UNIVERSITI TEKNOLOGI MARA

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

SEPTEMBER 2014

It is recommended that the report of this practical training provided

By

INTAN SYAFIZA HALIZA BINTI MUSTAFA

2012238092

entitled

GENERAL METHODS OF PRICING TENDER FOR A PROJECT OF PROPOSED TO BUILT A NEW MARKET AT PULAU PANGKOR, PERAK DARUL RIDZUAN

accepted in partial fulfillment of requirements has for obtaining Diploma in Building.

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STUDENT'S DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references stated herein, prepared during a practical training session that I underwent at Lingbena Sdn Bud for duration of 5 months starting from 12 May and ended 29 September 2014. It is submitted as one of the prerequisite requirements of DBN307 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building.

Name	:	Intan Syafiza Haliza Binti Mustafa
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Date	:	30/09/2014

ACKNOWLEGDEMENT

Alhamdulillah, finally I am able to complete my practical report. Thanks to Allah because have given me the opportunity to complete my practical training and also my report properly. I want to thanks to everyone that willing to help and guide me during the entire 5 months of my practical training especially to Lingbena Sdn Bhd staff, Pn. Noor Azni Binti Muhamed Sani as a quantity surveyor also as my practical surpervisor, Pn. Siti Nor Baya Binti Che Nar as design engineer and Miss Chuah Chui San as project engineer as well as the other staffs that assist me. Not to forget to my supervisor lecturer Pn. Rafizah Binti Mohamed Nordin that patiently guide during me in completing my practical report. Thank you also to our Practical Training Coordinator, Pn. Wan Noor Diana Wan Ali and Pn. Nurul Huda Binti Abdul Hadi that always give information and led me during my practical training period and also Dr. Mohd Rofdzi Bin Abdullah as AP 116 coordinator and the rest of lecturer of the Department of Building. Thank you to families and friends that always help to give useful information and help me complete my practical report.

Thank you.

ABSTRACT

This report briefly describes the procedures involved in tendering process for project of Proposed to Build a New Market at Pulau Pangkor, Perak Darul Ridzuan. The client for this project is Majlis Perbandaran Manjung. The aim of this project is to provide better facilities to the Pulau Pangkor citizen. Tender pricing is the one of the crucial part in tender document before it can be submitted. The process of tender pricing starting from the preliminaries where the basic items for set up the construction site before any works can be done until the mechanical works where the building is completely can be used to public. In preliminaries section, all the items such as temporary roads, lighting and power supply, fencing, machineries and plant are usually calculated as lump sum. For other section such as building work, infrastructure works, landscape works, piling works and mechanical works have their own method in calculated the price of a particular item. This report will only provide a several process of tender pricing based on my experience in execute and assist Quantity Surveyor works for the said project.

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LIST OF ABBREVIATIONS

BOQ	Bill of Quantities
CIDB	Construction Industry Development Board
PKK	Pusat Khidmat Kontraktor
Sdn. Bhd.	Sendirian Berhad (Private Limited)
MPM	Majlis Perbandran Manjung
Q.S	Quantity Surveyor

CHAPTER 1

INTRODUCTION

1.1 Introduction

Generally tender document is a copy of the offer issued by the client to the contractor when it intends to implement a project. Any contractors interested in participating in the project have to fill in and complete the tender document and return the document within the specified time. According to Ahmad Abdullah (2005), estimated construction cost being the main basis for the tender price submitted by the tenderers. Usually the successful tenderers or bidder in the bid of construction work is known as contractor.

While the former director of the branch of the Contract and Quantity Surveying, JKR Malaysia, Ahmad Mansur (2005) argues that contractor is bidding and also businessman who seeks to make a profit from each project implemented. Therefore, the contractor must first win the tender for a profit. So in order to win the tender, the most important factor in winning tenders entered is tender pricing.

Tender price is the prices that were tabled by the contractor to the client as a price for the construction and completion of the work tendered. Often tender pricing is provided by cost consultant or quantity surveyors. The price of this set cannot be changed unless the changes are allowed to work where the tender price will be adjusted accordingly in most of type of contracts. Prices offered must be scrutinized to ensure that all work will be done by contractor has fully taken. The completed document should be reviewed to ensure that the calculation is stable and all the conditions laid down by the client have been met.

In order to prepare the tender document, several things need to be included in the document to enable the contractor to review the requirements, read and fill out the document. These works will be done by cost consultant or quantity surveyor to complete the tender document.

How to fill out a tender or pricing the tender documents depends on the type of tender for a certain project. Generally, there are various types of tenders used in the construction industry. Commonly used are tenders or contracts based on bills of quantities. Other types of contracts such as contracts based on drawings and specifications and diagrams summary priced tender is still used in the industry.

For the project of Proposed a New Market at Pulau Pangkor, the tender of Bills of Quantities type applied. For the entire 5 months of training, I have gained an experience and knowledge on preparing price for tender. Thus, with that exposure, I have decide to come out with a report title General Methods of Pricing Tender For a Project of Proposed To Build a New Market at Pulau Pangkor, Perak Darul Ridzuan.

1.2 Objective of study

In completing this report, several objectives have been listed as follows:-

i) To understand general methods involved in pricing tender for construction project which based on training experience.

ii) To learn any skills or strategy involved in pricing tender for tender bidding.

1.3 Scope of Study

The study will specifically focus on the method of pricing tender for a project of Proposed To Build New Market at Pulau Pangkor, Perak. The project to be implemented is a building that has an attractive design will be the new public market to replace the old building. This project is request by the Majlis Perbandaran Manjung to upgrade the lifestyle of residents of Pulau Pangkor.

This study focused on tender pricing for New Market, Pulau Pangkor's project, the types of tender used, problems faced during tender pricing and identify the significant difference between the price of the tenderer to ensure that all the information in the tender are interpreted correctly.

1.4 Method of Study

From objectives to scope of study, the next step is to set the approriate method of study to be used in order to search informations regarding the definiton of tender pricing, the parties that involved in the tendering price's process, tender pricing methods, problems and other strategy to come out with the best tender pricing for a certain project.

i) Interview

For the main method, some information is obtained through interviews. Interviews was conducted with company personnel which is quantity surveyor to obtain informations about the methods of tender pricing made for projects in Pulau Pangkor. This information was given by the respondent professionals in their respective fields and are considered reliable since they have different views and experiences. The interview is made by questioning experienced personnel with authority in the fixed of work especially tender pricing. Methods through interviews are enable answer to be more clear and accurate about tender pricing. The interview was done by interviewing Pn. Noor Azni as the only person that fully incharged in tender document process since she is the only Quantity Surveyor in Lingbena Sdn Bhd.

ii) Observation/Experience

Information can also be obtained by observation. Observations are made during the processes involved in tender pricing. By observing the process of tender pricing, enable to help to understand the methods of tender pricing through interviews.

iii) Online Journals, Magazines, Newspaper

In order to have a better understanding in the methods of tender pricing, all the information, knowledge and data obtained through research and reading reference books, reports, newspapers, mass media and the websites from internet. It consists of various discoveries and research from different sources related to the topic.

CHAPTER 2

COMPANY BACKGROUND

2.1 Introduction

Figure 2.1 The official logo of Lingbena Sdn Bhd

(Source: Lingbena Sdn Bhd's company profile)

Lingbena Sdn Bhd already operated more than 23 years since it has been established on 13 June 1991. This company formed specifically for construction works and engineering works by the founder, Ling Leong Chnong with close 30 years experience in construction field after he graduated in engineering from Monash University.

Lingbena Sdn Bhd also has established the subsidiary the Lingbena Sdn Bhd that function as a housing developer after 2 year set up the Lingbena Sdn Bhd on 22 September 1993. It also led by Ling Leong Chnong as the director managing and aided by 2 another director.

2.2 Company Profile

Company name	: Lingbena Sdn. Bhd.
Office address	: NO.3, Taman Arasu, Jalan Raja Omar,
	32000 Sitiawan, Perak.
Type of business	: Construction and engineering works
Telephone no.	:
Fax no.	: 05-6925396
Email address	: lingbena@gmail.com
Contractors	: Pusat Khidmat Kontraktor
Registration	Class B
Company	: KH MANAGEMENT
Secretary	Lot 218, 1st Floor, Wisma Ganda,
	Jalan Raja Omar, 32000 Sitiawan,
	Perak Darul Ridzuan.
Company	: KANG & CHEAH CHARTERED ACCOUNTANTS
Auditors	No. 175-A, Jalan Chung Ah Ming
	Pasir Putih 31650 Ipoh,
	Perak Darul Ridzuan.
Financial	: Public Bank Berhad
Background	No. 167 – 168, Jalan Raja Omar,
	32000 Sitiawan,
	Perak Darul Ridzuan.

2.3 Organization Chart

Lingbena Sdn Bhd led by Ling Leong Chnong which hold the post as Managing Director and aided by Ding Diong Guan as the Director of this company. Lingbena Sdn Bhd is divided into 3 departments which are account and administration, purchasing and technical team. Department of Account and Administration has 5 employees while Purchasing Department has 2 purchase clerks. For technical department consists of two department which are engineering and quantity surveyor and have 3 staffs.

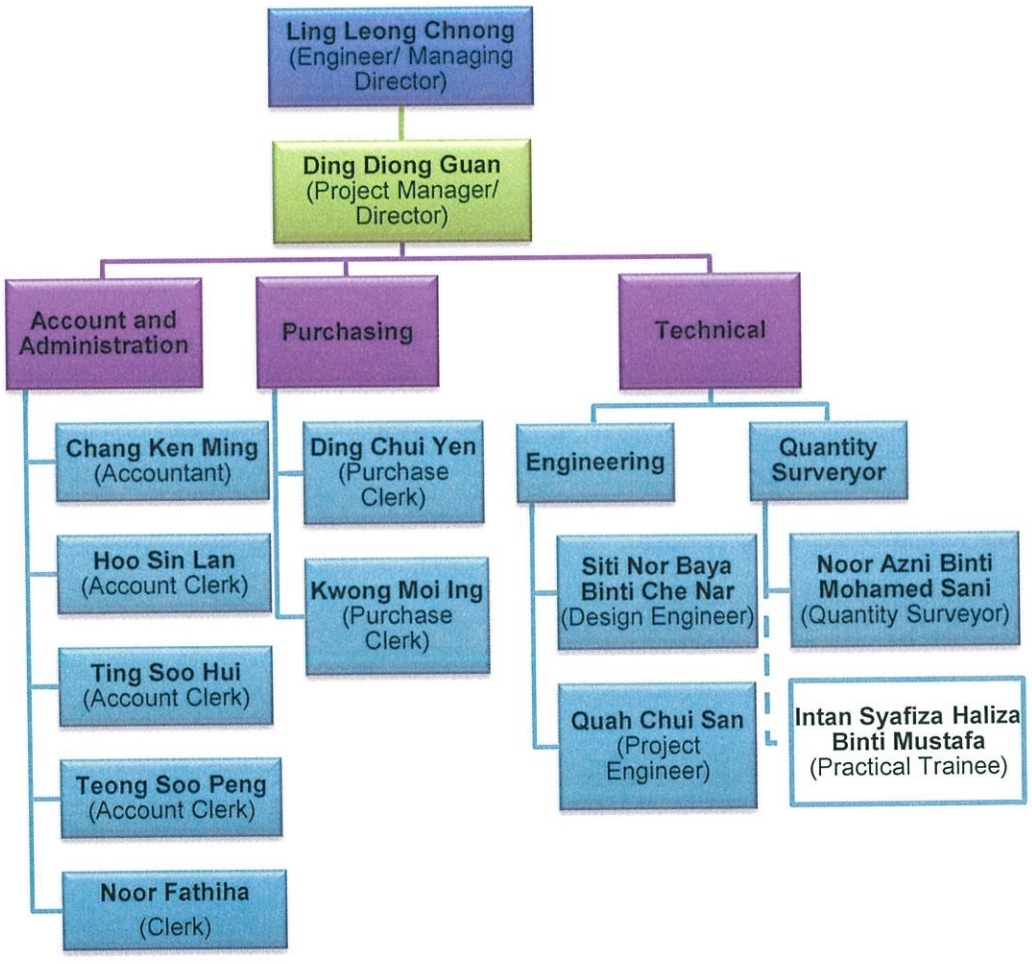


Figure 2.3 : Organization chart of Lingbena Sdn Bhd

Source :Lingbena Sdn Bhd company's profile

2.4 List of Projects

Lingbena Sdn Bhd is a company that is famous in Perak especially in area of Seri Manjung, Sitiawan, Lumut and also Ayer Tawar. So, no wonder when this company has many completed projects and Lingbena Sdn Bhd is also currently active conducting 6 housing scheme around Seri Manjung and Sitiawan.

2.4. (i) Completed projects

Following is list of latest projects that were implemented successfully by Lingbena Sdn Bhd:-

Table 2.1 : Lists of completed projects

Project	Client/ Cost	Project Durations
Cadangan Skim Perumahan Di Atas Lot Besar 29, Kg Changkat Kruing, Mukim Pengkalan Baharu Daerah Manjung Yang Mengandungi 23 Unit Rumah Teres 2 Tingkat, 6 Unit Rumah Berkembar 1 Tingkat Dan 1 Unit Rumah Banglo 1 Tingkat.	Lingbena Development Sdn. Bhd.	April 2012 – Mei 2014
Cadangan Pembinaan 8 Unit Rumah Berkembar 1 ½ Tingkat, 8 Unit Rumah Berkembar 2 Tingkat, 11 Unit Rumah Banglo 1 ½ Tingkat Dan 3 Unit Rumah Banglo 2 Tingkat Di Atas Lot 11385, Ayer Tawar, Perak.	Lingbena Development Sdn. Bhd.	April 2012 – Mei 2014
Cadangan Membina 48 Unit Rumah Teres 2 Tingkat Dan 11 Unit Rumah Teres 1 Tingkat Plot 51 – 61 Di Atas Lot 43638 Ayer Tawar	Lingbena Development Sdn. Bhd.	April 2012 – Mei 2014
Cadangan Membina 2 Unit Rumah Teres 2 Tingkat , (lot besar 43638), Ayer Tawar, Mukim Sitiawan, Daerah Manjung	Lingbena Development Sdn. Bhd.	April 2012 – Mei 2014
Cadangan Mebina 37 Unit Rumah Teres 2 Tingkat, 22 Unit Rumah Berkembar 1 Tingkat Jenis "A", 2 Unit Rumah Berkembar Jenis "B" Dan 4 Unit Rumah Banglo 1 Tingkat Di Atas Lot 12184 & 42691, Mukim Sitiawan, Daerah Manjung, Perak Darul Ridzuan.	Lingbena Development Sdn. Bhd.	September 2011 – November 2013

2.4. (ii) On-going Projects

Following is list of housing project which are actively being carried out by Lingbena Sdn Bhd:

Table 2.2 : Lists of on-going projects

Project	Client/ Cost Estimated	Completed Span Period
Cadangan Membina 28 Unit Rumah Berkembar 2 Tingkat Di Atas Lot 12172, Mukim Sitiawan, Daerah Manjung, Perak.	Lingbena Development Sdn. Bhd / RM 15,024,400.00	Julai 2016
Cadangan Membina 39 Unit Rumah Teres 2 Tingkat Di Atas Lot 12173, Mukim Sitiawan, Daerah Manjung, Perak.	Lingbena Development Sdn. Bhd / RM 14,605,200.00	Julai 2016
Cadangan Membina 28 Unit Rumah Teres 1 Tingkat Di Atas Lot 2071, Mukim Lekir, Daerah Manjung, Perak Darul Ridzuan.	Lingbena Development Sdn. Bhd / RM 10,760,255.00	Julai 2016
Cadangan Membina 23 Unit Rumah Teres 1 Tingkat Jenis A, 89 Unit Rumah Teres 1 Tingkat Jenis B, 8 Unit Rumah Berkembar 1 Tingkat Dan 1 Unit Rumah Banglo 1 Tingkat Di Atas Lot Asal 9617 & 11469, Pasir Panjang, Mukim Sitiawan, Daerah Manjung, Perak.	Lingbena Development Sdn. Bhd / RM 11,669,475.00	Julai 2016
Cadangan Membina 30 Unit Rumah Teres 1 Tingkat Di Atas Asal Lot 1651, Mukim Sitiawan, Daerah Manjung, Perak	Lingbena Development Sdn. Bhd / RM 7,021,000.00	Julai 2016
Cadangan Membina 2 Unit Rumah Banglo 1 Tingkat, Dan 15 Unit Rumah Teres 1 Tingkat Di Atas Asal Lot 1650, Mukim Sitiawan, Daerah Manjung, Perak Darul Ridzuan	Lingbena Development Sdn. Bhd / RM 4,705,600.000	Julai 2016

CHAPTER 3

GENERAL METHODS OF PRICING TENDER FOR A PROJECT OF PROPOSED TO BUILD NEW MARKET AT PULAU PANGKOR, PERAK DARUL RIDZUAN

3.1 Introduction

There are two types of tendering process which are conventional tendering process and the electronic tendering. Basically the conventional tendering process will involve pre-tender stage, tender advertisement stage, closing of tender, tender opening process, tender evaluation and finally the tender award. Meanwhile, the electronic tendering system or also known as ETS is an electronic tendering solution facilities the complete tendering process from the starting until to the placing of the contract. All of this process are includes the exchanges of all the relevant documents in electronic format (http://www.fao.org).

Tender pricing was in the stage of pre-tender where the experiences person said this stage is the most crucial matter since the pre-tender stage will start the next step in a certain project. So basically, the project will not successfully complete if the pre-tender stage is fail. Usually, at pre-tender stage the consultants and clients will together think about the scope, time to complete and the budget that client willing to agree.

According to an article from NSB's websites, tendering is the process by which bids are invited from interested contractors to carry out specific packages of construction works. It should adopt and observe the key values of fairness, clarity, simplicity and accountability, as well as reinforce the idea that the apportionment of risk to the party best placed to assess and manage it is fundamental to the success of a project.

The estimator or usually the Quantity Surveyor (Q.S) will contribute mainly in this process by providing advice on the overall cost of the various constructional strategies proposed until the method statements have been produced, the Q.S cannot accurately cost the work proposed. The estimate is only a part of the tender process and it should not be assumed that the estimate derived by the pretender will be the final tender figure presented to the client. When the bids from the interested contractors are done and been sure that the last bids, then it can be assumed as the final tender to given to the client. Before it been done, there are a lot of works to be completely review and checked to ensure the tender are completely prepare to given to the client, this including all prices included in the document tender. The Q.S together with the Contract Manager have to ensure that the best price have been stated to win the bidding.

Thus, in this report, it is important to understand the general method of pricing tender for various items stated in tender document. There are also several strategies to be learn in how to get the best price for winning the tender bid.

3.2 The Project Background

Photo 3.2 : Proposed Site to build a new market at Pulau Pangkor, Perak Darul Ridzuan.

The project is to proposed a new market building at Pulau Pangkor, Perak Darul Ridzuan. The cost of this project is estimated nearly about RM 11,000,000.00 since the condition of surrounding the project's site consists of large drains. As shown in the Photo 3.2, the conditions of the drain needed to be inspected and clean up to make sure the project can be implementing properly. This project is made to upgrades the facilities in Pulau Pangkor.

The project site is located in Pulau Pangkor, Perak where the location of the project is closed with rows of shop and mosque. The project covers the preliminaries, clean up the project site and demolish the existing old market, toilets, plaza, wet and dry market and stalls. The proposed new market that will consists of two floors which is the ground floor and the first floor. The ground floor will consist of toilets and wet market while the first floor is propose to have stalls for customers enjoy their meals besides can enjoy the views of ferry and sea from there.

3.3 Case Study on The Method of Pricing Tender

For the case study for in this report, it will reveals the general methods in pricing tender for a project of Proposed To Build New Market At Pulau Pangkor, Perak Darul Ridzuan and any other information regarding with the title of this report which is related to tender pricing process for a new market project at Pulau Pangkor.

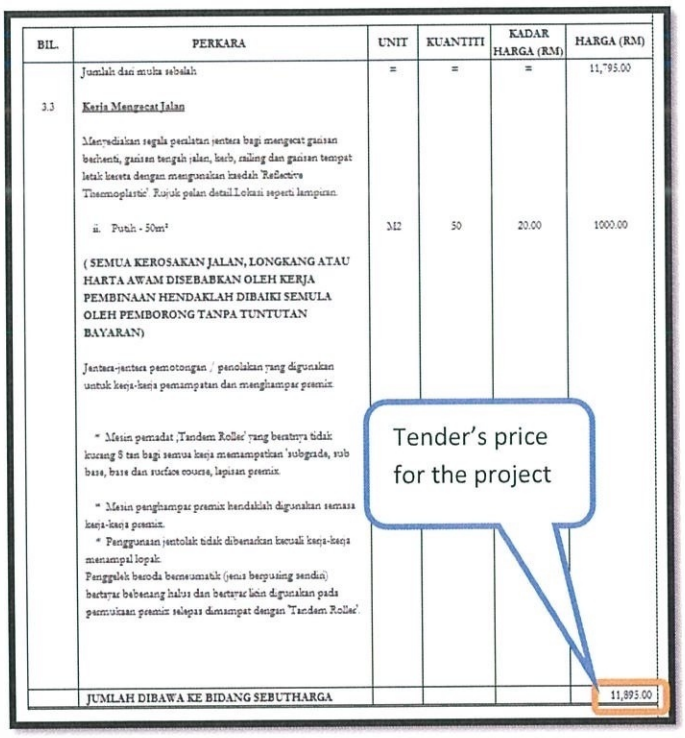
3.3.1 Types of tenders and Document Required in Pricing Tenders

The starting procedure for pricing tender depends on the type of tenders for a certain projects. Tendering process involve complicated process and procedure that need more attention on it. So before tendering process can be done, the Quantity Surveyor and the team should make sure that all the important and necessary for the tender document are prepared, checked and have been approved. For example, the signature of the contractor and a witness, the company stamp and the total amount for the tender. Any mistakes happens, it will ruin the chances of winning that particular tender. Basically, there are several types of tenders involved in tender pricing. For project of Proposed To Build New Market At Pulau Pangkor, Perak Darul Ridzuan, the type of tender used are two which are based on bill of quantities, drawing and specification.

i) Bills of Quantities

This type of tender are commonly used in construction industry nowadays compare with the others. As we know, bill quantities is a list of all the materials of a project which have sufficient detail to obtain a realistic and suitable cost, or rate per described item of works or materials. The tenders not only should show the unit per materials or works, but also the other cost such as labour, materials, plant and machineries cost.

When the tender is complete with the detail information needed attached, the first step to be taken by the quantity surveyor is to fill in the price rates for every item that have been listed out. The price for every items are added together to get the tender price for the project.



BIL.	PERKARA	UNIT	KUANTITI	KADAR HARGA (RM)	HARGA (RM)
	Jumlah dari muka sebelah	=	=	=	11,795.00
3.3	Kerja Mengecat Jalan				
	Menyediakan segala peralatan jentera bagi mengecat garisan berhenti, garisan tengah jalan, kerb, railing dan garisan tempat letak kereta dengan menggunakan bahan 'Reflective Thermoplastic'. Rujuk pelan detail Lokasi seperti lampiran.				
	ii. Putih - 50m²	M2	50	20.00	1000.00
	(SEMUA KEROSAKAN JALAN, LONGKANG ATAU HARTA AWAM DISEBABKAN OLEH KERJA PEMBINAAN HENDAKLAH DIBAIKI SEMULA OLEH PEMBORONG TANPA TUNTUTAN BAYARAN)				
	Jentera-jentera pemotongan / penolakan yang digunakan untuk kerja-kerja pemampatan dan menghampar premix				
	* Mesin pemadat 'Tandem Roller' yang beratnya tidak kurang 8 tan bagi semua kerja memampatkan 'subgrade, sub base, base dan surface course, lapisan premix.				
	* Mesin penghampar premix hendaklah digunakan semasa kerja-kerja premix.				
	* Penggunaan jentolak tidak dibenarkan kecuali kerja-kerja menampal lopak.				
	Penggelek beroda bermesinatik (jenis berpusing sendiri) bertayar bebetang halus dan bertayar lain digunakan pada permukaan premix selepas dimampat dengan 'Tandem Roller'.				
	JUMLAH DIBAWA KE BIDANG SEBUTHARGA				11,895.00

Tender's price for the project

Photo 3.3 (i) : Example of bill of quantities' in tender document for the said project.

Normally for a certain element in the bill of quantities have a lot of explanations on the works to be made, it will be continue to next page and goes on until the end of the explanation. So if the bills of quantities are for a certain element is more than one pages, the total amount from each pages will be transfer to the next pages just like the explanation of a certain works. This is to ensure all the price are added together without missing any price or amount in order to get the total amount of tender price.

ii) Drawing and specification

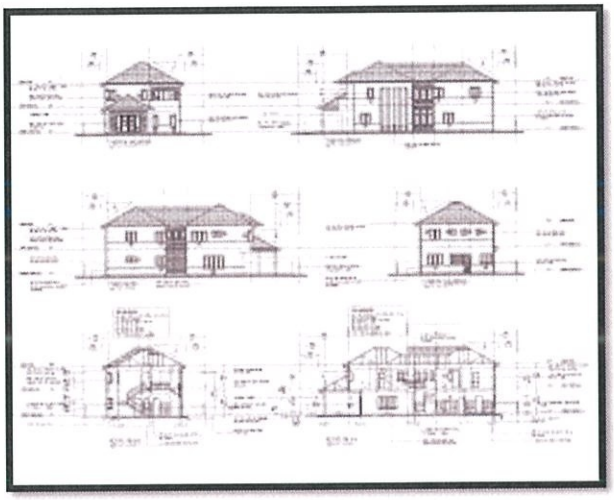


Photo 3.3 (ii): Example of Drawing with detail specification

Source: http://rekapelan.blogspot.com/2011/02/contoh-lukisan-kerja.html

In order for a certain project to maintain within the budget , a specification is important since it will detail exactly what works are required, the sequence of the works and the material to be used and is best used in conjunction with detailed drawings. The procedure of this tender is different with other since the tender document were sent to a minimum of three contractors who can then submit back their responses based on exactly the same materials and dimensions as specified thus ensure that the estimator can come up with a suitable cost.

As for drawing, it defines the scope of the project's works to be carried out. So when the details specification documents are read with the drawing, it will help the contractor to understand more and will enable the project implemented smoothly according to the plan. For this type of tender, it will be appropriate to be use in smaller projects such as house renovations or extensions.

iii) Suppliers/Sub Contractors/Manufacturer Quotations

In pricing the tender, the most important element other than bills of quantity, drawing and specification is the quotation from the suppliers that help to get the latest price for a certain unit or items in the bill of quantities. Usually the Quantity Surveyor will attached the bills of quantity with drawing and specification and send them to the potential suppliers to price each items listed.

A supplier quotation is a formal statement of promise by potential supplier to supply their goods or services required by the Quantity Surveyor, at specified prices, and within a specified period of time. A quotation may also contain terms of sale and payment, and warranties for a certain items. Acceptance of quotation by the QS constitutes an agreement binding on both parties.

Figure 3.3 (i): Suppliers Quotation Flow Chart

The Quantity Surveyor will send out a message (Request for Quote) to various suppliers for the items that have various of suppliers who supply the same items. Then, the estimators will record all the quotes so that can easily compared the prices in the future. The estimators will accept the qoutation that have the suitable price with the quality of the items qouted by the supplier.

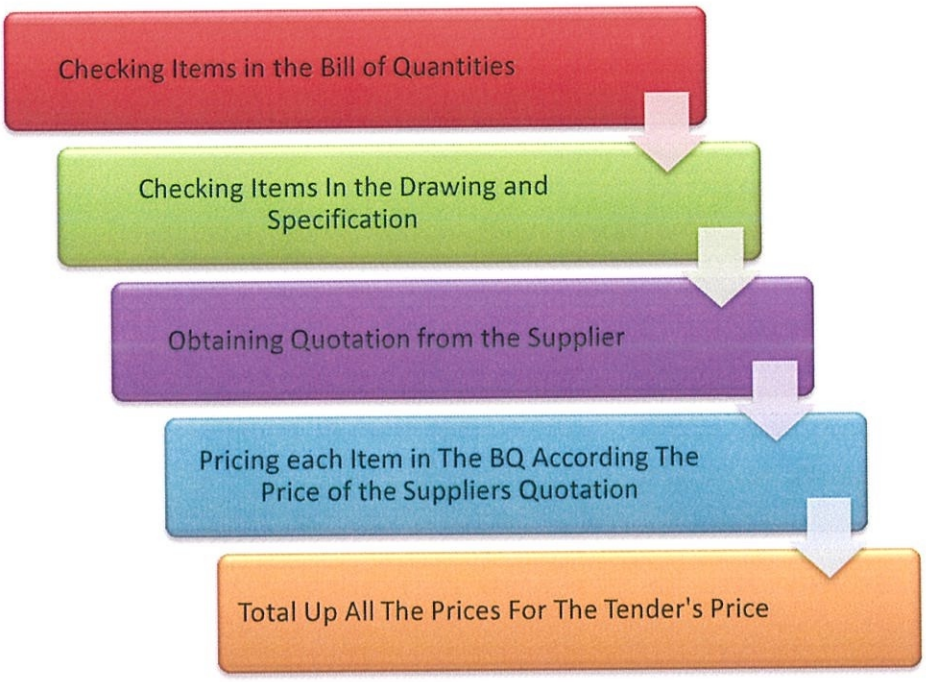


Figure 3.3 (ii): Flow chart of the general method in pricing tender

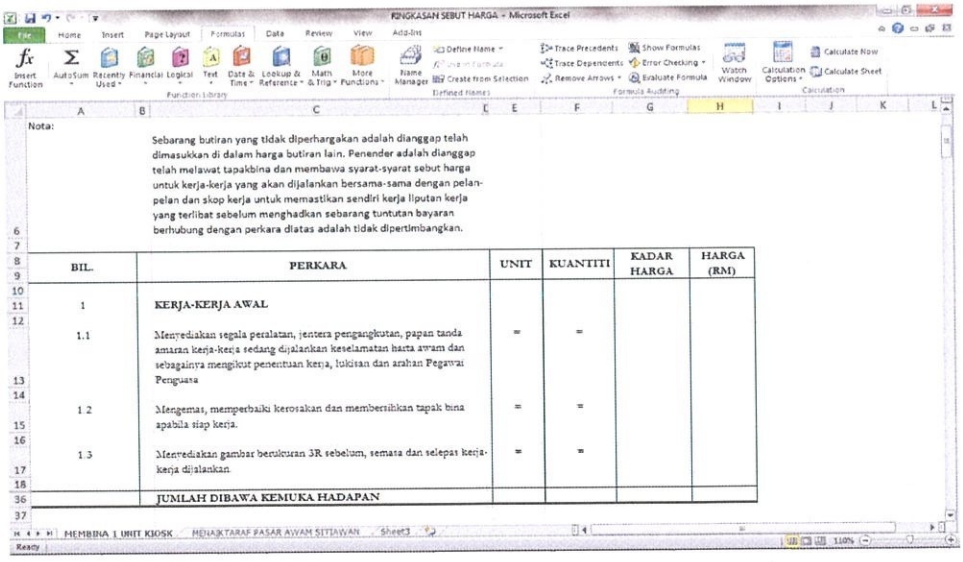
3.3.2 General Methods In Pricing Tender

As we know estimating is a process of calculating the construction costs by build up rates for each item in the tender. For tender pricing for project of Proposed to Build a New Market at Pulau Pangkor, Perak Darul Ridzuan will start with preliminaries just like other projects.

3.3.2.1 Pricing the Preliminaries and General Conditions Items

In pricing the preliminaries for this project, there are several items that need to be included when `pricing the preliminaries. The items are preparing the machineries, tools, warning signboard, protection of works in all section, and drawings and any other items or requirements.

Basically the calculation of tender were calculated using the Microsoft Excel since there are several function that could make the calculation works easier and faster.



RINGKASAN SEBUT HARGA - Microsoft Excel

Nota:

Sebarang butiran yang tidak diperhargakan adalah dianggap telah dimasukkan di dalam harga butiran lain. Penender adalah dianggap telah melawat tapakbina dan membawa syarat-syarat sebut harga untuk kerja-kerja yang akan dijalankan bersama-sama dengan pelan-pelan dan skop kerja untuk memastikan sendiri kerja liputan kerja yang terlibat sebelum menghadkan sebarang tuntutan bayaran berhubung dengan perkara diatas adalah tidak dipertimbangkan.

BIL.	PERKARA	UNIT	KUANTITI	KADAR HARGA	HARGA (RM)
1	KERJA-KERJA AWAL				
1.1	Menyediakan segala peralatan, jentera pengangkutan, papan tanda amaran kerja-kerja sedang dijalankan keselamatan harta awam dan sebagainya mengikut penentuan kerja, lukisan dan arahan Pegawai Penguasa	=	=		
1.2	Mengemas, memperbaiki kerosakan dan membersihkan tapak bina apabila siap kerja.	=	=		
1.3	Menyediakan gambar berukuran 3R sebelum, semasa dan selepas kerja-kerja dijalankan.	=	=		
	JUMLAH DIBAWA KEMUKA HADAPAN				

Photo 3.3 (iii) : Example of preliminaries items listed in Microsoft Excel

The price rate for each item in preliminaries was calculated by using analysis of rate. Analysis of rate is a process to give a correct and reasonable rate per unit for a certain items. This process consists the costs of materials, labour and equipment required for the unit according its specification. the preliminaries items are priced as lump sums since it is difficult to prepared the analysis of rate.

For preliminaries section, the Quantity Surveyor (Q.S) will price the provision of facilities in order to establish a site set-up such as machineries, scaffolding, site huts, fencing, security, site administration, water for the workers, temporary lighting and power supply and insurances. These items are the basic items that need to be prepared on the site before any works can be take off.

The prices of preliminaries will be adjust when the scope of works have changes or the project have been extend with the reasons of beyond the power of the contractor and have been agreed by the architect. For example, the weather surrounding the site and the condition of site that different during the site visits with the construction time.

3.3.2.2 Pricing The Piling Works Items

Piling quantity expressed as temporary quantity because the real quantity can only be known when the piling works has been completed. Before piling work can carry out, the contractor must receive information from the client which is MPM that is the contractor are supposed to carry out work at the site properly and to avoid damage to existing facilities at the site.

As a bill of quantities contains information about the type of pile and the pile is used in the base, this facilitates the calculation for piling works that need to be done. The aspects to be considered in calculating the piling works are bringing in and removing equipment from the construction site and this includes the work of transport install and opens the machine. Then is the aspect of maintenance of machinery while on site.

For the estimating the piling works, there are a lot things need to be take care off. The initial piles and the pile extensions with the load test that need to be carried out and will costs a lot of money. Q.S estimates that there will be more numbers of pile to be used for this project since the condition of the soil are quite weak. Even though the client, MPM have listed the types of the pile and the quantities of pile, extra over need to be carried out in order to avoid any additional costs for this project.

The unit price will be given by the subcontractor or suppliers according to the specifications of the piles, the quantity of the pile and any extra over. For example of the types of pile that will be used in the project of Proposed To Build A New Market At Pulau Pangkor are 'Flat Ended Shoe' for soft soil and 'Cast Iron Shoes' for medium and hard soil. After received the quotation from the suppliers for each items in the piling works, the Q.S will multiple the unit price with the quantity stated in the tenders.

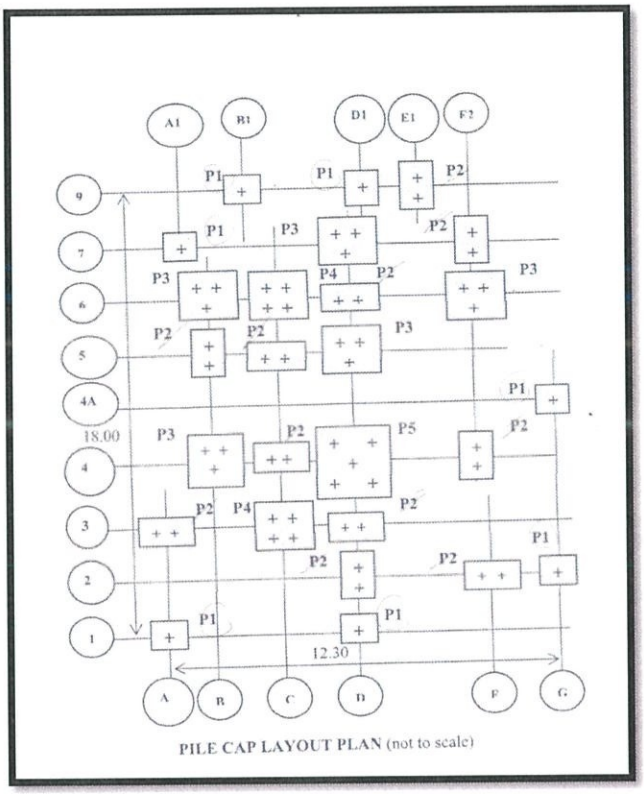


Photo 3.3 (iv): Example of Pile Cap Layout Plan

(Source: Abdullah, A. (2012). Pengukuran Kuantiti Bangunan.)

3.3.2.3 Pricing The Work Items

For building works for project of Proposed To Build A New Market At Pulau Pangkor, Perak Darul Ridzuan, there were manys element that need to be priced such as excavation works, windows, doors, roof and other element that related with building works for this project of MPM. This section in the crucial part in tendering pricing since there are many items that need to be priced for each items. In order to save time, the drawings, specifications and bills are splited to be given to the subcontractors and suppliers to obtain prices from them.

i) Excavation and Earthwork

To calculate the prices of exaction and earthwork, analysis of rate need to be carried out. The elements that need during the process of rate analysis are the quantity of materials and their costs, the cost of labour, equipment, tools or plant and overhead or established charges. The client of the project which is Majlis Perbandaran Manjung (MPM) has already fill out the quantity needed for a particular items, so the Q.S just need to find out the costs of the rest elements.

Since that Lingbena Sdn Bhd has their own machineries, tools and plant, so for this tender they can cut off some prices since they do not have to rent machineries for the works. For excavation works that been calculated by using RM per m^3, a contractor need to price it carefully to avoid any loss if the tender are accepted. Excavation works will affects the cash flow of the contractor since the limited financial source in the begining of the project.

The calculation items included for excavation works for project of Proposed To Build A New Market At Pulau Pangkor are transportation cost, maintenance cost and operation cost. Below this is the example of calculation for excavation works :-

Data:

Capital Cost	RM 150,000.00
Interest	10% of capital cost per year
Transportation cost	5% of capital cost
Maintenance cost	10% of capital cost
Scrap value	RM 8000.00
Operator	RM 50/day
Diesel	RM 1.70/litre
Lubrication oil	RM 20/litre
Consumption of diesel	6 litre/hour
Consumption of lubrication oil	2 litre/day

Excavator working 200 days per year
Economic life cycle of an excavator is 5years

		RM
Capital cost		150,000.00
Interest	10% x 5 years x RM 150,000	75,000.00
Maintenance	10% x RM 150,000	15,000.00
Transportation cost	5% x RM 150,000	7,500.00
Less Scrap Value		**- 8,000.00**
		239,500.00
Cost for 1 year	RM239,500/5 years	47,900.00
Cost per day (200days x 8 hours)	RM 47,900/1600 hours	**29.94**
Operation cost		
Operator		50.00
Diesel	6 litre x 8 hours x RM 1.70/litre	81.60
Lubrication oil	2 litre x RM 20/litre	40.00
Operation cost per day		171.60
Operation cost per hour	RM 171.60/8 hours	**21.45**
Cost of excavation work per hour	RM 29.94 + RM 21.45	**51.39**

Therefore cost per hour of an excavator is RM 51.39

Photo 3.3 (v) : Example of calculation for excavation works

(Source : Ibrahim, A. (2013). Building Quantities and Estimating I: Build Up Unit Rate)

ii) Frame

For the second element of building works, the prices of frame need to be given by the suppliers to the contractor. With the quotation given, the QS just need to times the rate per unit with the quantity stated in the tender document.

The type of frame stated in the tender are reinforced concrete G35 for the use as column and stiffeners. It is being used for lower roof beams and upper roof beams. The reinforced concrete was calculated by m^3.

Second is mild/high tensile steel bar reinforcement that will be used together with the reinforced concrete G35 in the construction of this project. Different with reinforced concrete, mild/high tensile steel bar was calculated through their weight (in kilograms) time with the rate of units prices that have been obtain by the suppliers.

iii) Roof

In order to calculated total price of roof, the suppliers need to send their prices according the specification given through the drawing and bills that have given to them. The quotation consists of the price for each item according the information given in the bill of quantity.

When the suppliers send back their quotation, the QS need review the price whether the price is match and suited with the types of items needed for roof construct. Basically, the suppliers have already total all the prices for each items including the labour cost.

iv) Window

The method of price for windows is likely the same with roof. In the first place, the contractor has given to suppliers according their specialist. The suppliers will send back with the quotation that contains each price in the items.

The suppliers will price up the window according their types. In this project, the window used are mainly powder coated aluminium frame windows, fixed glass louvers including 30% green tinted float glass. Additional items such as fixing accessories, fasteners, security bars, handles and sashes are also being included in the total price for windows.

v) Doors

For project of Proposed To Build A New Market At Pulau Pangkor, there are three types of doors which are 38mm solid nyatoh decorative door with zincalume metal frame, 38mm flush door with fixed glass louvers on top and AB wood or equivalent louvers door.

When the quotation from the suppliers were received, the quantity surveyor will times the rate price from the suppliers with the quantity needed for this project (MPM have stated the quantity needed in the quantity column).

vi) Sanitary Fittings

For project of Proposed To Build A New Market At Pulau Pangkor, the specification mostly use Johnson Suise as the sanitary fittings accessories. The total amount for sanitary fitting is calculated by the total numbers and the quantity of each item.

The bills of quantities, drawing and specification is send to the suppliers in order to get the price rate for each one of Johnson Suise' sanitary fitting items. The reasons for suppliers to send back quotation is in order to get the exact price of the sanitary fittings since the estimator are not familiar with the price of these sanitary fittings. For example, Johnson Suise Verona close coupled washdown pedestal WC, Johnson SuiseTrevi 1 single lever pillar tap and other Johnson Suise sanitary fittings.

3.3.2.4 Pricing The Infrastructure Works Items

i) Demolition

Demolitions works need to carry out since the existence of the old market are in the area of the proposed. Hence, demolition works need to be calculated and the amount of the price will be inserted with the final costs. But since the demolition of the old market is assume as clearing site, so the cost of demolition will be insert in the costs of preliminaries.

ii) Water Reticulation

Water reticulation is basically about the water piping works. According to the drawing and specification given to the suppliers, the prices for every item such as stop cock, bulk meter and all necessary works that have been stated will be inserted.

iii) Sewerage Works

For supply and fix Master Fibre Septic Tank, the related suppliers will give the offered price to the estimator including the price of excavation, concrete base, formwork and other related works.

Precast r.c manhole with concrete surround including all excavation works, concrete base, stainless steel steps, heavy duty cast iron cover and other related works will be price up with the quotation given by the suppliers. The quotation consists of the price per unit with the labour cost offered by the suppliers.

iv) Road and Carpark

For this element, it included the sub-base, crusher run, bituminous premix course, premix binder course according to the drawing and specification. Road and car park is needed since it is one of the facilities need to be prepared to ease the user.

For premix works, it is calculated by meter square and from the quotation of suppliers estimator need to times the unit price per meter square with the quantity stated by the client, MPM. Road line marking and road signage also will be included in the quotation. Generally, the suppliers will price up all the items in the bill of quantities and the estimator need to fill in the price only.

3.3.2.5 Pricing The Landscape Works Items

As for landscape works, there are three elements that need to be price off. First, soft landscape is supply grown plants jobs that need to be take off. The plant that been proposed to used are trees, palms, shrubs and turfing. Second is hard landscape works where process of completing the landscape works and for the last elements is maintenance where the process of repairing and making goods of existing soft landscape inclusive turfing.

i) Soft landscape

The bills of quantities, drawing and specification is given to the landscape suppliers for pricing the landscape works including supply the needed plant. For trees, the proposed tree is '*Bucida molineti*' also known as spiny black olive with the height of 2m.While the proposed palms need to be supply by the suppliers are '*Livistonia rotundifolia*' or also known as footstool palm and '*Areca catechu*' (pinang sireh) with overall height of 2m.

For shrubs, there any many type of shrubs that need to be price up by the suppliers. For instance, creeping daisy, jasmine, hibiscus, rain lily and striata. The estimator is unable to price the plants since have no knowledge and experience in this landscape's sector.

ii) Hard landscape

Hard landscape works is about construct and complete including where necessary, excavation, lay and subgrade, lean concrete and all related works needed to complete properly the whole construction to the satisfaction of the Landscape

Architect for entrance plaza entrance, signage "Pasar", planter box, earth mound, bollard, retaining wall and staircase.

For the works that related to advertising, send the bill of quantities, drawing and specification to advertising company in order to get the price. The price of the signage board is depends on the specification of the signage. The bigger the size of the signboard, the higher the costs need to invest.

iii) Maintenance

The maintenance will be carried out during the planting works and defect liability period which includes watering, fertilizing, pruning, aerifying the soil, site clearing, pest control, thriving the unhealthy, replacing dead plants and other maintenance works. The duration of maintenance for this project is 12 months. This works is calculated as lump sum.

3.3.2.6 Pricing The Mechanical Works Items

In mechanical works, there are several works including plumbing services and mechanical system. In order to give good services to public of Pulau Pangkor, all the mechanical need to be done properly.

i) Plumbing Services

The price of each items in the quotation given by the supplier include the use all tools and equipment, supervision and profit, messing, transportation, test and other incidental costs. Plumbing services for project of Proposed To Build A New Market At Pulau Pangkor, Perak are divided into two sections which are cold water plumbing system and sanitary plumbing system.

In the plumbing services, the works plan to done are mainly to supply, deliver, install, test and commission cold water plumbing system and sanitary plumbing system. An addition, the necessary accessories for complete and full operation as per specifications and drawings stated in the bills of quantities.

ii) Mechanical System

Ventilation system and portable extinguishers are in the mechanical system that provided a good facility the public of Pulau Pangkor. The suppliers are given the bills of quantities, drawing and specification in order to pricing the works.

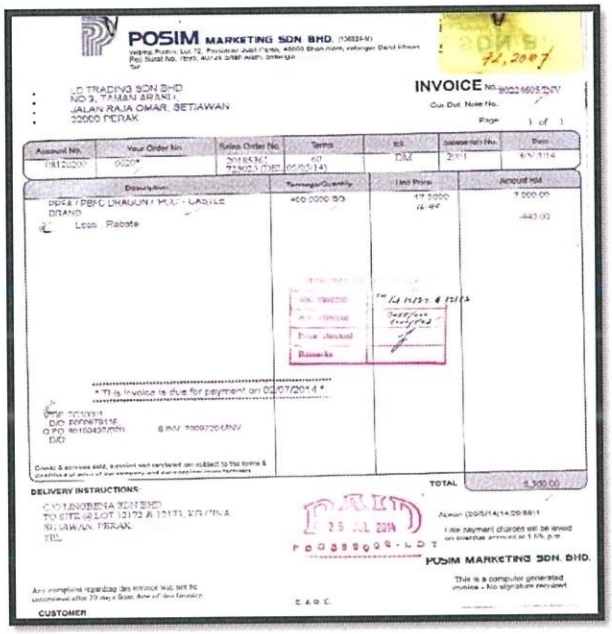
For ventilation system is used in the kitchen area with complete with the fan control and power cables, conduit, starter/switches and other necessary accessories for complete and full operation on the kitchen area. The price submitted by the suppliers to the contractor are includes with the labour cost.

3.3.2.7 Pricing The Concrete Works Items

Concrete works are widely used in construction process and is calculated in m^3. They mainly used in foundation, beams, walls, staircases, slab and column. To calculate the pricing of concrete works, there are several factors that will affect the price of the concrete. They are the types of mix ratio materials, types of concrete mixer machine, the price of materials and labour rate, the location of mixing plant with the location of the structure and the types of formwork.

i) The price of Material

Cement as the main ingredients in concrete and for this project that proposed by MPM, will use ordinary Portland cement and each bag unit is equal to 50 kg per bag. In making concrete mixture, cement alone is not enough. It needs aggregate and sand to become stronger concrete mixture and hence suitable to be used in construction project. The suppliers will send quotation to inform the price he offering for a certain materials.



POSIM MARKETING SDN BHD.

INVOICE

Page 1 of 1

DELIVERY INSTRUCTIONS:

CUSTOMER

POSIM MARKETING SDN. BHD.

Photo 3.3 (vi): Posim Marketing Sdn Bhd invoice that shows cement's price

a) Labor Cost

There are level of labour in construction industry which is skilled labour, semi-skilled labour and unskilled labour. Each of them has their own price rate according to their level of labour.

In concreting works, there are two type of works involved. First, they are measuring and mixing. Where the process need one skilled labour as operator in order to work with concrete mixture. Second is lifting, pouring and compacting into formwork. In this process, only one skilled labour with two unskilled labour. The calculation for labour cost is by using this formula where the amount of hours per m^3 will be multiple with the rate of RM per hour.

b) Wastage

The waste needed to be added together in the price of materials for concrete mix. Concrete mixture are tends to shrinks during mixing process, compaction process and will have an amount of concrete mixture wastage. For wastage, 50% percent from the total price of materials will be added together with the total prices of materials.

Data		
Cement	RM 10.50/bag	
Sand	RM 15.00/m³	
Aggregate	RM 50.00/m³	
Diesel	15 litre/day @ RM 0.90/litre	
Lubrication oil	5 litre/day @ RM 2.00/litre	
Concrete mixer rental cost	RM 190/day	
Concrete mixer capacity	1.5m³/hour	
Lifting, carrying and compacting	1.4 hours/m³	
Skilled labor/Operator	RM 60/day	
Labor	RM 30/day	
Material cost		
Cement	1m³, 28.7 bags x RM 10.50	301.35
Sand	2m³ x RM 15.00	30.00
Aggregate	4m³ x RM 50.00	200.00
Total material cost		531.35
Wastage	50% x RM 531.35	265.68
Total material cost for 7m³		797.03
Material cost for 1m³	RM 797.03/7m³	**113.86**
Mixing cost		
Concrete mixer cost per day		190.00
Operator	1 x RM 60.00	60.00
Labor	2x RM 30	60.00
Consumption of diesel	15 litre x RM 0.90/litre	13.50
Consumption of lubrication oil	5 litre x RM 2.00/litre	10.00
Cost of mixing work per day		333.50
Cost of mixing work per hour	RM 333.50/8 hours	41.69
Concrete mixer capacity	1.5m³/hour	
Cost of mixing work per m³	RM 41.69/1.5	**27.79**
Labor cost		
Skilled labor	1 x 1.4 hours x RM 60/8 hours	10.50
Semi skilled labor	2 x 1.4 hours x RM 30/8 hours	10.50
Cost of lifting, carrying and compacting		**21.00**
Unit rate and profit		
Total cost (material + mixing + labor)	113.86 + 27.79 + 21.00	162.65
Profit and overhead	15% x RM 162.65	24.40
Total cost		**187.50**
Therefor the cost per m³ is RM 187.50		

Photo 3.3 (vii) : Example of calculation for concrete works

CHAPTER 4

CONCLUSION

After five months of practical training at Lingena Sdn.Bhd, I have gained several knowledges and new experience on tender pricing for Project Of Proposed To Build New Market At Pulau Pangkor, Perak Darul Ridzuan. The purpose of this report is briefly describes the methods of pricing tender for the said projects.

Tender pricing work needs a lot of communication between the contractors, estimator and the suppliers in order to make work faster and easier. The tender pricing starting from the preliminaries where all the basic items in set up the construction site such as scaffoldings, fencing, machineries, proper site layout, water supply, temporary building for workers, lighting and power supply, security and signboards. Then continue with pricing the piling works, building works, infrastructure works, landscape works and lastly the mechanical works. All of these works consists of specific items and need to calculate separately. Since the rate of price for items continuously change along with the time, the only way to get the price is by asking the suppliers to price up the items by themselves. The contractor will give to the suppliers three documents in order to offered their prices and they are bills of quantities, drawings and specifications.

RECOMMENDATION

In order to pricing the tender, the estimator needs to communicate and works with the suppliers to get the latest price for a particular item in tender. In tender document there a lot of works need to be calculated and it will take long time to finish pricing the whole tender document. Sometimes, some of the suppliers take a long time to send back their quotation and the effect is that the completion of the tender document will have to be extended. If this occurs, the tender document will be submitted without review and checked and unfortunately fail during the tender evaluation.

In my opinion, it is worth remembering that every activity in the tendering process has a time and cost implication. It makes economic sense, therefore, not to overburden the participants with unnecessary information requirements, and to concentrate on those which are relevant to the work which is to be undertaken. Faced with competing financial pressures, most contractors should carry out their own assessment of the jobs they wish to tender for, and should be less inclined to bid for those where the procedures involved are perceived as overly complicated or onerous. Also, since preparation costs are included in their overheads, these should ultimately be passed on, in the form of higher prices. Preparation of this information will also be reflected in higher consultancy costs for the employer's team.

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APPENDIX

林兄弟玻璃鋁業工程

SYARIKAT GELAS & ALUMINIUM LING

Blok O, No. 10 & 11, Fasa 1C2, Bandar Baru Sri Manjung,
32040 Manjung, Perak
Tel: Fax: 05-6883414

Your Ref

Our Ref

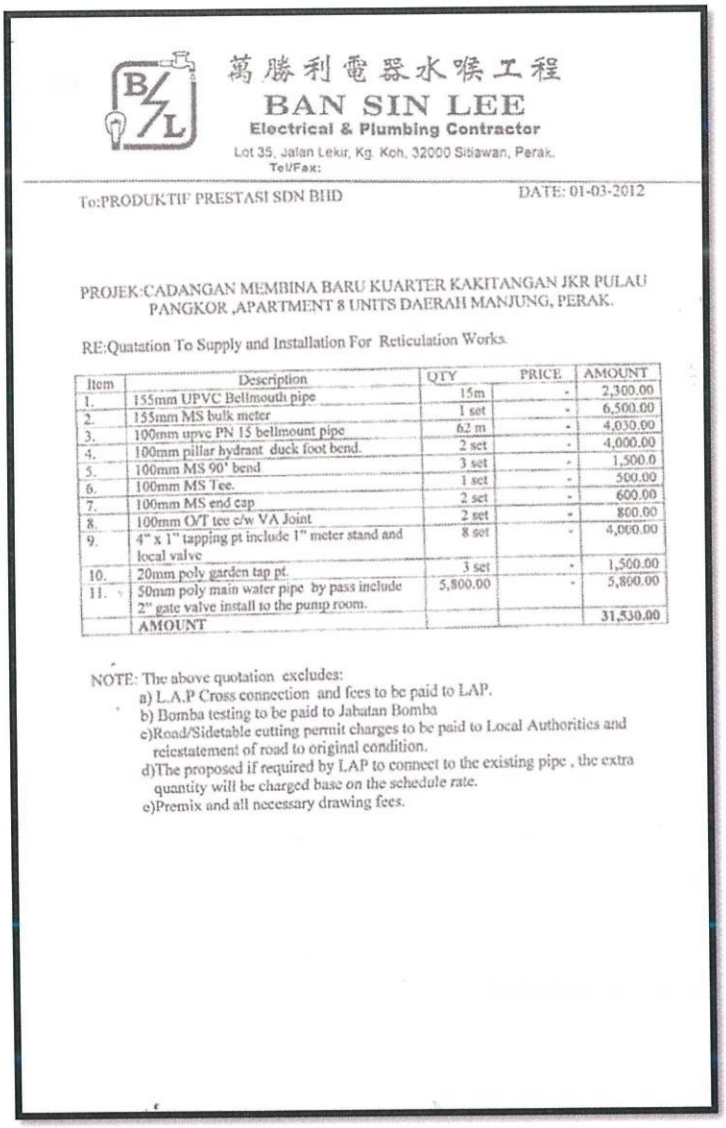
Date: 13.6.2012

To,
Lingbena Sdn. Bhd
Project: Pulau Pangkor Apartment untuk kuarters kakitangan JKR , 8 units

Item	Description		Unit	Rate (RM)	Amount (RM)	Claim 30%
	To supply and install N/A Aluminium casement window with 5mm clear glass					
1	T1 4' x 4'	No.	4	264.00	1,056.00	316.80
	T2 a) 8' x 4'	No.	2	528.00	1,056.00	316.80
	b) 7' x 4'	No	1	462.00	462.00	138.60
2	1st and 2nd floor					
	2' x 1 1/2' top hung	No	2	54.00	108.00	32.40
	2 1/2' x 1 1/2' fixed louvers	No	1	67.50	67.50	20.25
3	P4 8' x 7' Sliding Door	No	1	560.00	560.00	168.00
4	T0 12mm tempered glass 6' x 4'	No	1	600.00	600.00	180.00
5	T10 Naco glass only 20 7/8" x 6"	No	24	2.50	60.00	18.00
	Total for 1 Unit				3,969.50	1,190.85
	Total for 8 Unit				31,756.00	9,526.80
6	Ground floor					
	T4 fixed Naco Louvers 6 1/2' x 1 1/2'	No	1	175.00	175.00	52.50
	T4 fixed Naco Louvers 3' x 1 1/2'	No	2	81.00	162.00	48.60
	T4 fixed Naco Louvers 5' x 1 1/2'	No	1	135.00	135.00	40.50
	T4 fixed Naco Louvers 2 1/2' x 1 1/2'	No	2	67.50	135.00	40.50
	T5 fixed Naco Louvers 7' x 1 1/2'	No.	1	189.00	189.00	56.70
	T5 fixed Naco Louvers 6' x 1 1/2'	No.	2	162.00	324.00	97.20
	Tangki Room 6' x 1 1/2'	No	4	162.00	648.00	194.40
	Grand Total			RM	33,524.00	10,057.20

Specialist in: All Aluminium, Shop Front, Partition, Ceiling, Sliding Door, Casement & Sliding Window, Swing Door, Amplimesta Grill, Curtain Railing, Mosquito Netting & All Glass Work

Appendix A: Quotation from suppliers for window



萬勝利電器水喉工程

BAN SIN LEE

Electrical & Plumbing Contractor

Lot 35, Jalan Lekir, Kg. Koh, 32000 Sitiawan, Perak.

Tel/Fax:

To:PRODUKTIF PRESTASI SDN BHD DATE: 01-03-2012

PROJEK:CADANGAN MEMBINA BARU KUARTER KAKITANGAN JKR PULAU PANGKOR ,APARTMENT 8 UNITS DAERAH MANJUNG, PERAK.

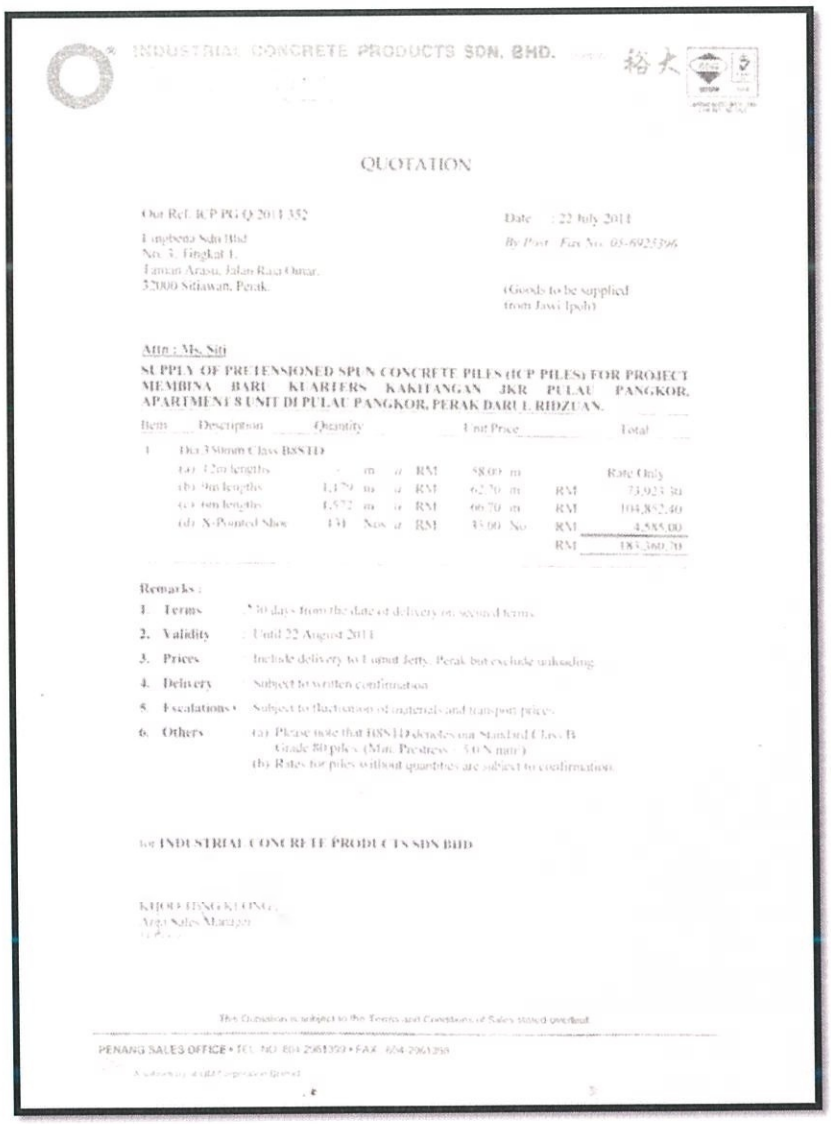
RE:Quatation To Supply and Installation For Reticulation Works.

Item	Description	QTY	PRICE	AMOUNT
1.	155mm UPVC Bellmouth pipe	15m	-	2,300.00
2.	155mm MS bulk meter	1 set	-	6,500.00
3.	100mm upvc PN 15 bellmount pipe	62 m	-	4,030.00
4.	100mm pillar hydrant duck foot bend.	2 set	-	4,000.00
5.	100mm MS 90' bend	3 set	-	1,500.0
6.	100mm MS Tee.	1 set	-	500.00
7.	100mm MS end cap	2 set	-	600.00
8.	100mm O/T tee c/w VA Joint	2 set	-	800.00
9.	4" x 1" tapping pt include 1" meter stand and local valve	8 set	-	4,000.00
10.	20mm poly garden tap pt.	3 set	-	1,500.00
11.	50mm poly main water pipe by pass include 2" gate valve install to the pump room.	5,800.00	-	5,800.00
	AMOUNT			31,530.00

NOTE: The above quotation excludes:

a) L.A.P Cross connection and fees to be paid to LAP.
b) Bomba testing to be paid to Jabatan Bomba
c)Road/Sidetable cutting permit charges to be paid to Local Authorities and reiestatement of road to original condition.
d)The proposed if required by LAP to connect to the existing pipe , the extra quantity will be charged base on the schedule rate.
e)Premix and all necessary drawing fees.

Appendix B: Example of quotation to supply and installation for reticulation



INDUSTRIAL CONCRETE PRODUCTS SDN. BHD.

QUOTATION

Our Ref: ICP/PG/Q/2011/352

Date : 22 July 2011

By Post / Fax No: 05-8925396

Tanjbena Sdn Bhd
No. 3, Tingkat 1,
Taman Arasu, Jalan Raja Omar,
32000 Sitiawan, Perak.

(Goods to be supplied from Jawi Ipoh)

Attn : Ms. Siti

SUPPLY OF PRETENSIONED SPUN CONCRETE PILES (ICP PILES) FOR PROJECT MEMBINA BARU KUARTERS KAKITANGAN JKR PULAU PANGKOR, APARTMENT 8 UNIT DI PULAU PANGKOR, PERAK DARUL RIDZUAN.

Item	Description	Quantity			Unit Price		Total
1	Dia 350mm Class B(STD)						
	(a) 12m lengths	-	m	@ RM	58.00 /m		Rate Only
	(b) 9m lengths	1,179	m	@ RM	62.70 /m	RM	73,923.30
	(c) 6m lengths	1,572	m	@ RM	66.70 /m	RM	104,852.40
	(d) X-Pointed Shoe	131	Nos	@ RM	35.00 /No	RM	4,585.00
						RM	183,360.70

Remarks :

1. **Terms** : 30 days from the date of delivery on secured terms.
2. **Validity** : Until 22 August 2011.
3. **Prices** : Include delivery to Lumut Jetty, Perak but exclude unloading.
4. **Delivery** : Subject to written confirmation.
5. **Escalations** : Subject to fluctuation of materials and transport prices.
6. **Others** : (a) Please note that HSS1D denotes our Standard Class B Grade 80 piles. (Min. Prestress = 5.0 N/mm²)
   (b) Rates for piles without quantities are subject to confirmation.

for **INDUSTRIAL CONCRETE PRODUCTS SDN BHD**

KHOO TENG KUANG
Area Sales Manager

This Quotation is subject to the Terms and Conditions of Sales stated overleaf.

PENANG SALES OFFICE • TEL NO: 604-2661359 • FAX : 604-2661358

Appendix C: Quotation for pile pricing