

Construction Contracts

Procurement Methods in Botswana

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Summary

Standardisation both in the technical and administrative matters is essential for the satisfactory completion of projects. In order to complete a project within the required time and budget, it is essential that each phase of its preparation and execution, starting with the assessment of feasibility and terminating with the hand over of the project to the Client by the contractor, be formulated with precision in order to limit delays, disputes and unforeseen additional costs.

There are obvious advantages to using detailed contract provisions based upon a standard form of contract which holds a reasonable balance between the requirements and interests of parties concerned, and in particular allocates fairly the risks and responsibilities between contracting parties. In the majority of cases the contracting parties will react favourably to clearly stated obligations and this will do much to avoid unsatisfactory performance, increased costs and disputes which can arise if the trust that needs to exist between the parties to a construction contract is lacking.

Whether, or not, there are sensible and stringent contractual provisions, and whether, or not, the contractor complies with them, the client's representatives can minimise exposure to claims by ensuring they do not cause delays by matters within their control (such as late issuance of information). It is often a mistake done by the architects, to assume that information can be delayed on the grounds that the contractor is behind schedule, and is not ready for it. In many cases the contractor will be able to make out a case for extension of time.

Scheduling issuance of information in accordance with the contractor's progress is a recipe for disaster and to be avoided at all costs.

Introduction

Contracts documents are very important pieces of information that make a binding obligation between two or more parties, thus being evidence that a contract exists.

These contracts documents usually take the form of an agreement, some general conditions, drawings, specifications, all sufficient to show the extent and nature of the contract they represent.

These documents are used by architects, engineers and contractors to convey technical and legal messages and ideas to various parties to the contract. Due to these reasons, it is desirable that a uniform approach to the production and interpretation of contract documents be fostered throughout the construction industry, and that is one of the reasons for this paper.

Scope of the paper

This paper is mainly focussed on the procedures used to bring about a construction contract in Botswana. Furthermore, it will also deal with the procedural aspects of establishing and maintaining contractual relationship between people involved in the construction industry.

Structure of the paper

The paper is arranged in two parts. Part I focuses primarily on background material necessary to give the reader the basic understanding of what construction contracts are, and how they are brought to being. Part II contains an assortment of practical examples based on the principles of an underway contract, with much emphasis on the successes and failures of executing the conditions and terms of that contract.

Case study project

Because this paper will be based on the contractors experience and responsibilities, references and examples relating to the design and construction of the Audio Visual Centre will be used to illustrate conditions described in it. This project was chosen because of its irregularities in administering the contract by the client.

About the project

The Audio Visual Centre (AVC) is a government project for the Ministry of Education (MoE), which was designed internally by the government Department of Architecture and Building Services (DABS), in the Ministry of Works. (See the organisational chart in figure 5) It comprises 150m² of clear double story as the television studio and 400m² of office space, concrete and brick structure with prefabricated timber trusses, and corrugated iron sheets for roof cover.



Figure 1: The Audio Visual Centre in Mochudi

The intended use for this building is to produce educational and cultural video and audio material for schools, which can be later sent to the national television for broadcasting, and of course it will be used by other departments. The installations in the building, especially the mechanical systems is very complicated and expensive. Alone it cost 10% more than the building works. Because of the intended use of the building, the finishes and other installations had to be of high quality.

This project was awarded after a successful tender in 1996, and could not start until 1997 because the working drawings were not yet ready. The construction was scheduled to take only nine months. As this was a traditional arrangement of the Unit rate contract, the designs and other documents were prepared by the client, and we could only depend on the information we got from him. After all the delays from 1997 to 1998, the project was now scheduled to have been finished in the beginning of 1999, and it still going on due to some additional work required.

The tender sum was P 2,5 million (aprox. US\$ 625 000) and now the cost before the final account is P4.1 million (US \$953 500). These new costs include the changes in the scope of work and the claims for disruption and escalations.

The delays, claims and problems during the construction of this project will be dealt with in detail, in Part II of the paper. Emphasis will be put on what caused the delays and what the solutions were to some of the problems, and of course how to avoid these kind of problems in the future by learning to adhere to the conditions of contracts.

Types of construction contracts

Choosing the right type of contract is a very important step in contracting, be it for the client or the contractor.

Each party should choose the contract basing on the long and short term interest of the project. The best and most direct way to understand the reasons for the different type of construction contracts is to examine and analyse the cost of construction.

In view of the commercial pressures to minimise finance costs and to obtain revenue at the earliest possible date , priority may have to be given not only to the method of construction which is conducive to speed of erection, but also to phasing of design and construction, phased completion of the project, design by contractor and subcontractors, installation of clients equipment and many other factors depending on the complexity of the project. Whatever the other objectives of the client are, it is important to set out a master programme, showing the various anticipated design and construction phases at an early stage. (figure 3) The principal objective of any client will be to have the project completed on time, within budget and to an appropriate standard of design, workmanship and materials.

This carries a lot of weight in deciding the types of contracting methods to be used and should not be overlooked.

The most commonly known and used standard forms of contract in Botswana are those issued by the "Joint Contracts Tribunal" (JCT). The first standard form issued by the JCT was in 1963 (JCT63) which superseded the Royal Institute of British Architects (RIBA) forms of

contract¹. It was published in four main variants, the private and local authorities version, each with or without bills of quantities. The new version of 1980, the JCT80 is perhaps the most widely used in the building works today. The government of Botswana has adopted and amended these forms of contract to suit the public sector. Variations and amendments to the standard publication enable alternative methods of contracting to be used, such as design and build.

The Botswana Institute of Development Professionals has also adopted and amended these forms of contract, basing on a core contract with flexible alternative allowing the employer to choose the appropriate version to suit his needs. Standard forms of contract are available to suit contracts of almost any size and complexity, and to suit most methods of contracting practices.

The types of contracts most often encountered on construction projects are identified as follows:

- i) Lump-sum contract
- ii) Unit-rate contract
- iii) Cost-plus-fee contract

Lump-sum contract

The traditional arrangement of:

This is a very common method of contracting, where the contractor undertakes to complete the project for a lump sum according to the design prepared by an architect or engineer at the outset. For him to be able to do this, the information provided to him by the designer must be very accurate and essentially complete, subject only to explanatory details and limited provisional items. It is only logical that the contractor in this kind of contract, should escalate his prices to be more than enough to cover all the expenses and perhaps the contingencies too. This could cover for the unforeseen circumstances and some profit as well. The contractor determines the probable cost by carefully doing the estimates.

Advantages

The owner or client carries very little risk in this type of contract because she knows the probable cost of the project from the outset.

Disadvantages

- i) It is relatively expensive and difficult to make changes in the project once the project is underway.
- ii) The contractor does not have the input during the design stage where he can implement his knowledge and experience.
- iii) The contractor may attempt to cut corners to save some money.
- iv) The contractor carries the greater proportion of financial risk. He agrees to do his part of the bargain for the stated sum of money, no matter what problems may be encountered during the

scope of the contract. The risk to the contractor is that, at the time of making an offer or bid, he can only estimate what anticipated costs will be. The exact costs can only be known at the end of the project. If the agreed amount is less than the actual cost of the project, then the contractor suffers a loss.

Cost-plus-fee contract

The management arrangement of:

The cost-plus-fee contract is one of the methods of contracting which are suitable where it is intended that the design stage and the construction stage overlap. In its purest form it is based on the prime cost plus the fixed fee (or percentage) fee and has been used all over the world for many years. In Botswana, it is not a common, if not known method of contracting. The use of this method is rarely used in the private sector, and also barely used in the government or public developments. The outline of the project, together with the detailed brief, is prepared by the design team and the bidding contractors are required to submit their proposals for the management and procurement of construction. The criteria used as a basis for the selection will include:

- Reimbursable costs if site management, supervision and general services.
- Lump sum or percentage to be added to the prime cost of the project.
- Management capability and resources
- Ability to contribute to the design of the project; buildability
- Programme and methods of construction
- Methods of ensuring quality control
- Systems for cost control
- Industrial relations
- Proposed packaging of work to be done by subcontractors
- Buying power
- Previous track record

The selected management contractor does not usually execute the works himself. His obligations are, in collaboration with the design team and the client, to produce the completion of the project in time and within budget, by subcontracting various parts of the works and purchasing the materials to be fixed by the subcontractors.

In this method of contracting, the management contractor enters into contract with the employer, in the same manner as in the traditional contracting. It is often the case that the management contractor's liability for late completion is limited to any damages which it can recover from the subcontractors. This can cause some serious problems if the subcontractors are financially vulnerable. Subcontractors carrying out some small packages may be faced with damages which are out of proportion to the value of the works carried out by themselves.

Some sophisticated forms of management fee contract, which will not be discussed in details, place greater

¹ Construction Contracts Claims

responsibility on the management contractor. It is possible to devise a scheme where the management contractor is involved in the design and selection of subcontractors, but once the selection is done, the management contractor takes full responsibility as if it were the traditional contract.

Advantages;

- i) The construction work can be started at a very much earlier stage than in the Lump sum and Unit rate contracts, because complete drawings and specifications are not very necessary to get the job started.
- ii) The arrangement is more flexible and allows variations as the work proceeds.
- iii) The contractors' expertise can be put to use to assist with possible solutions to construction problems.

Disadvantages;

- i) The liabilities of several subcontractors responsible for overlapping delays can often lead to disputes and arbitration or litigation.
- ii) the contractor may not try to be as efficient as he might be in the lump sum contract, because he knows that all costs are chargeable to the client.
- iii) There is little opportunity to predict the probable costs that might arise in any given period while the job is underway.
- iv) The contractor cannot always predict accurately what the margin or disposition of resources may be for the foreseeable future.

Unit-rate contract

The traditional arrangement of:

The unit rate contract permits the contractor to make firm tenders for the projects in which the exact amount of work cannot be determined at the outset, and for which the client wishes to have a fairly accurate idea of what the final cost might be.

There are always some parts of the building where the exact cost cannot be determined until the actual work is done. This particularly applies to the substructure, such as in excavations, foundations and drainage systems. These provisional items are re-measurable and will be re-measured at the end, therefore it is necessary to determine the unit price in advance, for doing such work as it arises in order to be able to adjust the contract sum to pay for the works. The very obvious reason for doing so, is that the foundation elevations and details which were assumed for design purposes can not be possible in practice. The soil and ground conditions may have not been investigated first, but assumed to be normal, therefore if the soil and ground conditions turn to be different, e.g. rocky, there should be a rate for such item already. This results in more or less work been done than anticipated, and the figures must be capable of adjustment to suit the changed circumstances.

There are two main issues involved in the establishment of unit prices:

- i) Determination of basis of measurement of the works to be done. The quantities of works for which the prices will be applied must be capable of being accurately determined to everyone's satisfaction.
- ii) The basis of payment must be clearly stated; everything that has to be included in the unit price must be clearly identified and described.

This method of contracting, by its nature, contemplates substantial completion of the design by the designer at tender stage. That is not to say that every detail has been drawn. It envisages issuance of details which do not change the original design, but merely explain more fully what is shown on the contract drawings. It is often the case that some critical aspects of the design cannot be properly represented in the drawing before the designer has drawn the details. This is a fundamental drawing practice. Due to the pressure to get all the tender documents at the earliest possible stage, too many contracts get off to a bad start due to insufficient attention to details before the invitation to tender. This will be evidenced in the case study project.

It has long been an accepted practice, and provided for in most forms of contract, that some work may not be fully designed at tender stage. This is usually dealt with by provisional sums or provisional quantities.

This is most common method of contracting in Botswana, especially on government projects, and it is going to be the centre of attraction in this paper. The system is most frequently encountered as an adjunct to lump-sum contracts, to permit adjustments to be made to the contract for variations.

In this type of contract, it is the client's responsibility to produce all the necessary documents for the completion of the project. The quantity of work is measured by the Quantity Surveyor for the client and then tabulated in a schedule called the Bill of Quantities "BQ". This bill of quantities is distributed to the tenderers along with the drawings, specifications, and other tender documents. The contractor, "tenderer" estimates the unit price that he figures it would cost to do each of the work as listed in the bill of quantities, and as detailed in the drawings. The quantities estimated by the client are then multiplied by the prices estimated by the tenderer, and the results added up to produce the total price called the "Tender Sum" which will become the "contract sum". The tender sum agreed may vary during the construction of the project depending on what circumstances occur, e.g. the instructions of variations, the occurrences of unforeseen events, which in accordance with conditions of contract entitle the contractor to additional (or reduced) payment.

In this type of system the contractor has very little say as to what kind of contract the client wishes to use. There are two types of conditions in this type of system, namely the "fixed price" and "fluctuating price".

The contractor also has no contribution to the design, planning and budget of the proposed project. His performance is nonetheless dependant on the information and documents provided by the client.

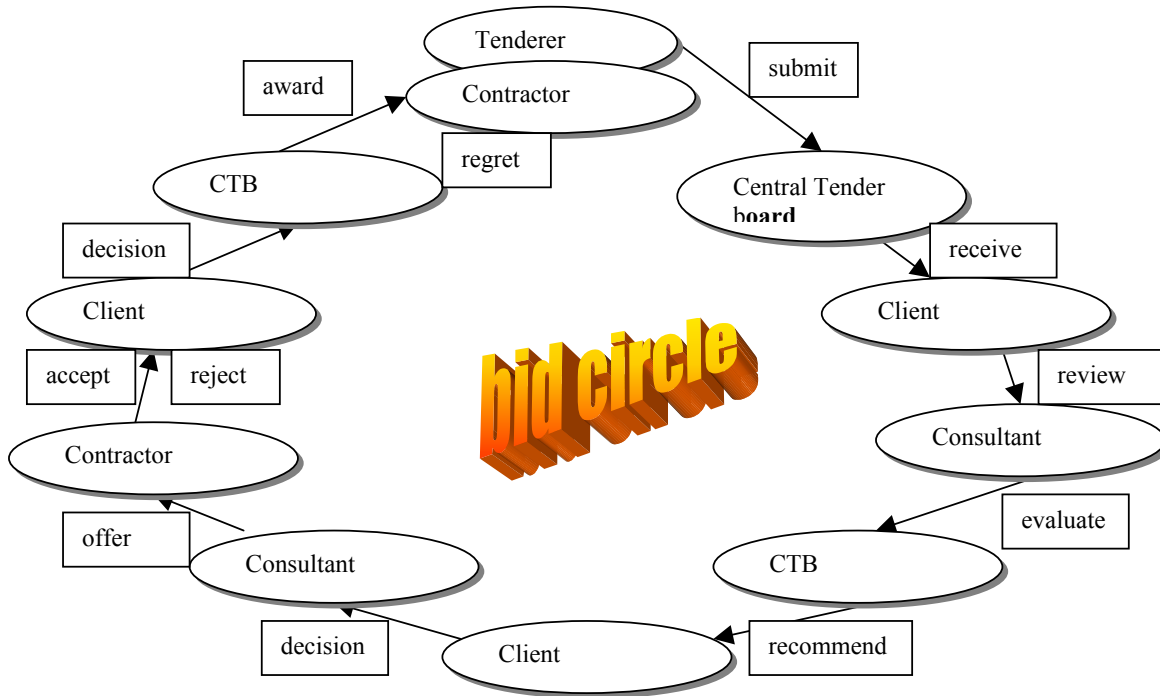


Figure 2: Bid circle – Government Project.

Advantages

- i) Ease of making changes in the amount of work to be done at the unit rate quoted.
- ii) The risk is fairly distributed amongst the parties – the owner has good control over the amount of work to be done,
 - the contractor has good control over the prices for which he is willing to do the work.

Disadvantages

- i) Difficulty in precisely describing the work to be done, the method of measurement to be used to determine the actual quantities of work, and the basis of payment or extent of work included within each unit price.
- ii) It could be costly for the client to produce the bill of quantities, especially if the project is of a complicated nature.

- i) to allow all tenderers to provide identical written offers to client, according to the instructions to bidders.
- ii) To give the designers and the client time to consider the offers, before acceptance or rejection of one of the bids.
- iii) To permit the information contained in the tenders to inserted into the article of agreement and any other conditions of contract in a simple matter.

It is therefore very important that the client produces a master program to show the activities from design to completion of the project. (Figure 3)

Pre-qualification: selection of tenderers

Depending on the size and scope of the proposed development , the government can decide on whether to pre-qualify the contractors or not. In most cases, pre-qualification is found necessary especially for the large and complex projects.

Many mistakes and potential claims can be avoided if sufficient thought and planning is put into the pre-tender stage of a contract. A common mistake is to invite too many contractors, at the last possible minute to submit a tender for the project.

Firms who accept the invitation should be given the opportunity to attend the preliminary meeting and view the drawings which are available.

Pre-qualification enquiries should cover:

- previous track record on similar projects.
- Proposed management structure and staff responsible for the project.
- Financial standing of the firm.

Tender Procedures

The conditions of contract envisage that a contractor will be selected by the employer following competitive tendering. It is highly desirable when inviting competitive offers from a number of tenderers, that the tenders received should be based as far as possible on equal terms and conditions, and presented in a standardised manner. In this way evaluation and comparison can be made more simple and accurate with less risk of misunderstandings, errors and omissions.

The tendering procedure on any project is aimed at the achievement of three objectives:

- Resources which can be made available for the project.
- Information technology available for the firm.
- Details of any joint venture.
- Outline of proposals for methods of construction and programme.

Pre-qualification inquiries should inform the tenderers of the criteria to be used for selection. After receipt of pre-qualification documents from the invitees, a shortlist should be prepared according to the applicants' response, measured against the relevant criteria. This should be drawn up as soon as possible so that all firms can be notified without delay.

Invitation to tender

When the tender document, that is the Bill of quantities, drawings and specifications are ready from the client's office, a notice inviting the contractors to tender is put out. Invitations are usually either formal, where in most cases it involves public funds, and informal request are usually prepared for private projects.

Formal notices

These notices are usually published on the government gazette, local newspapers and trade journals, wherever they are most likely to be seen by appropriate types of contractors.

Informal notices

The client usually makes inquiries about possible contractors and asks them either verbally or by letter to pick up documents

Instructions to tenderers

Instructions to tenderers are prepared to meet the requirements of individual contracts. Their purpose is to convey information and instructions which apply during the tendering period. Each tenderer who is interested in tendering must be issued instructions that are identical to those issued to every other tenderer. These instructions do not form any part of subsequent contract. Their purpose must be limited to ensuring that all tenderers bid on an identical manner and in an identical basis. Several specific points should be clearly stated in any comprehensive outline of instructions to bidders;

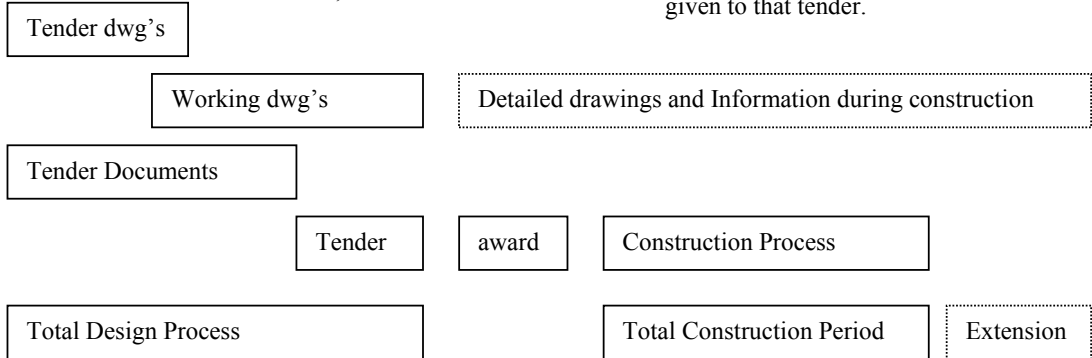


Figure 3 Master Program

- The title and location of the project should be exactly described in legal terms.
- The name of the authority calling the tenders should be clearly stated.
- The exact locations and addresses where the tenders should be collected and deposited.
- State the date and time for submission of tenders.
- Site visits – it is customary to expect tenderers to visit the site of the project during the tender.
- Tender Bond – if the tender bond is required , a pro-forma version of such bond should be included in the tender document.

Tender Evaluation

The tender evaluation takes a lot of scrutiny, professionalism and honesty because the award is dependent on many factors. The same factors could also lead to the rejection of the tender. Some public bodies are prohibited from accepting tenders on the basis of the lowest price. The lowest price does not guarantee the lowest final account, and a detailed analysis of tenders can sometimes indicate a possible exposure to a higher price than a tender sum.

The tenders are submitted to the client , where they are passed on to the consultants for selection and recommendation. (figure 2)The consultants will look at the technicality of the tenders, thus checking mainly the figures and the irregularities. The consultants will then make their recommendations to the client.

The Central Tender Board (CTB), within the client's organisation will also scrutinise the tenders looking mainly at the experience and ability of the tenderer, track record, at the same time taking into consideration the recommendations of the consultants.

If errors, omissions or inconsistencies are apparent, a meeting should be held with the lowest tenderer and with one or two other tenderers, to clarify the position and to agree on how to deal with the situation in the event of the award. At such meetings tenderers are not permitted to adjust the substance of their tender. If it does not prove possible to clarify and agree how differences are to be resolved, the particular tender should be treated as unresponsive and no further considerations should be given to that tender.

Award of the tender

The tenderer who wins the tender will be notified by a letter. This letter will include the invitation to an award meeting, and conditions of the award if any.

On occasion certain steps may be necessary before the employer can award the contract, e.g. submission of the Performance Bond and Contractor's All Risk Insurance. In that case, it is not unusual for acceptance letter to be conditional, usually by way of letter of intent. Care should be taken by the employer when drafting a letter of intent. Equally, the contractor should carefully consider the terms of a letter of intent in order to understand fully the extent of the offer. employer may decide to issue to a potential contractor a letter of intent. This letter of intent is worded in such that it does not commit the employer and should the potential contractor carry out any preliminary works or incurs any costs, it will be at his own risk. Otherwise, the employers' letter of award and the potential contractors' tender will form the basis of a binding contract between the parties.

Rejection of the tender

In most cases, the tenderer will not be notified of the rejected nor be given the reasons. It should be remembered that it is not legally necessary to accept nay tender. All tenders on any project may be rejected by the owner, upon the advice of his representatives. There are many reasons for the rejection of any or all the tenders; some of these reasons, to mention a few, are:

- i) tenders may be over the client's budget
- ii) irregularities in the tenders
- iii) incomplete tenders
- iv) deficient tenders

Production stage – construction**Commissioning meeting**

This is the first meeting and where the contract starts. It will be attended by the contractor, client, architect, engineer and others who are directly involved. The main purpose of this meeting is to define everybody's role in the project.

Before the contract is signed, it is agreed in the meeting on the period of notice to commence in order to allow for mobilisation. Whatever procedures are adopted during this meeting, they should include measures to avoid or minimise delay by regular monitoring of design and detailing so that the construction of the works will not be affected by late issuance of essential information.

This will be the agenda for the meeting:

- i) introduction of all parties involved
- ii) signing of the contract
- iii) distribution of contract documents
- iv) set the first site meeting for site handover
- v) procedures for monitoring progress
- vi) works or materials to be provided by the employer.

- vii) requirements of named, nominated and selected subcontractors.
- viii) The role and authority of each member participating in the project
- ix) Status of the programme

Pre-commencement meeting : site handover

At this occasion the contractor is showed the construction site, where the boundaries and position of the plot and building will be.

It is quite evident that the employer must give the contractor total access to the site and must provide information well in time to enable the contractor to carry out the works with the least possible delays.

The contractor is allowed to start the works even before the official start date. However, early start should be distinguished from contractual commencement date.

Smart contractors negotiate a much later official start date, and yet start immediately so that they can gain some extra "free" weeks.

Programme of Works

Tenderers under consideration will normally have been required to produce a preliminary programme for the execution of the works. Once the contract has been awarded an accurate and up to date programme assists all involved in the ordering and allocation of resources and so contributes to the successful conclusion of the contract. The contractor, within the specified period in the conditions of contract, after the date of the letter of acceptance, submits to the Architect for his consent a programme in such a form and detail as the Architect reasonably prescribes, for the execution of the works. The contractor shall, whenever required by the Architect, also provide in writing for his information a general description of the arrangement and methods which the contractor proposes to adopt for the execution of the works. The earlier the programme is produced, the better will be the flow of information, but in stating the time it is to be provided, the Architect should have regard to the detailed work which the contractor has to do after the contract award. The programme is also needed for monitoring the progress, and enabling the Architect to make arrangement for provisions of drawing, instructions etc. , and needed by the client for budget and cost control, and also by the contractor for scheduling and controlling of various events during construction.

If during the execution of the contract, it becomes apparent to the Architect that the contractor is not maintaining satisfactory progress in accordance with the program, the Architect will require a revised programme from the contractor, showing how he proposes to complete the works within the completion period.

Contract Administration

The Client

The client is the employer and is the first party to the contract, who has decided to have certain works carried out for the implementation of a project, and is sponsoring the works, has decided to select a suitably qualified contractor, the second party to the contract, to execute the works for a consideration.

The employer consents to, or declines, requests by the contractor to assign any part of the works, prepares the contract agreement for execution by both parties, approves the performance bond and insurance as well as the terms of the insurance policies submitted by the contractor.

The employer and the architect should maintain such contact with each other as will facilitate smooth and unhindered progress of the works. The employer should respond, without further delay, on all matters for which the architect is required by the contract to consult the employer before issuing an instruction, determining the amount to be added or deducted from the contract price, or granting an extension of time. To bring about the project, the client must get involved in contractual relationships with several other parties. These relationships have become fairly clear over the years, and they will be studied in more details as each of the other parties is identified later in the paper.

Normally, the employer is obliged to ensure that the work being carried out conforms to all local ordinances and regulations. The employer is usually responsible for ensuring that all permits necessary to authorise all works are secured to the satisfaction of the local authorities.

The Contractor²

The contractor shall take full responsibility for the adequacy, stability and safety of all site operations and methods of construction. Provided that the contractor shall not be responsible (except as stated hereunder or as may be otherwise agreed) for the design or specification of any temporary works shall be designed by the contractor, he shall be fully responsible for that part of such works, notwithstanding any approval by the architect.

The contractor, with due care and diligence, shall execute and complete the works and remedy any defects in accordance with the provisions of the contract. The contractor shall provide all superintendence, labour, materials, plant, contractor's equipment and all other things, whether of a temporary or permanent nature, required in and for such execution, completion and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the contract.

The contractor receives and complies with the instruction from the architect acting on behalf of the client and is responsible for the care of the works through out the construction process until the works are officially

taken over by the client. Normally there is one main contractor who signs an agreement contract with the client and is responsible for the overall execution and completion of the project. There will usually be a number of subcontractors working on site undertaking some specialist contracting activities. The subcontractors are responsible to the contractor for materials, workmanship, performance and progress, and the contractor is under the contract for each subcontractors' work and performance.

In order for the contractor to achieve the mentioned obligations and goals, he must have a good well planned and effective schedule for the works. Over and above, there must be qualified and trained personnel for all the trades on site, as well as a good support team at the offices.

The project team has the following manpower as described below.

Project manager:

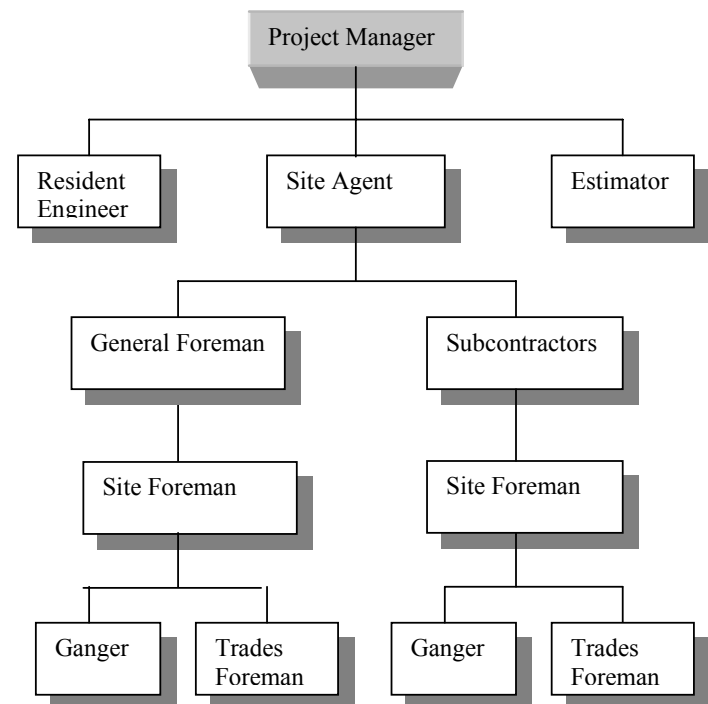
The project manager manages the project from the head office to the site, from contract administration to site administration. He prepares the program and the budget for the project and is responsible to make sure that the conditions of the contract are fulfilled.

Site agent

The site agent is the manager of the site and reports direct control of all site manpower, site budget programming and executing the conditions of the contract.

Estimator

The estimator is responsible for estimates on material quantities, budgets and for compilation of claims.



² FIDIC – The Contractor

General foreman

Ensures that the workforce is doing its job efficiently and correctly. He also ensures that the site is kept clean and the tasks are performed accordingly. He reports directly to the general foreman.

Site foreman

In most cases the site foreman deals with the labourers and allocates the tasks as directed by the general foreman.

Site clerk

The site clerk is responsible for keeping all the records on site up to date. This records include the progress, labour, materials, weather, instructions, information, etc. These records are often needed by the project manager for budget and monitoring of the program.

issuing to the employer interim and final payments certificates.

In administration of the contract all communication and correspondence with the contractor is done through the architect, thus avoiding possible confusion and misunderstanding. The architects' duties will normally include instructions relating to management of the contract and changes in the nature and extent of the work, the cost therefore and time of completion.

To put this in a layman's term, the architect is engaged by the client to offer advice and to make architectural skills available, the architect must be very careful to exercise caution to protect both the himself and the client he represent from the results of effects of poor advice or actions.

The Designer: Architect³

The designer is not a party to the main contract between the contractor and the client, but his terms of engagement are set out between the client and the architect. The designer is the person or party retained by the client to design the contemplated, and is often an architect.

This architect provides services such as; preparations of preliminary programming, sketch plans, budgets, and perspective rendering of the proposed project, they include detailed working drawings and specifications sufficient to permit bidding and building of the project.

Other services include supervising of the project and certifying of the payments on account of work done on the project. In all these services, the architect is acting as an agent for the client. As such, he has a duty of care to the owner, to look after the client's affairs as if they were his own, within the terms of their contract.

In addition to the above roles, the architect is also responsible for; issuing of information and instruction to the contractor as the works proceeds, commenting on the contractors' proposals for carrying out the work, ensuring that the materials and workmanship are as specified; agreeing measurements of works done and checking and

Local authority

City Council

The local authority's position is to enforce the rules and regulations about developing in a piece of property. These are usually the Bye-Laws as set by the City Council. Before any development can be commenced, whether it is on private or state owned property, a building permit has to be obtained from the Town and Regional Planning department within the City Council, on condition that the designs and specifications of the proposed development conform to all the building regulations as per the National Building Code, and the Building Bye-laws.

Once the plans and the specifications are approved, the building permit is issued and work can be started. The initial setting out of the building has to be inspected by the building inspectors from the City Council, before any excavations can be done. A certificate will be issued after the inspection and passing of the setting out, this certificate gives a go ahead, but only to the next stage. The next stage will be excavation which will also follow the same routine, until the concreting stage is reached. The concrete stage of the substructure is very important

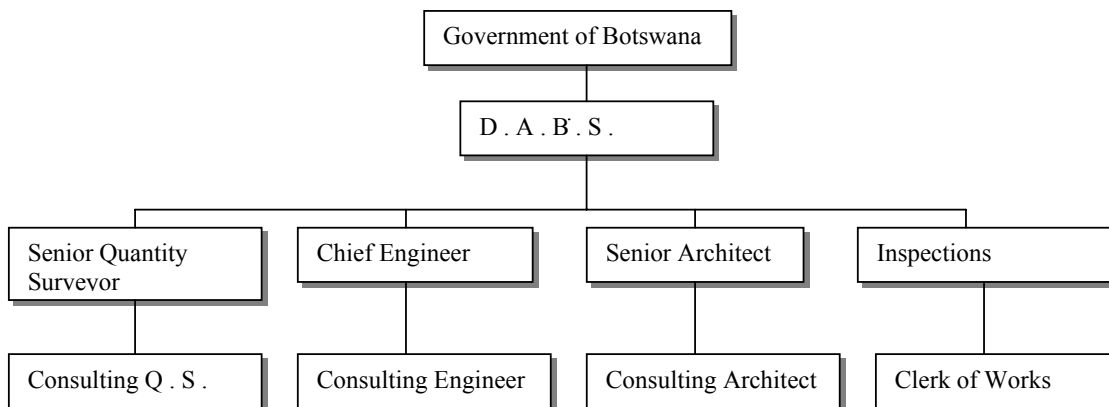


Figure 5 Organisational Chart – Government

³ Construction Contracts & Specifications – parties to the contract

and the inspectors can be very strict about the rules. No

contractor must take a chance and start pouring the concrete before the compaction, steel, and poisoning and dump proofing is inspected, or he risks the whole substructure being rejected and demolished.

When the substructure is complete, then the contractor can continue with the rest of the building and will be supervised by a representative of the client, usually the Clerk of Works. However, there will be random checks by the City Council just to make sure every thing is been done right. It is the contractor's responsibility to book and call for these inspections, but the building permit is the clients' responsibility.

The next mandatory inspection will be for the sewage and drainage system and the connection to the City's main sewer. Then when the building is practically complete, the final inspection is done to check the buildability, if it is habitable. If it is, then an occupation permit is issued, and that is the end of the contractor and the City Council on that project.

Progress meetings

Progress meetings are held every month as site meetings. Sometimes some meetings are called in between if there is a crisis, especially a technical one at the site.

These meetings are aimed at discussing the progress on site, problems encountered during the construction, details and information, and valuation for payment. Present at the meeting are; the contractor and subcontractors, the client and representatives. The quantity surveyor will also have chance after the meeting to do the monthly valuation for payment to the contractor.

Payments-monthly certificates

The contractor submits to the Quantity Surveyor at the end of each month, a statement of claim. The Q.S. will check the claim against the value of the permanent works executed, any other items in the bill of quantities including those for temporary works, dayworks and the like, the percentage of the invoice value of the materials on site, any adjustments and any other sums of monies that the contractor may be contractually entitled to. The Q.S. will then compile a valuation claim, where he makes such deductions as the contract prescribes. When this claim is completed, it is submitted to the project Architect for approval and signature, and should be certified to the employer within 28 days of receipt.

Retention monies⁴

The retention money is held by the employer as security to ensure fulfilment by the contractor of his obligations in respect of defects. The retention is usually 10% of each statement.

Upon the issue of a hand over certificate with respect to the whole of the works, one half of the retention money, or upon issue of the certificate with respect to a section or part of the permanent works, only such proportion thereof as the Architect determines having regard to the value of such section or part of the permanent works, shall be certified by the Architect for payment to the contractor.

Upon the expiration of the Defects Liability Period for the works, the other half of the retention money is certified by the Architect for the payment to the contractor.

Final account

The contractor shall, within the time prescribed by the contract conditions, submit to the QS for consideration a draft final statement with supporting document showing in detail, in the form approved by the Architect. This statement should show the value work in accordance with the contract and any further sums which the contractor considers to be due to him under the contract. The QS will carefully go through this statement, to his satisfaction, and if correct, it is passed on to the Architect for his consideration and payment. Upon submission of the final account, the contractor gives the Architect a written discharge confirming that the total of the final represents full and final settlement of all monies due to the contractor arising out of or in respect of the contractor.

Defects Liability Period

In Botswana, a Warranty Period of six months is provided and calculated from the date of final completion of the contract works as certified by the Architect. This period is however, dependent on the size, nature, and scope of work, and the type of contract, and can vary. Within the above period, the Contractor should maintain the works at his own expense and is liable for any failure or defect noted which is traceable to poor workmanship, use of poor quality of materials or non-compliance to plans and specifications. After six months, a certificate of acceptance is issued by the Architect and the facility is now turned over to the Owner.

Part II

The scope of this part of the paper, is to examine and expose, as well as to look at the basic ideas of solving the causes of the delays for the completion of the Audio Visual Centre. The AVC has been experiencing a lot of delays, some of which are going to be discussed in the paper. The reasons the delays are in the spotlight in this paper, is because the most, if not all, are to do with the contract documents.

Overview of project

The AVC project was awarded, but could not be started for another six months. When the project finally started, it was scheduled to be completed in nine months, and after thirty months the project has not been completed. Why ?

Delays

During the design

When the tender was called out, the tender documents were not ready, thus the working drawings were not ready, only the BQ was ready, and was probably prepared basing on the design drawings. The tenderes had to

⁴ FIDIC retention monies

depend entirely on the BQ for tendering and assumed this meant that every item in the drawing has been included in the BQ. This meant that any item of works that would come up on the final working drawings, that is not on the BQ would be treated as a variation.

Although it has been an accepted practice and provided for in most forms of contract, that some work may not be fully designed tender stage, it is also very essential that the drawings must be sufficiently detailed to enable tenderers to assess accurately, in conjunction with the specification and the BQ, the nature and scope work included in the contract. This incomplete information is usually dealt with by way of provisional sums or provisional quantities. In recent years the proportion of works covered by provisional items has increased beyond that for which this type of contract is was intended. In some cases, as much as forty percent of the contract sum has been made up provisional items, leaving the contractor unsure as to what the scope of work is, and the employer without a realistic budget for the project.

As it is evident that the tender documents were not all ready for tender, the tender went ahead anyway, and was awarded. It then become apparent that work could not be started as yet, because there were no working drawing for the contractor to use. This shows a lack of planning and disorganisation of the client and his representatives.

During construction

It is self evident that the contractor should be given access to the site by the employer and provided with information in sufficient time to enable the contractor to carry out the works by the due completion date. The poor knowledge of the site by the Architect led to some delays in starting the project, when the eventually some working drawings were ready and the contractor was given possession of site. The Architect did not take into consideration the overhead power line which was running across the building site, since this building was a two storey, it was impossible to place the building under the this live power line, then there were two choices , to move the power line or the building. The Architect decided to move the building to another position instead, but this could not work either, the building could not fit anywhere else. Now the power line has to be moved. There are two problems to moving the power line, one, it supplies part of the town, two, it is going to take long before the Power Co-operation could move it. The Architect is in a dilemma, but confirms the building will stay, and the contractor can proceed with the substructure while the arrangements are been made for moving the power line. The contractor proceeds with the ground works and finishes the foundations. Unfortunately the power line is not moved soon enough, and the contractor has now started the walls. The contractor now stops the work claiming it is dangerously high enough to stop. The Architect agrees and writes an instruction to the contractor to stop. The contractor suffers three weeks of loss of production.

During the preliminary stages of the project, the Architect should have collected data upon which to base the design, cost estimates, contract documents and drawings. It is in the interest of the employer to have the designs of the permanent works properly developed and for these

reasons he would be well advised to have carried out as thorough an investigation of the site as is practicable.

Instructions and drawing issues

Many instructions and drawings issues are of an explanatory nature to enable the contractor to construct the original works. Late issuance of information led to claims of delay and disruption through out this project. The Architect must be able to understand the contractor's program and make allowances for shop drawings (if applicable), obtaining quotations, ordering and delivery. The Architect should not rely solely on the contractor's requests for information (usually the contract does not place an obligation on the contractor to make such requests).

As there were endless changes to the designs and scope of , it was very difficult for the contractor to smoothly operate, so it was important that revised drawings should clearly indicate the revisions so that the contractor can identify appropriate action without searching to find each revisions. Such drawings should be accompanied by variation orders or instructions to facilitate cost monitoring and control. The Architect made mistakes of issuing drawings without an issue slip or cover letter. This poor practice does not facilitate control and often contributed to failure, by the contractor to use the right drawings, to give notice of delay or extra costs at the earliest possible time.

Site and verbal instructions

The architect had a tendency to design and detail the works as they proceed at site level. This indicated lack of knowledge of design and construction detailing, and lack of planning. The contractor suffered lots of delays resulting in loss of revenue, and the client suffered a great loss of money in extra payment and use of the building, simply because of unusually high proportion of design and detailing by way of verbal instructions and hand drawn sketches issued by the Architect during inspections.

Site instructions and verbal instructions should be used in an emergency only and not as a method of designing the works. Where verbal instructions are given, the Architect should take the initiative in making sure that they are confirmed in writing or drawing later.

After contract completion date

The best advice that architects should take, and or give to the client, is not to cause any delay after the contractual completion date (extended, if applicable) has passed and when the contractor is in culpable delay. Once such delays has occurred, the time for completion is no longer applicable and the contractor is allowed a reasonable time for completion of the works. Since the contractor is not himself in delay, in this project, the employer has now lost his rights to recover liquidated damages. Into the third year of the project, it is not complete and not a penny has been charged to the contractor as liquidated and ascertained damages. How shocking!

By the contractor

Although most of the delays were caused by the employer and his representatives, we should not put aside the delays by the contractor. But if the contractor also had his own delays, why has he not been penalised by the employer?

This is simply because the employer's delays has always been overrunning the contractor's excessively, and gave the contractor "Time At Large".

Conclusions

On a first or superficial view of the construction industry, one might get the mistaken impressions that it is a well organised and smoothly flowing operation, with all parts carefully prepared to accurately interface one with the other, and all cast or controlled in a sort of immutable frame. Nothing could be farther from the truth. Intuitions innovation, and inspiration are the key characteristics leading to success in the system. Flexibility, attitude and action are prime prerequisites for continued success in the industry. The possibilities for permutations of the properties of personnel and resources are infinite. Constant change is an occupational hazard of the whole business.

Close co-operation and teamwork between the Employer, the Contractor and the Architect, within the frame work of the contract, with a mutual desire to produce a satisfactory product by well organised, safe and efficient methods, will reduce to a minimum the risk of delays and misunderstandings. When mistrust and lack of confidence occurs, trouble may arise and a contract may run into difficulties. No wording in the contract can prevent this from happening if one or both of the parties, or the Architect fails to perform his duties under the contract responsibly and correctly.

References

Construction Claims – Reg Thomas
Conditions of Contract for Civil Engineering Works – FIDIC
Construction Contracts and Specifications – Glenn Hardie
Standard Conditions for Government Projects – BIDP

Glossary

AVC - Audio Visual Centre
BIDP - Botswana Institute of Development Professionals
BQ - Bill of Quantities
CTB - Central Tender Board
DABS - Department of Architecture and Building Services
Dwg - Drawing
FIDIC - Federation Internationale Des Engineers-
Conseils
JCT - Joint Contracts Tribunal
QS - Quantity Surveyor
RIBA - Royal Institute of British Architects