

ANALYSIS OF  
IMPLEMENTING TI



CONTRACTORS  
UILD CONTRACT IN

NORZIATUL HUSNA BINTI MOHD RIDZUAN

Report submitted in partial fulfilment of the requirements  
for the award of Bachelor of Civil Engineering

Faculty of Civil Engineering and Earth Resources  
UNIVERSITI MALAYSIA PAHANG

JUNE 2012

## ABSTRACT

Traditional contract and Design & Build contract has been part of the construction industry. Nowadays, the process is growing rapidly in this industry. As it has been grown in popularity, Traditional contract and Design & Build has evolved all manner of hybrids. However, Traditional contract and Design & Build also not exclude were faced problem by contractors in the construction industry such as conflicts between contractor and other parties (consultant and owner), inadequate experience of consultant, problems communication and coordination by contractor with other parties. The aims of the study are to analyze the comparisons of the project characteristics between Traditional contract and Design & Build contract and to analyze the common problems and the factors lead to the problems faced using both of the methods. The questionnaires were distributed to the contractor's Bumiputera companies (Class A, B, C and D) registered with Pusat Khidmat Kontraktor (PKK) and Construction Industry Development Board (CIDB). The area of study cover Selangor and Kuala Lumpur for the west coast, Pahang for the east coast, Penang for the northern, and Johor for the southern of Malaysia. The data from the questionnaire was analyzes in average index and frequency analysis. The average index for the five categories of problems was identified. There are problems in general aspect, problems in design aspect, problems in financial aspect, problems in quality aspect and problems in time aspect. From the analysis, Design & Build is the most effective procurement contract for project delivery in Malaysia construction industry. The reason for implementing better contract procurement is to reduce the cost and speeding up the process of construction project.

## ABSTRAK

Kontrak Tradisional dan kontrak Reka Bentuk & Bina telah menjadi sebahagian daripada industri pembinaan. Pada masa kini, proses tersebut berkembang pesat dalam industri ini. Disebabkan perkembangan yang pesat dalam industri tersebut, kesemuanya berkembang dengan pelbagai. Namun, kontrak Tradisional dan kontrak Reka Bentuk & Bina turut memberikan masalah kepada kontraktor dalam industri pembinaan seperti konflik antara kontraktor dan pihak lain (perunding dan pemilik), perunding kurang pengalaman, masalah komunikasi dan koordinasi oleh kontraktor dengan pihak lain. Tujuan utama kajian ini adalah untuk menganalisis perbandingan ciri-ciri antara kontrak Tradisional dan kontrak Reka Bentuk & Bina dan menganalisis masalah yang biasa dan menjadi faktor kepada masalah yang dihadapi apabila menggunakan kedua-dua kontrak tersebut. Borang kaji selidik telah diedarkan kepada syarikat-syarikat kontraktor Bumiputera (Kelas A, B, C, dan D) yang berdaftar dengan Pusat Khidmat Kontraktor (PKK) dan Lembaga Pembangunan Industri Pembinaan (CIDB). Kawasan kaji selidik merangkumi Selangor dan Kuala Lumpur untuk pantai barat, Pahang untuk pantai timur, Pulau Pinang untuk utara, dan Johor untuk selatan Malaysia. Maklumat yang diperolehi hasil daripada kaji selidik dianalisis menggunakan kaedah purata indeks dan analisis frekuensi. Keputusan tinjauan menunjukkan lima kategori masalah yang dikenalpasti. Ianya adalah masalah dalam aspek umum, masalah dalam aspek rekabentuk, masalah dalam aspek kewangan, masalah dalam aspek kualiti dan masalah dalam aspek masa. Berdasarkan analisis, kontrak Reka Bentuk & Bina merupakan kontrak yang paling efektif untuk pemyampaian projek dalam industri pembinaan Malaysia. Tujuan melaksanakan kontrak yang lebih baik adalah untuk mengurangkan kos dan mempercepatkan proses projek pembinaan

## TABLE OF CONTENTS

	<b>Page</b>
<b>SUPERVISOR’S DECLARATION</b>	ii
<b>STUDENT’S DECLARATION</b>	iii
<b>DEDICATION</b>	iv
<b>ACKNOWLEDGEMENTS</b>	v
<b>ABSTRACT</b>	vi
<b>ABSTRAK</b>	vii
<b>TABLE OF CONTENTS</b>	viii
<b>LIST OF TABLES</b>	xii
<b>LIST OF FIGURES</b>	xiii
<b>LIST OF ABBREVIATIONS</b>	xiv
<b>CHAPTER 1 INTRODUCTION</b>	
1.1 Introduction	1
1.2 Problem Statement	2
1.3 Objective	4
1.4 Scope of Study	4
1.5 Significance of Study	4
<b>CHAPTER 2 LITERATURE REVIEW</b>	
2.1 Introduction	6
2.2 Definition	6
2.3 Contract Elements	7
2.3.1 The Essence of a Contract	8
2.3.2 Basic Elements of a Contract	10
2.4 Types of Contracts	11
2.4.1 Contracts Based on Pricing/Payment Criteria	12
2.4.1.1 Fixed Price Type of Contract	12

	2.4.1.2 Cost Reimbursement Types of Contracts	14
	2.4.2 Contracts Based on Method of Procurement	15
2.5	Delivery Methods	18
	2.5.1 Traditional / Conventional Contract	20
	2.5.1.1 Role of Owner, Contractor, and Design Professional Under a Traditional Contract	21
	2.5.1.2 Advantages	22
	2.5.1.3 Disadvantages	23
	2.5.2 Design & Build Contract	24
	2.5.2.1 Role of the Parties Under a Design & Build Contract	27
	2.5.2.2 Advantages	31
	2.5.2.3 Disadvantages	32
2.6	Common Problem Faced by Contractor	33
2.7	Summary	35

### **CHAPTER 3 METHODOLOGY**

3.1	Introduction	36
3.2	Flowchart of Methodology	37
3.3	Method of Data Collection	38
3.4	Primary Data Collection	38
3.5	Secondary Data Collection	39
3.6	Data Analysis	39
	3.6.1 Average Index	40
3.7	Conclusion	40

### **CHAPTER 4 RESULT AND ANALYSIS**

4.1	Introduction	41
4.2	Questionnaire Analysis	41
4.3	Analysis Data for Section A	42
	4.3.1 List of the Company's Name	43

4.3.2	Position of Respondent in the Company	44
4.3.3	Class of Contractor	45
4.3.4	Number of Respondent's Experience in the Construction Industry	46
4.3.5	Number of Year the Company has Experienced in the Construction Industry	47
4.3.6	Number of Construction Project that the Respondents Involved	48
4.3.7	Types of Delivery Method that has been Implement	49
4.3.8	Types of Project Implementing the Delivery Method	50
4.4	Analysis Data for Section B	51
4.4.1	Problems in General Aspect	52
4.4.2	Problems in Quality Aspect	56
4.4.3	Problems in Design Aspect	60
4.4.4	Problems in Financial Aspect	64
4.4.5	Problems in Time Aspect	68
4.5	Analysis for the Common Problems and the Factors Lead to the Problems Faced by Contractors	72
4.6	Conclusion	73

## **CHAPTER 5 CONCLUSION AND RECOMMENDATION**

5.1	Introduction	74
5.2	Conclusion of the Objectives	75
5.2.1	Objective 1: The Comparisons of the Project Characteristics between Traditional Contract and Design & Build Contract	
5.2.2	Objective 2: The Common Problems and the Factors Lead to the Problems Faced Using Both of the Methods	75
5.3	Recommendation	78
5.3.1	Recommendation for Current Study	78
5.3.2	Recommendation for Further Study	79

**REFERENCES**

80

**APPENDIX**

84

## LIST OF TABLES

<b>Table No.</b>		<b>Page</b>
2.1	Definitions of Contract	25
2.2	Problems Faced by Contractor	33
4.1	List of Company's Name	43
4.2	The Level of Agreement for Evaluation and Average Index	51
4.3	Problems in General Aspect for Traditional Contract	53
4.4	Problems in General Aspect for Design & Build Contract	54
4.5	Problems in Quality Aspect for Traditional Contract	57
4.6	Problems in Quality Aspect for Design & Build Contract	58
4.7	Problems in Design Aspect for Traditional Contract	61
4.8	Problems in Design Aspect for Design & Build Contract	62
4.9	Problems in Financial Aspect for Traditional Contract	65
4.10	Problems in Financial Aspect for Design & Build Contract	66
4.11	Problems in Time Aspect for Traditional Contract	69
4.12	Problems in Time Aspect for Design & Build Contract	70
5.1	Categories 1: Problems in General Aspect	76
5.2	Categories 2: Problems in Quality Aspect	76
5.3	Categories 3: Problems in Design Aspect	77
5.4	Categories 4: Problems in Financial Aspect	77
5.5	Categories 5: Problems in Time Aspect	78



## LIST OF FIGURES

Figure No.		Page
2.1	The Contractors Registration by Category	7
2.2	Elements of a Valid/Enforceable Agreement	11
2.3	Values of Projects Awarded by Work Specialization	19
2.4	Traditional Sequential Arrangements	23
3.1	Flowchart of Methodology	37
4.1	The Percentage of Questionnaire Returned	42
4.2	Position of the Respondent in the Company	44
4.3	Class of Contractor	45
4.4	Number of Respondent's Experience in Construction	46
4.5	Number of Year the Company have Experience in the Construction	47
4.6	Number of Construction Project that the Respondents have been Involved	48
4.7	Types of Delivery Method that has been Implement	49
4.8	Types of Project Implementing the Delivery Method	50
4.9	Average Index for Problems in General Aspect	55
4.10	Average Index for Problems in Quality Aspect	59
4.11	Average Index for Problems in Design Aspect	63
4.12	Average Index for Problems in Financial Aspect	67
4.13	Average Index for Problems in Time Aspect	71
4.14	Average Index for the Common Problems and the Factors Lead to the Problems Faced by Contractors	73

## **LIST OF ABBREVIATIONS**

D & B	Design & Build
CIDB	Construction Development Board Malaysia
PKK	Pusat Khidmat Kontraktor
A.I	Average Index

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

The procurement of construction project is vast in scope because it involves the gathering and organizing of myriads of separate individuals, firms and companies to design, manage, and build construction products such as houses, office buildings, shopping complex, roads, bridges and others for specific clients or “customers”. Procurement comes from the word procure which literally means “to obtain by care or effort”; “to bring about” and “to acquire”. System is about “organized method, approach, technique, process or procedure”. In this context, project procurement is very much concerned with the organized methods or process and procedure of obtaining or acquiring a construction product such as a house, shopping complex or road and jetty. It also involves arranging and coordinating people to achieve prescribed goals or objectives (Rosli Abdul Rashid, 2006).

Abdul Rahman and Janidah (2006) described construction is a process whereby designers’ plans and specifications are converted into physical structures and facilities. It involves the organization and coordination of all the resources for the project labour, construction equipment, permanent and temporary materials, supplies and utilities, money, technology and methods, and time to complete the project on schedule, within budget, and according to the standards of quality and performance specified in the contract documents. The contractors and subcontractors play the key roles at this stage. There are also some considerable inputs for inspection and interpretation from the architect or engineer. Supporting roles are played by suppliers of materials and equipment, consultants, shipping organizations

and others. The construction project shall be done perfectly and wisely in order to achieve the final result, quality product, confined completion period and minimum cost. However, problems always exist during the construction process.

In Malaysia, the last decade has seen most of the construction projects have been implemented using the traditional procurement method. But in recent years, as project get more complex which demand greater emphasis on management techniques and engineering skills, the traditional procurement approach was found not suitable to the current needs. Therefore, Design and Build procurement method is an alternative to the traditional method which is rapidly popular in Malaysia, especially in the public sector. Design and Build acclaimed to be beneficial to all parties such as clients, architect, engineers and contractors (Gwen, 1998).

Furthermore, a common trend in Malaysia construction industries, particularly large mega projects is adopting the Design and Build procurement method such as Twin Petronas Tower, Kuala Lumpur International Airport, Malaysia North South Highway, Penang Bridge and others. Design and Build contract is widely used recent years as a project delivery method. The basic concept of Design and Build approach for the organization requiring the project to be contracted with a single organization that would be responsible for design, procurement, engineering and commissioning. Literally, all the client would have to do would be 'to turn a key in the door' and the project would be in operation readiness (NG Weng Seng and Aminah, 2006).

## **1.2 Problem Statement**

Today, there are several types or variations of project procurement systems being widely used in the construction industry. The range is from the traditional system to the many variations of "fast-tracking" systems such as turnkey, design and build, build-operate-transfer, management contracting, cost-plus contracting and others. The introduction of many variations of project procurement system was induced by the quest for more efficient and speedier project delivery system and better project performance. They are innovations to the traditional delivery method

aimed at meeting the changing demand of clients or customers. The different procurement systems present have brought changes not only to the process and procedure of project delivery but also the aspects of management and organization (Rosli and Wan Basiron, 2006).

Besides that, according to K.C. Iyer & K.N. Jha (2005) said that the factor adversely affecting the cost performances of project are conflict among project participants, ignorance and lack of knowledge, presence of poor project specific attributes and non existence of cooperation, hostile socio economic and climatic condition, reluctance in timely decision, aggressive competition at tender stage and short bid preparation time.

This is supported by Nuhu Braimah & Issaka Ndekugri (2008) said that the delays and disruption to contractor's progress are a major source of claims and disputes in the construction industry. The matters often in dispute concern the dichotomy in responsibility for delays (projects owner or his contractors) partly because of the multifarious nature of the potential sources of delays and disruption. With increased project complexity and requirements coupled with multiple parties all subject to their performance exigencies, the resolution of such claims and disputes has become a matter of the greatest difficulty.

Moreover, NG Weng Seng and Aminah Md Yusof (2006) described quality of the project is not simply compromised by using the Design and Build form of procurement. Its reputation has suffered from criticism by some construction professional of projects, which involve system building and standardization. Quality control and quality assurance are the essential elements of project review that what is being paid for is up to the standard specified. In Design and Build have allows better control of quality particularly in designer lead Design and Build team. However, in considering quality, the client has no direct control over the contractor's performance. Therefore, the standard of quality must be properly selected at the tender stage to ensure that the contractor's proposal do meet his requirements.

### **1.3 Objective**

The aim of this study is to identify the problems faced by contractor using the Traditional contract and Design & Build contract in Malaysia construction industry. There are two (2) objectives to be achieved in this study, which are:-

- i. To analyze the comparisons of the project characteristics between Traditional contract and Design & Build contract.
- ii. To analyze the common problems and the factors lead to the problems faced using both of the methods.

### **1.4 Scope of Study**

For the scope of study, the limitation has been done in order to focus and narrow down the topic to the specific area and subject of study. This study will be conducted throughout Malaysia. The area of study will cover Selangor and Kuala Lumpur for the west coast, Pahang for the east coast, Penang for the northern, and Johor for the southern of Malaysia. The selected areas are based on the most developed states in Malaysia and have more numbers of construction projects.

The respondents consist of contractor and engineer since they are the parties that involved and understand very well about the procurement contract. This study will focus on contractor's point of view about Design & Build and Traditional procurement contract. This study is focusing on the contractor's Bumiputera companies which the respondents are registered as class A, B, C, and D with Pusat Khidmat Kontraktor (PKK) and Construction Industry Development Board (CIDB).

### **1.5 Significance of Study**

The crucial purpose of this final year project is to analyze the comparisons in terms of the characteristics between Designs & Build contract and Traditional contract. Besides that, to identify the common problems and the factors lead to the problems faced by the contractor and to justify the most effective procurement

contract of project delivery in construction industry. As the research is focusing on bumiputera contractor, since nowadays there are many problems faced by the bumiputera contractor. Contractor selection is one of the main activities of clients. Without an appropriate and ideal method for selecting the most suitable contractor, the performance of the project will be affected. So the most important element in construction is contractor. The information gathered can be used for government sector to overcome the problem that faced by the contractor either using the Traditional contract or Design & Build contract.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

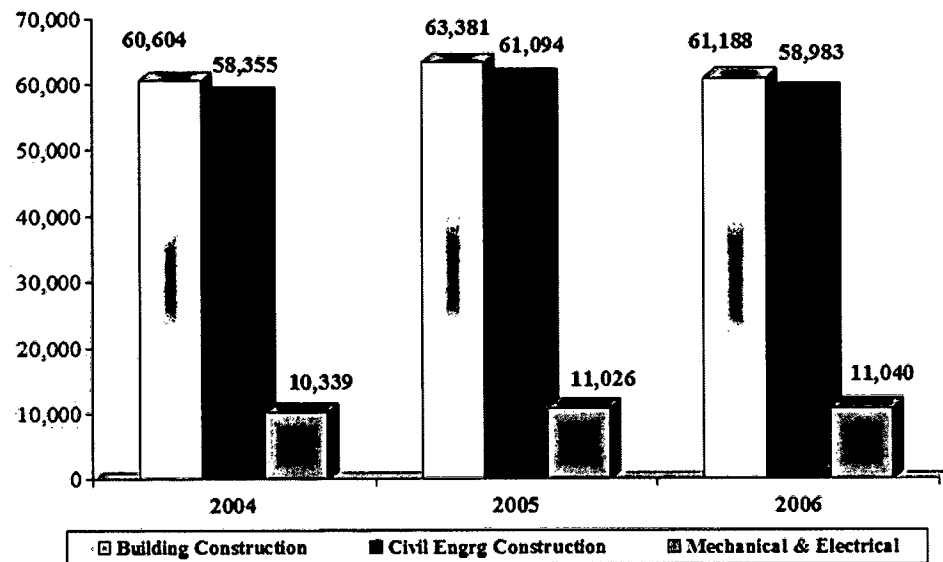
In the previous chapter, the overview of this study was explained and the problem was identified. According to the overview, the aims of the study are to identify the problems faced by contractor using the Traditional contract and Design & Build contract in Malaysia construction industry, to analyze the comparisons of the project implementation between Design & Build contract and Traditional contract and the factors among contractors by using both of the methods. Through the chapter, the elaborations of the topic are clearly described. The clarification of the sub-topic will focus on the contract, types of contract, delivery method especially in Traditional contract and Design & Build contract, contractor and the common problems faced by contractor.

#### **2.2 Definition**

The term of 'contract' has defined by Sir William Anson, the learned English authority on the Law of Contract as a legally binding agreement between two (2) or more parties, by which rights are acquired by one or more to acts or forbearances on the part of the other or others. In addition, an engineering contract dictionary defines a contract as a binding agreement between two (2) or more persons which creates mutual rights and duties and which is enforceable at law (Ir Harbans Singh KS 1, 2007).



Then, the term of 'contractor' has defined by New Oxford Dictionary, 5<sup>th</sup> edition, 2005 as a person or company that has a contract to do work or provides goods or services for another company. The number of contractors who are registered with the CIDB in Malaysia is shown in Figure 2.1below.



**Figure 2.1:** The Contractors Registration by Category

(Source: CIDB Construction Quarterly Statistical Bulletin, Third Quarter 2006)

Thus, the common problems and the factors lead to the problems faced by the contractor can be identified by conducting this study. The most effective procurement contract for project delivery in construction industry can be justified. An appropriate and ideal method for selecting the most suitable delivering method is important to increase the performance of the construction project.

### 2.3 Contract Elements

The legally essential elements of a construction contract include an offer, an acceptance, and a consideration (payment for services to be provided). The offer is normally a bid or proposal submitted by a contractor to build a certain facility according to the plans, specification, and conditions set forth by the owner.

Acceptance takes the form of a notice of award, as stated earlier. Consideration usually takes the form of cash payment, but it may legally be anything of value (S. W. Nunnally, 2007).

There are certain elements that must be presented for a legally binding contract to be in place. According to Frederick E. Gould & Nancy E. Joyce, 2003 said that the first two (2) are the most obvious:

- An offer: an expression of willingness to contract on a specific set of terms, made by the offer or with the intention that, if the offer is accepted, he or she will be bound by a contract.
- Acceptance: an expression of absolute and unconditional agreement to all the terms set out in the offer. It can be oral or in writing. The acceptance must exactly mirror the original offer made.
- A counter-offer is not the same as an acceptance. A counter-offer extinguishes the original offer: can't make a counter-offer and then decide to accept the original offer.
- A request for information is not a counter-offer. If ask the offer or for information or clarification about the offer, that doesn't extinguish the offer; still free to accept it if want.

### **2.3.1 The Essence of a Contract**

According to Frederick E. Gould & Nancy E. Joyce, 2003 stated that the essence of a contract has been judicially expounded to the following effect which is to constitute a valid contract, there must be separated and definite thereto; to parties must be in agreement, that there is consensus; those parties must intend to create legal relations in the sense that the promises of each side are to be enforceable simply because they are contractual promises and the promises of each party must be supported by consideration.

Other than that, contract documentation plays several distinct but important functions in the construction process and these can be summarized as follows:

- i. It delineates the work in terms of drawings (which show position and extent), specifications and bills of quantities (which describe quantity and quality).
- ii. It shows the client the extent of the construction project and gives an indication of the financial and legal obligations before contract.
- iii. It reflects the intention of the parties and places rights and obligations on them.
- iv. It creates a situation which enables contractors to bid for the jobs, on the same information and terms without any ambiguity.
- v. It is a record of the scope of the work in terms of price, quality, time, risks and determination of disputes.
- vi. It provides a fair, equitable legal framework which ensures that work is carried out in a proper manner and that contractors receive payment for work satisfactorily completed.
- vii. It can be submitted as evidence to establish a point in dispute (failure to comply with rights and duties set out in the contract documents).
- viii. It can be produced in order to prove the existence of a collateral agreement or warranty between parties or among project participants.
- ix. A carefully drafted documentation promotes smooth running and successful completion of a construction project

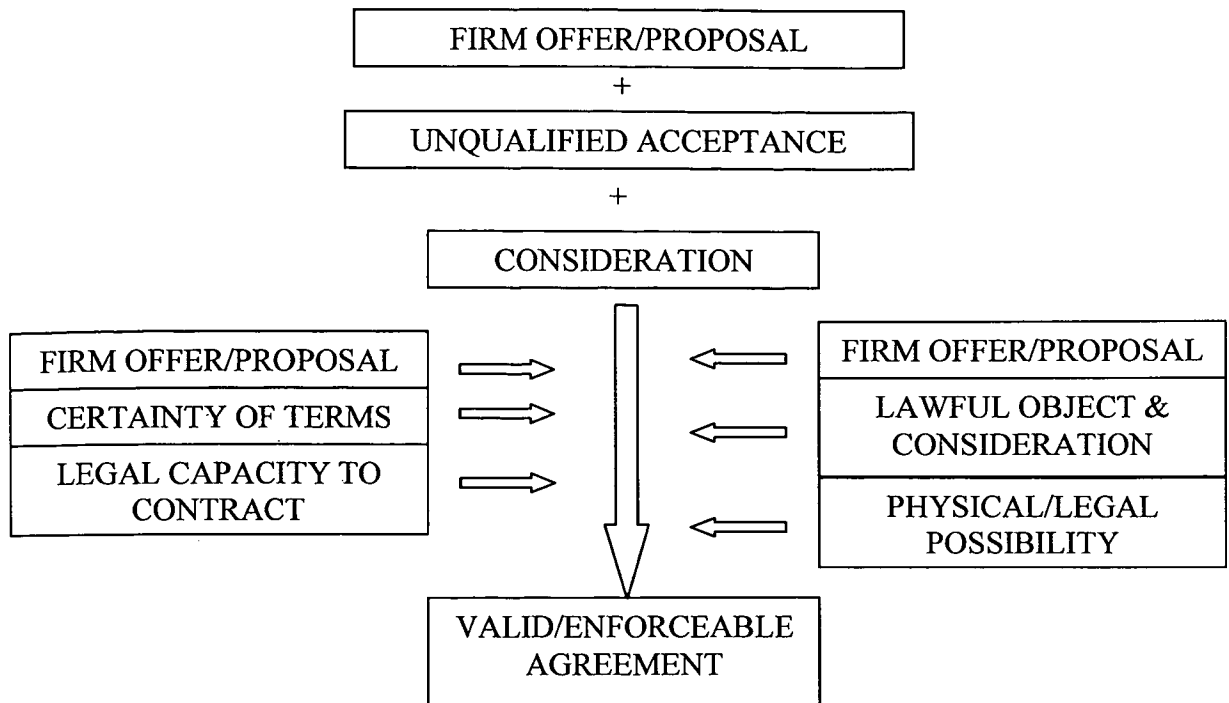
All contracts are built upon the basic premise of the meeting of minds, the idea of assent and agreement as to the same thing. Agreement is to be established based on objective considerations such as conduct and not inferred from the mere mental element of intent. The other ingredients, consideration, and legality are then added on to reinforce and supplement the basic premise to ensure that the essence of a valid contract is tenable at law.

### **2.3.2 Basic Elements of a Contract**

According to Frederick E. Gould & Nancy E. Joyce, 2003 stated that the basic elements which are necessary for the creation of a legally binding and enforceable contract are essentially as represented in figure 2.1 and listed here under:

- i. A clear or firm offer or proposal.
- ii. An unqualified acceptance of the offer/proposal.
- iii. Intention to create legal relations: both parties must show an intention to enter into a legally binding agreement.
- iv. Consideration: each party must contribute something in reciprocation of the other's promise.
- v. Certainty: the terms of an agreement must be certain or capable of being made certain.
- vi. Capacity: the parties must have a legal capacity to contract.
- vii. Consent: the parties must contract with free consent, i.e. consent must not be obtained by coercion, fraud, duress, misrepresentation, undue influence, and others.
- viii. Legality: the contract must be formed within the boundaries of the law, e.g. its object or consideration must not be unlawful.

- ix. Possibility: the contract must be capable of performance both physically and legally.



**Figure 2.2:** Elements of a Valid/Enforceable Agreement

(Frederick E. Gould & Nancy E. Joyce, 2003)

## 2.4 Types of Contract

There are three types of contract which are usually implemented for construction industry:

- a) Contracts based on the pricing or payment criteria
- b) Contracts based on the method of contract procurement
- c) Miscellaneous types of contracts

The nature of contract documentation is diverse, serving different purposes within the construction process.

#### **2.4.1 Contracts based on the pricing or payment criteria**

One of the principal methods of classifying contracts is based on the method by which the contract price is established and subsequently payment is made to the contractor. Here, although there exists traditional terminology to describe the methodology adopted in specific applications, recent practices in the industry have led to the blurring of precise definitions thereby creating considerable confusion on part of the practitioners (Frederick E. Gould & Nancy E. Joyce, 2003).

Furthermore, according to Frederick E. Gould & Nancy E. Joyce, 2003 stated that it is the intent of this chapter to look at the traditional approach whilst at the time, to address possible areas of confusion. The starting point is the further sub-classification of contracts under this category into the following types:

- a) Fixed price type of contracts
- b) Cost reimbursement types of contracts
- c) Miscellaneous type of contracts

##### **2.4.1.1 Fixed price type of contracts**

A fixed price contract is a contract in which the contractor quotes a price for the whole of the work. In essence, the contractor takes the risk of judging how much work is involved and its cost. In practice, if the contractor is entitled to a variation in the contract sum. Then fixed price items may be defined as items paid for on the basis of a predetermined estimate of the cost of the work, an allowance for the risk involved and the market situation in relation to the contractor's workload, the estimated price being paid by the client irrespective of the cost incurred by the contractor (Frederick E. Gould & Nancy E. Joyce, 2003).

According to Frederick E. Gould & Nancy E. Joyce, 2003 said that the common species of fixed prices contracts encountered in the engineering/construction industry include the following:

(a) Lump sum contracts

Lump sum contract where a party undertakes to complete the whole of the work for a stated and fixed amount of money payable by the other. This is so even though it may contain express stipulations permitting adjustment of the contract sum for eventualities such as variations, payment for extended preliminaries, etc. what is important is that at the time of contracting, both parties must have agreed upon a lump sum price to be payable for a defined scope/quantity of work to be undertaken. It should be noted that most of the common Standard Forms of Contract used in the country such as the JKR Forms, IEM Forms, etc are essentially entire contracts for a lump sum with modifications to ameliorate to rig ours of strict entirety. The two principal types of lump sum are with bills of quantities and with drawings and specification.

(b) Measure and value contracts

This type of contract is utilized principally where the exact scope and quality of the work cannot reasonably be determined accurately at the time of tendering. To enable the tenderers to establish a price, a basic is provided by the employer in the invitation to tender documents. Either during the currency of the contract or upon completion of the works, the works are measured, valued or payment effected to the contractor. Such contracts are common, rather than an exception in civil engineering and infrastructure projects especially those involving earthworks, work below ground level, etc. Measure and value contracts come in the two basic forms based on either a bill of approximate quantities or a schedule of prices.

(c) 'Turnkey' contracts

Going under various labels such as 'package' deal type of contracts, 'design and build/design and construct' contracts, EPCC type of contracts, etc the defining characteristic is the combining of all the fundamental tasks of the project, i.e. design, production (construction or building) and management in a single package. The contractor takes full responsibility and carries sole liability for design and construction. In such typical contract, the employer approaches a contractor with a set requirements may be mere brief statements or detailed specification, drawings, schedules, etc depending on the nature and complexity of the project or the extent to which the employer has the expression of his wants.

The contractor responds to the employer with an offer called the 'contractor's proposals' which will include production as well as design work, contract price and the manner in which the contract price has been calculated, e.g. the contract price analysis, etc. bills of quantities are strictly not applicable in a 'Turnkey' contract and if something akin to these are used, they are merely for the purposes of the contract sum analysis or for making payment to the contractor.

Though 'turnkey' contracts can be on fixed price or cost reimbursement basis, the accepted practice in this country favours the fixed price approach. The norm is for the contractor to contract on the basis of a predetermined estimate of the cost of the complete work. This is in line with the selling point of such an arrangement, whereby the contractor bears all risks, inclusive of costs and pricing risks subject to adjustments occasioned by variations ordered by the employer, extended preliminaries, etc. another feature sometimes encountered in such contracts is a guaranteed maximum sum, a sum offering assurance to the employer on his maximum price exposure.

#### **2.4.1.2 Cost reimbursement type of contracts**

Cost reimbursement is a term used to describe one of the two (2) principal methods of making payment under contract. Cost reimbursement contracts are not popular in this country as it burdens the employer with all the risk and with no advance notion of the eventual financial commitment. It general imposes no