and G7 contractors are included. These 425 projects form the sampling frame for the survey.

Projects with project value not exceeding RM3.0 millions are excluded from the survey.

c) Stratification

The population size of building construction projects were stratified according to the 5 building categories as follows:-

- i) High Rise Residential
- ii) Low Rise Residential
- iii) Administrative
- iv) Industrial
- v) Commercial

The above categories provide a general representation of all categories of building construction works.



d) Sample Size

Due to economic consideration, a sample size of 50 building construction projects was selected. A further 25 building construction projects were added to cater for non-response. The actual sample size is 75 building projects. A sample size of 75 building construction projects was selected from the population size of 425 building projects.

Those building categories with small strata size, all of its projects were selected to be the sample of the respective building category such as administrative building (11) and industrial building (9). The remaining sample of 55 projects were equally distributed in terms of percentage among the three remaining building categories, namely high rise residential (19), low rise residential (18) and commercial building (18).

Type of Project	Population Size	Sample Size	Percentage (%)
i. High Rise Residential	78	19	25
ii. Low Rise Residential	247	18	24
iii. Administrative	11	11	15
iv. Industrial	9	9	12
v. Commercial	80	18	24
TOTAL	425	75	100

Table 1 - Distribution of the 75 Selected Sample Projects by Building Categories

Within this 75 selected sample projects, there are 9 government projects and 66 private projects.

e) Sample Selection

The building construction projects within each stratum were first arranged in ascending order by value of contract and serial numbers were assigned to the projects. Selection of sample was then done within each stratum using a linear systematic selection scheme.

This arrangement of the projects in ascending order would ensure an even spread of the sample over the entire range of contract values.

The selection process of linear systematic sample within each strata is explained as follow:

The selection interval, k, is first determined, where,

k =	N_h/n_h
h =	stratum (category of buildings)
N_h =	total number of projects in the h^{th} category of building
n_h =	number of projects sampled from the h^{th} category of building



Survey Methodology

A number is selected at random between 1 to k, which is the random start. The construction project with serial number corresponding to the random start is selected and then on every k^{th} subsequent project is selected into the sample until the required sample size is achieved. In order to obtain the exact number of projects targeted for, decimal intervals were used.

2. DESIGN OF QUESTIONNAIRES

a) Formulation

The survey questionnaire comprises three (3) sections: Section One – Labour Daily Wage Rates, Section Two – Labour Unit Rates, Section Three – Labour Output.

For convenience, the survey questionnaire was designed based on the following trades as provided in the Standard Method of Measurement for Building Works (1st edition metric version) with amendments.

- A. Concretor
- B. Bricklayer
- C. Roofer
- D. Carpenter
- E. Joiner
- F. Steel And Ironworker
- G. Plasterer
- H. Painter

b) Pre-testing

The questionnaires were pre-tested among a few building contractors to identify areas that require emphasis and improvements. Based on the outcome of the pre-tests, the survey questionnaires were modified and improved.



Survey Methodology

3. DATA COLLECTION THROUGH INTERVIEWS WITH CONTRACTORS' REPRESENTATIVES

a) Survey Documents

The following documents were used during the course of the survey:

- i) CIDB introduction letter addressed to respondents
- ii) Manual / guide for respondents
- iii) Background of sampled projects
- iv) Survey questionnaires

b) Interviews With Respondents

Data were collected through personal interviews with participating respondents who are experienced and well versed in costing and/or labour resources planning. They comprise contract managers, quantity surveyors, cost estimators, engineers and project managers in contracting firms.

Interviews were conducted successfully on 60 sampled projects distributed among the five building categories as shown in Table 2.

Type of Project	Sample Size	Percentage (%)
i. High Rise Residential	16	27
ii. Low Rise Residential	17	28
iii. Administrative	7	12
iv. Industrial	6	10
v. Commercial	14	23
TOTAL	60	100

Table 2 – Distribution of the 60 Completed Sample Projects by Building Categories

Within this 60 completed sample projects, there are 4 government projects and 56 private projects.



4. DATA VALIDATION, GENERATION AND INTERPRETATION OF DESCRIPTIVE STATISTICS

- a. Upon receipt of completed questionnaires, checking and verifications of completeness of data, outliers and inconsistency among the data of similar trades were carried out before data capture into the statistical software, Statistical Package for Social Sciences (SPSS). The verification process included consultation with respondents and trade specialists.
- Upon cleansing of data, descriptive statistics were generated by using the Complex Samples Procedures in SPSS to generate the required results such as weighted means and ranges (95% confidence intervals).
- c. Further statistical test was not carried out.

