

AN EVALUATION OF THE AVAILABLE METHODS OF SELECTING A  
CONTRACTOR, IN ORDER TO SATISFY THE CLIENT'S OBJECTIVES,  
WITH A VIEW TO OFFERING A SYSTEMATIC APPROACH TO WHICH  
METHOD SHOULD BE ADOPTED

COLIN STEVENSON

Submitted in Partial Fulfilment of the Requirements for  
the degree

BACHELOR OF SCIENCE (BUILDING MANAGEMENT)

in the

FACULTY OF FINE ART AND ARCHITECTURE  
UNIVERSITY OF CAPE TOWN

October 1986

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

TO

GILL, FOR HER ENCOURAGEMENT.

## ACKNOWLEDGEMENTS

I acknowledge with gratitude the assistance and encouragement received from Mr PE Butt, Acting Head, Department of Building Management, Faculty of Fine Art and Architecture at the University of Cape Town, under whose direction this study was undertaken.

I would also like to take this opportunity of expressing my grateful thanks and appreciation to all those people who so generously gave of their time to assist me with my research.

- |                     |   |
|---------------------|---|
| MR M JUDGE          | M Judge Contractors   |
| MR R LANE           | President of the Association of South African Quantity Surveyors, 1986.                             |
| MR G TURNER         | Contracts Director Murray and Roberts Building, Cape.   |
| PROFESSOR M VORSTER | Head of the Department of Civil Engineering, Faculty of Engineering at the University of Cape Town. |

## TABLE OF CONTENTS

	PAGE
1. INTRODUCTION	1
2. THE CLIENT'S OBJECTIVES	4
2.1 To get the building he wants, of the right quality and form for his needs	4
2.2 To be able to take possession of the building at the time he needs it	5
2.3 To pay the optimum economic price for the building	7
2.3.1 The price paid for construction	7
2.3.1.1 The cost to the contractor	8
2.3.1.2 The mark up the contractor adds to his price	15
2.3.2 Additional costs to the client	18
2.4 To define and minimise the risk involved	19
2.5 To be satisfied that he has achieved his his objectives	19
3. PRINCIPAL TYPES OF CONTRACTS AND METHODS OF SELECTING A CONTRACTOR	20
3.1 Selection of a contractor	21
3.1.1 Methods of selection	21
3.1.2 The characteristics of methods of selection	23
3.1.3 Constraints	29
3.2 Principal types of contracts	30
3.2.1 The characteristics of different <i>types</i> of contracts	31
3.2.2 Composite nature of many contracts	33
3.2.3 The types of building contracts	34

	PAGE
4. EVALUATION OF METHODS OF SELECTION	40
4.1 The optimum economic price	40
4.1.1 Direct price differences	40
4.1.2 Cost differences	52
4.1.3 Long term effects on prices	68
4.2 Quality	70
4.3 Time	73
4.4 Risk	73
4.5 Accountability	79
4.6 Relationship between the parties	80
5. CHOOSING THE METHOD FOR SELECTING A CONTRACTOR	84
5.1 The systems approach	85
5.2 Recommended process for choosing the method for selecting a contractor	88
5.3 Selection factors	100
5.3.1 Assessment of potential resources	100
5.3.2 Assessment of probable use of resources	102
5.3.3 Specific proposals	102
6. CONCLUSIONS	103
List of References	107
Bibliography	114
APPENDICES	
Appendix A : Initial capital costs involved in a building project.	
Appendix B : BIFSA by-laws - Tendering procedures.	
Appendix C : Advantages and disadvantages of the various building contracts	

LIST OF ILLUSTRATIONS

	PAGE
<u>FIGURES</u>	
2.1 Abstract graph showing the relationship of time and cost.	12
4.1 Time savings achieved by negotiation as opposed to tendering.	60
4.2 Chronology of cost estimate accuracy over the project time cycle.	75
5.1 The system approach.	87
<u>TABLES</u>	
4.2 Cost comparison between normal and negotiated contracts	60

## 1. INTRODUCTION

The prospective building owner after having decided to invest in a new building needs to select a contractor to perform the work. When selecting the contractor he, as the client, will have certain objectives which he intends fulfilling. The purpose of this report is to evaluate the methods available for selecting a contractor, according to the client's objectives, and to recommend a procedure for selecting the best method for different circumstances.

A century ago, there were in use bills of quantities similar to the bills in use today. This type of document for use in tendering was designed to meet the needs of the building industry at that time. There were fewer alternative materials available to a designer with most buildings having brick or stone load-bearing walls, timber roofs covered with slates or tiles, and timber floors, windows and doors and services were negligible. In all trades the production unit was roughly the same - a craftsman and labourer using hand tools on the site. A designer's choice, from the few alternative materials, would therefore usually make little difference to the order of construction or the contractor's organisation of his resources.

Today an almost unlimited number of alternative materials and construction techniques exist. Many of the new materials are factory made by a proprietary process of specialised technology and design. A production unit today is increasingly becoming an integrated team of specialists some of whom may be using advanced equipment. The size and nature of these units varies considerably with the nature of the work to be done. A design decision to use a particular range of materials will now dictate a

particular kind of these production units. An alternative design decision, which may produce a building of very similar appearance and performance, may need an entirely different unit.

A century ago, it was reasonable to seek a competitive lump sum tender for one contractor to do the whole of the work. This reflected the real situation of the time that the job could be fully designed before tendering and the contractor employed his own craftsmen for the work.

Today, a priced bill of quantities will usually contain substantial sections in which the work described is to be executed, and sometimes designed, by specialist sub-contractors and other sections in which work is expressed in only provisional quantities or provided for by a provisional sum. Furthermore, the "preliminaries" of the bill, containing no measurement of finished work can often represent a significant proportion of the total value of the contract.

In spite of these changes the procedure of concluding a contract is nominally the same as it was a century ago, that being, to obtain a lump sum tender for one contractor to do the whole of the work as already designed. The inadequacies of this procedure have been the subject of numerous reports from as far back as the "Simon Report" in 1944. In 1964, the Banwell Committee said: "It is clear to us that existing contractual and professional conventions designed in, and for, other days do not allow the flexibility which is essential to an industry in the process of modernisation and will have to be reviewed."<sup>1</sup> All the committees and working parties which considered the matter recommended that the contractor should be introduced into the "building team" at an early stage and possibly before the works had been

designed.

Although the client's objectives of balancing cost, time and performance have not changed, the complexity of the design and construction of modern buildings today requires a thorough understanding of the factors affecting these objectives if they are to be accomplished.

This study therefore begins by analysing the client's objectives to establish the factors affecting each objective and to determine the inter-relationship and possible conflict between these factors. The principal types of contracts and methods of selecting a contractor are then identified.

The methods of selecting a contractor are then evaluated according to these factors and their effects on the client's objectives are established. This evaluation is then used as the basis for recommending a procedure to choose which method should be used to select a contractor, in order to accomplish the client's objectives, under differing circumstances.

## 2. THE CLIENT'S OBJECTIVE

On initiating a building project, for whatever reason, the developer will want to be assured of achieving certain objectives. The client's objectives have been described as:<sup>2</sup>

- a) to get the building he wants, of the right quality and form for his needs;
- b) to be able to take possession of the building at the time he needs it;
- c) and to pay the optimum economic price for the building.

In addition to these primary objectives the developer will need to define and minimise the risks involved in achieving these objectives and be satisfied that they have in fact been achieved.

This is true enough, as far as it goes, but it is an over simplification as it does not show the inherent interaction of cost, time and quality. The understanding of these fundamental principles is essential to the successful choice of a contractor and contractual arrangement and ultimately the success of the project in its entirety.

### 2.1 TO GET THE BUILDING HE WANTS, OF THE RIGHT QUALITY AND FORM FOR HIS NEEDS

The client having made the decision to invest in a new building requires that building to perform the function for which it was intended. The building must therefore be of the quality and form upon which the feasibility of the project was founded.

The quality of the building is initially determined by the design and finally by the manner in which the design is translated into the completed building. It is the latter which is of interest in this report, with regard to the selection of the contractor and contractual arrangement. The determining factors of the quality of the final product are the competency of the selected contractor, the resources at his disposal and the manner in which he applies these resources to the particular contract. These in turn are determined by the successful selection of the contractor and the incentive he has to apply his resources to achieve the client's objectives.

The client together with the Architect's professional assistance dictates the form and functionality of the building. This is done at the design stage of the project, however, due to the complexity of buildings today, the multitude of alternative materials and systems available, and the time taken to complete the project, the initial design, often and inevitably will require updating during the course of construction if the form is to satisfy the client's needs. The chosen contractual arrangement must therefore incorporate a degree of flexibility to allow for such changes.

## 2.2 TO BE ABLE TO TAKE POSSESSION OF THE BUILDING AT THE TIME HE NEEDS IT

The client's decision to build was to fulfil a particular need which will require the building to be completed by a certain time. The needs of different clients in initiating building projects are diverse, however, at the risk of generalising, it can be said that the time allowed is determined by economic considerations with regard to the cost involved and the

loss of interest/revenue during the contract period. The effects of time on the cost to the contractor are dealt with under the section on the optimum economic price for the building<sup>3</sup> with those aspects of time which will directly effect the client being considered here.

Notes prepared by Farrow, Laing and Partners<sup>4</sup> outline the advantages likely to be realised by a reduction in the contract period as being:

- i) "Although inflation will generally operate equally on both sides of the equation, with anticipated revenue rising in line with building costs, an advantage may devolve should the client be able to build whilst margins in the construction industry are running below average. When the building cost indices are currently exceeding building tender indices employers engaged in building can be said to be "subsidised" by the industry by the part absorption of cost inflation through increased productivity or reduced margins."
  
- ii) "That it may enable the client to seize a particular market advantage - a seasonal rise in trading activity, for instance."
  
- iii) "That there will be a reduction in finance charges (or opportunity cost)<sup>5</sup> on monies paid out before the start on site - site acquisition costs, professional fees, etc."
  
- iv) "That it may relieve an out-dated, congested or unproductive facility which is leading to a less than optimum return on the existing use of capital."

- v) "That it may secure a cost benefit by fulfilling an immediate social need."

### 2.3 THE OPTIMUM ECONOMIC PRICE FOR THE BUILDING

The optimum economic price for a building concerns the price paid for the building in relation to fulfilling the other requirements of the client as discussed above. The cost of the building project to the client consists of the initial cost of the project and the cost in use. It is the former, the initial cost that is of importance in this report.

The initial cost of the project comprises the price the client pays for construction and any other additional costs which include professional fees, the cost of capital and the opportunity cost of the proposed project.<sup>6</sup>

#### 2.3.1 The Price Paid for Construction

The price the client pays for the construction of the building comprises the price he pays the main contractor and the price he pays the nominated sub-contractors. These two components of the price will be considered together as they are both influenced by the same factors.

The prices comprise two principal components:

- a) the cost to the contractors;
- b) the mark up the contractor adds to allow for profit and risk contingencies.

### 2.3.1.1 The cost to the contractor

These costs can be classified into direct costs and indirect costs. Direct costs are those costs that can be directly allocated to the work in question and will usually vary proportionally to the quantity of work. Materials built into the finished work and the labours employed in processing these materials are examples of such direct costs.

Indirect costs are those incurred in the running of the contractors business and have to be apportioned to specific work. They include such items as office overheads, management and the business investments. Though these are affected by the quantity of work undertaken they do not vary in direct proportion.

There are many factors which influence these costs some of which can be controlled by the parties to the contract and others which are beyond their control. Those factors relevant to this report are discussed below:

#### a) The cost of the factors of production

The cost of the factors of production namely capital, materials, plant, labour and management, are determined by the prevailing market conditions. The economic background to a project normally lies largely outside the control of the parties to a particular contract and will depend on such factors as volume of building work in current demand, the supply of building services and the general political climate. These influences will affect the availability and cost of obtaining the factors of production as well as the productivity of the

construction enterprise.

In the absence of control over the current market conditions the client is left with the alternative of timing his project to coincide with favourable market conditions when the supply of the various resources exceeds their demand. Although the current market conditions are likely to be known by the client, through the information systems embedded in our economic system, future conditions are usually beyond the prediction of the average client. There are, however, consultants available who, through the use of the various building statistics and knowledge with regard to their trends, are in a better position to predict such conditions.

In order to minimise the costs of the factors of production the client must therefore time his project to coincide with favourable market conditions, with the aid of building economists if necessary. The optimum timing with regard to the market conditions may, however, conflict with the time the building is required by the client.<sup>7</sup>

b) The effects of design

The resources and the quantities required to complete the building are dictated by its design. The design will influence two aspects of cost, namely the economy of means and the economy of production.

The economy of means concerns the amount of materials required to fulfill the structural and protective function of the building envelope. The

aim here is to minimise the structure and the material required so that the ratio of the ultimate stress to the working stress tends towards unity. This is achieved through the direct and opposite resolution of forces together with minimising structural detour, minimising the surface area and making use of cantileverage, hollowness and tensegrity.

The economy of production concerns the methods required to translate the design of the building into the final product. This is concerned with the availability of construction skills, the availability of capital, the economy of scales and the dictated erection procedures. The economy of production is commonly referred to as the "BUILDABILITY" of the proposed design, this will tend to conflict with the economy of means.

In an era of hand crafts the primary means of production, manual labour, was common to all trades. No matter how the Architect designed his work these same means were used and the total cost would depend mainly on the quantity of work. Many different types of mechanical aid, plant and different systems are now available and the cost of constructing a particular piece of work is considerably affected by the method selected. Types of plant and systems may be uneconomical if used only for certain work but may become economic if used more widely. Due to the increasing complexity of buildings and the multitude of alternative systems/methods available the effects of the economies of production or buildability on the final cost of the building have increased considerably.

For maximum economy, it is desirable to design to make the most effective use possible of the means and methods of production which are likely to be available at the time they are required.

c) The Effects of Time

It has been determined already that the cost of constructing a building is dependent upon the resources required and that the design will to a large degree determine what resources are required. In addition to the design the time available will, influence the amount of resources required to complete the proposed building. The resources required are inversely proportional to the time available. It follows then that the less the time available the greater the amount of resources required and the greater the cost of producing the building. This is true up to a point beyond which an increase in time results in an increase in cost. This relationship of time and cost is illustrated in the abstract graph in Figure 2.1 below.

The optimum economic time for construction is depicted by point A in Figure 2.1. An extension of time beyond this point increases the cost due to an increase in indirect costs to the contractor resulting from the cost of capital and lost opportunity of deploying his resources in a better alternative. A reduction in time has the effect of increasing the cost as the shorter the time available the greater the amount of resources required.

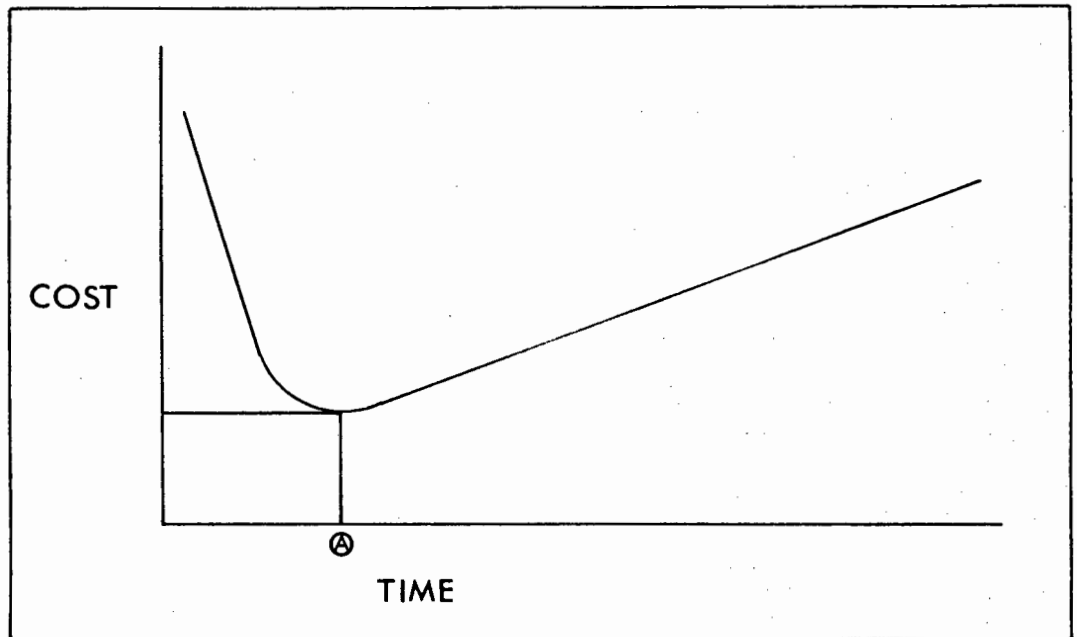


FIGURE:2.1 ABSTRACT GRAPH SHOWING THE RELATIONSHIP OF TIME AND COST

This relationship between time and cost is true for all construction works, however, the optimum point will differ between the different construction companies. The slope of the curve for a particular company is dependant upon the resources available to that company and the opportunities foregone by committing these resources. For the client to benefit from the optimum construction period, this should be determined in consultation with the company who is to perform the work.

d) The Effect of Inflation

The effects of inflation are determined by the construction period and could therefore have been considered under the previous heading, but are considered separately for convenience. Inflation has a significant effect on the cost to the contractor due to the relatively long building

process. Inflation conflicts with the optimum time, as illustrated in Figure 2.1 and if incorporated in the abstract graph will shift the optimum construction time to the left. To optimise the cost of construction the client must therefore reduce the construction period.

e) The Effects of Production Efficiency

The effects of design and time on the amount and type of resources required to complete the building have been discussed, however, the production efficiency of these resources remains to be discussed. Given that the design and time available will, to a large extent, dictate the resources required, the contractor dictates the efficiency to which these resources are employed.

The efficiency with which a contractor employs his resources is dependant upon his competence and the resultant gain he is likely to realise or loss he is to avoid through efficiency. Indirect incentives to efficiency are inherent in a free market. These incentives include promotion of the companies image in order for the company to secure future work and thus survive. The contractors incentive can however be further promoted by additional incentives which are within the control of the client. These incentives include a price commitment by the contractor whereby the contractor receives all the benefit if he completes the work below the committed price and absorbs all the losses if he does not, allowance for sharing of any savings resulting from efficiency and by placing the contractor in formal competition with his competitors.

For the client to benefit from efficiency in production the contractor should be given adequate incentives to seek economies and the client should similarly have reasonable recompense for setting up the contractors incentives.

f) The Effect of Continuity of Work

The increase in the indirect costs of buildings involves the greater capital investment in overhead resources. The economic use of these resources may depend on a flow of work that can be foreseen for a considerable period. The construction time for a particular single project will often not be enough to obtain maximum use of these resources. The cost to the contractor is therefore influenced by the volume of work whereby he can recover the expenses of specific resources.

The effects of continuity of work on efficiency and therefore costs are emphasised by the Aqua group in their book on tendering and contractual arrangements: "Continuity of activity is perhaps one of the most important ways in which production and management resources can be used economically", they then go further to say: "A succession of 'one-off' situations in management and production is bound to be uneconomical, and this is one of the biggest single areas in construction, where better use of production resources can be obtained with careful planning".<sup>8</sup>

The successions of 'one-off' situations which they refer to is inherent in most building projects and planning for continuity of work will be difficult.

Clients who do not have a regular flow of new projects can however benefit from the programmes of other separate clients. As although the clients will differ between projects the professional team will have worked together on previous projects and with certain contractors and can thus set up a degree of continuity of work with regard to design and management/administration procedures.

The client stands to benefit from any contractual arrangement which allows for a degree of continuity of work and for the economies, or part of the economies, to be passed on to him.

#### 2.3.1.2 The mark up the contractor adds to his price

In addition to the cost to the contractor the price paid by the client will include the contractors mark up. The contractors mark up will primarily be influenced by the prevailing market conditions, the contractors company strategy and the anticipated risk involved in the proposed project.

##### a) The prevailing market conditions

The prevailing market conditions have the largest single effect on the mark up which the contractor will incorporate in his price. It is the principles of supply and demand which will ultimately determine the price parameters of any goods or service supplied in a free market. For all practical purposes the South African building industry can be considered to act within the principles of free enterprise,<sup>9</sup> production and consumption activities being carried out on the basis of free contracts and voluntary exchange. The

presence of more than one construction company ensures competition in the market place. As a result of this competition an increase in demand for construction products/services, ceteris paribus, will result in an increase in price with the converse applying equally well.

Although the single client has no control over the prevailing supply and demand in the market there are means by which he can minimise the price he pays for the required service. As mentioned under the costs of the factors of production, the client may time his proposed project to coincide with favourable market conditions.

In addition to the timing of the project the chosen method of selecting the contractor and the contractual arrangement should take advantage of the market conditions at the time.

b) Company strategy

The mark up will be affected by each particular companies strategy with regard to its marketing policies, pricing policies and long term strategy. Although these strategies and policies will differ between companies, the client, in order to be prudent, must make certain assumptions. The principle assumption being that the contractor has a long term objective of profit maximisation and survival. Given this assumption the contractor will include as high a profit element as is possible in the current market conditions.

c) Contractors risk

Risk shall be defined as "the possible loss, which has to be stood by someone resulting from the difference between what was anticipated and what finally happens".<sup>10</sup> The risk involved in the building project is dependent upon the degree of definition before commitment. If the whole works could be totally defined there would be relatively little risk, however, the very nature of the building process does not allow for complete definition before the project is complete and risk is therefore inherent in all projects.

The contractor will include in his price a contingency to allow for the risk involved in committing himself to the project. This contingent element will vary in direct proportion to the degree of risk the contractor is subjected to. If the client is to reduce the price he is to pay the contractor, he must therefore enter into an agreement whereby the contractors risk is minimised.

d) Additional contingencies

In addition to the risk contingency the contractor may include other contingencies in his mark up. These contingencies will be included to allow for any unforeseen circumstances or for predicted "hidden costs". Such contingencies may include allowances for the predicted business relationship between the contractor and the client and his professional team. These contingencies can be substantial and the client will benefit by adopting an arrangement which promotes mutual understanding

and business efficiency between the two parties.

### 2.3.2 Additional Costs to the Client

The price the client pays the contractors for the building forms only part, although a substantial portion, of the total capital cost of the building. A comprehensive list of additional costs is contained in Appendix A to this report. Only those costs which are directly affected by the chosen contractual arrangement will be considered in this report.

#### a) Opportunity Costs

Opportunity cost is defined as "the cost of doing something measured in terms of the loss of opportunity to pursue the best alternative activity with the same time or resources".<sup>11</sup> This cost can be measured in terms of the loss of interest on capital spent until that capital becomes revenue producing or alternatively in terms of the cost of borrowed capital.

The client can reduce this cost, which can be considerable, by choosing a contractual arrangement which will reduce the period before revenue is produced to a minimum.

#### b) Professional fees

The fees which the client pays his professional team to fulfill his requirements can be substantial. This cost may be reduced by adopting a contractual arrangement which requires the minimum professional input and still functions effectively and efficiently.

Having considered the factors affecting the client's primary objectives, which involve the quality, time and cost of the project the client's additional objectives of minimising risk and being satisfied that he has achieved his objectives will be considered.

#### 2.4 TO DEFINE AND MINIMISE THE RISKS INVOLVED

As in any business venture the client will need to know what risks are involved and minimise these risks. The chosen method of selecting a contractor should therefore minimise the client's risk of not achieving his objectives.

#### 2.5 TO BE SATISFIED THAT HE HAS ACHIEVED HIS OBJECTIVES

This objective of the client is axiomatic in that it is common nature for someone to be satisfied that he has achieved his objectives. However, the client may have to show his shareholders, patrons or electorate that the objectives have been achieved. Accountability is an important aspect of selecting the contractor because it is seldom possible for the building owner to see what he is buying before it is built. The client and his shareholders, will wish to have assurance that he is paying the lowest price for the construction even though it may not be possible to determine the final price or indeed the final extent of the construction when he signs the contract.

The method of selecting the contractor must, therefore, be able to demonstrate to the client and his "dependants" that the clients objectives have been satisfied.

### 3. PRINCIPLE TYPES OF CONTRACTS AND METHODS OF SELECTING A CONTRACTOR

In an attempt to fulfil his objectives the client needs to choose a contractor and a contractual arrangement within which the contract will be administered. The notion of "going out to tender" is familiar in the building industry. There are however, several separate processes contained in this general idea. The essential processes in the tendering and contract stages of a project are:

- a) Selection of a contractor.
- b) Obtaining from the selected contractor a firm offer that is acceptable as a basis for the contract.
- c) Establishing the terms and conditions of a contract with the selected contractor.

The use of traditional bills of quantity and the competitive tender system condenses these into a single process. The bill assists in the selection of the contractor, its total in the tender constitutes an offer, it is an integral part of the contract and contains a statement of total price and means of adjusting variations. These processes need not, however, be so closely associated. A contractor may be selected without an offer being submitted, if an offer is submitted it may not become part of a contract - a later more detailed offer may follow for acceptance as a contract and a contract may have no statement of expected total price.

In order to understand the alternative contractual arrangements it is essential to recognise the separate processes of selecting the contractor, obtaining an offer and arranging a contract, as although they are indeed inter-related and often interdependent they are not

necessarily mutually exclusive.

### 3.1 SELECTION OF A CONTRACTOR

#### 3.1.1 Methods of Selection

The selection of a contractor can be automatic or by subjective assessment. Automatic selection is achieved by setting up a measurable criterion of eligibility and measuring contractors against it. Selection by subjective assessment is the nomination of a single contractor without a formal comparison with other contractors. In practice most selections comprise both. In South Africa there are generally three basic methods of selection:

- a) Open Tendering.
- b) Selective Tendering.
- c) Negotiation.

#### a) Open Tendering

Open tendering is a method of selecting tenderers and obtaining offers in which a public advertisement invites any contractor to apply for tender documents and to submit an offer to perform the contract for a price. The contractor who submits the lowest offer is usually selected and appointed to perform the contract at that price. The reputation of the contractor and his ability to do the work are not always considered, as price is often the sole criterion of selection.

#### b) Selective Tendering

Selective tendering is a method of selecting

tenderers and of obtaining offers whereby the number of contractors invited to submit an offer is limited by the inclusion only of contractors who are considered suitable for the work. The limitation may be effected either by public advertisement of each contract and elimination of any unsuitable applicants, or by establishing a standing list of contractors suitable for various categories of work and inviting an appropriate number from the relevant category for each contract. Selective tendering may be in several stages.

c) Negotiation

In a survey on "Tendering Procedures and Contractual Arrangements" by E.W. McCanlis<sup>12</sup> it is held that negotiation is not a method of selecting a contractor but that it is the process of "conforming with a view to finding terms of agreement", and is directed at agreeing the contractual arrangement. The survey goes further to say "before any negotiation can take place however, the contractor must already have been selected". While the above definition is true and the contractor who enters into the negotiation would have been selected, this is a preliminary selection, with the final selection depending on the terms negotiated. Negotiation, as a means of selecting a contractor, therefore, comprises several stages as does selective tendering. It is the failure to understand this principle of negotiation which has led to the misconception of the term.

Negotiation is defined as "the art of arriving at a common understanding through bargaining on the essentials of a contract, such as delivery, specifications, price and terms. It is not 'haggling'

or 'horse-trading', instead it is a rational process of arriving at a reasonable price, one which will be fair to both buyer and seller. The negotiation process involves setting contract objectives, determining the pertinent facts surrounding the proposed 'buy', isolating and classifying issues, determining the negotiation position on each issue and its importance and setting a negotiation strategy".<sup>13</sup>

### 3.1.2 The Characteristics of Methods of Selection

The methods of selection differ from one another in four main ways:

- a) The number of stages of selection.
- b) The number of criteria which are used as standards of comparison.
- c) The stage at which an offer is obtained and the type of offer made.
- d) The time or the degree of advancement of design when the contractor is selected.

Each of these factors should be considered when assessing the suitability of a particular method of selection.

#### a) The number of stages of selection

##### Single-stage selection

McCanlis describes single stage selection as occurring "only in those cases when the client nominates the contractor he wants without any competition except that which is implicit in his choice, he has set up his own criteria and decided

that the nominated contractor is the only one who fulfills them".<sup>14</sup> While this method of selection does constitute single stage selection it is not the only time single stage selection occurs. The method of selection described above is often loosely termed as a negotiated contract by many writers on this subject. However, as established before, negotiated contracts can, and usually do, involve more than one stage of selection.

Open tendering falls into this category as there is no criteria which limits the number of competing contractors and selection occurs, normally on the criterion of price, once the tenders are submitted. This view opposes that expressed by McCanlis<sup>15</sup> who is of the opinion that open tendering involves two stages. "The first stage limits the number of competing contractors but the number is not decided in advance. The second stage selects one of these contractors normally on the criteria of price."

#### Multi-stage selection

Selective tendering and negotiation fall into this category as there is no theoretical limit to the number of stages in the selection.

#### Selective tendering

Selective tendering is often done in two stages. The first stage limits the number of competing contractors to a number decided in advance to be reasonable. This number will usually aim at a compromise between the need for vigorous competition and the avoidance of excessive

estimating work by the unsuccessful tenderers. The preliminary selection will usually be by informal competition and a subjective assessment on standards of competency which the contractors are judged to have for the types of contract under consideration. The second stage will usually be the final selection of one contractor on the criterion of price. Other criteria, however, may also be considered at this stage, the most common one being time.

When three or more stages of selection are used, the procedure usually involves judging contractors by a progressive series of factors. At each stage any contractors who do not meet the standards of that stage are eliminated until the most suitable contractor is found.

### Negotiation

Negotiation usually involves three stages. The first stage is similar to selective tendering whereby the number of contractors to be considered is limited based on the same basic criteria. The second stage involves selecting, from the limited list, the contractor with whom negotiations will take place. The final stage then is the final selection of the contractor based on the conditions of negotiation. It should be noted here that the selection of a contractor with whom to negotiate does not constitute the final selection, as is often thought.

Selection of a contractor by negotiation is restricted by certain M.B.A.<sup>16</sup> by-laws, which are discussed in Section 3.1.3 of this report.

b) The number of criteria which are used as standards of comparison

In open tendering only one criterion is normally used, that being the price submitted. In selective tendering and negotiation the number of criteria used will differ from project to project and no generalisation is possible. In selective tendering, however, the final selection is normally based on price as there is a "moral obligation"<sup>17</sup> to accept the lower tender or none at all. The final selection of the contractor during negotiation, the decision to enter into a contract with the contractor involved in negotiation or not, is based upon no single criteria, but on the terms, conditions and contractual arrangements negotiated.

"It is axiomatic that the larger the number of relevant factors that can be accurately considered when selecting a contractor, the more likely it will be that the choice will fall on the best available contractor."<sup>18</sup>

c) The stage at which an offer is obtained and the type of offer made

In open tendering an offer is made as a criterion to selection during the first and only stage of selection. In selective tendering and negotiation an offer may be made as an aid to selection at any stage subsequent to the first. An offer may be either of two main types:

- i) An acceptable offer intended for inclusion in a contract.

- ii) A preliminary offer intended as a basis from which a subsequent acceptable offer can be derived.

An acceptable offer intended to form a contract will be an offer to perform stated work in a stated time and for a stated consideration. The consideration may be expressed as a lump sum for the whole work, rates for units of work in a schedule of prices, a fee for managing a cost reimbursement contract or a method of pricing work yet to be measured and described in detail. The acceptance of such an offer would bring a formal contract into existence.

The most common method of selecting a contractor by means of selective tendering coupled with the standard "White form" of contract requires an acceptable offer to be made during the second stage of selection.

A preliminary offer may often involve the submission of priced documents similar in type to those used for offers intended for immediate acceptance as a contract. The documents of a preliminary offer will, however, usually be amended and developed by negotiation to produce a subsequent acceptable offer.

The legal relationship instituted by this preliminary offer can be designed to suit the circumstances. In some cases it is arranged that if no subsequent offer can be agreed then neither party has any claim on the other for the breakdown of negotiations. It may be agreed that if negotiations fail for certain reasons the

contractor will be compensated. In deciding this relationship all the circumstances must be considered. Amongst the most important are when it is intended construction should start and the nature, amount and cost of the negotiations required.

An offer may be obtained in respect of a series of projects. In such a case, often termed "serial tendering" or "serial contracting" a contractor may be selected with the intention that he will, subject to satisfactory performance, enter into a series of contracts for several projects over a period of some years. The price offer which he submits to aid selection will be a "Standing Offer" of prices which it is agreed shall be used, subject to certain adjustments, as a basis for the pricing in each contract in the series.

d) Degree of advancement of design when contractor is selected

A contractor may be selected when design is virtually complete or he may be selected when only the clients broad requirements are known and sketch designs have not yet been made, or selections may occur at any point between these extremes.

Open and selective tendering usually require the design to be defined as selection is based on measurable criteria and an acceptable offer intended for inclusion in the contract is usually submitted. The very nature of negotiation, however, makes provision for early selection of the contractor during the initial stages of the

design.

An advanced design will enable specific proposals and an acceptable offer to be included in the selection procedure. If selection is at a very early stage in design development then the formation of an acceptable offer is more difficult.

### 3.1.3 Constraints

The South African Building Industry was referred to as acting within the principles of free enterprise.<sup>19</sup> Although this is true there are, however, restrictions placed on its members and the people whom it serves. These restrictions have been imposed by BIFSA<sup>20</sup> who defines the primary objective of its functions and services as an aim "to maintain trading conditions on an even keel and thus to facilitate the smooth functioning of the industry, both as an economic entity and in so far as the business transaction of individual members are concerned."<sup>21</sup> Thus intervention into the operation of a free enterprise economy as far as the building industry is concerned took place not through Government interference but by the voluntary action of associations within the industry.

The restrictions are contained in the MBA by-laws and apply to its members. The by-laws have been criticised by many as being restrictive on the flexibility of tendering and contractual procedures, this dissatisfaction is expressed by J. Samson, "with regard to MBA by-laws, it is logical to assume that they have been framed to serve a purpose - however obscure that purpose may be to some of us. But it is

my considered opinion that many of these regulations are restrictive and they inhibit the freedom of action of the Employer".<sup>22</sup>

It is not the intention of this report to enter into the controversy of the merits or otherwise of the MBA by-laws, however, reference to them cannot be avoided if the subject matter is to be covered in its entirety. The relevant by-laws to this report are contained in Appendix B and reference shall be made when need be.

These restrictions are currently being investigated by the Competitions Board as to their monopolistic conditions and restrictions on competition, the findings of which may change such restrictions. Methods of selecting a contractor falling outside the provisions of the by-laws will therefore be considered in this report, however, such occurrences shall be acknowledged.

### 3.2 PRINCIPAL TYPES OF CONTRACTS

This report is specifically concerned with methods of selecting the contractor to perform the proposed work, however, due to the inter-relationship between selection of the contractor and the contractual arrangement it is essential that the principal types of contracts are understood. The method by which the contractor is selected will to a large extent determine the available contractual arrangements and an understanding of these contracts is therefore required to be able to evaluate the methods of contractor selection.

### 3.2.1 The Characteristics of Different Types of Contracts

Individual contracts, prepared to meet the special circumstances of individual situations and clients may have some characteristics which differentiate them from any other contract. Contracts can, however, be grouped into two types even though many contracts may contain characteristics of each. These two types are:

- a) Fixed price type of contract.
- b) Cost reimbursement type of contract.

#### a) Fixed price type of contract

A contract of the fixed price type may be a lump sum contract based on drawings and specifications with a total fixed price for the whole of the work or it may be a measurement contract based on fixed prices for units of specific work without any quantities to state the total extent of the contract work. In measurement contracts the total price is determined by measuring the work as built and pricing at the contract unit prices.

Most contracts of the fixed price type fall somewhere in the range between the above extremes and have characteristics of each. The provision of firm quantities assists the contractor in determining at least part of the total price and the provision of approximate quantities guides the contractor in the probable scope of the work and assists the client in determining his budget for the accepted total cost.

The term "fixed price" is often thought to mean a price which does not allow for its prices to be

adjusted for fluctuations in normal market prices of labour and material. This is a misconception which has led to considerable misunderstanding of contractual arrangements. The type of arrangement referred to is a "firm price".

A fixed price contract may or may not be a firm price and may make provision for market fluctuations in prices of material and labour. This is commonly referred to as an "escalation provision" with the CPAP<sup>23</sup> Haylett formula being the most common.

b) Cost reimbursement type of contract

A contract of the cost reimbursement type is made up of two principal components:

- i) The Prime Cost : Comprising all costs incurred by the contractor which can be directly allocated to the contract. This will usually include operative labour, materials, consumable stocks, and use of plant.
- ii) The Fee: Being a payment for profit and indirect costs such as management and office overheads, which cannot be allocated exclusively to a specific contract but have to be apportioned. A separate fee may be payable for managing the work of nominated sub-contractors.

Cost reimbursement contracts do not differ widely in the costs which are defined as prime costs. They differ most in the way the fee is calculated.

- i) A fee based on the actual cost of the work.  
The fee to be paid, based on the actual cost of the work, maybe calculated as a percentage of the

prime cost. This may be a flat rate percentage or a sliding scale providing for a lower percentage of fee the higher the total prime cost.

ii) A fee based on the estimated cost of the work.

The fee to be paid, based on an agreed estimate of the cost of the work, may be calculated in various ways to suit the circumstances of the particular contract. The fee can be a fixed sum which is paid regardless of any variations there may be in the actual prime cost of the work or it may be an adjustable sum. The latter will be adjusted only if the actual prime cost differs from the estimated prime cost beyond certain limits. The limits and the method of adjustment are agreed as part of the contract.

### 3.2.2 Composite Nature of Many Contracts

The classification of contracts into types, though useful for theory, can sometimes be misleading in practice. Owing to the complexity of the building industry today, most contracts are a complex of both types, even though they may be primarily described as being of one particular type.

A contract which is normally a lump sum contract may contain considerable provisional quantities to be remeasured. This part is in effect a measurement contract. There may also be considerable provisional sums which are spent in work paid for on "daywork rates". Such parts of the contract are cost reimburseable items similar to those of the cost plus percentage type of contract.

A cost reimbursement contract may also contain a

number of P.C.<sup>14</sup> sums for specialist work totalling a substantial proportion of the whole contract. Quotations from sub-contractors for some of these parts of the work may be based on measured quantities and others on drawings and specifications. These parts of the contract are of the fixed price type.

Many contracts contain provisional sums. These are rather unrealistic as items in a contract as they define neither the work to be done nor the price to be paid. These sums are really items in a client's budget rather than contractual items. They can be of value as a guide to the contractor on the amount of work expected and on the appropriate insurable value of the whole works, but they have little contractual significance beyond this.

When classifying a contract or deciding what type of contract should be recommended for a particular project it is important to appreciate the different parts that constitute it and the proportion each part is of the whole.

### 3.2.3 The Types of Building Contracts

"Three main types of building contract, namely the 'Without Quantities' contract the 'Quantities' contract and the 'Cost Plus' contract, have been used extensively in South Africa for many years."<sup>25</sup> The main types and some of the principal variations are given below with the claimed advantages and disadvantages of each given in Appendix C.

#### "a) Without Quantities Contract

In South Africa this form of contract is usually

used for small contracts although it is employed in other countries for very much larger contracts. The contractor tenders a lump sum for the erection and completion of the entire building. His tender is based on working drawings and specification only and these documents together with the standard "Without Quantities Contract" form the contract documents.

b) Without Quantities Contract with Schedule of Rates

This is similar to the straight Without Quantities Contract but with a Schedule of Rates incorporated so as to enable the parties to evaluate any variations to the contract on a pre-determined basis. This form of contract is commonly used in South Africa on contracts for electrical and mechanical work. It is, however, frequently used in certain other countries notably the United States of America, for ordinary building work irrespective of magnitude.

c) Quantities Contract

In this form of contract measured quantities and the standard "Form of Contract Incorporating Bills of Quantities" (White form) form the basis of the contract. This form of contract is the most widely used form for the letting of large building contracts in this country.

d) Provisional Quantities Contract

This is a "Quantities Contract" with the exception that the quantities provided are measured "Provisional" and are subject to remeasurement

upon completion of the work. The main reason for the use of this type of contract is to enable the letting thereof at an early stage when full documentation is not yet available. The degree of accuracy of the Provisional Quantities is generally dependent on the information available at the time of preparation of the Provisional Bills of Quantities.

e) Schedule of Rates Contract

This form of contract comprises a schedule of items similar to Bills of Quantities items but without the quantities. The contractor prices each item. Upon completion of the project the whole is remeasured by the Quantity Surveyor and priced at the scheduled rates. Generally, this form of contract is used when it is imperative that the contract be let for early completion but at a stage when the information available is at a minimum.

f) Cost-Plus Contract (Percentage or Fixed Fee Form)

This contract consists of an agreement between the employer and contractor whereby the employer undertakes to compensate the contractor for all his costs. In addition, a specific percentage or amount is paid to the contractor to cover overheads and profit. With this form of contract the composition and duties of the professional team remains the same. The exception to this is that the quantity surveyor assumes the role of technical auditor of the contractors accounts, but with no means of controlling expenditure.

g) Cost-Plus Contract with a Target or Ceiling Figure

This is similar to the former but with the target or ceiling figure added to peg the upper limit of cost, and consequently, reduce the risk to the employer of unfettered expenditure. The target figure is an estimate which at best can only act as a guide. A clause is generally provided for a sharing of any saving on the target price between the employer and the contractor.

h) Basic Bill Contract

This form of contract may be loosely described as a Schedule of Rates comprising items similar to Bills of Quantities items but with "estimated" quantities added. The contractor prices the "Basic Bill" and his work is measured and valued accordingly as and when complete.

The quantity surveyor derives the "Basic Bill" from his estimate which is usually based on rough quantities measured from advanced sketch plans and grouped into elements broken down to component level. The elements and components of the rough quantities estimate are separated and expanded into schedules of their respective main Bill items. Ancilliary items normally accounted for in the pricing of such estimates are then added to the schedule together with quantities roughly assessed in relation to the main Bill item. The accuracy of the "Basic Bill" is dependent on the accuracy of the rough quantities estimate.

i) Managed Form of Contract

The Managed Form of Contract as we know it in South Africa is in essence a normal Quantities Contract used as the means to establish a variable target or ceiling amount to be applied in conjunction with a Cost-Plus Contract. The contractor is appointed at an early stage and plays a significant part in the establishment of the ceiling amount, even to the extent of influencing the design of the project.

Payment is made to the contractor on a cost-plus basis. However, should the ceiling amount be exceeded then the amount in excess of this figure will be based on prices established in the Bills of Quantities. Should the final cost-plus amount be less than the ceiling amount then the cost difference will be shared between the employer and the contractor in a pre-determined manner.

The term "Managed Contract" is derived from the fact that in most cases this form of contract gives the employer and/or his architect or other appointed agent the right to participate in the management of the project should this be desired.

j) Packaged Contract

This is a form of contract where the contractor provides the entire building package, including his own professional team, for a lump sum amount.

k) Turn-Key Contract

The Turn-Key Contract appears as a more developed

and complete form of packaged contract and is, in fact, more generally applicable to industrial developments than to building and civil engineering work. In the full Turn-Key Contract the contracting party assumes, vis-a-vis the employer, total responsibility for the construction of the industrial works, and takes the employer's place vis-a-vis the other participants of the contract. In an extreme case, the contracting party undertakes to hand over to the employer an industrial plant capable of operating in accordance with the contract terms, specifications and guarantees."<sup>26</sup>

#### 4. EVALUATION OF METHODS OF SELECTION

The analysis of methods of selecting a contractor is a popular subject with the commentators and correspondents of professional and trade journals, and it is often difficult to unravel objective comment from expressions of self interest. It is the intention here to present the views of the parties concerned and attempt to objectively evaluate them according to the client's objectives as laid out previously.<sup>27</sup>

##### 4.1 THE OPTIMUM ECONOMIC PRICE

The tender system is defended on the grounds that it provides the most competitive price available for a building, and in consequence, a saving of money for the owner. This view merits closer examination to see whether the saving is a real one in relation to all factors<sup>28</sup> and whether it really leads to the production of the required building at the lowest cost.

##### 4.1.1 Direct Price Differences

The competitiveness of prices is the focal point of any discussion between the advantages and disadvantages of negotiation and tendering. It has been said that "as soon as contractors are in competition they sharpen their pencils and the keenest price is usually the result"<sup>29</sup> and that "a contractor negotiating a job does not sharpen his pencil as much which results in negotiated prices being higher than those tendered for in competition".<sup>30</sup> This view is generally accepted by most writers on the subject, however, it is the degree to which the prices differ which is disputed.

This idea of "sharpening pencils" is concerned only with the mark up which the contractor adds to his price and does not concern the actual cost to the contractor in performing the work.<sup>31</sup> It is the intention here to determine how much the contractor can in fact "sharpen his pencil", the degree of competition of the market place, what proportion of the price is affected and the financial consequences of "keen" prices.

a) Determination of Price

In competitive tendering the various prices are laid before the quantity surveyor who's task it is to advise the client on which contractor to select. In negotiation, however, the quantity surveyor as the client's negotiating agent, has an active role in determining the price charged by the contractor. The task of determining what a "fair and reasonable" price for the work is, is claimed to be a major stumbling block of the system. This view is expressed by D.J. Rouse. "During preliminary discussions on a negotiation the contractor will usually make some sort of statement to the building owner that 'the quantity surveyor will ensure that our prices are fair and reasonable, that is what he is there for!' I have yet to see a quantity surveyor deny this proposition and yet I suggest that it is an impossible task for any quantity surveyor."<sup>32</sup> Mr Rouse claims this is so because "the competitive tender market is changing all the time so that what might be fair and reasonable one month may not be so in a month's time".

While it is accepted that the market prices are changing continuously it is the view of the writer

and those consulted that the quantity surveyor should be in such a position, due to his everyday contact with market rates.

b) Competition

As mentioned the degree of competition is the focal point of any discussion between competitive tendering and negotiation. It is the view of many that negotiation eliminates competition. This view is expressed by D.J. Rouse. "In essence there is really only one disadvantage of negotiation and that is financial... Negotiation eliminates competition almost totally."<sup>33</sup>

This view is strongly opposed by a letter in reply to Mr Rouse's article. The writer states: "Contractors compete for negotiated contracts as they do for tendered contracts though in a different form and the comment therefore is not valid. I must say that Mr. Rouse's statement is somewhat startling coming from a member of a profession that maintains that it is efficient and charges reasonable fees, despite the fact that it has completely eliminated competition amongst its members and even gone to the extent of having this embodied in law. It should be noted that the professional consultants in other countries have not found this necessary."<sup>34</sup>

It is not the intention of this report to enter into the argument for or against competition amongst the professions. However, this reply is included to question whether the removal of formal competition, does in fact, signify the removal of all competition in the market place? It is the

writer's opinion that, although formal competition has been removed amongst the professions, they still have to compete against one another.

The presence of more than one contractor in the market place ensures competition. The fact that during negotiations the contractors prices are compared to those of the current market ensures that if the contractor does not keep his price within a competitive range he will not secure the work. This view is illustrated by E.W. McCanlis: "Both negotiators will usually be comparing prices with their own judgement of competitive market rates, there is, therefore, some degree of implied competition which, in effect, confirms the reasonableness of the selection".<sup>35</sup>

The competitiveness of negotiated contracts is further illustrated by the intense marketing campaigns of contractors. "For many years major building contractors have maintained the steady marketing of negotiated contracts - the intensity of their campaigns varying with the slump or boom conditions in the building industry."<sup>36</sup> Mr. Rouse claims that this illustrates that contractors favour negotiation, he, however fails to realise that in the absence of competition such marketing campaigns would not be necessary. It is felt by the writer that the mere presence of marketing campaigns by different companies indicates the presence of competition in negotiation.

The presence of competition in negotiation is clearly illustrated by Bruce MacDonald: "I would rate the New York business man as the most astute entrepreneur in the world. In the last 20 years I

don't think any contract of consequence in New York has gone out to tender and one certainly cannot accuse the Americans of being non-capitalistic."<sup>37</sup>

Competition in negotiation does therefore exist although it is in a different form to that found in competitive tendering. McCanlis describes the former as "implied competition" and the latter as "formal competition". He defines these as: "Formal competition is usually fully documented and is based on a criterion (or criteria) that can be objectively measured, price is the most common of these. Informal competition occurs when contractors are compared on factors that cannot be so easily measured or documented... The standards of implied competition are, however, less easy to demonstrate objectively".<sup>38</sup> It is the opinion of the writer that it is this difficulty in demonstrating the competition which has led to the misconception that negotiation eliminates competition.

c) Contractors reputation

When contractors are selected by negotiation their initial selection is determined by their record of past performance. If it is accepted that contractors have a long term objective of profit maximisation and survival<sup>39</sup> the mark up which they can add on to their costs are then limited. This view is summed up by a writer on the subject. "The management of large contracting firms are (sic) not so stupid as to believe that squeezing the most out of their client is in their own best interests. Obtaining negotiated contracts depends to a large extent on one's reputation. The contracting industry is sufficiently enlightened to realise

that in the long run their own best interest is served by serving the best interests of the client."<sup>40</sup> He then goes further to say, "I am at a loss to understand where Mr. X gets hold of such backward thinking".

Whether this is "backward thinking" or not, many critics of negotiated tenders fail to realise the limitation imposed on a contractors mark up due to his reputation and hope of securing future work through negotiation. The point can be taken further with a view that when submitting a competitive tender the contractor has a chance to gamble and may submit an escalated price if he is in no particular need of work at the time. If his tender is the lowest, which is possible, he then realises this "abnormal" profit, however if it is not, the contractor is not prejudiced in future tenders as only the low tenders are considered when the tenders are evaluated by the client and his agents. In negotiation however, the contractor cannot afford to take such a gamble as this would prejudice him in obtaining future work through negotiation.

d) Risk

Competitive tendering requires the work to be defined, however, due to reasons already discussed, it is not always possible for the work to be totally defined at the tender stage. This results in contractors having to submit prices on partially defined work with a resultant increase in their risk contingencies.<sup>41</sup> It is the opinion of many that negotiated contracts can reduce this risk with a resultant reduction in the contract sum. This is

possible due to reasons explained by Peletz:  
"Since the contractor becomes involved with the building at its inception, he is thoroughly familiar with all facets of the project at the time he prepares his guaranteed maximum price. This minimises the chances for error and omissions in his maximum price and he is more assured of making his full fee than if he had bid the job on a competitive basis... By eliminating guesswork he is able to minimise his contingency."<sup>42</sup>

e) Variation in Price

The discussion on competition and the contractors reputation indicate the limitations imposed on the contractor in determining his mark up, nevertheless it is generally accepted by those in favour and those who oppose negotiation alike that competitive tendering results in a "keener" price. It is the difference in price however which is disputed.

This has resulted from the difficulty in measuring the price differences between a negotiated and tendered contract as any single contract incorporates one method or the other and no direct comparison is therefore possible. A notable attempt was made by Chapman and Webb<sup>43</sup> who composed a negotiated contract index for comparison with the BER<sup>44</sup> Building Cost Index. The results from this study, however, do not overcome this problem and further, due to the relatively small sample used, can only be regarded as indicative rather than conclusive. This study did, however, indicate that the costs of negotiated contracts at tender stage remained higher than those for competitive tenders, however, no attempt was made to quantify these

differences.

Those in favour of negotiated contracts argue that the proportion of the total contract that is not subject to formal competition is small and the price difference is therefore between 2% and 5%. This view is expressed by Bruce MacDonald, an architect, "Bearing in mind that the main contractor in a modern major building contract is only responsible for 30% of the entire works,... the net figure is probably between 1 and 2%".<sup>45</sup> Leading contractors confirmed the figure of 30% to be indicative of the amount with opinions differing between 30 and 40%. The remainder of the contract value, it is argued, consists of provisional sums and nominated sub-contract items which are subject to the same conditions as in competitive tenders.

It is further argued that a substantial proportion of the contractor's work is sub-contracted out to specialists. In competitive tendering the sub-contractor will be offering a price to more than one contractor with the hope of securing the contract. The price they offer to different contractors will differ according to certain factors such as the risk they foresee etc., however, this difference is said to be negligible between contractors of similar stature,<sup>46</sup> because similar prices are given to different contractors this once again reduces the proportion of the work subject to formal competition and therefore the likelihood of increased prices in negotiation is reduced.

It is said that sub-contractor's will reduce their price to a contractor who has already secured the

contract. "If the general contractor has been awarded the job by the owner prior to going to sub-contractors for competitive bids, the sub-contractors are assured that the general contractor definitely has the job, they, in turn, will not hold back on their lowest bids for negotiating purposes which they might do if there were several general contractors bidding for the project. They know that they must give their best figure the first time around if they are to get the job."<sup>47</sup> If this is true, as claimed, the effect will be to reduce the cost of negotiated tenders.

An alternative approach to determine the difference is as follows: "An examination of tenders for large projects will show that serious tenders from substantial contractors seldom vary by more than 2% or 3% of total cost and are usually calculated in a margin of 5% and 8% for overhead expenses and profit. On a negotiated contract the contractor would normally expect a margin in the upper range and it would appear, therefore, that the owner can expect a saving of up to 3% by going to tender."<sup>48</sup> This argument is based on the assumption of the profit margin being between 5 and 8% which is a generalisation which does not hold for different market conditions. It was not possible to measure profit margins due to the confidentiality of such figures, however, it is generally known that these are at present well below this figure. Nevertheless, the principle still holds that the percentage difference between tender prices is relatively small and that during negotiation the contractor would expect a margin in the upper range.

Although no direct comparison is possible, it would appear that the price difference between negotiated contracts and competitive tenders does not exceed 5% of the contract sum. Competitive tenders are, however, often submitted at what is described as "suicidal rates", and a comparison with such tenders would indicate a far greater price difference. The submission of such tenders is discussed in the following section of this report.

f) Financial Consequences of Low Prices

A rational approach to the price variances between negotiated and competitive tenders indicates the opportunity for large variances to be limited, however, it is common knowledge that during recessionary periods competitive tenders are submitted at prices way below negotiated tenders which are often referred to as "cut-throat" or "suicidal" prices. This can be attributed to the fact that price is the main criteria for selection in competitive tenders and contractors have to submit low prices in order to secure work. The result is that the lowest tender received may be too low to cover the probable cost to the contractor, plus a reasonable percentage for his overheads and profit. Cyril Sweett describes the result as "we may have an initially delighted client - but a contractor who, from the moment of being awarded the contract, must rely on his wits if he is not to make a loss".<sup>49</sup>

In an interview with Professor Vorster,<sup>50</sup> he described the theory behind competitive tendering and the lowest tender as "the contractor who is the most efficient and innovative will submit the

lowest bid". This theory is illustrated in an extract from notes prepared by Farrow Laing and Partners: "It is the attempt to prosper in a competitive market which promotes efficiency and invention".<sup>51</sup>

Professor Vorster, however, disputed this theory and argued that "the contractor with the lowest bid is the most optimistic and therefore a gambler". He explained that the contractor was optimistic in the sense that he would be able to use his "wits", as described by Cyril Sweett, to find loopholes in the tender documents whereby he could submit a claim and thus recover costs and make a profit on items he had not allowed for in his tender figure. The contractor was a gambler because his price was lower than he could perform the work for, and relied on such claims to avoid a loss. The need to submit a "keen" price in order to secure work has resulted in the all too familiar expression, "how much did you leave on the table?"

Although the claim that competition promotes efficiency and invention cannot be disputed, the question arises whether it is necessarily directed towards the clients interests? It is the opinion of the writer that although such efficiency and invention is often beneficial to the client, it can be applied in direct contrast to his interests, in the following way. The contractor submits a lower tender, not because of any special innovation or efficiency, with the hope of securing work and having secured the contract he then uses his innovation and efficiency to ensure that he still makes a profit or avoids a loss through "efficient" claims - a person who is able to achieve this must

surely be considered efficient and innovative!

The effect of competitive tendering on claims is adequately summed up by Roger Flanagan. "While we cling to the situation where the contractor must use his ingenuity for cost saving to maximise his profit because he was the lowest bidder we will always live in a claims orientated contractual environment."<sup>52</sup>

The result of such claims is that the final cost of the contract is significantly higher than the initial tender figure. It has been said that "Today and because of the present confusion, some directors of contracting firms seem to spend as much time in their solicitors' offices as in their own, sometimes having prepared the ground in the qualifying letter which accompanied their tender".<sup>53</sup>

While this is, unfortunately, often true, the tender system does also increase the probability of "legitimate claims" as despite the best efforts of competent architects, engineers and quantity surveyors, tendering documents do not always depict, with the complete clarity they should, all that is involved in carrying out the work. The result is that the contractor is entitled to submit claims for such omissions.

Although claims are also present in negotiated contracts the amounts are likely to be less, for two main reasons. Firstly, the contractor does not have to submit a price in direct competition which often leads to unrealistic prices being submitted with the hope to cover costs through claims.

Secondly, negotiation does not require the works to be totally defined when the contractor is selected with the result that omissions will not effect the final contract sum to the same extent as in competitive tenders.

The question of excessive claims has often brought the name of the building industry into disrepute. It is thought that a negotiated contract enables the contractor to take advantage of his client through excessive claims and inflated prices. It is the opinion of the writer that it is the competitive tendering system itself, which has resulted in such claims and in the absence of "cut-throat tendering" the contractors would not need to act in such a manner.

Although the initial tender price may therefore be substantially less than that likely to be obtained through negotiation a comparison of final contract sums would show less of a variation and possibly, a reversal of the situation.

#### 4.1.2 Cost Differences

In the previous section the effects of competition and negotiation on the mark up which the contractor will add to his price was discussed and it was determined that the mark up on a negotiated contract was likely to be higher than that submitted by competitive tendering. However, as set out in Section 2.3.1 to this report, the mark up constitutes only one aspect of the price paid for construction and that, the other component, the cost to the contractor, significantly affected the final price paid by the client.

It is the intention here to establish the effects of negotiation and competition on these costs<sup>54</sup> and to determine whether either method can significantly reduce such costs.

The promoters of negotiated contracts claim that the inclusion of the contractor into the "building committee" at an early stage, possibly at the inception of the development, enables the contractor to make an invaluable input with the resultant reduction in costs. Competitive tenders, however, require the work to be defined before the contractor is selected which does not make provision for the contractors' input. This view is expressed by LTA. "The traditional procedure of design - bill - tender - build in separate stages has frequently proved to be inadequate for the satisfactory solution of the problems encountered, because the experience of one member of the building team - the contractor - is not available in the vital pre-planning stage."<sup>55</sup>

The contributions which can be made by the contractor in a negotiated contract and which are not possible in traditional competitive tendering will be considered under the same headings as those in Section 2.3.1 to this report.

a) Production Resources

It was established earlier<sup>56</sup> that the cost of the factors of production are a function of the prevailing market conditions and were largely beyond the control of the client and the client was therefore left with the alternative of timing his project to coincide with favourable market

conditions. It is, however, argued that early selection of the contractor can result in favourable prices for materials being secured.

This is explained in notes prepared by LTA: "The building material market moves up with the cost of living, and seldom goes down. If a negotiation is in progress, a contractor can frequently secure a provisional price with suppliers in an advantageous time, and thereafter these prices will be subject only to statutory changes but not to market fluctuations. The contractor can also negotiate favourable prices for materials to the owners advantage, during the negotiation stage".<sup>57</sup>

Although this may be true, the escalation provisions in the contract would need to be adjusted so that the client will realise such favourable prices.

#### b) Design

The effects of design on the cost of a building have already been noted<sup>58</sup> and it is the opinion of those who promote negotiated contracts that the contractor can make a valuable contribution to the design with a resultant saving in such costs.

Notes prepared by DURA Construction on negotiated contracts acknowledge that competitive tenders may result in a lower initial contract figure, they however state that "it is not sufficient that the price for a given design be a competitive one, it is also necessary that the design itself be economic", they then go further and pose the following question: "Is it logical to exclude from the entire design process the only party who has direct knowledge of

building costs and who will be responsible for turning the designers proposals into reality?"<sup>59</sup>

Building contractors believe it is not logical and claim that they can make a valuable contribution to design. This is expressed in the following extract from notes prepared by LTA. "The same results in a building can very often be achieved by designs which vary widely in costs. Many projects which LTA has negotiated have been reduced in cost by as much as 20% without apparent changes in design or sacrifice of quality".<sup>60</sup>

Reduction in cost due to the contractors design contribution are claimed to be attributed to the following reasons extracted from articles on the subject:

- "The assessment of design from the point of view of construction management (the so-called test of "buildability" - repeat use of formwork, prefabrication of components, adequacy of tolerances etc.)"<sup>61</sup> This is achieved by the "examination of every detail by consultants and the contractor at all stages during the production of documents".<sup>62</sup>
- "The contractors up to the minute knowledge of building costs is readily available to the design team. It should be remembered that the contractor is in fact the only party with the direct knowledge of the costs of employing labour and purchasing of materials."<sup>63</sup>
- "When designing the project, the professional consultants can take full advantage of specialised and

possibly patented systems of construction that the selected contractor can offer."<sup>64</sup>

- "The designers can design to the level of ability of the selected contractor and are not limited by the lowest common denominator of a tender list."<sup>65</sup>
- "The contractor can suggest a design which will make use of particular items of plant he has available and will be able to offer them to the client at a reduced rate."<sup>66</sup> Mr. Turner explained this with the following example: "The contractor may have coffer troughs in his yard which he purchased for a previous contract and would be able to offer the client a reduced rate if their use could be incorporated in the design."
- "Many indirect costs are dependent on the means of production used by the contractor and the means of production which can be used will depend on the nature of the design. To achieve maximum economy therefore it is necessary to design a building to take advantage of particular means of production. For these to be known with precision the contractor must already have been selected."<sup>67</sup>

These claims, however, are disputed by some people who claim that they are "publicity material" and they question the contractors contribution to design. Mr. Rouse in an article written in 1974 stated: "It is doubtful whether a builder is qualified to assist to any great degree in designing"<sup>68</sup> however, in an article he wrote in 1984 he acknowledges the contractors contribution. "We are told that the contractors 'know how' can be fully utilised in the negotiation scene and, indeed, this has been seen in

some notable projects in Johannesburg recently where the concrete frames have been executed in record time". He then qualified his statement: "It would seem that this input of specialised 'know how' relates almost entirely to the erection of the frame where, without doubt, the contractor has the experience in the matters of formwork design, especially with regard to climbing shutters, sliding of cores, table forms, coffers and the like. Even the most experienced consulting structural engineers do not have the same indepth knowledge of these aspects."<sup>69</sup>

It is held that "Contractors 'know how' can often prove to be a disadvantage as he forces on to the design team methods of construction which suit only his own firm's plant and techniques. Such contractors are more often than not looking for avenues of utilising otherwise uneconomical plant or equipment".<sup>70</sup> Although this may be true it need not be to the client's disadvantage and is likely to be to his advantage. For reasons already stated, because the methods of construction are suited to the contractors own plant and techniques, this is likely to reduce the cost to the contractor and therefore the price paid by the client. As established by Mr. Turner if contractors are able to "utilise otherwise uneconomical plant or equipment" they will be prepared to include these at reduced rates to the client's benefit.

Competitive tendering does, to a certain extent, allow for a contractors design input through provision in the tender documents which allow the tenderers to qualify their tenders. This contribution, however, is limited. The time available

to the contractors does not allow for a detailed assessment of design and the analysis of alternative designs which may lead to cost savings. Furthermore, the contractor is not as familiar with the design and his emphasis when tendering is to achieve the most economical solution for the given design. Assessment of the design is expensive and competitive tendering does not guarantee any return for these expenses, this view is expressed by a contractor: "We are always willing to devote our time and expertise on a negotiated contract. Indeed some staff are employed solely for this purpose. We are rarely prepared, however, to offer such services on contracts to be tendered, as there is no possible advantage to us and the company is not a welfare organisation."<sup>71</sup>

It is the opinion of the writer that by selecting the contractor at an early stage in the design process the contractors practical knowledge of building conditions and construction methods can be used to achieve an economic design to the client's benefit.

c) Time

One of the major advantages claimed for negotiated contract is the reduction in project time and subsequent savings in cost. It is claimed that these savings are possible due to the following reasons:

i) Design/Construction Overlap

Competitive tendering requires the design to be substantially complete at tender stage and it demands a sensible period of time for the preparation of tender documents, for the tendering itself and for tender analysis and client's approval. Clearly time savings can be

made if the detailed design work for the later stages of a project can run parallel with the construction of the earlier stages, this is particularly so where the contract is of exceptional size, duration and/or complexity.

The overlap of design and construction has become to be known as "fast-track" construction and while it is not the intention of this report to enter into the discussion of the advantages and disadvantages of fast track construction, it is necessary to make a few points: Mr. Rouse points out that "an early start does not necessarily mean an early finish".<sup>72</sup> This is true and it is the opinion of the writer that any method which promotes the commencement of construction before adequate information is available should be avoided. However, there are aspects of the design which need not be finalised before construction begins, the most obvious being those related to the finishing trades. Furthermore, certain operations can begin before detailed design is finalised, these could include shoring, underpinning and mass excavation as well as foundation work.

The advantages of a design/construction overlap are illustrated in the following quotation from a corporate report on Old Mutual properties: "If negotiations replace tendering as the method of awarding the building contract, cost and time savings can be considerable".<sup>73</sup> This is backed up by a comparison, made by them, of the savings they have made by negotiating a contract in preference to going out to tender.

The following Figure 4.1 and Table 4.1 illustrate the time and cost savings.

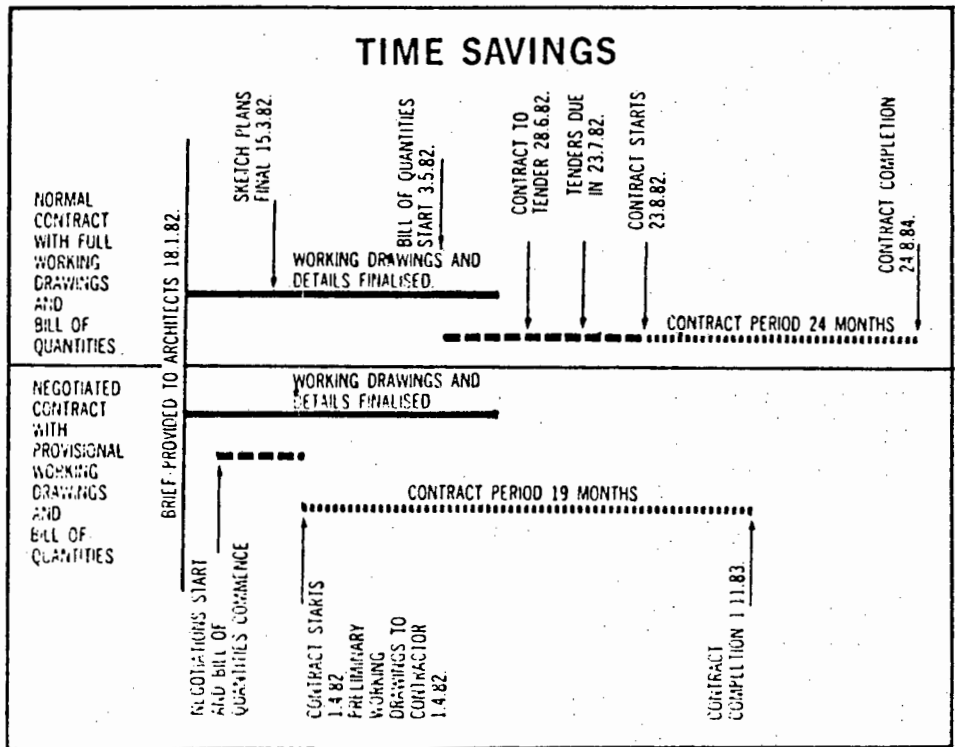


FIGURE 4.1 TIME SAVINGS ACHIEVED BY NEGOTIATION AS OPPOSED TO TENDERING

### COST SAVINGS

Cost comparison between normal and negotiated contracts

(a) Normal route: working drawings and full bills of quantities tendered upon before building

(b) Negotiated contract

	(a) Normal route	(b) Negotiated contract
Building cost	R27 915 000	R27 915 000
Professional fees	3 630 000	3 630 000
Pre-contract escalation	<u>6 309 000</u>	<u>1 734 975</u>
Contract price	R37 854 000	R33 279 975
In contract escalation	<u>6 950 000</u>	<u>4 837 025</u>
Final building cost	R44 804 000	R38 117 000

TABLE 4.1 COST COMPARISON BETWEEN NORMAL AND NEGOTIATED CONTRACTS

It would therefore appear that time savings are possible by overlapping construction with certain aspects of design, however, this is not recommended where this is done at the sacrifice of sufficient design information.

ii) Elimination of Tender Period

The period required for tendering can be eliminated by pricing the work concurrently with the preparation of the design. This is illustrated in Figure 4.1. on page 60. On complex contracts the time required by contractors to prepare accurate tenders can be substantial. Contractors argue that because of the clients desire to start building as soon as possible, the time allowed is often too little which results in claims during the construction period.

iii) Pre-Contract Planning

This is possibly the most convincing argument put forward for a reduction in the construction period. Mr. Rouse acknowledges this: "There is no doubt that complete and thorough pre-planning of any project particularly so complex a one as a large modern building is not only desirable but essential for the efficient and speedy carrying out of the work", he continues, "Lack of pre-planning inevitably and invariably leads to variations, mistakes, alterations, pulling down and making good which results in wastage of time and money."<sup>74</sup> He however, surprisingly and without reason, concludes that negotiated contracts "have the effect of encouraging incomplete pre-planning".

It is the opinion of the writer that adequate pre-planning is essential to the success and completion of a project in a minimum time however negotiation would seem to enhance such pre-planning and not encourage incomplete pre-planning, as stated by Mr. Rouse. The following quotation from notes prepared by LTA illustrates this. "Contractors are usually required to make a show of starting work immediately after a tender has been awarded, and they make every effort to do so. However, as contractors make many bids and are successful in only a limited number, they cannot, and do not, have their full resources ready for every building tendered for, and it takes time to mobilise equipment, men, materials and particularly sub-contractors. If on the other hand, a contract is negotiated an early starting date can be achieved. Suitable key labour and equipment can be allocated, material secured and preliminary arrangements made with the best and most suitable sub-contractors. This early programming of resources, particularly with regard to key labour and the sub-contractors will usually save many weeks on a project."<sup>75</sup>

This view is supported by most contractors and it is believed that the early selection of the contractor can promote pre-planning even further due to the thorough understanding of the project the contractor has because of his inclusion in the design team. This is illustrated by Bruce MacDonald in his reply to the question: "How long were L.T.A. involved in the project before they actually started on site?" He replied, "Twelve to fifteen months. This factor really

serves to distinguish this type of contract (i.e. negotiation) from the norm. The advantage of having a contractor move onto a site on day one knowing as much as the design team about the project are manifold."<sup>76</sup>

The writer strongly believes that a negotiated contract will enhance the contractors pre-planning and result in a subsequent saving in time and money.

iv) Structural Methods and Details

The contributions which can be made by the contractor to a more economical design have been discussed<sup>77</sup> and for similar reasons the contractor can give advice on methods of construction which will reduce the construction period. The selection of the most advantageous structural system, while not affecting the architects design, may frequently save many weeks on the construction of a large building. Recent examples, particularly 11 Diagonal Street, Johannesburg and 362 West Street, Durban, have shown that the contractors contribution can result in exceptionally fast construction times being achieved. Reduction in construction time is possibly the biggest area where the contractor can apply his expertise and experience to reduce the costs of building.

This valuable input is now recognised by the professions, however, it is the opinion of some people that it does not extend to the finishing trades. Mr. Rouse states: "Here (i.e. South Africa) it is one thing to erect the frame with the speed which has recently been shown but it

is another thing for the finishing and service installations to be completed at the same rate." He attributes this to the fact that "It is... unfortunate in South Africa we do not have the same type of sub-contracting organisation geared to the rapid finishing of large structural frames, as exist in the United States."<sup>78</sup> While this is true, as shown with the recent project referred to earlier, the question which should be asked is, "given time, and if rapid completion of structural frames become more common, could the sub-contracting organisations not adjust to the demands and be able to keep up with the main contractor?" The current President of the Association of South African Quantity Surveyors,<sup>79</sup> agreed with Mr. Rouse but was of the opinion that the sub-contractors would possibly adjust to the demands placed upon them.

One reason given for the claimed inability of sub-contractors was that "... General contractors often appear to be very distant from the major specialist sub-contractors".<sup>80</sup> Whilst this may be true the very nature of a negotiated contract serves to alleviate this problem.

Until recently, the professions did not recognise the contribution which a contractor can make to the design, however, their attitudes have now changed; will this not be the case regarding sub-contractors?

"The savings in design/construction period claimed by negotiation vary enormously with reductions of up to 75% quoted."<sup>81</sup> The actual pre-contract saving for a particular objective can be assessed by comparing the

following activities of a traditional competitive tender with the equivalent time scale for negotiation.

- i) The time needed by the architect to prepare the drawing information which would be required by the quantity surveyor to complete a firm Bill of Quantities but which would not be required to bring the design to a stage at which it would be practical to mobilise a contractor.
- ii) The time needed by the quantity surveyor to complete the tender documents and get them out to tender.
- iii) The tendering period itself.
- iv) The time for tender analysis and the clients approval.
- v) And that part of the mobilisation period which could be effectively run concurrently with the design work.

"It would not be surprising if the cumulative effect of these operations, necessary for the preparation of a lump sum competitive tender, could amount to 9 - 12 months in a very complex project."<sup>82</sup> The advantages of making a saving in this period have been given in Section 2.2 of this report.

There are variations of the "Quantities" contract which do allow for early tendering the principle types being the "Provisional Quantities Contract", "Schedule of Rates Contract" and the "Basic Bill Contract" - these are described in Section 3.2.3 (d), (e) and (h) respectively with the advantages and disadvantages of each being given in Appendix C.

Although these forms do reduce the period before

tenders can be called for they do this at the expense of the information provided to the contractors upon which they are expected to prepare their tenders. The question which the writer poses: "The nature of construction work being as it is, is it reasonable to expect contractors to submit prices to which they are bound which are based on scanty information?" It is clearly unreasonable and results in claims as described in Section 4.1.1 (f), this time only with more force. The question which then arises is: "Due to the claims and variations likely to occur, is not the apparent advantage of "competitive comparison" lost because of the basis upon which it was founded and the possibility, if not probability, of changes in the scope of the work?"

Furthermore, these variations of the "Quantities" contract to not allow for the contractors contribution to design and increased pre-planning, as discussed in (iv) and (iii) above, which have a major effect on the time for construction.

#### d) Production Efficiency

The efficiency with which the contractor deploys his resources is dependent on his competence and the incentives offered, as determined in Section 2.3.1.1 (e) of this report.

It is the thought of many people that negotiated contracts do not provide the same degree of incentive to efficiency as that provided by competitive tendering. This has resulted from the misconception that negotiated contracts are cost reimburseable contracts. As determined in Chapter 3 of this report, negotiation is a method of selecting a contractor and

a "cost reimbursable contract" is a type of contractual arrangement, the two therefore serve different functions altogether. The writer agrees that cost-reimbursable contracts are disincentive to efficiency and should be avoided if at all possible.

The competence of a contractor selected by negotiation is guaranteed because he was initially selected for this very reason. This is illustrated by Bruce MacDonald: "One has an immediate advantage with the negotiated contract in as much as the successful contractor is approached on the basis of his past performance and his record of integrity."<sup>83</sup> The competence of contractors selected by selective tendering is also guaranteed to an extent, however, cost often becomes an over-riding factor.

A major incentive to efficiency in a negotiated contract is the fact that the contractor relies on his reputation to secure work, as determined in Section 4.1.1 (c) to this report.

Additional incentives to efficiency can be included in both negotiated and competitive tenders and will therefore not be included as a criterion for evaluation.

#### e) Continuity of Work

The very nature of the building industry results in a succession of 'one-off' situations as described in Section 2.3.1.1 (f) of this report. Although negotiated contracts cannot solve this problem, they can help to alleviate it. This is possible in phased developments whereby the client will benefit from negotiating successive phases with the contractor

already on site rather than calling for competitive tenders.

Continuity of work can be achieved by competitive tendering if such continuity is foreseen before competitive tender are called for. This may be achieved through the use of "serial tendering" whereby the initial tenders are called for with the understanding that the contractor will enter into a series of contracts. The price offer which he submits will be a "standing offer" of prices which will be used as the basis for pricing each contract in the series.

#### 4.1.3 Long Term Effects on Prices

Up to now, only the short term effects of methods of selecting a contractor on the price of building have been considered. Standing behind these short term effects, which are all of immediate importance to the sponsor of an individual construction project, are the long term effects on prices. These will be considered under the cost of tendering and the long term effects of negotiation.

##### a) The cost of tendering

The cost of submitting tenders will vary between projects, and it is therefore not possible to quantify such costs, however, the submittance of a tender requires the services of experienced staff and is an expensive process. The tender system is inefficient in that a number of contractors accrue these costs and yet only one contractor will be directly compensated. The average number of contractors competing for each project, based on a random selection of two months,

revealed that the average was 10,39 contractors in February 1986<sup>84</sup> and 17,25 in April 1986<sup>85</sup> within the jurisdiction of the Cape Peninsula M.B.A. While this average is not statistically conclusive, due to the size of the sample used, it does indicate the number of contractors competing for each project.

The cost of tendering was illustrated in 1984 by Mr. Gavin Relly, Chairman of Anglo-American Corporation at the time, at B.I.F.S.A.'s Annual Congress, he said: "Far too much money was spent on tendering for projects in the building industry". He then pointed out that, "estimates of the cost of tendering ranged from R380 million to R630 million a year", and he urged "the industry to consider devising more cost-effective alternatives, suggesting perhaps, the negotiated contract as an option".<sup>86</sup>

The cost of tendering was further illustrated by a director of a leading contracting company, who wished not to be named, when questioned on the cost of tendering for a particular job which ~~which~~ they had not secured, he set the figure at five hundred thousand rands. Five contractors submitted tenders for this project and although the costs to each contractor have not been determined they are likely to be similar.

Although the individual client will not directly be affected by these costs he will indirectly as the price he pays the contractor will include an element, by way of overheads, to compensate for his costs on projects for which he had tendered and not succeeded. Negotiation, on the other hand, is a more effective system as only the contractor who is to perform the work accrues the costs of developing a price for the project.

## b) Long Term Effects of Negotiation

It is often thought that if negotiation was to replace competitive tendering as the norm, competition would be eradicated. The effects of this are described in notes prepared by Farrow, Laing and Partners: "For it is the attempt to prosper in a competitive market which promotes efficiency and invention. It is also the prices tendered in competition which provide the industry's clients with a yard stick against which to gauge what is "reasonable" and without which there is no way of judging the value offered by those contracts for which competition is not the price determinant."<sup>87</sup>

The discussion on the degree of competition in negotiation in Section 4.1 (b) to this report revealed that negotiation did not eliminate competition. If negotiation replaced competitive tendering the "yardstick" against which to gauge what is "reasonable" would simply become the rates derived from competitive negotiations.

## 4.2 QUALITY

"There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the person who considers price alone is this mans lawful prey"<sup>88</sup> - John Ruskin (1819 - 1900) And there lies the rub!

The factors determining the quality of the final product, as determined in Section 2.1, are the competency of the selected contractor, the resources at his disposal and the manner in which he applies these resources. The consequences of "cut-throat" tendering

on the quality of the product are similar to the financial consequences as discussed in Section 4.1 (f).

The emphasis placed on price in competitive tendering often over-rules the competency of the contractor and the resources at his disposal. Furthermore, the need to submit a "keen" price in order to secure the work results in inadequate resources being assigned to a particular project. Price can be regarded as a cause as well as as an effect. The money represented in a price is a fundamental resource which releases all other resources. The more money that is available for construction, the more are the resources that can be deployed. An unrealistically low price can inhibit proper building.

Although the competency of the contractors is considered in Selective tendering the latter is still the result. The effects of indiscriminate tendering are illustrated by C.M. Peletz: "If the successful bidder is too low, he will in some way try to squeeze costs out of the job by shoddy workmanship, using below standard materials or other methods well-known in the construction industry."<sup>89</sup> This was recognised as early as 1944 when the Simon Committee reported that, "low prices resulting from indiscriminate tendering lead to bad building, and lowered the standards of honesty and craftsmanship in the industry", and considered it to be "a fundamental condition of good building that every contract shall be placed at a fair price with a responsible builder."<sup>90</sup>

In 1964 the Banwell Report supported these views and pointed out that: "These views have been supported by every other Committee and Working Party which has considered the matter over the last 20 years",<sup>91</sup> and

yet the client still considers price as the major criterion to selection!

The effects of competitive tendering on the quality of service is recognised when discussing the possibility of introducing "competition" into the selection of the "professional team". This is illustrated by William Ratcliff, Chairman of COFPAES<sup>92</sup> and past President of the American Consulting Engineers Council: "We believe that the decline in the quality of the services rendered is inevitable when cost is a factor. Those who take the position that AE's can bid without eventually lowering the quality of what they provide simply do not understand the realities of the business world."<sup>93</sup> It is the opinion of the writer that this applies equally to construction services and yet the professions themselves do not seem to realise it.

In negotiation the contractor does not have to submit a price in direct competition to his competitors but negotiates a price with the client and is given the opportunity to justify his price. In the negotiation process he can inform the client on the consequences of lowering his price for certain items and the effects this may have on the quality of the work. The client can then decide on the quality he requires and the price he is willing to pay. Where the contractor is part of the "team" there will not be the same level of secrecy with regard to prices and the facts will be "placed on the table" during negotiations.

In an article entitled "Negotiation the Key to Quality", Bruce MacDonald of Rinaldi, MacDonald and Partners (Architects) discusses the concept of the negotiated contract and puts forward the view that "such contracts are one of the best ways of ensuring

that a building is constructed to high standards of quality". He attributes this to "the involvement of the contractor in the design process" and to "the degree of trust which tends to prevail on site".<sup>94</sup>

Negotiation gives the contractor a very real incentive to good quality work: "Since a contractor who is primarily involved in negotiated work is able to negotiate contracts based on past performance, he has a tremendous incentive to do a good job so that both architect and owner will use him in future work as well as recommend him to other potential clients."<sup>95</sup>

#### 4.3 TIME

The effects of competitive tendering and negotiation on the time taken to complete a building project have been adequately dealt with under Section 4.1.2 (e) to this report and no further discussion need be made.

#### 4.4 RISK

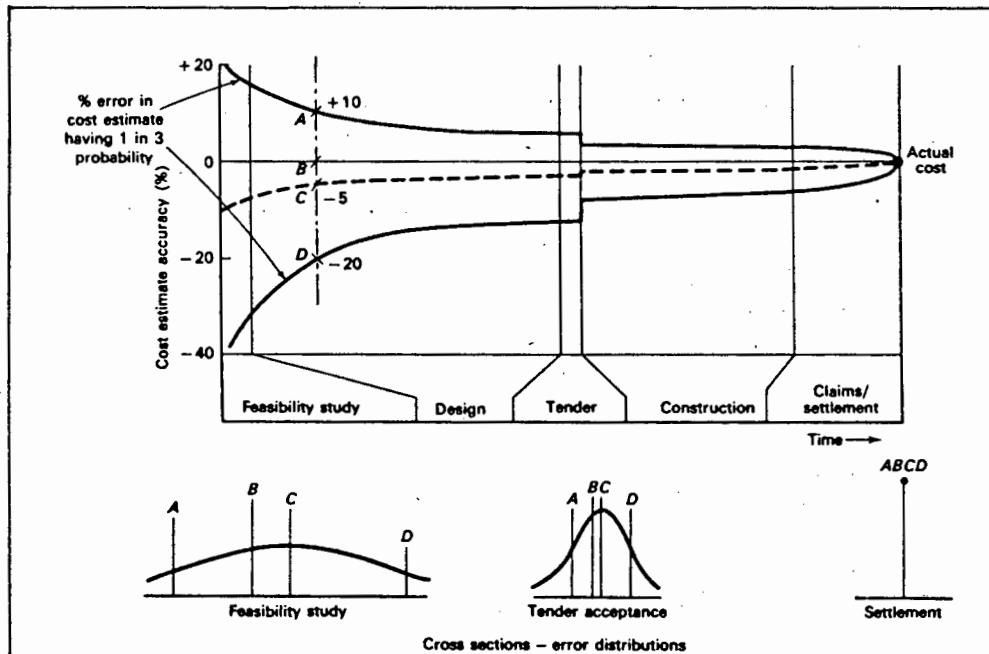
When selecting a contractor, the client will need to minimise his risk of not achieving his objectives of cost, time and quality. The client can and does limit his risk by the terms of the contract entered into with the contractor. A contract may legally bind a contractor to fulfill all the clients requirements, but he may still fail to do so. In the event of such failure, the client may have legal redress by way of damages but this is a very incomplete compensation as the client still does not have the right building at the right time and price. The selection of a competent contractor is the best guarantee that the client will get what he wants and this is the very factor which is emphasised in a negotiated contract.

The effects of indiscriminate tendering on the final cost and quality of the building have already been discussed and no further comment is therefore necessary. The clients risk will be considered with regard to the accuracy of the estimate, a cost commitment, the effects of the contractors bankruptcy and the risk of not completing the building in the required time.

a) The Accuracy of the Estimate

The clients decision to proceed with a building project is based on the feasibility study prepared by the quantity surveyor. The accuracy of this study is, to a large degree, dependent upon the accuracy of the estimated cost of the building. It follows then that the client's risk of proceeding with the project is dependent on the accuracy of the estimate.

The promoters of negotiated projects claim that the contractor is in a better position than the quantity surveyor to produce an accurate estimate. This is illustrated by Peletz: "The contractor can make initial estimates from schematic or preliminary drawings which can be extremely accurate based upon the contractors experience and estimating skill. Through this accurate preliminary estimate an economic analysis can be prepared which can be used to determine the feasibility of the project." He goes on to say, "in my opinion, it is impossible for either an architect or a quantity surveyor to be as accurate in costing a project as a contractor who lives and works daily with such information".<sup>96</sup> The uncertainties in cost predictions associated with particular stages in a project cycle are illustrated in Figure 4.2. below.<sup>97</sup>



**Figure 4.2 Chronology of cost estimate accuracy over the project time cycle**

"Point A shows that the probability is one in three that the current cost estimate is 10% higher than the actual cost. Point B is the actual cost as yet unknown. Point C is the medium of current estimates. Point D shows that the probability is one in three that the current estimate is 20% lower than the actual cost."<sup>98</sup> This diagram therefore, shows how cost prediction follows an evolution of continuously lessening uncertainty. It is the opinion of the writer that this uncertainty and subsequent risk can be reduced by making use of the contractors estimating skills.

In addition to the accuracy of the contractors estimate the contractor is the only party in a position to offer guarantees to these estimates. This is clearly illustrated in the following quotation from a letter prepared by a contractor: "The contractor guarantees his estimates from the beginning. This point is of

essential importance to the private developer as it removes his risk in relation to building costs. When I say guarantee I mean just that, not empty promises - broken reputations cannot be marketed by the client. It is a matter of record that estimates from quantity surveyors have not always proved reliable. Variations of 10% are not acceptable but variations of 100% are not unknown (there has been at least one recent example). By the time tenders are received, the client has already committed himself to land costs, professional fees, etc., and may then find that he does not have a viable project. At this stage, professional consultants offer apologies, take their fees and leave him to it. The negotiating contractor, however, stands by his estimate (if he is not prepared to do so, do not open negotiations with him but find one that will)."<sup>99</sup>

Contractors are prepared to guarantee their estimates, this is illustrated by the following quotation from notes prepared by a contractor: "As part of our pre-contract service we guarantee cost budgets, cost control and contract programming from preliminary sketch plans to contract completion, thus eliminating a large measure of risk from the development. Only a contractor can offer such guarantees, which are of inestimable value to the developer."<sup>100</sup>

It is the opinion of the writer that the increased accuracy and guaranteeing of an estimate will reduce the client's risk.

#### b) A Cost Commitment

A cost commitment by the contractor will effectively reduce the clients risk. It is often thought that negotiation does not allow for a price commitment by

the contractor which, once again, has most probably resulted from the misconception that a negotiated contract is a "cost - reimbursable contract". This has resulted in the thought that the client will only have a rough idea of his final cost commitment when he signs the contract and is therefore subject to greater risk. The following quotation indicates that this is not true: "The client has no obligation to the contractor until agreement on price has been reached and a contract signed."<sup>101</sup>

In competitive tendering the contractor is often required to prepare a fixed price for a project in 20 - 30 days. This together with inadequate information at tender stage often results in claims as described in Section 4.1.1 (e). What was the price commitment then becomes more of an item in the clients budget as the contractor is entitled to adjustments to his price due to variations in the scope of his work. The involvement of the contractor in the 'building committee' in negotiated contracts avoids this. Both competitive tendering and negotiation therefore offer the client a price commitment and it can be argued that the latter will be closer to the final commitment of the client.

#### c) Effects of Contractors Bankruptcy

The effects of the contractors bankruptcy on the client are substantial. No matter what performance guarantees that client may have he will invariably occur a financial loss if the contractor goes into liquidation. The method of selecting a contractor should therefore minimise this risk.

In 1974 Cyril Sweett said: "The rate of financial failure of building contractors during recent years,

some of them very large firms, must give us all cause for concern". He continued, "if, therefore, we are to maintain a healthy, efficient and competitive industry, building owners must be prepared to pay a fair price for building work, and until some more rational tendering system is evolved one way of achieving this is by adopting some form of negotiation".<sup>102</sup> The situation has not changed and the present recession has seen the large contractors showing substantial losses in their financial statements and many contractors going into liquidation.

The effects of a recession are intensified by competitive tendering and the need to submit "keen" tenders. This is illustrated by Mr. Ron Scholss: "The competition to get work, at almost any cost, led to an over absorption of costs which has forced many contractors either to their knees or into liquidation" and that "they will now have to tender at realistic prices that will ensure they make a profit".<sup>103</sup>

The client, to avoid the risk of a contractors liquidation should therefore adopt a method of selecting the contractor which will not force the contractor to submit a price for which he cannot perform the work and thus give the client a false sense of security.

#### d) The Building at the Right Time

The risk of not completing the building in time is invariably a function of the inadequate pre-planning of the work, excessive variation orders and insufficient documentation at the time when it is required.

The effects of the methods of selecting a contractor on

pre-planning and the amount of variations have been adequately covered in Section 4.1.2 (c iii) and Section 4.1.1 (f), respectively and no further comment is necessary.

Professional firms, like other enterprises, have staff problems and frequently find difficulty in producing detailed drawings, schedules, etc. on time. This results in delays and invariably an extension in time. This problem cannot be eliminated by negotiation of the contract, but it can be eased by early preparation of contract documents and related schedules on documentation.

#### 4.5 ACCOUNTABILITY

A disadvantage of negotiated contracts is that the client can never be sure that for a given article he could not have obtained a cheaper price by tendering. Competitive tendering ensures a direct comparison of prices and the client can demonstrate to his shareholders, electorate and who ever need be, that the price paid was the "cheapest" at the time.

The directors of many public companies consider that the open tender system is the only one which can be used if they are to avoid the criticism of their share-holders. And, indeed, many public bodies are not allowed to place building contracts in any other way. But this approach is unrealistic when examined in relation to the cost and complexity of modern building projects. It is based on the assumption that all contractors are of equal capacity and that the tender system provides the best and most economical building in the shortest possible time. The contents of this report has shown that this is indeed not the case.

The writer poses the following question: "Is it more important to ensure that the basic design is an economic one to be executed by a suitable and reliable contractor at an acceptable cost that is known before heavy commitments are made, or to be certain that the price obtained, for what may prove to be an uneconomic design, is the cheapest offered at the time of going to tender?"

The primary duty of the management of any company is to achieve the best results for the least expenditure, and this can only be achieved by considering all factors. It is not irrelevant to point out that the "professional team" are, and quite rightly so, selected for their experience and competence. It seems illogical then that the same standards of careful judgement should not be applied to the contractor responsible for carrying out the project and that his experience and knowledge should only be available to the owner until after the terms of his contract have been rigidly defined.

#### 4.6 RELATIONSHIP BETWEEN PARTIES

The importance of good communication between the parties involved in a building contract was acknowledged by T.W. Miners in 1971 in a report entitled, "Communications and cost control in the Building Industry", concluded that "Careful consideration of all the factors involved in building organisation and management of the building process has now led to the conclusion that the greatest single stumbling block in the way of improved efficiency is the question of divided responsibility".<sup>104</sup> He then emphasises the importance of communications as a means

of overcoming this problem. Since then the importance of communications has been increasingly emphasised.

The method of selecting a contractor can play an important role in improving communications between the parties. It has been said that: "The impersonal character of a lump sum project puts the owner and contractor against each other; a gain for one is a disadvantage for the other, as the owner's representative on the job the architect is the "enemy". The owner and the architect on the one hand and the contractor on the other, are not all working in the same direction. The contractor won the job fairly and squarely by submitting the lowest bid and he has no obligation to the owner except to meet the minimum legal requirements of the contract documents".<sup>105</sup> While this may be an exaggeration, harmonious relationships are all too frequently absent in contracts secured by competitive tendering and this lack of harmony can prove to be expensive to all parties.

Negotiation, it is claimed, can alleviate this problem through the early selection of the contractor and his inclusion in the "building team". It is said: "The contractor identifies his own interests more closely with those of the client and accepts that he, together with the professional consultants, is responsible for the successful completion of the project."<sup>106</sup>

This is disputed by some who claim that the parties are still in direct conflict: "The personalities who will carry out most of the behind-the-scenes action in any negotiation will be the contractor and the quantity surveyor and they will have motives in direct conflict with each other. The contractor will aim to achieve the highest price in order to keep his share-holders happy

and the quantity surveyor will do his best to prevent this in order to assist his client in getting a cost effective building".<sup>107</sup>

While this is true, it is the opinion of the writer that it is the manner in which the negotiation takes place which is of importance. It is believed that the contractor and the client can and should negotiate on a professional basis acting as equal parties.

In the past the idea of having a "non-professional" in the building team was resented by many with such statements as "In normal competitive contracts the parties mentioned are able to co-operate before the tender stage except the General Contractor, who comes on the scene when he is needed i.e. when construction work is about to commence".<sup>108</sup> Contractors are now, however, beginning to be recognised as "professionals" with whom negotiations can take place on an equal footing.

A major stumbling block to this recognition is the claim that the initial negotiations take place with the contractors higher management but when the contractor is on site, his lower echelon management take over and "often put forward outrageous pricing proposals as part of what they see as their duty to their employer".<sup>109</sup> This is unfortunately often true and if contractors are to promote negotiated contracts they must ensure that their personall do act in a professional manner when negotiating as the success of a negotiated contract depends on the degree of trust between client and contractor.

The relevance of negotiation and the relationship between the parties is adequately summed up by Mr.

Relly: "It is my belief that a negotiated agreement is more in keeping with the national passwords of communications, conciliations and consensus. The lessons to be learned from the successful negotiations between large interest groups are just as relevant for the arrangements to be concluded in an agreement to build."<sup>110</sup>

## 5. CHOOSING THE METHOD FOR SELECTING A CONTRACTOR

The adoption of a particular method of selecting a contractor is an attempt to balance a number of objectives, as set out in Chapter 2, some of which are inter-related and some of which may conflict. Having evaluated the methods of selecting a contractor according to the client's objectives in Chapter 4, it is the intention in this chapter to determine which method should be used for particular circumstances.

It is generally accepted that: "There is a time to tender and a time to negotiate", however, which method should be used when is what is disputed. It is often said, and thought, that in "boom times" it will be financially advantageous to negotiate rather than tender. By now, it should be clear to the reader that this is a generalisation which at best will only satisfy one aspect, of the client's objective of paying the optimum economic price for the building namely, the contractors mark up.

The priorities of the client's objectives will differ between different projects and clients. In some contracts the client may be perfectly satisfied with a minimum standard of work, in others he may want something better. Time can be very important to the client in one contract and less so in another, and similarly the importance of the initial cost of the building may differ between clients. Because of this, the writer recommends a process for decision making rather than to maintain hard and fast rules as to which method should be used.

The process recommended by the writer is a "systems approach", which is detailed in the following section of this report. This process was developed, by the writer,

from basic systems theory and concepts based on works by Harold Kerzener, Ph.D.,<sup>111</sup> Richard I. Levin, Ph.D., and Charles A. Kirkpatrick, D.C.S.<sup>112</sup> and Barry Shore.<sup>113</sup>

### 5.1 THE SYSTEMS APPROACH

Dr. Kerzener defines the systems approach as "a logical and disciplined process of problem solving". He suggests that "the systems approach definition should be considered as, the system approach:

- Forces review of the inter-relationship of the various sub-systems.
- Is a dynamic process that integrates all activities into a meaningful total system.
- Systematically assembles and matches the parts of the system into a unified whole.
- Seeks an optimal solution or strategy in solving a problem."<sup>114</sup>

Adoption of the systems approach will therefore avoid generalisations such as the one described previously, because it forces the decision maker to consider the inter-relationship of all the sub-systems. This ensures that the problem is considered in its entirety rather than isolated problems being solved. The client's objectives, the achieving of which is the problem have already been reduced into the appropriate "sub-systems" in Chapter 2. The evaluation of the methods, of selecting a contractor was then conducted under these sub-systems and was therefore in keeping with the systems approach.

Before the recommended process is described it is necessary to determine the phases of and essential terms to, the systems approach to problem solving.

i) The phases are defined as:

- "Translation: Problem objective, and criteria and constraints are defined and accepted by all participants.
- Analysis : All possible approaches to or alternatives to the solution of the problem as stated.
- Trade-Off : Selection criteria and constraints are applied to the alternatives to meet the objectives.
- Synthesis : The best solution in reaching the objectives of the system is the result of the combination of analysis and trade-off phases.

ii) Terms essential to the systems approach are as follows:

- Objective : The function of the system or the strategy that must be achieved.
- Requirement : A partial need to satisfy the objective.
- Alternative : One of the selected ways to implement and satisfy a requirement.
- Selection Criteria : Performance factors used in evaluating the alternatives to select a preferable alternative.
- Constraint : An absolute factor - which describes conditions that the alternatives must meet."<sup>115</sup>

The systems analysis process is illustrated in Figure 5.1 on the following page.<sup>116</sup>

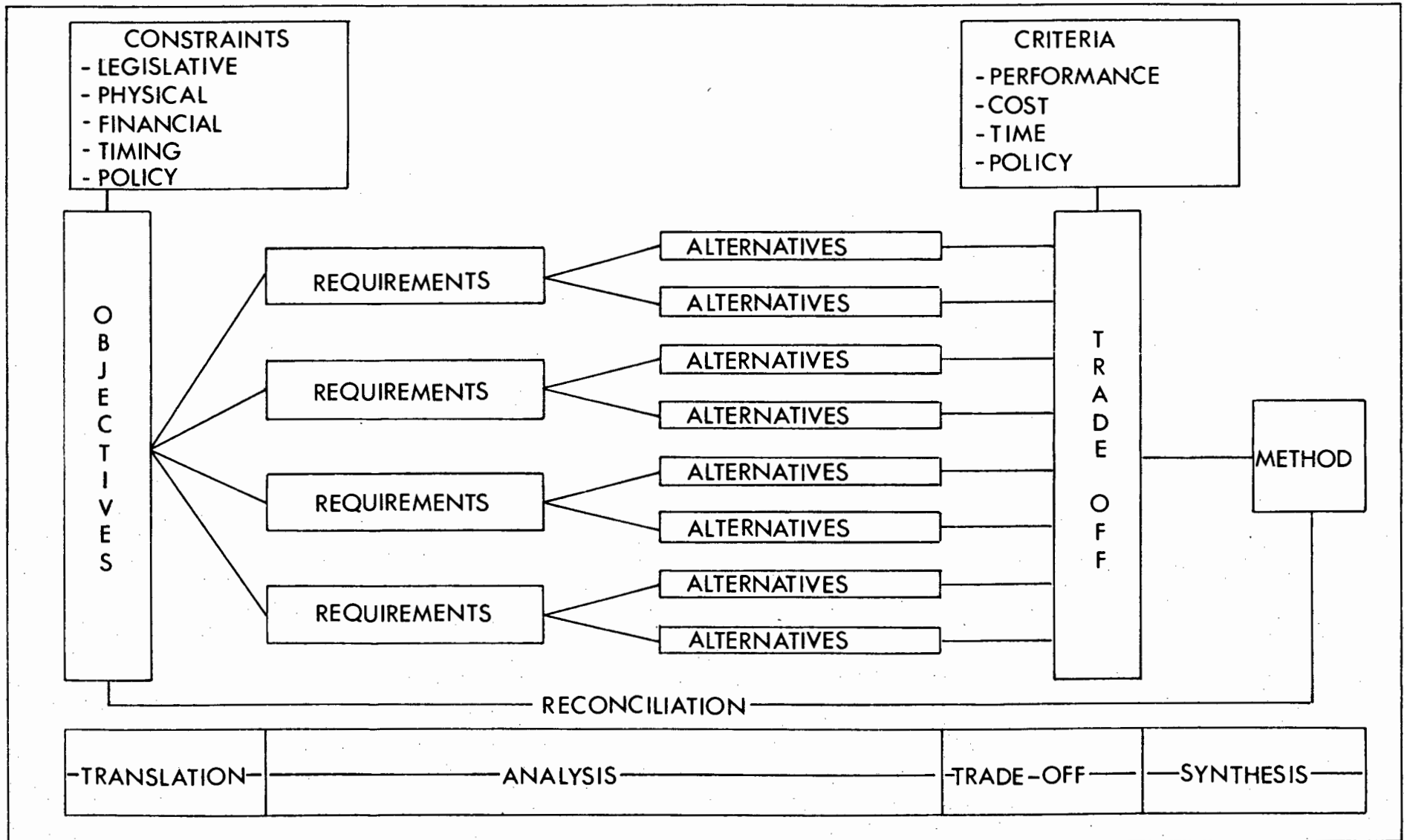


FIGURE 5.1 THE SYSTEMS APPROACH

## 5.2 RECOMMENDED PROCESS FOR CHOOSING THE METHOD FOR SELECTING A CONTRACTOR

The recommended process follows the sequence as illustrated in Figure 5.1 on the previous page. The process involves seven basic steps. These briefly stated are:

STEP 1 : Objectives - determine the client's objectives which are to be satisfied by selecting a contractor.

STEP 2 : Constraints- determine what constraints there are in choosing a method of selection.

STEP 3 : Requirements- determine the needs of each objective.

STEP 4 : Alternatives- determine what alternative methods of selecting a contractor are available and how each alternative satisfies the requirements.

STEP 5 : Selection - establish the criteria which will  
Criteria be used to select the best alternative.

STEP 6 : Trade-Off - evaluate the alternatives according to the criteria chosen, and select the best alternative.

STEP 7 : Feedback - having selected a method check this method against the client's objective.

The process will now be worked through step by step to

illustrate the concept of systems thinking and the type of question which should be asked when choosing a method to select a contractor.

STEP 1 : Determine the objectives which are to be satisfied by selecting a contractor:

The client's objectives were determined in Chapter 2 as being:

- \* To get the building he wants of the right quality and form for his needs. (2.1)
- \* To be able to take possession of the building at the time he needs it. (2.2)
- \* To pay the optimum economic price for the building. (2.3)
- \* To define and minimise the risk involved. (2.4)
- \* To be satisfied that he has achieved his objectives. (2.5)

STEP 2 : Determine the constraints:

The client should consider the following constraints:

- \* Legislative - what laws may prevent the client from adopting a particular method? Consideration should be given to the M.B.A. by-laws as described in Section 2.1.3.
- \* Physical - are there any physical constraints preventing the use of a particular method?
- \* Financial - what are the financial constraints?

- \* Timing - what are the constraints with regard to time?
- \* Policy - does the client's company policy prevent the use of any particular method of selecting a contractor?

The answers to these questions will prescribe certain criteria which must be met in the choice of which method will be used to select the contractor.

### STEP 3 : Determine the needs of each objective

This involves reducing the client's objectives to their respective sub-systems so as to determine the requirements of each objective. This reduction was done in Chapter 2 and has been summarised below:

#### Requirements to ensure that the building has the right quality and form:

- \* The right design. (2.1)
- \* A competent contractor. (2.1)
- \* Sufficient resources at the contractors disposal. (2.1)
- \* Adequate incentive to apply the resources in the best manner. (2.1)
- \* Allow a degree <sup>of</sup> flexibility for changes in design. (2.1)

#### Requirements to ensure possession at the right time:

- \* Minimise pre-tender period.
- \* Minimise actual tender period. (4.1.2, ii)
- \* Adequate Pre-contract planning. (4.1.2, iii)

Requirements to ensure possession at the right time cont.:

- \* Design. (4.1.2, iv)
- \* Possibility of a design/contraction overlap. (4.1.2 i)
- \* An incentive to efficient production.
- \* A competent contractor.

Requirements to ensure the optimum economic price is paid:

- \* Low price paid for construction. (2.3.1)
  - \* Low cost to the contractor. (2.3.1.1)
    - \* Minimise price paid for production factors. (2.3.1.1a)
      - \* Time project to coincide with favourable market conditions.
      - \* Adequate pre-planning. (4.1.2a)
  - \* Efficient design. (2.3.1.1b)
    - \* Economy of means.
      - \* Direct and opposite resolution of forces.
      - \* Minimise structural detour.
      - \* Minimise surface area.
      - \* Make use of cantileverage,
        - hollowness
        - tensegrity
  - \* Economy of production.
    - \* Availability of necessary construction skills.
    - \* Availability of necessary capital.
    - \* Economy of scales.
    - \* Efficient dictated erection procedure.
    - \* Economic details.
- \* Optimum time (2.3.1.1c)
  - \* Resources available.
  - \* Reduced opportunity cost.

Requirements to ensure the optimum price is paid

cont:

- \* Reduced inflation costs. (2.3.1.1d)
- \* Adequate pre-planning.
- \* Efficient productivity. (2.3.1.1e)
  - \* Competent contractor.
  - \* Adequate Incentive.
- \* Continuity of work. (2.3.1.1f)
  - \* Economy of scales.
  - \* Pre-planning.
- \* Reduce the mark up the contractor adds to his price. (2.3.1.2)
  - \* Take advantage of the prevailing market conditions. (2.3.1.2a)
  - \* Take advantage of different company strategies (2.1.3.1b)
    - \* Choose a reputable contractor.
  - \* Reduce the contractors risk. (2.3.1.2c)
    - \* Adequate definition of work to be done.
    - \* Make sufficient information available.
    - \* Allow adequate time for tender preparation.
  - \* Minimise the need for additional contingencies (2.3.1.2d)
    - \* Promote a harmonious business relationship.
- \* Reduce additional costs to the client. (2.3.2)
  - \* Reduction in opportunity costs. (2.3.2.1)
    - \* Minimise the time before revenue is produced.
  - \* Reduce professional fees. (2.3.2.2)
    - \* Avoid unnecessary fees.

Requirements to define and minimise the risk:

- \* Select a competent contractor.
- \* Ensure the estimate is accurate. (4.4.1)

Requirements to define and minimise the risk cont.:

- \* Obtain a cost commitment. (4.4.2)
- \* Try to avoid possibility of contractors bankruptcy. (4.4.3)
  - \* Accept realistic prices.
  - \* Reduce contractors risk.
  - \* Promote adequate pre-planning.
- \* Ensure adequate pre-planning.

Requirements to be satisfied that the objectives have been met:

- \* Demonstrate acceptability of the method chosen to select the contractor.

STEP 4 : Determine the alternative methods of selecting a contractor and how each method relates to the requirements set out in Step 3:

The methods available for selecting a contractor were determined in Section 3.2.2 as being:

- \* Open Tendering.
- \* Selective Tendering.
- \* Negotiation.

Although these are the methods generally available the constraints, as determined in Step 2, may prohibit the use of one or more under the particular circumstances.

The questions which should be asked, to determine how each method relates to the requirements, have been developed from the evaluation in Chapter 4. The use of each method should be questioned as follows:

The effects on the right quality and form:

- \* What emphasis is placed on the competency of the contractor? (4.2)
- \* Does the method allow for sufficient resources to be assigned to the project? (4.2)
- \* What incentive is there to apply these resources to achieve a high standard of quality? (4.2)
- \* What provision is made for and what are the likely results of variations? (4.2)

The effects on possessing the building at the right time:

- \* What time will be required before tenders can be called for?
- \* How long is the tender period likely to be? (4.1.2 ii)
- \* How long will it take to evaluate tenders in sufficient depth? (4.1.2)
- \* Does the method allow for adequate pre-planning regarding:
  - \* Programming of resources.
  - \* Labour.
  - \* Subcontractors. (4.1.2)
- \* Is the contractor design input allowed for? (4.1.2 i)
- \* What incentive is there for the contractor to make his design skills available? (4.1.2b)
- \* Is a possibility of a design/construction overlap allowed for? (4.1.2 i)
- \* What incentive is there for the contractor to complete within the time budget?
- \* What emphasis is placed on the competency of the contractor?

The effects on the optimum economic price:

- \* Can the method possibly result in a reduction in the cost of the resources? (4.1.2a)
- \* Is the provision for pre-planning enhanced?
- \* Is allowance made for the contractors design input with regard to: (4.1.2b)
  - \* Assessment of design from the "build-ability" point of view?
  - \* Cost advice?
  - \* Specialist systems?
  - \* Plant requirements?
  - \* Particular means of production?
- \* Is there adequate incentive for the above design input?
- \* Is sufficient time allowed for the above design input?
- \* Does the method of pricing allow for a reduction in time? (4.1.2c)
- \* What emphasis is placed on the competency of the contractor? (4.1.2d)
- \* What incentive is there to efficiency? (4.1.2d)
- \* Does the method allow for possible continuity of work? (4.1.2e)
- \* What mark up is likely to be added by the contractor? (4.1.1e)
- \* What variations are there likely to be in the initial price? (4.1.1f)
- \* Will the mark up be realistic? (4.1.1f)
- \* Are claims likely and to what extent? (4.1.1f)
- \* Does the method take full advantage of the prevailing market conditions?
  - \* What degree of competition is there? (4.1.1b)
- \* What emphasis is there on selecting a reputable contractor? (4.1.1c)

The effects on the optimum economic price  
(cont):

- \* What degree of definition is required?  
(4.1.1d)
  - \* Can the work be defined to this degree?
- \* Are errors and omissions likely in the tender documents? (4.1.1d)
- \* Is sufficient time allowed for tender preparation?
- \* What is the relationship between the parties likely to be? (4.6)
- \* Does the method result in superfluous professional fees being paid?

The effects on the risk involved:

- \* What emphasis is placed on the competency of the contractor. (4.4)
- \* Can the method improve the accuracy of the estimate? (4.4.1)
- \* Does it allow for a cost commitment by the contractor? (4.4.2)
  - \* How committed is the contractor to this cost?
- \* Does the method reduce the risk of the contractor going bankrupt? (4.4.3)
- \* Is pre-planning enhanced with a resultant reduction in risk? (4.1.2c iii)

The effects on accountability:

- \* Does the method enable the client to be able to demonstrate that he has secured the best deal?

STEP 5 : Establish the selection criteria

The selection criteria used for any project will be a combination of the following:

- \* Performance.
- \* Cost.
- \* Time.
- \* Policy.

However, as the weighting of these criteria will be influenced by the particular circumstances of each project, consideration should be given to the following factors, to determine the priorities of the above criteria.

\* The nature of the project:

- \* Type of project (residential, industrial, educational, commercial, etc).
- \* Size of project.
- \* Nature and complexity of the proposed construction works.
- \* Whether the project is one of several which the client is intending to have built.
- \* Standard of quality required.

\* Time:

- \* How soon the work is to start.
- \* How quickly it is to be finished.
- \* Whether there are intermediate time targets for completion of part of the work.

- \* Special requirements of the project:
  - \* Cost
  - \* Time
  - \* Performance
  
- \* The work to be done by the contractor:
  - \* What actual skills will be required from the contractor's own employees?
  - \* What proportion of the whole project is the contractor expected to build with his own employees?
  - \* What proportion will be performed by nominated and domestic sub-contractors respectively?
  
- \* Organisation:
  - \* Is the contractor to organise his own work or is he to organise and co-ordinate the work of others, or is he to do both?
  
- \* Provision of Plant:
  - \* Is the contractor to provide plant for his own use only or for the use of other contractors or is plant going to be provided for his use by others?
  
- \* Design:
  - \* Is the contractor to provide any design service, if so, to what extent?
  
- \* Finance:
  - \* Is the contractor required to provide any finance beyond that necessary to maintain progress between interim certificates?

\* Development:

\* Is the contractor to build any part of the project as a developer?

STEP 6 : Evaluate the alternatives according to the criteria chosen:

The weighting of the answers to the questions in Step <sup>4</sup>3 should now be determined according to the selection criteria established in Step 5. It should be noted that if a client seeks to reduce his risk of not achieving one of his objectives of economy, speed or quality he might thereby increase his risk of not achieving one or both of his other objectives. The decision maker is therefore in a trade-off situation as not all the requirements can possibly be met by any one method chosen. The method which best satisfies the selection criteria should be chosen.

Although not all requirements will be satisfied by the method chosen the recommended process forces the decision maker to review the inter-relationship of the various sub-systems and allows him to evaluate each sub-system against the other.

STEP 7 : Check the selected method against the client's objective:

Having chosen the method of selecting a contractor the method should be reconciled with the client's objectives as stated in Step 1, to ensure they are indeed satisfied.

### 5.3 SELECTION FACTORS

Whichever method the client chooses to adopt having gone through the systems approach as detailed in the previous section, the writer recommends that consideration should be given to three aspects when selecting the contractor. These are:

- \* Has he the potential resources necessary to be capable of performing the services required?
- \* Is he likely to apply these resources adequately to the contract and are there any reasons why he should not do so?
- \* What are the contractor's specific proposals for the contract and are they reasonable?

Consideration of these factors is the best guarantee that the client will get what he wants.

#### 5.3.1 Assessment of potential resources

In assessing a contractor's potential ability to perform the service required, the following factors should be considered:

- \* Background and finance.
  - \* Length of time in business.
  - \* Financial resources.
  - \* Reputation.
- \* Physical resources.
  - \* Premises including offices, workshops, stores etc.
  - \* Fixed plant and machinery.

- \* Site plant and transport.
- \* Office and design equipment (e.g. computer facilities).
- \* Access to building materials and stores.
  
- \* Human Resources.
  - \* Operative Labour
    - \* The numbers and trades of regularly employed operatives.
    - \* The numbers and skills of regularly employed and supervisory staff.
  
  - \* Management.
    - \* Numbers and organisational structure of management personnel.
    - \* Techniques of management normally used, both on site and in the office including communications and programming.
    - \* Management aids available (e.g. computers).
    - \* Technical knowledge and experience of management personnel.
  
  - \* Design Staff.
    - \* Numbers, qualifications and experience of design staff.
  
- \* Normal scope of business and related business potential.
  - \* Type of work normally undertaken (e.g. high rise, housing etc).
  - \* The range of skills and trades which the contractor normally undertakes with his own employees.
  - \* Those that he usually sub-contracts when he is appointed as a main contractor.
  - \* Establish what subsidiary companies are owned by

the contractor.

### 5.3.2 Assessment of probable use of resources

The possession of financial, physical and human resources, however, is not in itself a guarantee that they will be available or properly used in a particular contract. In order to predict their availability and use, consideration should be given to the following factors:

- \* Availability of resources.
  - \* the contractor's current commitments
  - \* his ability to acquire additional resources
- \* Proper use of resources
  - \* the contractor's past performance record.
  - \* the incentive he will have.

### 5.3.3 Specific proposals

When assessing the contractor's specific proposals for the project consideration should be given to the following:

- \* His price offer.
- \* Time proposals.
- \* His proposed construction programme.
- \* Type of plant he intends using.
- \* Supervisory staff to be employed on the job.
- \* Management aids to be used.

## 6. CONCLUSIONS

The first steps which a client takes to initiate a building project are important as they are likely to have a decisive influence on subsequent procedures. The adoption of a particular method of selecting a contractor is an attempt to balance a number of objectives some of which are inter-related, and some which conflict, but all of which are concerned with achieving the time, cost and quality package which will offer the client the best value for his investment.

The complexities of building operations today require a thorough understanding of the constituent factors effecting these objectives if they are to be satisfied. The traditional approach to selecting a contractor by competitive tendering no longer provides the best solution to all building projects. The principle advantage of competitive tendering to place contractors in formal competition with one another, satisfies only one aspect of obtaining the optimum economic price for the building, namely minimising the contractors mark up. The need to submit "keen" tender prices in order to secure work can have serious repercussions on the date of completion, quality and final cost of the project.

In order to obtain tenders the work must be defined and the services of the only party who has direct knowledge of building costs and who will be responsible for turning the designer's proposals into reality, namely the contractor, are excluded from the entire design process. It is not sufficient that the price for a given design be a competitive one but the design itself should be economic. Contractors today are specialists in construction and can make substantial contributions to design with subsequent reductions in the time and cost of

the project without sacrifice of quality, aesthetic appeal or functionality of the building. Furthermore, the inclusion of the contractor into the "building team" at an early stage enhances the opportunity for thorough pre-planning of the project, the consequences of which are axiomatic.

Selection of the contractor by negotiation enables the contractor to be included into the building team at an early stage, however, formal competition is sacrificed. Although formal competition is sacrificed, there still remains a very real degree of competition, and the negotiating contractor will have to submit competitive prices if he is to secure work. A rational approach to determine the likely variances in initial prices between negotiated contracts and those secured by competition shows that the opportunity for large variances is limited. The negotiating contractor relies on his record of past performance to secure work and therefore has to develop his company's goodwill if he is to secure future work. This reliance on reputation has positive effects on the quality, cost and overall performance of a negotiated contract.

Prices submitted by competitive tendering are likely to be lower than those obtained by negotiation, however, this does not reflect the final cost to the client. In the end, a negotiated contract may well offer the client the best value due to a more efficient/economic design, a reduction in the contract period, enhanced pre-planning, reduced claims and the overall smooth running of the contract. The difficulty to demonstrate these savings at the beginning of the project, however, creates problems

with regard to the accountability of the management of company's to their shareholders. The directors of many public companies consider that the open tender system is the only one which can be used if they are to avoid the criticism of their shareholders. The primary duty of the management of any company is to achieve the best results for the least expenditure, and this can only be achieved by considering all factors.

Not every project, however, will benefit from the early selection of a contractor at the expense of sacrificing formal competition and the priorities of the client's objectives of cost, time and quality may differ between projects. To maintain hard and fast rules as to which method should be used under certain circumstances is to misunderstand the problem. To ensure that the client's objectives are satisfied, each project must be considered separately and the inter-actions of the constituent factors of each objective determined.

This should be done systematically, to ensure the problem is considered in its entirety rather than isolated problems being solved. The system approach recommended in this report forces review of the inter-relationship of the various sub-systems and is a dynamic process that integrates all activities into a meaningful total system.

Finally, improved relationships between the parties involved in a building project must be regarded as a foregone conclusion, but close attention should still be paid to the actual economics of handling and managing projects. When the recommendations implicit in this report are implemented, great care must be exercised to evaluate the benefits in terms of savings in the total cost of the building, that will accrue to the client with the adoption of a particular method of selecting the

contractor. Value for money, and not "is the price the cheapest", must always be the criterion when an appropriate method of selecting a contractor is under review.

## REFERENCES

1. Ministry of Public Building Works, The Placing and Management of Contracts for Building and Civil Engineering Work, Report of Banwell Committee, London : HMSO, 1964. p.2, paragraph 1.5.
2. E.W. McCanlis, Tendering Procedures and Contractual Arrangements, Research and Information Group of the Quantity Surveyor's Committee, London, 1971. p.13, paragraph 4.1.
3. Refer to Sec 2.3.1.1 (c) and (d).
4. Farrow Laing and Partners, Notes on Tendering Procedures and Contractual Arrangements for Large, Long and Complex Projects, Johannesburg. pp.5-7.
5. Refer to Sec 2.3.2.1 for definition of opportunity cost.
6. Refer to Appendix A for a comprehensive list of costs.
7. Refer to Sec 2.2.
8. Aqua Group, Which Builder? Tendering and Contractual Arrangements, London : Crosby Lockwood Staples, 1975. p.15.
9. This is not entirely true due to certain regulations which are given in Sec 3.1.3.
10. Aqua Group. p.16.
11. Edwin G. Dolan, Basic Economics, 2nd ed, Illinois : The Dryden Press, 1981. p.6.
12. McCanlis, p.19.
13. D.N. Fraser, Contracts and Contractual Procedures. p.9.
14. McCanlis. p.29, paragraph 5.33..
15. McCanlis. p.29, paragraph 5.34.
16. M.B.A. - Master Builders Association.
17. S.A.P.O.A., An Analysis of the Standard Building Contract and Contractual Procedures, A consolidated transcript of the proceedings at three symposia conducted in November 1976 and February 1977, p.7.

18. McCanlis. p.30, paragraph 5.4.1.
19. Sec 2.3.1.2(a).
20. Building Industries Federation South Africa - B.I.F.S.A.
21. Official Handbook B.I.F.S.A.
22. S.A.P.O.A., p.12.
23. C.P.A.P. - Contract Price Adjustment Provision.
24. P.C. - Prime Cost Items.
25. Institute of South African Architects, Types of Building Contracts, Practice Manual D2, 1979. p.1.
26. Institute of South African Architects, pp.1-6.
27. Chapter 2 : The Client's Objectives.
28. Chapter 2 : Sec 2.3.
29. D.J. Rouse, The Pros and Cons of Negotiated Contracts, Notes representing the Association of South African Quantity Surveyors, Planning and Development, January, 1974. p.60.
30. C.M. Pletz, Negotiated Contracts vs Lump Sum Competitive Building : A Comparison Study. Journal of Property Management, Vol 34, No 4, July, 1969. p.172.
31. Refer to Sec 2.3.1.
32. D.J. Rouse, Negotiated Contracts - The other side of the coin, SA Construction World, Jan 1984. p.55.
33. Rouse. p.60.
34. The Pros and Cons of Negotiated Contracts - A Reply, Planning & Building Developments, May/June 1974. p72.
35. McCanlis. p.21.
36. Rouse. p.52.
37. Bruce MacDonald, Negotiation the key to Quality, Construction in Southern Africa, April 1978. p.15.
38. McCanlis, p.21.
39. Refer to Sec 2.3.1.2(b).

40. The Pros and Cons of Negotiated Contracts - A Reply. p.72.
41. Refer to Sec 2.3.1.2(c).
42. Peletz. p.176.
43. J.A.L. Chapman and M.J. Webb, A Comparison of Open Competitive Tenders and Negotiated Contracts, Technical Report, UCT 1983.
44. BER - Bureau for Economic Research.
45. MacDonald. p.15
46. Personal interview with Mr Geoff Turner, Contracts Director, Murray and Roberts Building, Cape.
47. Peletz. p.176.
48. LTA Construction Ltd, Negotiated Contracts, 1986. p.5
49. Cyril Sweett, the Cases for Negotiated Building Contracts, Chartered Surveyor, March 1971. p.437.
50. Professor Vorster, Head of Department of Civil Engineering, UCT. Personal interview.
51. Farrow Laing and Partners. p.2.
52. Roger, Flanagan, Change the System, Building, 20 March, 1981. p.28.
53. Sweett. p.438.
54. Refer to sec 2.3.1.1.
55. LTA. p.1.
56. Sec 2.3.1.1(a).
57. LTA. p.7.
58. Sec 2.3.1.1(b).
59. Dura Construction Co, Why Negotiate. p.3.
60. LTA. p.6.
61. Farrow Laing and Partners. p.3.
62. LTA. p.6.
63. Dura. p.1.

64. Dura. p.2.
65. The Pros and Cons of Negotiated Contracts - A Reply. p.71.
66. Personal interview with Mr Geoff Turner, Murray and Roberts.
67. McCanlis. p.36.
68. D. J. Rouse, The Pros and Cons of Negotiated Contracts. p.59.
69. D. J. Rouse, The other side of the coin. p.60.
70. D. J. Rouse. The Pros and Cons of Negotiated Contracts. p.64.
71. The Pros and Cons of Negotiated Contracts - A Reply. p.71.
72. Rouse. p.57.
73. Old Mutual Properties, A Corporate Report, Supplement to Financial Mail, 8 July 1983. p.17.
74. Rouse. p.60.
75. LTA. p.4.
76. MacDonald. p.17.
77. Sec 4.1.2(b).
78. Rouse. p.60.
79. Personal interview with Mr R Lane, President of the Association of South African Quantity Surveyors.
80. Rouse. p.60.
81. Farrow Laing and Partners. p.5.
82. Farrow Laing and Partners. p.6.
83. MacDonald. p.17.
84. MBA News Bulletin, No 49. pp.17-19.
85. MBA News Bulletin, No 51. pp.14-15.
86. Gavin Relly, Too much money spent on tendering, Newspaper article, 23.10.1984.

87. Farrow Laing and Partners. p.2.
88. A.E. Paterson, Pre-planning against conflict in the Civil Engineering Industry, The Civil Engineering Contractor, December 1979. p.55.
89. Peletz. p.173.
90. Banwell Report, paragraph 37.
91. Banwell Report, paragraph 3.4.
92. COFPAES, Committee on Federal Procurement of Architectural/Engineering Services.
93. Rita Robinson, Is there a bid for services in your future?, Civil Engineering/ASCA, Sep 1983. p.40.
94. MacDonald. p.15.
95. Peletz. p.176.
96. Peletz. p.175.
97. S.H. Wearne, Control of Engineering Projects, London: Edward Arnold (Publishers) Ltd. 1974. p.137.
98. Wearne. p.136.
99. The Pros and Cons of Negotiated Contracts - A Reply. p.71.
100. Dura. p.4.
101. LTA. p.3.
102. Sweett. p.438.
103. Property and Construction, A Supplement to Financial Mail, September 19, 1986, p.56.
104. T.W. Miners, Communications and Cost Control in the Building Industry, CSIR Special Report BOU 24, Pretoria 1971. p.15.
105. Peletz. p.173.
106. Dura. p.1.
107. Rouse. p.55.
108. Rouse. p.60.

109. Rouse. p.55.
110. Relly, 84-10-23.
111. Harold, Kerzner, Project Management, A Systems Approach to Planning, Scheduling and Controlling. 2nd ed, New York : Van Dostrend Reinhold Co Inc., 1984.
112. Richard I. Levin and Charles A Kirkpatrick, Quantitative Approaches to Management, 4th ed, New York: McGraw Hill, 1978.
113. Barry Shore, Quantative Methods for Business Decisions : Text and Casts, International Student Edition, Kogakusha : McGraw Hill, 1978.
114. Kerzner. p.759-788.
115. Kerzner. p.759-788.
116. Kerzner. p.759-788.

## BIBLIOGRAPHY

- AQUA GROUP. Which Builder? Tendering and Contractual Arrangements. London : Crosby Lockwood Staples. 1975.
- CHAPMAN, J.A.L. & M.S. WEBB. A Comparison of Open Competitive Tenders and Negotiated Contracts. Technical Report. UCT 1983.
- CURILLA, JOSEPH. The Trend towards Merit Shop Construction in the United States. South African Builder May 1983. pp.45-47.
- DAVIS, L.E. The Other Side. Finance Week. June 1986. pp.607.
- DE VILLIERS, RUFUS. Negotiated Contracts.
- DURA CONSTRUCTION CO. Why Negotiate?
- FARROW LAING AND PARTNERS. Notes on Tendering Procedures and Contractual Arrangements for Large, Long and Complex Projects. Johannesburg.
- FINE, BRIAN. Economies of Construction, Tendering Strategy. Building - 25 October 1975. pp.115-121.
- FLANAGAN, ROGER. Change the System. Building. 20 March 1981. pp.28-29.
- FRASER, D.N. Contracts and Contractual Procedures.
- HARPER, DENIS, R. Building, The Process and the Product. Building - 25 October 1974. pp.309-338.
- HUGHES, G.A. The Anatomy of Quantity Surveying. London : The Construction Press. 1978.
- INSTITUTE OF SOUTH AFRICAN ARCHITECTS. Types of Building Contracts. Practice Manual D2. 1976.
- INSTITUTE OF SOUTH AFRICAN ARCHITECTS. Tenders and Tendering Procedure. Practice Manual D1. 1981.
- JEFFERSON, R.F. Management Contracting, A Quantity Surveyor's View-point. The Association of South African Quantity Surveyors National Congress. Port Elizabeth 1985.
- JOINT COMMITTEE. Report on Tendering Procedure. Report of Robertson Committee. London : HMSO. 1952.

- KERZNER, HAROLD. Project Management - A Systems Approach to Planning, Scheduling and Controlling. 2nd ed. New York : Von Dostrend Reinhold Company Inc. 1984.
- LEVIN, RICHARD I AND CHARLES A. KIRKPATRICK. Quantative Approaches to Management. 4th ed. New York : McGraw Hill. 1978.
- LTA CONSTRUCTION LTD. Negotiated Contracts. 1986.
- MACDONALD, BRUCE. Negotiation the Key to Quality. Construction in Southern Africa. April 1978. pp.15-19.
- McCANLIS, E.W. Tendering Procedures and Contractural Arrangements. Research and Information Group of the Quantity Surveyor's Committee. London. 1971.
- McMILLAN, CLIFF. South African enters the era of Rapid Construction. SA Construction World. August 1983. pp.79-87.
- MINERS, T.W. Communications and Cost Control in the Building Industry. CSIR Special Report BOU 24. Pretoria 1971.
- MINISTRY OF PUBLIC BUILDING AND WORKS. The Placing and Management of Contracts for Building and Civil Engineering Work. Report of Banwell Committee. London : HMSO. 1964.
- MOUTON, D.J. The Constitution and By-Laws of BIFSA operating within a Free Enterprise Economy. BIFSA. 75th Annual Congress. 1980.
- NATIONAL ECONOMIC DEVELOPMENT OFFICE. Before you build, what a client needs to know about the construction industry. London : HMSO. 1974.
- NATIONAL ECONOMIC DEVELOPMENT OFFICE. The Professions in the Construction industries. London : HMSO. 1976.
- NATIONAL ECONOMIC DEVELOPMENT OFFICE. Action on the Banwell Report. London : HMSO. 1976.
- OLD MUTUAL PROPERTIES. A Corporate Report. Supplement To Financial Mail. 8 July 1983.
- PATERSON, A.E. Pre-planning against conflict in the civil engineering industry. The Civil Engineering Contractor. December 1979. pp.55-56.

- PELETZ, C.M. Negotiated Contracts vs Lump Sum Competitive Bidding - A Comparison Study. Journal of Property Management. Vol 34. No 4. July 1969. pp.173-177.
- RELLY, GAVIN. Too much money on tendering. Newspaper article. 23.10.1984.
- ROBINSON, RITA. Is there a bid for services in your future? Civil Engineering/ASCE. September 1983. pp.40-44.
- ROUSE, D. J. The Pros and Cons of Negotiated Contracts. Notes representing the Association of South African Quantity Surveyors. Planning and Building Developments, January 1974. pp.55-64.
- ROUSE, D. J. Negotiated Contracts - the other side of the coin. SA Construction World. January 1984. pp.52-60.
- S.A.P.O.A. An Analysis of the Standard Building Contract and Contractual Procedures. A consolidated transcript of the proceedings at three symposia conducted in November 1976 and February 1977.
- SCHNEID, JULES, J. Project Management : Fast track approach to documentation and construction. SA Builder. March 1983. pp.59-65.
- SCHNEID, JULES, J. Project Management : Answering the critics. Construction in Southern Africa. February 1982. pp.93-95.
- SHORE, BARRY. Quantative methods for business decisions : Text and Cases. International Student Edition. Kogakusha : McGraw Hill, 1978.
- SMIT, J.J. Tender Evaluation - The Whole Concept. The Civil Engineering Contractor. July 1979. pp.39-48.
- SWEETT, CYRIL. The Cases for Negotiated Building Contracts. Chartered Surveyor. March 1971. pp.437-442.
- TANTON, J.R. Tendering on a Prescribed Construction Programme. Institute of Architects Congress, Natal. 29 May 1981.
- Tender Education - A contractor's reply to the NTC. The Civil Engineering Contractor. August 1980. pp.59-63.

The Pros and Cons of Negotiated Contracts - A Reply.  
Planning and Building Developments. May/June  
1974. pp.71-73.

THOMPSON, PETER. Organisation and Economies of Construc-  
tion. London : McGraw Hill 1981.

TUROK, HILLEL. Negotiated Contracts.

UNIVERSITY OF CAPE TOWN, Department of Civil Engineering.  
Notes on Alternative Contractual Arrangements.  
1986.

UNIVERSITY OF CAPE TOWN, Department of Quantity Surveying  
Notes on feasibility studies. 1986.

VORSTER, MIKE. When the lowest tender isn't the lowest.  
Construction in Southern Africa. February 1977.  
pp.37-43.

WEARNE, S.H. Control of Engineering Projects. London :  
Edward Arnold (Publishers) Ltd. 1974.

WHEELDON, BARRY, G. Advantages of the Package Deal.  
Building Trades Journal, October 25 1974.  
pp.28-35.

Where Stands the New President? An interview with Mr  
Pat Morris, 1982-83, President BIFSA. South  
African Builder. January 1983. pp.13-14.

APPENDIX A

THE INITIAL CAPITAL COSTS INVOLVED IN A BUILDING PROJECT

SOURCE : NOTES PREPARED BY THE DEPARTMENT OF QUANTITY  
SURVEYING UCT 1986.

## 1. ENTREPRENEURIAL COSTS

- 1.1 Formation of Property Owning Company.  
Company formation, company registration, stamp duties, legal fees, etc.
- 1.2 Sundry Legal Costs.  
Company licence, attorneys fees, auditors feed, book-keeping, registration fees, etc.
- 1.3 Miscellaneous Entrepreneurial Costs.  
Expenses in co-ordinating and initiating a project. Introduction of investors, procure land, etc.
- 1.4 Market Research, Viability Analysis, etc.  
Investment advisers, property economists, estate agents, appraisers, town planners, sociologists, market and planning researchers, financial analysis, bankers, lawyers, land surveyors.
- 1.5 Administration and Other Contingent Costs.

## 2. LAND COSTS

- 2.1 Purchase price/value.
- 2.2 Estate agents commission.
- 2.3 Stamp duties.
- 2.4 Financial charges.
- 2.5 Land survey charges.
- 2.6 Transfer charges.
- 2.7 Rezoning, consolidation, betterment, etc.
- 2.8 Demolition.

## 3. DEVELOPMENT COSTS

- 3.1 Services.
  - a) Roadways.
  - b) Power supply.
  - c) Water supply.
  - d) Gas supply.
  - e) Stormwater drainage.
  - f) Soil drainage.
  - g) Others.

- 3.2 Building costs.
  - a) Demolitions.
  - b) Building cost.
  - c) Siteworks.
- 3.3 Landscaping or gardening.
- 3.4 Specialists work.
- 3.5 Professional fees (consultants fees).
  - 3.5.1 Architect.
  - 3.5.2 Quantity Surveyor.
  - 3.5.3 Structural Engineer.
  - 3.5.4 Electrical Engineer.
  - 3.5.5 Mechanical Engineer.
  - 3.5.6 Project Manager or Construction Manager.
  - 3.5.7 Other.
- 3.6 Printing of drawings, typing, duplicating, etc.
- 3.7 Local authority fees for approval of plans.
- 3.8 Clerk of Works.
- 3.9 Insurance costs.
- 4. Other.
  - 4.1 Holding costs.
    - Land holding costs
    - Building holding costs.
  - 4.2 Contingent costs.
  - 4.3 Bond charges.
  - 4.4 Letting fees.
  - 4.5 Opportunity costs (loss of interest costs).
    - 4.5.1 Entrepreneurial fees.
    - 4.5.2 Land costs.
    - 4.5.3 Building costs.
    - 4.5.4 Professional fees.
    - 4.5.5 Printing of drawings, typing, etc.
    - 4.5.6 Scrutiny fees.
    - 4.5.7 Clerk of works.
    - 4.5.8 Insurance charges.
    - 4.5.9 Holding costs.
    - 4.5.10 Contingent costs.
    - 4.5.11 Interest on bond during construction.
    - 4.5.12 Letting fees.

APPENDIX B

B.I.F.S.A. BY LAWS : TENDERING PROCEDURES.

SOURCE : HANDBOOK OF THE MASTER BUILDERS' AND ALLIED  
TRADES' ASSOCIATION (CAPE PENINSULA) 1986, pp vii-xiv)

### BY-LAW 3 : BILLS OF QUANTITIES AND QUANTITY RULE

- 3.1 A member shall not tender on bills of quantities not prepared in accordance with the Standard System of Measuring Builders' Work.
- 3.2 A member shall not tender in competition for work in respect of which no bills of quantities have been prepared unless:
  - 3.2.1 the tender amount is less than R250 000, or
  - 3.2.2 the tender amount is less than R25 000 in respect of work which is normally classified as sub-contract work, but for which separate tenders are invited with a view to having the work executed as a direct contract, or
  - 3.2.3 the tender is in respect of a dwelling house, irrespective of the value thereof, provided the total covered area of the dwelling house, including out-buildings, does not exceed 500 square metres.
- 3.3 This by-law shall not apply to maintenance work on existing buildings or to group housing schemes.
- 3.4 Members may use their expertise and ingenuity by submitting tender prices based on a different design, construction method and/or material not called for in accordance with the original plans and specifications.
- 3.5 Members will only be allowed to submit an alternative price as stated in 3.4 provided they submit a tender price as called for in terms of the tender documents, unless such tender is submitted on an industrialised building system as defined in By-Law 2.

### BY-LAW 4 : SUBMISSION OF PRICED BILLS OF QUANTITIES

- 4.1 A member shall not submit priced bills of quantities, schedules of rates or a summary of prices with a competitive tender, nor shall he do so after the opening of tenders unless requested to do so by the person calling for tenders for the purpose of awarding the contract to such member.
- 4.2 Where a member tenders to an employer or his agents, and, after opening of tenders, is required to submit priced bills of quantities, schedules of rates or a summary of prices, he shall indicate to the person calling for tenders that such submission shall be deemed to be provisional acceptance of such tender.

4.3 Calling for priced bills of quantities, schedules of rates or a summary of prices by a principal contractor from a sub-contractor after the opening of the main tender shall be deemed to be a provisional acceptance of such tender.

BY-LAW 5 : OFFICIAL TENDER ENVELOPE

5.1 A member shall not tender in competition with a non-member for services in excess of R250 000 or for services in excess of R25 000 if normally classified as sub-contract work except in the envelope officially approved by BIFSA, bearing an endorsement to the effect that:

5.1.1 the tender shall be opened only in competition with tenders correspondingly submitted by members in the official BIFSA tender envelopes;

5.1.2 the tenders shall be opened and the prices and the names of the tenderers shall be immediately announced on the date and at the time and place fixed for the submission of tenders;

5.1.3 tenderers are allowed to be present at such opening;

5.1.4 the tender shall be null and void and shall not be opened if the provisions of By-laws 5.1.1 - 5.1.3 have not been complied with.

5.2 This by-law shall not apply to tenders submitted in respect of work in the public sector nor where tenders are called on an industrialised building system.

BY-LAW 6 : PROHIBITION OF TENDERING ON TIME

6.1 If no time for completion is stated in the tender document, then no tenderer shall be permitted to state the time for completion on his competitive tender.

6.2 No tenderer shall be permitted to qualify his tender by reducing the time for completion if such a time is stated in the tender document.

6.3 If, in the opinion of the tenderer, the time for completion, as stated in the tender document, is inadequate, the tenderer may qualify his tender as to time. If the tenderer qualifies as to time, he must state the time of completion required together with his price based on such qualified completion time.

6.4 Where the tender documents call for prices on different completion periods and, in the opinion of the

tenderer, such completion periods are inadequate, the tenderer may qualify his tender as to time and must then state the time of completion required together with his price based on such qualified completion time.

- 6.5 The provisions of the by-law shall not apply where the tender enquiry is called for construction on an industrialised or system building basis only.

BY-LAW 7 : PROHIBITION ON TENDERING FOR OR ACCEPTANCE OF WORK

- 7.1 If the Employer or his Agent or the Main Contractor does not award the contract to a tenderer after having availed himself of competitive tendering, then:
- 7.1.1 no member who has tendered for the project shall retender within 3 months calculated from the closing date for the initial invitation to tender.
  - 7.1.2 a member who has not tendered for a service to which this by-law applies shall not communicate with the Employer or his Agent or the Main Contractor as the case may be regarding any matter whatsoever relating to a tender, or to a service in respect of which tenders were submitted, nor shall such member accept the contract before the lapse of three months calculated from the closing date of the initial call for tenders;
  - 7.1.3 if the employers, or his agent, after having received three or more tenders from general contractor members of BIFSA for a building project, then call for a tender from a non-member, no sub-contractor member of BIFSA shall tender to or otherwise give a price to such non-member for the execution of any work on such building project before a lapse of three months calculated from the closing date of the original call for tenders.
- 7.2 No tenderer other than the lowest tenderer, except where an exemption has been granted to another tenderer under by-law 20.1 hereof, may negotiate with the Employer or his Agent on any matter whatsoever relating to a tender or to a service in respect of which the tenders were submitted. For purposes of this definition the lowest tenderer shall for purposes of by-laws be deemed to be the lowest tender price submitted in accordance with the original tender documentation.

- 7.3 A member who avails himself of tenders from sub-contractors shall use only one sub-contractor's tender for particular portions of a project in making up his tender, and shall, if his tender be accepted, place the order for that portion of the work with the sub-contractor whose price he used.
- 7.4 A member who avails himself of tenders from sub-contractors shall not disclose such tenders to anyone prior to submission of his own tender but shall, on request of a tenderer, disclose the name of the sub-contractor and tender amount which was used in making up the member's main tender immediately after the official closing time for the main tender.
- 7.5 A member who, as the successful tenderer, has been awarded the principal contract, and has previously called for tenders from sub-contractors shall, only after the lapse of 3 months calculated from the closing date of the call for such main tender, be entitled again to call for tenders from sub-contractors. Such member shall then fix a date, time and place for opening of such tenders. Tenderers shall be entitled to be present at the opening when the names of and tender amounts of all tenders received shall be disclosed. Such member shall thereafter employ the lowest tenderer for the execution of the work subject to the approval of the Employer or his Agent.
- 7.6 A member who is awarded a principal contract but who has not previously called for tenders from sub-contractors, may call for such tenders but shall fix a date, time and place for the opening of such tenders. Tenderers shall be entitled to be present at the opening when the names and tender amounts of all tenders received shall be disclosed.
- 7.7 A member who enters into negotiation for any building work other than an individual house, may notify the Association with jurisdiction within 36 hours of the commencement of negotiations and no other member shall be permitted to negotiate for the same project unless he has obtained the permission of the Executive Committee of the Association with jurisdiction, which permission shall not be unreasonably withheld. Notwithstanding the foregoing, competitive tenders may be submitted by members on properly prepared documents in terms of these by-laws at any time subject to the time of the termination of negotiations without reference to the Executive Committee of the Association with jurisdiction.

When a sub-contract is being negotiated between a principal contractor member and a sub-contractor, the sub-contractor may notify the Association with jurisdiction within 36 hours of the commencement of negotiations and such negotiations shall take place only between the principal contractor member and one sub-contractor at a time in each trade. Should the negotiations break down, the principal contractor member may call for tenders, in which event he shall fix a date, time and place for the opening of such tenders. Tenderers shall be entitled to be present at the opening when the names and tender amounts of all tenders received shall be disclosed.

7.9 The prohibitions contained in this By-law 7, shall not apply where fewer than 3 tenders have been submitted.

BY-LAW 8 : TENDERING ON RATES

8. A member shall not submit schedules of rates in competition with other members as a tender for any contract which includes the fixing as well as the supply of materials, unless an exemption has been granted by the Association with jurisdiction or BIFSA, as the case may be.

BY-LAW 9 : TIME ALLOWED FOR SUBMISSION OF TENDERS

9. No member shall tender in competition on bills of quantities or plans and specifications unless a minimum of 15 working days is allowed between the time that the tender documents are available to such member and the time for the submission of tenders. Working days shall not include these days falling within the building industry holiday shut-down period.

BY-LAW 10 : PERCENTAGE BASIS CONTRACTS

10. Where a member accepts a contract on a percentage basis or where he agrees to supervise the erection of a project, he shall, for the purpose of these rules, be deemed to be the general contractor for such project and shall be bound in all respects to see that the rules and regulations of the Association as set out in these by-laws are observed on such a project.

BY-LAW 11 : APPROVED FORMS OF PRINCIPAL CONTRACT

11.1 A member shall not tender in competition on tender documents which vary the provisions of any

applicable standard forms of contract approved and recommended by:

11.1.1 The Institute of South African Architects, the Association of South African Quantity Surveyors, SAPOA and BIFSA.

11.1.2 The South African Association of Consulting Engineers, and BIFSA for work in the Building Industry in respect of which a member of the South African Association of Consulting Engineers acts as the principal agent of the employer.

11.2 This by-law shall not apply to tenders submitted in respect of work in the Public Sector.

#### BY-LAW 20 : EXEMPTIONS

20.1 Any Employer or his Agent, and any member or non-member shall be entitled to apply in appropriate circumstances to the Association with jurisdiction or, in areas not served by Associations, to BIFSA for exemption from the provisions of these by-laws provided that an unfavourable decision by an Association shall be subject to appeal to BIFSA and provided further that any employer, his agent or non-member not satisfied by a decision of BIFSA, shall have the right to refer the matter on appeal to the Competition Board whose decision shall be final and binding on all concerned. Any Exemption granted by an Association from the requirements of By-laws 2, 6, 11 and 12, shall be reported forthwith to the Executive Committee of BIFSA for consideration, whereupon Associations shall, in future decisions, be bound by any directive given by the Executive in relation to the type of Exemption in question.

APPENDIX C

THE ADVANTAGES AND DISADVANTAGES OF THE VARIOUS BUILDING  
CONTRACTS AS LISTED BY THE INSTITUTE OF SOUTH AFRICAN  
ARCHITECTS. SOURCE : PRACTICE MANUAL D2 : 1979

## 1. WITHOUT QUANTITIES CONTRACT

### 1.1 Advantages of the without quantities contract

- 1.1.1. The drawings and specifications have to be completed before going out to tender. This facilitates the building process.
- 1.1.2 The Employer has the advantage of a fixed final building cost before commencement of building operations, subject to adjustment only if variations occur to the contract.
- 1.1.3 Quantity surveyor's fees for the preparation of Bills of Quantities are avoided.
- 1.1.4 There is a saving in time compared with the "Quantities" contract due to the fact that no Bills of Quantities have to be prepared.

### 1.2 DISADVANTAGES OF THE WITHOUT QUANTITIES CONTRACT

- 1.2.1 There is no basis of adjustment if a variation to the contract should occur. Determination of the final cost is therefore difficult.
- 1.2.2 The tender price is a fixed price. The Contractor must therefore allow in his price for any uncertain items not clearly shown on the drawings or described in the specification, such as problematic foundation conditions, and the tenderer may therefore inflate his tender amount to cover all such risks.
- 1.2.3 Every tenderer is compelled to "take-off" his own quantities to enable him to value the work to be done.
- 1.2.4 Master Builders' Association generally only permit their members to tender in competition on small jobs unless Bills of Quantities are provided.

## 2. WITHOUT QUANTITIES CONTRACT WITH SCHEDULE OF RATES

### 2.1 Advantages of the without quantities contract with schedule of rates

- 2.1.1 As for "Without Quantities" contract.
- 2.1.2 There is some basis for adjustment if a variation to the contract should occur. Determination of the final account is therefore easier than under the

"Without Quantities" contract.

2.2 Disadvantages of the lump sum contract with schedule of rates

2.2.1 As for "Without Quantities" contract.

2.2.2 In many cases the rates in the Schedule of Rates bear no relation to the basis of calculation of the Contract Sum.

3. QUANTITIES CONTRACT

3.1 Advantages of the quantities contract

3.1.1 The drawings and specifications have to be complete before going to tender. This facilitates the building process.

3.1.2 Contractors have a uniform basis for competitive tendering.

3.1.3 The Employer is provided with a fairly accurate indication of the final cost.

3.1.4 The basis for adjustment if variations to the contract should occur, is sound. Determination of the final account presents no real problem.

3.1.5 Any uncertain items are measured provisionally and remeasured upon completion when the full extent of the work is known. This enables the Contractor to price accurately without having to allow for uncertain items.

3.1.6 There is a sound basis for the calculation of monthly payment certificates.

3.1.7 There is a sound basis for cost analysis and cost control.

3.1.8 The Master Builders' Association permit their members to tender in competition on all projects where Bills of Quantities are provided.

3.1.9 The quantities are taken-off by independent Quantity Surveyors and tenderers do not each have to "take-off" their own quantities.

3.1.10 Bills of Quantities can be prepared in many different formats which enhance their use and value in relation to cost research and general control of the contract from the professional consultants'

point of view, and on site for job control from the contractor's point of view.

- 3.1.21 The contract documentation is of a high calibre which facilitates proper financial control and also control over the workmanship and materials used. Total control becomes a team effort by highly skilled professional people acting independently yet in collaboration in the best interests of the contract.

### 3.2 DISADVANTAGES OF THE QUANTITIES CONTRACT

- 3.2.1 Whilst the contract sum is known it is subject to adjustment in relation to provisional items such as foundations, drainage etc., the Employer therefore does not have an exact final building cost before the commencement of building operations.
- 3.2.2 There are Quantity Surveyor's fees for the preparation of Bills of Quantities.
- 3.2.3 The preparation of Bills of Quantities takes time.

### 4. PROVISIONAL QUANTITIES CONTRACT

#### 4.1 ADVANTAGES OF THE PROVISIONAL QUANTITIES CONTRACT

- 4.1.1 A certain amount of essential planning is achieved before going to tender.
- 4.1.2 Contractors have a uniform basis for competitive tendering.
- 4.1.3 Proposed variations can be accurately evaluated before being incorporated in the contract.
- 4.1.4 The Employer is provided with a fair indication of the final cost.
- 4.1.5 There is a fairly sound basis for the calculation of monthly payment certificates.
- 4.1.6 There is a sound basis for cost analysis and a fairly sound basis for cost control.
- 4.1.7 Final cost can be assessed reasonably accurately even before the final account is prepared.
- 4.1.8 The Master Builders' Associations permit their members to tender in competition on all projects where Provisional Bills of Quantities are provided.

- 4.1.9 The quantities are taken-off by an independent Quantity Surveyor and tenderers do not each have to "take-off" their own quantities.
- 4.1.10 The time required for tender documentation is less than that required for the ordinary Quantities Contract. Apart from the drawings and the quantities used, the contract documentation is of a high calibre which facilitates proper financial control and also control over the workmanship and materials used. Total control becomes a team effort by highly skilled professional people acting independently yet in collaboration in the best interest of the contract.

#### 4.2 DISADVANTAGES OF THE PROVISIONAL QUANTITIES CONTRACT

- 4.2.1 Due to the lack, at an early stage, of detailed planning, complete drawings, quantities and ancillary documents, delays and confusion may occur during building operations. Accuracy is sacrificed for speed and errors both minor and major are liable to occur. Some errors may prove costly to put it right.
- 4.2.2 Due to the comparative ease with which variations can be evaluated, too many hasty decisions may be made on the assumption that variations and revisions can be made at a later stage. Some of these may be critical to other decisions which can only be altered subsequently at great cost. Chains of variations may occur.
- 4.2.3 In this form of contract, time is usually a critical factor, often therefore the contractor will have little time to optimise on overall cost planning and cost control techniques.
- 4.2.4 Similarly there will often be less time at the disposal of the architect, the quantity surveyor, the engineer and other professional persons for preliminary planning. Therefore the normal decision making process has to be accelerated and the associated risk accepted.
- 4.2.5 To minimise delays in documentation and to hasten the start of building activities, it may be necessary to appoint, at an early stage and as nominated sub-contractors, those ordinary sub-contractors usually appointed by the successful tenderer. This however, restricts both design and tendering freedom.

- 4.2.6 In an endeavour to speed up documentation the temptation could be towards an excessive use of patent and trade names in specifying or describing items. This could result in a higher tender price due to restrictions placed on the tenderer's freedom of choice of less costly though equally acceptable items, and also by interrupting long established and financially beneficial relations with suppliers and dealers.

## 5. SCHEDULE OF RATES CONTRACT

### 5.1 ADVANTAGES OF THE SCHEDULE OF RATES CONTRACT

- 5.1.1 Time is saved in going to tender and commencement of building operations when compared to Quantities or Provisional Quantities contracts.
- 5.1.2 The final cost of the project can be more accurately and equitably determined than the final cost of a without quantities contract.
- 5.1.3 Proposed variations can be accurately evaluated before architects instructions are issued.
- 5.1.4 Apart from the lack of drawings and accurate quantities the contract documentation can still be of a very high calibre which will facilitate proper control financially and over the workmanship and materials used.
- 5.1.5 The quantity surveyor, who is best qualified for the job, will be available to play his normal role of financial controller of the contract. The benefit to the client of this aspect is self-evident.

### 5.2 DISADVANTAGES OF THE SCHEDULE OF RATES CONTRACT

- 5.2.1 The disadvantages listed under the Provisional Quantities contract also apply to a Schedule of Rates contract only with more force.
- 5.2.2 Master Builder Associations in South Africa do not permit their members to tender in competition on Schedules of Rates.
- 5.2.3 The evaluation of a tender is not a straight forward exercise. Great care must be exercised in devising an equitable method of evaluation and in relating rates to quantities. Difficulty may be

experienced later in reconciling tender conditions and building conditions.

- 5.2.4 Tenders will not reflect final costs in any way and the final cost cannot be assessed with reasonable accuracy before the final account stage. Difficulty will therefore be experienced in budgeting for expenditure on the contract.
- 5.2.5 The speedy and accurate evaluation of work completed each month for certificate purposes places a heavy burden on the quantity surveyor if he is to prevent delays in payments. The time required by the quantity surveyor to measure and work up certificates after he has inspected the works will act to the detriment of the contractor and may prove embarrassing to all but those who are financially strong.
- 5.2.6 Even on comparatively minor contracts a clerk of works may have to be engaged because of the speed of erection which is implicit in this type of contract.

## 6. COST-PLUS CONTRACT (PERCENTAGE OR FIXED FEE FORM)

### 6.1 ADVANTAGES OF THE COST-PLUS CONTRACT

- 6.1.1 It is one of the quickest ways of letting a contract and therefore of commencing building operations.
- 6.1.2 Generally this type of contract is negotiated with a single contractor and hopefully, because the employer has implied confidence in the particular contractor, the contractor could be expected to give special attention to the work.

### 6.2 DISADVANTAGES OF THE COST-PLUS CONTRACT

- 6.2.1 In the case where the contractor's overheads and profit are paid for on a percentage basis, then higher costs mean higher rewards to the contractor and so wastefulness is encouraged. Generally extravagance in expenditure (waste of materials and labour in particular) and lack of efficiency mark this type of contract. The less efficient the contractor the greater his reward.

- 6.2.2 Strict supervision of costs has to be exercised at all times and perfection in this regard is not always possible.
- 6.2.3 There are very limited means of determining whether prices, or changes, submitted by the contractor are best market prices, or economical prices.
- 6.2.4 Because this form of contract seldom incorporates Bills of Quantities in any form or even Schedules of Rates, the quantity surveyor's services are frequently dispensed with. There is no denying that the absence of a financial controller, with special qualifications, in any contract as open as a cost-plus contract may have serious repercussions.
- 6.2.5 Where errors in construction occur it may be difficult to apportion expenses or fix the blame in this type of contract.
- 6.2.6 Because Bills of Quantities are not used high standards in contract documentation may not be achieved.
- 6.2.7 Budget decisions are complicated by the fact that the final cost of the contract cannot be known, or even assessed, until the final account stage is reached.
- 6.2.8 Where the contractor is required to rectify errors in construction at his own expense it may be well-nigh impossible to separate the expenses for which the contractor is responsible from those for which the employer is responsible.
- 6.2.9 Unless there is a very clear definition of "total net cost" far too much discretion as to what may not be included is left to the contractor. Internal charges, hire charges, residual values for plant and equipment at the beginning, during constructions and at the end of the contract, are just a few that bear mention. Claims for extension of time and many other to the normal items incorporated in the normal Conditions of Building Contract, may also be difficult to handle.

## 7. COST-PLUS CONTRACT WITH A TARGET OR CEILING FIGURE

### 7.1 ADVANTAGES OF THE COST-PLUS CONTRACT WITH A TARGET, OR CEILING FIGURE

- 7.1.1 The advantages listed under Cost-Plus contracts apply equally to this type of contract.
- 7.1.2 Because there is a target figure, this type of contract does offer some inducement to the contractor to trim and control costs as far as possible. The clause providing for the sharing of savings will act as a further inducement for the contractor to work economically.
- 7.1.3 The fair sharing of risks, bearing in mind that the Employer must still pay for what he gets, creates a harmonious working environment for the execution of the contract.

### 7.2 DISADVANTAGES OF THE COST-PLUS CONTRACT WITH A TARGET OR CEILING FIGURE

- 7.2.1 The disadvantages listed under Cost-Plus contracts apply to this type of contract as well but possibly not with as much force.
- 7.2.2 The Employer may suffer subsequently from any skimming in respect of materials and workmanship by an overzealous contractor trying not to exceed the target figure.
- 7.2.3 An error in the estimated target or ceiling figure may jeopardise the whole intention of the contract. The effects of extreme over-or-under-estimation can well be imagined. It can be extremely difficult to arrive at a reasonable target figure, bearing in mind that the information available at the stage the contract is negotiated is often incomplete.

## 8. BASIC BILL CONTRACT

### 8.1 ADVANTAGES OF THE BASIC BILL CONTRACT

- 8.1.1 The advantages listed under Schedule of Rates contract and point 6.2.1 listed under cost-plus contracts apply to this type of contract with varying force.
- 8.1.2 Members of Master Builders' Associations in South Africa are permitted to tender in competition on this type of contract.

- 8.1.3 Quantities incorporated in the basic Bill of Quantities lend some meaning to the rates the tenderers will apply, thus minimising the disadvantages of the out of context pricing of the Schedule of Rates Contracts.
- 8.1.4 Evaluation of tenders is a fairly straight forward process similar to the evaluation of tenders for Quantities contracts and Provisional Quantities contracts.
- 8.1.5 Since the Basic Bill is, in effect, an expansion of the detailed estimate and should reconcile with the estimate, differences will be highlighted. Once these have been resolved the Employer will have a reasonably good indication of what the final cost is likely to be. This will facilitate his financial arrangements for the contract.
- 8.1.6 Provided no great changes are made, the Basic Bill can form a reasonable basis for monthly certificates.
- 8.1.7 Normal procedures applicable to Quantities contract can be followed and a similar high standard of documentation obtained.
- 8.1.8 The lack of efficiency and adequate control generally experienced with Cost-Plus type contracts are eliminated. In fact, most of the disadvantages applicable to Cost-Plus contracts are eliminated altogether.

## 8.2 DISADVANTAGES OF THE BASIC BILL CONTRACT

- 8.2.1 The disadvantages listed under Provisional Quantities contracts apply more forcefully to this type of contract.
- 8.2.2 The degree of accuracy of contract documents is dependent on the amount of information available at the time of documentation. The lack of information available at the time of going to tender on this type of contract will become evident during the execution of the contract and may prove costly.
- 8.2.3 Errors of measurement, as against errors of pricing of the estimate, will be carried over onto the Basic Bill and remain undetected until accurate measurement takes place.

## 9. MANAGED FORM OF CONTRACT

### 9.1 ADVANTAGES OF THE MANAGED FROM OF CONTRACT

- 9.1.1 All the advantages recognised for Quantities con-  
tracts should apply equally to this type of  
contract.
- 9.1.2 Generally this type of contract is negotiated with  
a single contractor and hopefully, because the  
Employer has implied confidence in the particular  
contractor, the contractor can be expected to give  
special attention to the work.
- 9.1.3 If the final Cost-Plus amount is less than the  
ceiling amount, then this could provide a saving to  
the Employer.
- 9.1.4 Because there is a target figure, this type of con-  
tract does offer some inducement to the contractor  
to trim and control costs as far as possible. The  
clause providing for the sharing of savings will  
act as a further inducement for the contractor to  
work economically.
- 9.1.5 Theoretically the Employer has an opportunity to  
participate in the management of the building  
contract. He is therefore in a much better position  
to satisfy himself that the Cost-Plus portion of  
the contract is strictly adhered to. Decisions to  
vary the contract can be taken quickly and  
efficiently as all the parties are together at  
management meetings.

### 9.2 DISADVANTAGES OF THE MANAGED FORM OF CONTRACT

- 9.2.1 The competitive basis of tendering is lost, as  
Master Builders' Associations do not allow their  
members to tender in competition on this type of  
contract.
- 9.2.2 Additional duties are imposed on most members of  
the team, e.g. attending meetings, defining the  
sharing of responsibilities, areas of authority and  
delegation of responsibilities.
- 9.2.3 The contractor, as the only additional member to  
the normal team available to the Employer under  
Quantities Contracts, is in a strong position to  
influence decisions. However, the contractor should  
not be allowed to exert a disproportionate  
influence or be placed in a position to over-ride  
the judgement of the other members of the team.

9.2.4 The disadvantages applicable to Quantities contracts apply, in most instances, to this form of contract, but with varying force.

## 10. PACKAGED CONTRACT

### 10.1 ADVANTAGES OF THE PACKAGED CONTRACT

10.1.1 The Employer is freed from the bulk of responsibilities in respect of the building contract except to provide the site and the finance. This is an over-simplification of the true situation but does convey the overall concept. To those uninitiated in the complexities of building contracts this is a simple solution.

10.1.2 Completion of small contracts is expedited.

10.1.3 On small works, experienced packaged dealers, who operate in an extremely competitive field, can, and usually do, offer value for money.

10.1.4 Centralisation of the collective management team facilitates better co-ordination of the work as a whole.

10.1.5 Costs of services are, to a limited extent, reduced as a result of centralisation.

### 10.2 DISADVANTAGES OF THE PACKAGED CONTRACT

10.2.1 The disadvantages of the without quantities contract apply to this type of contract.

10.2.2 As contracts become larger and more complex costs also increase, necessitating care in planning and pre-contract preparation. To meet the advantage of saving in time, as claimed for packaged contracts, skimping in pre-planning must eventuate.

10.2.3 The Employer has to pay for the equivalent of his normal management team, or consultants, without benefitting from their full and independent services. In fact, should there be any dispute between him and the contractor, he would be on his own against the full team he has already paid for. In the event of litigation the Employer would probably have to engage a similar team to advise him. If his costs under the "package deal" are less than he would otherwise pay for independent quality of services it can only be because the

same quality of service is not being provided and this may place the Employer at risk.

10.2.4 The system does not lend itself to competitive tendering. If package dealers can be induced to tender competitively, evaluation of tenders on any basis other than total cost, becomes well-nigh impossible because of all the variations possible between the packages offered.

10.2.5 The pitfalls are numerous. The Employer remains in the dark on many vital issues which may not be included in the contract documents. He is not always in a position to assess beforehand what the final product will be like.

## 11. TURN-KEY CONTRACT

### 11.1 ADVANTAGES OF THE TURN-KEY CONTRACT

11.1.1 The advantages listed under packaged contracts will apply to this type of contract with more force, except items 10.1.3 which would not occur.

11.1.2 Because the total project is involved, as opposed to only a building contract, the Employer is, contractually, even less involved in the final product than is the case under packaged contracts.

### 11.2 DISADVANTAGES OF THE TURN-KEY CONTRACT

11.2.1 The disadvantages listed under package contracts will apply to this type of contract with more force.