

**Choosing an appropriate
form of contract for
engineering and construction
works**

September 2005

Second edition of CIDB document 1010

1. Background

The Green Paper on Creating an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry has a vision for a construction industry policy and strategy that *promotes stability, fosters economic growth and international competitiveness, creates sustainable employment and addresses historic imbalances as it generates new industry capacity*. This paper, when considering what is needed to promote new industry capacity and the emerging sector calls for, amongst others:

- the simplification of contract documents to enable them to be more readily comprehensible, particularly to persons whose mother tongue is not English;
- the streamlining of payment procedures and surety arrangements; and
- the continued review of contract documentation to ensure that conditions do not constitute barriers to increased participation.

It also suggests that a partnering approach within the framework of public sector procurement may enhance industry performance.

In order to make procurement reform effective in the manner intended, employers in the engineering and construction industry need, amongst others, to revisit the standard forms of contract which are in use. The current approach of having, probably, as many standard forms of contract as there are disciplines in the industry, together with a considerable number of in-house forms of contract, neither makes for efficiency nor does it enable a focussed approach to skills training necessary for development and growth. This applies to both private and public sector work.

Whilst the ideal of standardisation on one system of standard forms of contracts for all engineering and construction works in South Africa is, probably, just as illogical as it is for each client to have its own form of contract; a balance has to be found between these two extremes.

2. Considerations in reducing the number of forms of contract in use

The two fundamental considerations in the reducing the number of forms of contract in use in South Africa are:

- standardisation; and

- having documentation capable of catering for a wide range of client requirements.

The first stage in any initiative aimed at standardisation is to limit the choice of the forms of contract. The construction industry, together with the Interministerial Task Team for Construction Industry Development, based on an evaluation of a range of forms of contract against a set of criteria (see Annexure 1), drew up a list of documents published by four different bodies in 2000 to limit the number of forms of contract in use¹. This list was compiled to ensure that clients could deliver projects using a wide range of contracting and pricing strategies which are based on sound drafting practices. Obviously, forms of contract which apply only to specific subsectors of the industry, eg the roads sector, were not included in the list.

The recommended forms of contract are those contained in the following series of documents:

- FIDIC (French acronym for International Federation of Consulting Engineers) 1999
- General Conditions of Contract for Construction Works (GCC 2004)
- JBCC Series 2000
- NEC3 family of standard contracts

The second stage in standardisation is to provide compatibility between standard forms of contract and other standard documents used in procurements, eg standards relating to the scope of the work, tender data and methods of measurement and payment. Ideally the recommended forms of contracts should be able to be used with a range of standard procurement documents and should not be structured around the use of specific standards and systems of measurement.²

FIDIC, NEC3 and GCC are forms of contract that can be used on all types of engineering and construction contracts. JBCC 2000 is, however, confined to building works. The FIDIC, NEC3 and JBCC series of documents contain short versions of engineering and construction works contracts. The four series of documents collectively cover the commonly encountered contracting strategies that are currently being pursued internationally.

There is no doubt that the reduction in the prolific number of forms of contract in use in South Africa to the aforementioned four series of documents will assist in the eliminating many of the inefficiencies and losses associated with having to interpret the many varied approaches used to establish the risks, liabilities and obligations of the parties to a contract and the administration procedures associated therewith.

3. An overview of the FIDIC suite of documents

FIDIC (French acronym for the International Federation of Consulting Engineers) which was founded in 1913 by three national associations of consulting engineers within Europe and currently has membership from more than 60 countries from all parts of the globe, is known throughout the world for producing standard forms of contract for civil engineering construction, and mechanical and electrical plant. In 1999 FIDIC extended its ambit into other disciplines, with the publication of first editions of a new family of contracts comprising four new standard forms of contract:

¹ Focus group 6 of the Interministerial Task Team for Construction Industry Development recommended that *"the public sector should procure engineering and construction works in terms of a limited range of standard and approved procurement documents, and which, as far as possible, comply with the provisions of Best Practice Guide #2: Features of a modern form of engineering and construction contract (See Annexure 1). The use of "in house" documents and / or the incorporation of substantial variations to the standard forms of contract must be avoided"*.

Best Practice Guide #2: *Features of a modern form of engineering and construction works contract* sets out the essential and desirable criteria, as well as the rationale for such criteria, for acceptable forms of engineering and construction works contracts in South Africa. This guide enabled decisions to be taken regarding which forms of contracts should be used in South Africa. The criteria which are presented also informs the development and direction of new forms of contract and the revision of existing forms of contract. (See Annexure 1)

² Focus group 6 of the Interministerial Task Team for Construction Industry Development made several recommendations regarding the formatting and compilation of procurement documents. This work informed the development of SANS 10403 (*Formatting and Compilation of Construction Procurement Documents*) by the StanSA Technical Committee for Construction Standards.

- Conditions of Contract for Construction (“Red Book”)
- Conditions of Contract for Plant and Design-Build (“Yellow Book”)
- Conditions of Contract for EPC/Turnkey Projects (“Silver Book”)
- Short Form of Contract (“Green Book”)

These forms of contract are recommended for general use where tenders are invited. Guidance is provided in each of these books for the preparation of particular conditions.

The Silver Book has been developed to respond to market requirements for a form of contract where certainty of final price and completion date are of such importance that the client is willing to pay a premium for the certainty that the agreed final price and date will not be exceeded. Contractors, accordingly, in terms of the Silver Book are required to assume responsibility for a wider range of risks than under contracts where the Red and Yellow Books are utilised.

The Silver Book is not suitable for use under the following circumstances:

- there is insufficient time or information for tenderers to scrutinise and check the employer’s requirements or for them to carry out their designs, risk assessment studies and estimating;
- if construction will involve substantial work underground or work in other areas which tenderers cannot inspect;
- if the employer intends to supervise closely or control the contractor’s work, or to review most of the construction drawings; or
- if the amount of each interim payment is to be determined by an official or other intermediary.

FIDIC recommends the use of the Yellow Book in the above circumstances for works designed by or on behalf of the contractor.

The main features of the first three books may be summarised in Table 1.

Table 1: Main features of the FIDIC “Red”, “Yellow” and “Silver” books.

Aspect	Commentary
Application	The obligations by the parties, rather than the nature of the work, determine which contract is to be used. FIDIC recommends that the use of the books as follows: Red Building and Civil Engineering contracts Yellow Mechanical & Electrical process plant contracts Silver International major turnkey projects. For projects only and typically designed and managed by independent engineering consultants.
Provision for different contracting strategies	Separate contracts for three main strategies: Red Construction: Building and Engineering works designed mainly by the employer. Yellow Plant Design & Build for works designed mainly by the contractor. Silver Engineer-Procure-Construct Turnkey projects with all work (engineering, procurement and construction) by the contractor.
“Tender” vs “contract”	“Tender” included as part of the “Contract”
Structure	Separate documents with many common clauses repeated in each document. (Documents are structured around 20 similar clauses, which are adapted as required by each contract.)
Design by either party	Red Intended to be by the employer but contract provides for design by the contractor to the extent specified in the contract. Parts designed by contractor to be fit for purpose. Yellow Design (fit for purpose) by contractor to Employer’s Requirements. Silver Fit for purpose design by the contractor who shall also be responsible for the accuracy and completeness of the Employer’s Requirements, with some limited exceptions.

Aspect	Commentary
Limitation of liability Loss of revenue, loss of profit, indirect and consequential Other direct losses during the contract period Loss and damage to employer's surrounding property Latent defects	Capped at amount stated or contract sum if not stated, with exceptions. This cap applies to the contractor only. Unlimited for defects to the extent which contractor is responsible, uncertain for others. Contractor liable, including for consequential loss, arising from breach of contract, negligence, or other legally actionable wrong. The contract is silent, hence covered by the law of the contract in which the site is situated.
Financial risk allocation	Each main contract has its own independent (but fixed) risk allocation strategy typical of the sector the contract is designed to target. Red Employer carries quite a few risks Yellow Contractor carries most risk, but employer still carries some. Silver Contractor carries virtually all risk. Time and cost effect dealt with differently depending on the risk event. Some events do not allow for contractor's profit. Engineer / Employer to determine (extra time & cost) by consultation in an endeavour to reach agreement. Alternatively, engineer can determine.
Role of the Employer and his agents	Red and Yellow books refers to employer and the engineer (a person who may not necessarily be an engineer). Engineer is the employer's agent but may be restricted by the employer. Silver refers to employer only but may delegate actions to a representative. All contracts make reference to Employer's Personnel. All may delegate their duties. Engineer (or Employer in the Silver Book) is required to determine any matter by consultation with the parties and if agreement is not reached, to determine the matter by making a fair determination in accordance with the contract, accounting for the circumstances.
Subcontracting	Contractor is liable as if he had not subcontracted. Provision for Nominated Subcontracts. No back-to-back conditions of subcontract are provided.
Claims procedures	If Contractor considers himself entitled to make any claim for extension of time or additional payment, he shall notify the Engineer within 28 days of the circumstances giving rise to the claim, after which the Employer has no further liability. This is a strict / full time bar.
Dispute management	Disputes first referred to a Dispute Adjudication Board (single person or three-person board) for settlement. If no notice of dissatisfaction is received it becomes final and binding. General Conditions of Dispute Adjudication Agreement included as an Appendix in each main contract document. If dissatisfied, a party notifies the other and amicable settlement is attempted. If still no agreement, proceed to international arbitration by three arbitrators under ICC rules, unless otherwise agreed by the parties

The FIDIC Short Form of Contract is recommended for engineering and building work of relatively small capital value, fairly simple or repetitive work or work of short duration without the need for specialist sub-contracts. The parties to the contract are the employer and the contractor. The Short Form permits the employer to nominate his authorised spokesman and provides no overall limit on the contractor's liability.

Employer liabilities provided for in the Short Contract include:

- any operation of the forces of nature affecting the site and / or works, which was not foreseeable or against which an experienced contractor could not reasonably have been expected to take precautions;
- physical obstructions or physical conditions other than climatic conditions encountered on the site during the performance of the works, which obstructions or conditions were not reasonably foreseeable by an experienced contractor and which the contractor immediately notified to the employer; and

- damage which is an unavoidable result of the contractor's obligations to execute the works and to remedy defects.

Notes for Guidance are included at the back of the Short Form of Contract.

The Short Form of Contract makes reference to an Appendix in which it is stated whether the work is to be valued and paid for on the basis of:

- Lump sum price,
- Lump sum price with schedule of rates
- Lump sum price with bill of quantities
- Remeasurement with tender bill of quantities, or
- Cost reimbursable.

Payments are made on a monthly assessment submitted by the Contractor for the Employer to pay the amount he considers due. A final account is then submitted by the Contractor to the Employer for him to ascertain the final contract value.

4. An overview of the GCC documents

The South African Institution of Civil Engineering has a strong tradition of developing, publishing and maintaining forms of contract and has over several decades published six editions of the General Conditions of Contract for Civil Engineering Works. The sixth edition of the General Conditions of Contract for Civil Engineering Works (GCC 1990) was modified by the Committee of Land Transport Officials' and republished by SAICE as the General Conditions of Contract for Road and Bridge Works for State Road Authorities (COLTO 1998).

The General Conditions of Contract for Construction Works (GCC 2004) replace GCC 1990 and COLTO 1998, satisfy the Construction Industry Development Board requirements for a standard form of contract and are suitable for use in procurement documents that are prepared in accordance with the provisions of SANS 10403, *Formatting and Compilation of Construction Procurement Documents*.

GCC 2004 retains the language, style and ethos of GCC 1990 and COLTO 1998. As such, GCC 2004 retains as far as possible the current wording of these documents and remains a form of contract primarily for use in contracts where the contractor undertakes construction on the basis of full designs issued by the employer and bills of quantities are used for payment purposes.

Table 2 summarises the main features of GCC 2004.

Table 1: Main features of GCC 2004

Aspect	Commentary
Application	Suitable for both building and construction works contracts.
Provision for different contracting strategies	Although it is focused on the design by employer contracting strategy, it may be used in design and build contracts.
“Tender” vs “contract”	“Tender” and “Contract” separated
Structure	Series comprises only one form of contract.
Design by either party	Intended to be by the employer but contract provides for design by the contractor to the extent specified in the contract.
Limitation of liability Loss of revenue, loss of profit, indirect and consequential Other direct losses during the contract period Loss and damage to employer's surrounding property Latent defects	To be addressed as an additional condition. Unlimited for defects to the extent which contractor is responsible, uncertain for others Contractor liable for making good physical loss and to repair damage from whatever cause save for “excepted risks”. Liable for latent defects for a period of ten years after the completion of the contract.
Financial risk allocation	The risk allocation is fixed based on the principle that the risk carried by the party best suited to deal with it.
Role of the Employer and his agents	The Engineer administers the Contract as agent of the Employer in accordance with the provisions of the Contract
Subcontracting	Contractor is liable as if he had not subcontracted. Provision is made for the appointment of subcontractors in consultation with the employer.
Claims procedures	If Contractor considers himself entitled to make any claim for extension of time or additional payment, he shall notify the Engineer within 28 days of the circumstances giving rise to the claim, after which the Employer has no further liability. This is a strict / full time bar.
Dispute management	All disputes referred to and settled by either a mediator or adjudicator, failing which arbitration or litigation, as provided for in the contract

5. An overview of the JBCC suite of documents

The Joint Building Contracts Committee (JBCC) was founded in 1972 and is supported by the major professional and contracting bodies in the building industry in South Africa. The constituent bodies which form the JBCC are:

- Association of Construction Project Managers
- Association of South African Quantity Surveyors
- Building Industries Federation of South Africa.
- South African Association of Consulting Engineers
- South African Institute of Architects
- South African Property Owners Association
- Specialist engineering Contractors Committee

The objective was to formulate a set of standardized contractual documents which would support an efficient and effective building process. These contractual documents were first published in 1991 and were replaced by the Series 2000.

The JBCC documents are compiled in the interests of standardization and portray the consensus view of the Joint Building Contracts Committee of good practice and an equitable distribution of contractual risk. The document is intended to provide a clear, balanced and enforceable set of procedures, rights and obligations, which when competently managed and administered, protect the employer, contractor and subcontractor alike. The Series 2000 covers all aspects for most types of building projects. It should be

noted that each document has been formulated for use specifically as part of the Series 2000 and is unlikely to be suitable for use with other forms of contract.

The Principal Building Agreement is the cornerstone of the JBCC Series 2000 document range. The agreement is made up of nine sections starting with the definitions of all the primary elements and phrases that regularly occur in the document. The final section is a schedule of all variables required to complete the Agreement. This agreement contains standard provisions to cater for the requirements commonly associated with “state” contracts.

Table 3 summarises the main features of the JBCC Principal Building Agreement.

Table 3: Main features of the JBCC series 2000 Principal Building Agreement

Aspect	Commentary
Application	Suitable for the building sector of the construction industry where the works are designed and administered by agents of the employer who are co-ordinated by a principal agent.
Provision for different contracting strategies	Only suitable for design by employer contracting strategy.
“Tender” vs “contract”	“Tender” included as part of the “Contract”.
Structure	Separate documents with many common clauses repeated in each document.
Design by either party	Contractor is not responsible for the design of the permanent works. However nominated and selected subcontractors do carry design responsibility which is ceded by the contractor to the employer
Limitation of liability Loss of revenue, loss of profit, indirect and consequential Other direct losses during the contract period Loss and damage to employer's surrounding property Latent defects	To be addressed as an additional condition. Unlimited for defects to the extent which contractor is responsible, uncertain for others Contractor liable for making good physical loss and to repair damage from whatever cause. Liability limited to the amount of the contract works insurance provided for in the contract. Liable for latent defects for a period of five years after the completion of the contract.
Financial risk allocation	The risk allocation is fixed based on the principle that the risk carried by the party best suited to deal with it.
Role of the Employer and his agents	The principal agent is given full authority and obligation to act in terms of the contract and may as such bind the employer. Principal agent is required to determine any matter by consultation with the parties and if agreement is not reached, to determine the matter by making a fair determination in accordance with the contract, accounting for the circumstances.
Subcontracting	Provision is made for nominated subcontractors and selected subcontractors i.e subcontractors appointed by the principal agent in consultation with the contractor. The contractor is liable as if he had not subcontracted where the subcontractor is selected. The contractor is not liable in certain respects where the subcontractor is nominated. Back to back forms of subcontract are provided to facilitate the appointment of contractors.
Claims procedures	Provision made for the adjustment of the contract value and the date for practical completion under prescribed circumstances. Claims for such adjustments must be made within the stated period of becoming aware of the circumstances giving rise to a claim, failing which no compensation will be made.
Dispute management	In “state” contracts disputes are submitted to litigation. Institution of the action must be commenced and the process served within 1 year from the date of the existence of the dispute, failing which the dispute shall lapse. In “non-state” contracts, disputes are referred to arbitration or mediation.

The Minor Works agreement has been designed for use where:

- minor works of simple content are to be carried out for an agreed lump sum;
- the employer appoints only one agent to administer the contract; and
- the employer appoints direct contractors for specialised work or installation not to be undertaken by the contractor.

The agreement is suitable for use where the contractor is a small to medium enterprise and the employer carries the major liabilities related to the works and is responsible for taking out construction risk and public liability insurances for the protection of both parties. The agreement is not intended for use where the employer wishes to use nominated and selected subcontractors or where contract price adjustment is required.

The agreement is not suitable where the works are complex in nature, the construction period exceeds nine months and the necessary working drawings are not complete and available at tender stage.

The parties to the contract are the employer and the contractor. The contract requires that the employer appoint an agent to act his behalf in the administration of the contract and to provide the contractor with a payment guarantee.

6. An overview of the NEC3 family of standard contracts

The NEC3 family of standard contracts is an integrated and multidiscipline set of contracts for Engineering and Construction Projects covering both construction and the associated professional services. The documents were first conceived in 1985, when the Council for the London Institution of Civil Engineers approved a recommendation from its Legal Affairs Committee to 'lead a fundamental review of alternative contract strategies, with the objective of identifying the needs for good practice'. This recommendation arose out of the belief of many engineering and construction professionals that there was an urgent need for a new approach to contracting, in line with recent approaches to project management.

The NEC has matured from being a revolutionary contract in the early 1990s with some interest and use from forward thinking organisations seeking change in how they engage contractors in a non-adversarial manner. NEC2 was published in 1995.

The NEC Panel's strategy for updating the existing family of documents to NEC3 status has been that:

- The existing basic philosophy and function of the NEC system should remain, with no radical change at this stage;
- It should be a process of consolidation from experience in use rather than change for the sake of change;
- Improvements are made in line with the three original key objectives for the NEC system, of flexibility, clarity and stimulus to good project management;
- Each member of the family should be drafted so that wherever possible the same text is used to describe procedures which are common across the family;
- All members of the family should be changed at the same time to avoid the problem of contracts revised earlier being out of step with those revised later;
- It should comply fully with the *Achieving Excellence in Construction (AEC)*, principles laid down by the UK Office of Government Commerce (OGC).

The NEC3 contracts satisfies the *Achieving Excellence in Construction* principles and is endorsed by the UK Office of Government Commence for use in public sector construction projects.

The Engineering and Construction Contract (ECC) is more than just a contract. It incorporates three key components:

- conditions of contract;
- risk management; and
- process/ project management.

In effect, it establishes a “real time” contract management process, which may require operation across multiple locations and organisational boundaries. It addresses the within these management process the “when”, the “what” in the form of instructions, compensation events, early warnings and supporting documents, and “how” and identifies the “who” (project manager, contractor and supervisor).

The unique process / project management features complete with time constraints provided for in the Engineering and Construction Contract are summarised and illustrated in Figure 1.

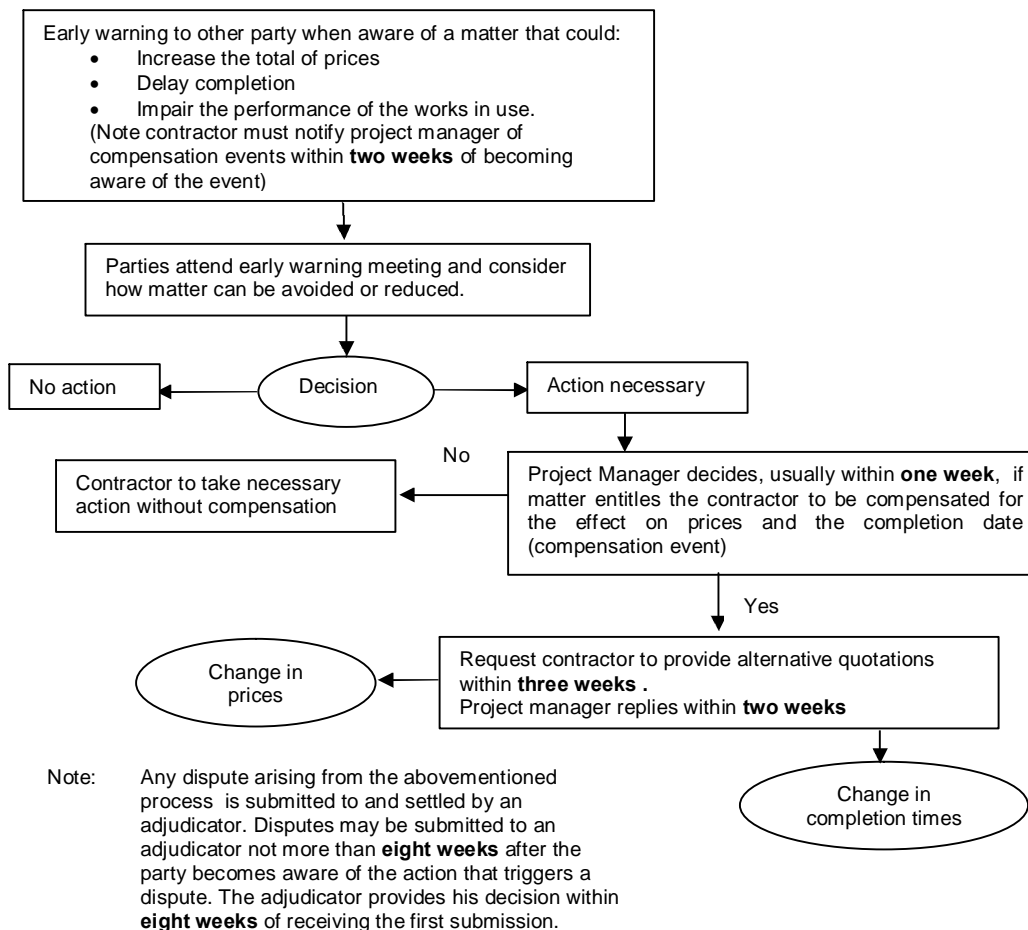


Figure 1: Contract management processes contained in the ECC

The ECC is designed to encourage collaboration and teamwork and to improve opportunities for partnering³. It provides as such effective control of change, speedy agreement of time, quality and cost

³ Partnering means working together in a way that suits the particular partners and which suits the particular project or service being procured. There is no standard template for partnering. There are, however, key elements which determine whether or not a particular procurement process is likely to yield the benefits from a true partnership. The key words associated with partnering are: co-operation; openness; shared standards; common objectives; respect for each partner’s motivation; and trust. Partnering is about sharing costs, risks and rewards.

impacts of change, improved early forecasting of end costs, greater accuracy of end date forecasts, early warning of risks and potential change and quick dispute resolution mechanisms. It facilitates the proactive management of risk and early completion of the final account and minimises “contractual claims” after completion. It furthermore provides flexibility in the procurement options and risk allocation.

There are, however, some challenges associated with the use of the EEC including a culture change, executive commitment, training requirements, discipline with rigorous timescales and response times, the operation of compensation event procedure, increased documentation and administration, the issuing and monitoring of notices and other documents; and the understanding of early warning processes. Information technology can, however, be used to assist with the operation and management of the processes, the creation and storage of communications and notices and knowledge management and learning activities.

The main features of the Engineering and Construction Contract (Black book) are summarised in Table 3. A partnering contract between parties can be achieved using the standard NEC3 contract by including a partnering option between two or more parties working on the same project or programme of projects.⁴ At the same time, this form of contract can be linked to the NEC3 Framework Contract to appoint one or more contractors to carry out construction work on an as and when instructed basis over a set term.

Table 3: Main features of the Engineering and Construction Contract (Black Book)

Aspect	Commentary
Application	Multi discipline and suitable for any sector or combination of sectors of the engineering and construction industry. Suitable for projects or general procurement, either <ul style="list-style-type: none"> • designed and managed by independent consulting engineers, or • designed by engineers and managed by separate project managers both of whom may or may not be independent of the employer.
Provision for different contracting strategies	Six main contracts to cover the full range of strategies <ul style="list-style-type: none"> A Activity schedule (lump sum) B Bill of quantities (re-measurement) C Target contract with activity schedule D Target contract with bill of quantities E Cost reimbursable contract F Management Contract.
“Tender” vs “contract”	“Tender” and “Contract” separated
Structure	One main document (black book) with common core clauses for all contracts. One set of main option clauses is then selected to create a particular contract. Further secondary option clauses may then be selected for use in any combination in any of the contracts.
Design by either party	Design by either party in any proportion to the extent stated in the Works Information. Contractor 'Provides the Works' in accordance with the Works Information; hence the obligation as to fitness for purpose or otherwise is based on what the Works Information requires.

Partnering is not necessarily the same as partnership in the sense of Private Public Partnerships which are advocated by government.

⁴ The partnering option is used as a secondary option common to the contracts which each party has with the body which is paying for its work. The parties who have this option included in their contracts are the bodies who are intended to make up the project partnering team. The partnering option does not create a multi-party contract.

Aspect	Commentary
Limitation of liability Loss of revenue, loss of profit, indirect and consequential Other direct losses during the contract period Loss and damage to employer's surrounding property Latent defects	To be addressed as an additional condition. Unlimited for defects to the extent which contractor is responsible, uncertain for others To be addressed as an additional condition of contract Limited for the effects of the contractor's design to an amount stated in Contract Data, otherwise per local law.
Financial risk allocation	Combination of main and secondary options can provide an almost unlimited range of contract strategy risk allocation in any of the traditional industry sectors. In addition through the use of 'compensation events' the employer will only pay for the effect of certain risks if they occur and contractor does not have to include for these in his prices. Basis of compensation is the same irrespective of the risk event, with the (separate) time and money effect considered in the same quotation at the same time. Contractor provides a cost and time forecast of the effect of the event based on his latest Accepted Programme, and on defined items of cost plus tendered overheads and profit. Project Manager accepts, asks for alternative quotations, or does his own assessment.
Role of the Employer and his agents	Project Manager and the Supervisor are agents of the employer without restriction being stated in this contract. Such restriction may be stated in their own services contract with the employer. If the contractor does not accept their determination, he may submit the matter for resolution by an independent adjudicator appointed and paid equally by both parties
Subcontracting	Contractor liable as if he had not subcontracted. No provision for nominated subcontracts. Back-to-back NEC3 Engineering & Construction Subcontract (ECS) or the NEC3 Engineering and Construction Short Contract are provided. The Engineering and Construction Short Subcontract (ECSS) can also be used as a back-to-back subcontract.
Claims procedures	Extension of time and / or additional payment can only be made in terms of listed compensation events. Both the Project Manager and the Contractor have obligation to notify each other of any such event. Early warning is required first and quotations are required within a strict timetable.
Dispute management	All disputes referred to and settled by an independent Adjudicator. Settlement is final and binding <u>until revised</u> by "the tribunal". The Parties under a separate contract appoint the adjudicator at the same time as they enter into a contract with each other. The Parties pay the adjudicator's fees equally. If dissatisfied, a party may notify the other that it is proceeding to the 'tribunal', which is the process pre-selected in Contract Data as being either arbitration or litigation

NEC3 Engineering and Construction Short Contract (ECSC) makes no provision for an employer's agent. Employers may, however, delegate. The extent of authority remains as though it was the employer who took the action. It makes reference to a Price List in which it is stated whether the work is to be valued and paid for on the basis of:

- an activity schedule which lists the lump sum price for each activity, or
- a bill of quantities representative of the work to be done.

Payments are made at stated intervals on the basis of either activities which have been completed, or work done measured at the rates in the Price List.

7. Selecting an appropriate form of contract

The factors which clients need to take into account when deciding upon which form of contract to use from the FIDIC, GCC, JBCC or NEC3 suites of documents include:

- The complexity of the works.⁵
- Management capacity, capabilities and expectation of the parties and their agent
- Requirements for specific contracting and pricing strategies (see Annexure 2), viz:
 - construction management;
 - design by employer;
 - management contract;
 - design and build;
 - develop and construct;
 - activity schedules;
 - bills of quantities;
 - cost reimbursable;
 - target cost; and
 - partnering.
- The compatibility of contract administrative procedures with those of the organization. (See Chapter 7 of SAICE's Practice Manual #2, *Delivering construction projects using the design by employer contracting strategy*.)
- Requirements relating to:
 - the assignment / management of risk;
 - back to back contracts for the engagement of all types of subcontractors; and
 - the management of cost and time overruns.
- The ability and capacity of skilled resources / desirability within the client body to handle different administrative procedures for building and civil engineering contracts, particularly (e.g. the use of JBCC on building contracts and FIDIC on civil engineering contracts.)
- Training requirements.
- Standardisation on a single system capable of handling any discipline and any contracting strategy in a single document in respect of engineering and construction works and all other procurements i.e. supplies, professional services and term services in a series of documents, that are based on a common philosophy, terminology and management processes.

The form of contract selected for a particular procurement must in the first instance make adequate provisions for the selected pricing and contracting strategy. Table 4 indicates the standard provisions in each contract pertaining to pricing and contracting strategies. Figure 2 illustrates the logic to be followed in deciding upon which form of contract within a series is required for a specific application.

Choosing the right form of contract is all part of the innovative thinking necessary to improve project delivery. It is a strategic decision that an organisation needs to make.

⁵ Short / minor works contracts are most suitable when works are:

- straightforward or repetitive work, for short duration;
- almost no requirement for sophisticated management techniques;
- imposes only low risks on both the procurer and the contractor; and the
- design of the works is almost complete when construction starts.

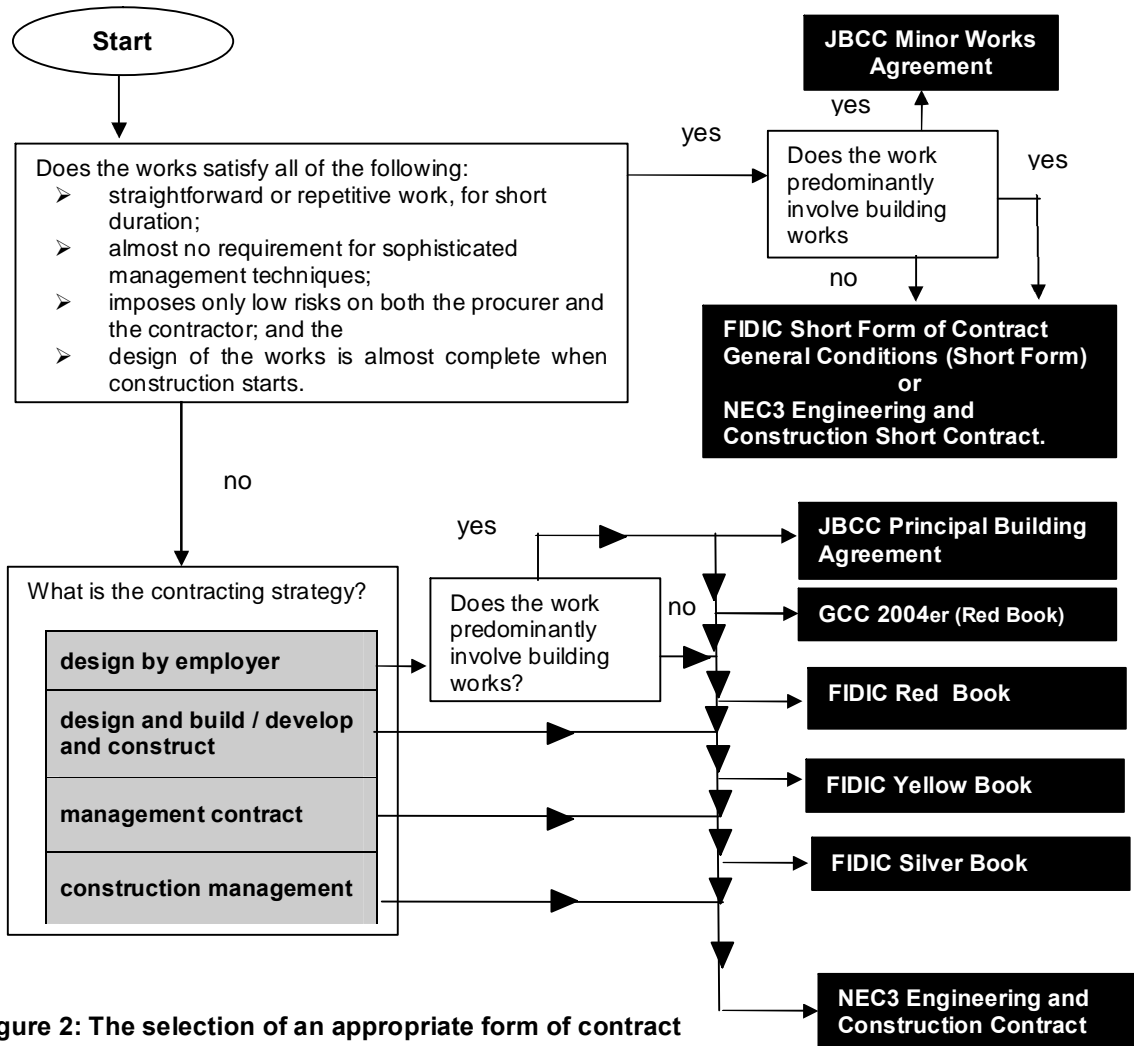


Figure 2: The selection of an appropriate form of contract for engineering and construction works

Table 4: Provisions relating to particular pricing and contracting strategies

Consideration	NEC3 Engineering and Construction Contract (ECC2)	NEC 3 Engineering and Construction Short Contract. (ECSC)	FIDIC Conditions of Contract for Construction and Building and Engineering Works Designed by the Employer (Red Book)	FIDIC Conditions of Contract for Plant and Design (Yellow Book)	FIDIC Conditions of contract for EPC Turnkey Projects (Silver Book)	FIDIC Short Form of Contract General Conditions (Short Form)	JBCC Principal Building Agreement	JBCC Minor Works Agreement	GCC 2004
Contract strategy									
Construction Management	√	x	x	x	x	x	x	x	x
Design by Employer Management Contract	√	√	√	x	x	√	√	√	√
Design and Build	√	x	x	x	√	x	x	x	x
Develop and Construct	√	√	x	√	√	√	x	x	x
Pricing strategy									
Activity schedule*	√	√	x	√	√	No standard provisions	√	√	√
Bill of quantities	√	√	√	Not fully developed	x		√	√	√
Cost reimbursable	√	x	x	x	x		x	x	x
Target cost	√	x	x	x	x		x	x	x
Back-to-back subcontracts	Two standard subcontracts available (Engineering and Construction Subcontract (ECS) and the Engineering and Construction Short Subcontract ECSS)). ECC2 and ECSC can also be used as subcontract documents.			None available			Nominated / selected subcontract agreement available.		None available

* An activity schedule with a single activity is in effect a lump sum contract.

Annexure 1: Features of a modern form of engineering and construction contract⁶

Criteria for acceptable forms of engineering and construction works contracts in South Africa

Acceptable forms of engineering and construction works contracts in the context of South African practice are considered to be those which, without the use of special conditions of contract;

Essential Criteria

- 1) Do not contain unreasonable provisions which could, unfairly, prejudice the interests of any party.

Rationale : There are many means by which one party, normally the contractor, may be prejudiced by the provisions of the contract, e.g., by prescribing unreasonably short notice periods.

- 2) Completely separate conditions of tender from conditions of contract and permit the utilisation of standard formats.

Rationale : It is unreasonable to expect tenderers to study conditions of contract to ensure that they contain nothing relating to the submission of tenders. It is, furthermore, illogical for conditions of tender to contain conditions of contract. The advantages of using standard formats will be experienced as soon as users become familiar with them.

- 3) Are not tailor made to suit particular technical specifications, or methods of measurement and valuation.

Rationale : There is no purpose in documents being tailor-made to suit particular specifications or methods of measurement, as it achieves nothing, and removes flexibility.

NOTE : (This criterion serves, also, to reduce the problems that can arise when foreign based funding agencies dictate the form of contract to be used).

- 4) Provide for an interrelated management system, which clearly defines the roles and duties of all persons involved.

Rationale : It is, clearly, essential that all parties should be fully aware of the management system on any project, so much so that it is, desirably, incorporated in the conditions of contract.

- 5) The Client's representative identified in the contract should be fully empowered to act on the client's behalf.

Rationale : This is necessary to enable timeous decisions to be made and to remove misunderstandings.

- 6) Permit the appropriate allocation of risks for individual projects, with each risk being allocated to the party best able to manage, estimate and carry it.

Rationale : It is unreasonable and not cost effective for one party to be made responsible for a risk over which another party may have a significant influence.

- 7) Clearly set out the period within which interim payments must be made to all participants, failing which they will have automatic right to compensation by the payment of interest at a sufficiently high rate to deter slow payment.

Rationale : Adequate cash flow is essential to all businesses and any measures which promote this are desirable.

⁶ Slightly modified version of Best Practice Guide #2: *Features of a modern form of engineering and construction contract*, prepared By CID Focus Group 6 (Procurement) and endorsed By The Inter-Ministerial Task Team On Construction Industry Development in 15 May 2000

- 8) Provide reasonable flexibility to accommodate both public body and private industry administrative practices. Such flexibility would permit, within limits, the selection of, *inter alia*, different periods allowed for payment, levels of surety, retention percentages, penalties, defects correction periods, limitations of liability for latent defects and contract insurance provisions.

Rationale : All contracts differ widely from each other and easy flexibility in the use of contract documents promotes the incorporation of the most appropriate features into each individual contract.

- 9) Stipulate formal contractual relationships between the contractor and all subcontractors, whether nominated, selected or domestic, which provide for fair and equitable conditions of subcontract.

Rationale : It is highly desirable that all subcontractors are engaged on the basis of formal contracts, as they are otherwise unprotected against possible unfair, or unreasonable, practices. The way to achieve this is to require it in terms of the main contract.

- 10) Encourage the role players to take all possible steps to avoid conflict, whilst providing for speedy dispute resolution by a pre-determined impartial alternative dispute resolution procedure should conflict arise.

Rationale : The parties should see it as being in their own interests to avoid conflict. However, some disputes which cannot be resolved by the parties themselves, are unavoidable. In these instances the immediate availability of an impartial person prevents unnecessary delays and cost increases.

- 11) Contain provisions for both interim and final dispute resolution by an independent person(s) which are not prejudicial to either party.

Rationale : Self evident.

Desirable Criteria

- 12) May be used, across the full range and scope of engineering and building disciplines and commonly encountered strategies by any client. (This could be achieved by an interlocking multi-discipline family of separate forms, each suitable for a different procurement route, or through the use of options within a single multi-discipline form, which cover the full range of procurement routes).

Rationale : Uniformity across the building and engineering disciplines would offer significant benefits, as many projects involve both disciplines in varying proportions.

- 13) Encourage co-operative attitudes with shared financial motivation to meet such obligations. This should result in a general objective to achieve “win-win” solutions to problems which may arise during the course of the project.

Rationale : Clearly, if all parties can benefit from teamwork, this must be promoted.

- 14) Permit and encourage the application of the techniques of partnering between the client and contractor in a manner that preserves contractual protection of rights.

Rationale : Partnering between client and contractor can have significant benefits, but, if this is at the expense of erosion of contractual rights, it could well become counter-productive.

- 15) Use clear and unambiguous language, are not unnecessarily complex and contain guidance notes where necessary.

Rationale : The use of clear and unambiguous language is important if unnecessary misunderstandings and disputes are to be prevented. Furthermore, in the South African context, it is very valuable to those whose home language is not that of the contract. The necessity for guidance notes must be assessed individually for each case.

- 16) Encourage the client to take all reasonable steps to avoid changes to pre-planned works information. However, where variations do occur, the contract should facilitate for these to be priced in advance of implementation.

Rationale : Variations are, normally, unavoidable on contracts, but should be kept to a minimum as they are the source of many disputes and delays.

- 17) Contain appropriate provision for assessing interim payments by methods other than just monthly valuation.

Rationale : Time related valuations are, frequently, not the most appropriate methods of assessing interim payment valuations. Simpler methods of determining payments due may be acceptable.

- 18) Provide for design to be carried out by either party to any predetermined extent.

Rationale : It is, clearly, desirable that design responsibilities should, sometimes, be split between the parties. If this is not properly covered in the contract document, many loose ends are left and disputes can arise.

- 19) Provide for standard subcontract agreements and other related documents which are compatible with main contracts.

Rationale : It is necessary, in the interests of both fairness and efficiency that subcontracts should be compatible with main contracts, e.g., holding retention money for a longer period on a subcontract than on the main contract would be patently unfair

- 20) Contain appropriate provision to enable work which cannot be adequately described or specified at the time tenders are called for, to be readily executed and paid for when such work can be adequately specified.

Rationale : It is necessary to have some flexibility so that contracts are not unduly delayed and which cannot be adequately defined at tender stage can be readily executed and paid for.

The above criteria, which are not ranked in any order of precedence set out the best practice principles around which the "ideal" South African form of contract should be drafted. It is recognised that, in practice, it may not be possible to meet all the 20 objectives in a form of contract. This, however, should not preclude drafters of contracts from striving to do so, or clients from selecting a standard form of contract which best meets the criteria.

Annexure 2: Pricing and contracting strategies

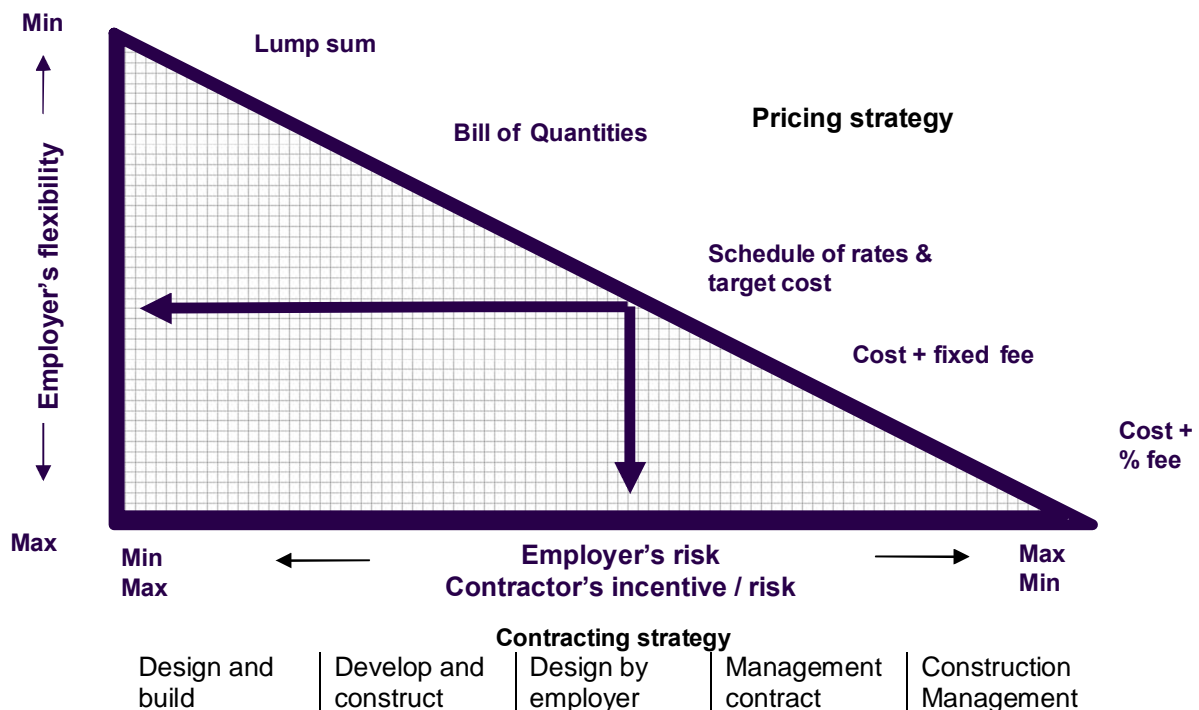
The range of commonly used contracting strategies include⁷:

Construction Management	Similar to a management contract, the main difference being that the trade contracts are between the Employer and the various trade contractors.
Design and Build	The Contractor undertakes most of the design and all construction in accordance with the Employer's brief and a his detailed tender submission, usually for a lump sum price.
Develop and Construct	Similar to design and build, except that the Employer issues a concept design on which tenders are based.
Design by Employer	The Contractor undertakes only construction on the basis of full designs issued by the Employer.
Management Contract	A management contractor is appointed to engage and manage a number of trade contractors to carry out construction on the basis of designs issued by the Employer, as and when they are completed. The trade contracts are between the management contractor and the various trade contractors.

The range of commonly used pricing strategies include:

Activity schedules	The Contractor undertakes to break the scope of work down into activities and price each activity as a lump sum, which he is paid on completion of the activity. The total of the activity prices is the lump sum price for the contract work.
Bill of quantities	The Contractor is paid an amount for the item of work in the bill which is the rate for the work multiplied by the quantity completed
Cost reimbursable	The Contractor is paid an agreed percentage fee to cover his overheads and profit and is reimbursed at market related rates for predefined cost items..
Target cost	The Contractor is paid for work done on a cost reimbursable basis and the difference between the final cost of the works and a target price agreed at the conclusion of the contract is shared between the Contractor and the Employer in accordance with a pre agreed formula.

The typical allocations of total risk between the two main parties, the employer and the contractor, on the commonly encountered contracting and pricing strategies may be illustrated as follows:



⁷ See SAICE's Practice Manual #2, *Delivering construction projects using the design by employer contracting strategy*

Annexure 3: Selection of subcontractors by employers and contractors

The recommended procedure for the selection of subcontractors by the employer and the contractor is as follows:

Insert the following in the Scope of Work (see Annex D of SANS 10403):

PROCUREMENT		
Subcontracting	Scope of mandatory subcontract works	<p><i>Describe work which the contractor is to subcontract to specialist subcontractors. Identify procurement document for the solicitation of tenders from specialist subcontractors, if any.</i></p> <p>The following portions of the works shall be subcontracted in accordance with the subcontracting procedures described in this scope of work: </p>
	Subcontracting procedures	<p><i>Insert the following:</i></p> <p>Competitive tenders shall be invited in respect of each portion of the works that must be subcontracted in terms of the contract in accordance with the relevant provisions of the latest edition of the CIDB Standard for Uniformity in Construction Procurement. The Contract Data in the associated procurement documents shall be based on the(<i>insert title of standard form of subcontract that is to be used</i>), with minimal project specific variations and amendments that do not change their intended usage.</p> <p>The Employer together with the Contractor shall evaluate the tenders received in accordance with the provisions of the Standard Conditions of Tender contained in Annex F of Standard for Uniformity in Construction Procurement.. The evaluation panel shall comprise equal representatives from the Employer and from the Contractor.</p> <p>The Contractor shall without delay enter into contract with the successful tendering subcontractor based on their accepted tender submission</p> <p>The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.</p>
	Attendance on subcontractors	<p><i>State requirements for attendance on specialist subcontractors where use is not made of SANS 1921-1.</i></p>