GUIDELINE : HOW TO SELECT AND APPOINT A CONSULTING ENGINEER

FEBRUARY 2006

The South African Association of Consulting Engineers

HOW TO SELECT AND APPOINT A CONSULTING ENGINEER

1. INTRODUCTION

Contact the Chief Executive Officer or Staff of the South African Association of Consulting Engineers (SAACE) if you require advice or assistance in selecting a consulting engineer. The Association serves the interests of all its Members and will at all times provide advice in a completely impartial, professional and confidential manner.

The procurement environment in South Africa is currently undergoing a dramatic change, especially in regard to public sector procurement. Government procurement is moving in the direction of competitive bidding. New legislation pertaining to procurement has been enacted and a legislative body, the Construction Industry Development Board (CIDB) has been set up to regulate the industry and to promote uniformity in the whole procurement process.

The main focus of this document is on procurement in the private sector. Public sector procurement will only be discussed in brief.

2. LEGISLATIVE FRAMEWORK

The following diagram gives an overview of the legislative framework directly affecting procurement :

<table>
<tr><td colspan="5">Constitution of the Republic of South Africa (Act No. 108 of 1996) - Section 217 states that government procurement systems must be Fair, Equitable, Transparent, Competitive and Cost Effective</td></tr>
<tr><td colspan="3">Fair, Transparent, Competitive, Cost Effective</td><td colspan="2">Equitable</td></tr>
<tr><td>Public Finance Management Act (Act No. 1 of 1999)</td><td>Municipal Finance Management Act (Act No. 56 of 2003)</td><td>Construction Industry Development Board Act (Act No. 38 of 2000)</td><td>Preferential Procurement Policy Framework Act (Act No. 5 of 2000)</td><td>Broad Based Black Economic Empowerment Act (Act No. 53 of 2004)</td></tr>
<tr><td>PFMA</td><td>MFMA</td><td>CIDB</td><td>PPPFA</td><td>BBBEE</td></tr>
<tr><td>Public Sector Clients</td><td>Public Sector Clients</td><td>Public and Private Sector Clients</td><td>Public Sector Clients</td><td>Public and Private Sector Clients</td></tr>
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According to the CIDB regulations, only clients / employers, who comply with the definition of an “organ of state” as defined in section 239 of the Constitution of the Republic of South Africa (“the Constitution, Act No. 108,1996), must currently comply with the CIDB regulations relating to the invitation, award and management of construction works contracts (Part IV of the CIDB regulations). These “organs of state” are mainly public sector clients, however, any other functionary or institution performing a public function or exercising a public power in terms of any legislation, will also have to comply.

In order to promote uniformity and to diminish uncertainty, it would be advisable for private sector clients / employers also to make use of the procurement procedures as per the CIDB Standard for Uniformity as well as the CIDB best practice guidelines relating to procurement. The CIDB documents are freely obtainable from their website at www.cidb.co.za .

3. PRIVATE SECTOR PROCUREMENT

The Association promotes an orderly system for the selection of Professional Consultants based on competitive evaluation of relevant criteria. The Consulting Engineer must have the ability, experience and integrity to provide the standard of service required by the client. The best project results can only be achieved when there is full and mutual trust between the client and his consulting engineer.

Consulting Engineers should generally be selected on the basis of the value they contribute to projects and the quality of the service they will render. As a matter of principle, the Association does not endorse practices that make use of price as the sole, or deciding factor in the selection process.

There are two key points to consider when deciding how to select a consulting engineer:

- While it is possible to write a performance specification for the physical aspects of the project itself, it is very difficult to write suitable specifications for how a consulting engineer should perform. Therefore, if the competition is based on price, different consulting engineers may anticipate providing very different levels of service. Account should therefore be taken of known experience, reputation and resources available to a consulting engineer.
- Successful consulting services depend on sufficient time spent by properly qualified people to provide the best solution. Thus the method of selection should not force fees down to the point where the consulting engineer cannot afford to assign properly qualified staff for a sufficient period of time. Inadequate fees lead to the reduction of the scope and quality of the service. Lower consulting fees give no assurance of lower total project costs, because inadequate engineering often leads to higher construction and subsequent maintenance costs.

> *"One factor, **qualifications**, far outweighs all other considerations in retaining consultants, especially price".*
>
> *The Institute for Municipal Engineering, a division of the American Public Works Association.*

> *"…the selection of Certified Public Accountants, Architects, Physicians, Optometrists, Surgeons and Professional Engineers on the basis of the lowest bid, places a premium on incompetence and is the most likely procedure for selecting the least able or qualified and the most incompetent practitioner for the performance of the services".*
>
> *Texas Professional Services Procurement Act, 1971.*

3.1 THE SELECTION PROCESS

The recommended procedure for the selection of a consulting firm is to:

- Identify potential firms with relevant experience.
- Select the most appropriate firm
- Agree the fee on a mutually defined scope of services with the selected firm and execute appropriate agreement terms.

While various forms of contract are available for drawing up a contract for consulting services, the Association recommends the use of the current edition of the SAACE Form of Agreement for Consulting Services. Please contact the Association if you require assistance in drawing up a contract.

The actual selection process may be carried out using any one of the following methods:

- Ability based selection, which includes selection by:
  - Referral;
  - Panel;
  - Roster

- Quality Based Selection (QBS).

3.1.1 ABILITY BASED SELECTION

This method includes, selection by **referral**, where a Client selects a consulting engineer on the basis of a previous successful relationship with a firm or by referral from a third party is usually the best method of selection because it presupposes a spirit of mutual trust and confidence. Under certain circumstances, however, this method may result in favouritism and unfair preference being given to certain firms at the expense of others.

Many Clients maintain a **panel** of consulting engineers from which a consulting engineer can be selected for a project. The panel may vary in sophistication and can include information regarding each firm on aspects such as fields of expertise, resources, engineering disciplines, locality of offices, etc. **The SAACE Directory of Firms is a valuable basis for the establishment of such a panel. Appropriate Association member information is also available on the website at www.saace.co.za/membersearch.phtml.**

A consulting engineer is then selected from the panel according to the needs of the particular project. The panel method of selection has many advantages and, if properly applied, should ensure that the correct consulting firm is selected for the project while ensuring that work is distributed among panel members on a rotational basis. Admission to the panel can be by invitation or application and it is a simple matter to add or remove firms' names. The disadvantage of the panel system is that the final selection is on a subjective basis and great care has to be exercised to ensure that unfair preference is not given to certain firms.

The **roster** system of selection is has been popular in South Africa, particularly amongst the larger organizations. The underlying difference between a panel and roster system is that the roster method ensures that work is automatically rotated among the firms on the roster, using a number of specific selection criteria, such as:

- position on roster
- size of firm
- fields of competence
- locality of offices/s
- empowerment criteria.

A roster system should ensure the fair distribution of projects among consulting engineers but it is mechanistic, often cumbersome, and does not encourage the spirit of free enterprise and competition between firms. It cannot always ensure that the most appropriate firm is selected.

It is very important that panels and rosters are regularly updated and maintained and that the information provided be verified for correctness.

All of the above methods of selection are intended to ensure that the process is based on ability rather than price. Any of these methods may be applied depending on the circumstances of the project and where a simple, quick selection process is deemed appropriate.

Every single construction project is unique and presents its own challenges to the consulting engineer, whether in the realm of technical design input or construction techniques. It is thus impossible to place all projects into simple categories and to use the above methods of selection to determine which is most

appropriate to each situation. The Association has developed a guideline, which is intended to provide very broad and general assistance in the selection process. **The Association can advise clients on which selection method to apply for a particular project.**

It should be noted that the various systems can be used in combination, e.g. a roster can generate a short list of consulting engineers who can be invited to submit proposals (roster / Quality Based Selection) or from which a firm with known specialist skills can be selected (roster/referral). It is often difficult to identify the project category at the outset because many of the challenges and difficulties only become evident as the project proceeds. This highlights the need for the choice of the correct consulting engineer in the first place, because it will be his responsibility to recognise these problems as they arise.

Generally, however, projects can be categorised as follows:

- **Routine (small or large)** - these are projects where the tasks are of a straightforward nature involving mainly standard technologies in terms of which inputs are relatively well known and outputs can be readily defined. Larger projects may require the consulting engineer to have a greater capacity and resources to undertake the work.

- **Complex** – complex projects may also be small or large but are of such a nature that they require a higher level of technical skills and greater resources. Both inputs and outputs may not be readily identifiable or known. These projects may require skills other than normal engineering, such as management, policy and social development, strategic planning and research. The consulting engineer must be able to present a high level of technical skills and resource for the particular application.

- **Specialist** – specialist assignments may also be large or small and require a very high degree of specialist skills or knowledge in a specific field. The work will be technically complex and will call for considerable innovation, creativity, expertise and/or skills. The need for specialist advice may often only be identified by the already appointed consulting engineer once a project has commenced and a client should respect his consulting engineer's advice in this regard. Some examples of specialist assignments are certain geotechnical investigations, forensic engineering, mediations, etc.

The following table has been drawn up accordingly, to determine which selection method to use. It should be used as a guideline only.

	PROJECT CATEGORY				
	Small/Routine	**Large/Routine**	**Complex**	**Large/Complex**	**Specialist**
Large private-sector clients	Panel/Referral	Panel/Referral	QBS/Referral	QBS	Referral
Small private-sector clients	Referral	Referral	Referral	Referral	Referral

3.1.2 QUALITY BASED SELECTION PROCESS

On certain major or particularly complex projects, where the additional effort in selecting the consulting engineer is justified, a more detailed selection process may be employed, using the Quality Based Selection (QBS) method, which involves choosing the consulting engineer based on ability and selection criteria such as:

- Skills and qualifications of personnel
- Technical competence
- Targeted selection criteria such as empowerment goals or local capacity
- Reputation
- Experience on similar projects
- Capacity to undertake the project
- Understanding and commitment to the client's interests
- Impartiality
- Professional integrity
- Quality management system
- Knowledge of local issues

- Resources

QBS comprises a number of steps, viz:

3.1.2.1 Prequalification

The purpose of **QBS** is to select the consulting engineer who will bring the project to a satisfactory conclusion in a manner that is cost effective, timeous, responsive to the client's objectives, and provides an environmentally sustainable solution. An experienced independent consulting engineer may assist the client in the preparation of the scope statement and the adjudication.

The purpose of pre-qualification is to identify interest among suitable consulting engineering firms and to reduce the number of firms from which detailed competitive proposals will be requested.

- The client should first prepare a generalised statement of the nature of the project and services required, as well as a guideline estimate of the anticipated fee or project value.
- The client should then invite submissions from a list of suitable consulting engineering firms. (The SAACE Directory of Firms is a useful source document from which to prepare the list). Alternatively the client may invite expressions of interest by advertising in the media. The invited or interested firms should be asked to submit the following details:

  - relevant experience and capability
  - availability of resources
  - CV's of staff to be assigned to the project
  - overall capacity of the firm

- The client should then draw up a short list of between three to five consulting engineers who should be invited to submit competitive proposals in greater detail.

3.1.2.2 Submission of Proposals

The next step in the process is to prepare a project scope and delivery brief comprising:

- nature of the project
- details of design parameters
- details and timing of the services required
- objectives of the project, accurately described, and deliverables required
- criteria and weighting to be applied to empowerment objectives as well as any other targeted procurement goals
- Conditions of Engagement to be used for the eventual appointment. **(The SAACE Standard Forms of Agreement and ECSA Guideline Scope of Services and Tariff of Fees are recommended for this purpose)**
- Closing date, time and venue for submissions
- Expected selection date.

The client should also state in the invitation the adjudication procedure to be followed and the weighting applicable to various criteria.

The short-listed consulting engineers should then be invited to submit detailed proposals stating:

- a project execution plan
- a programme schedule for execution
- a resource/staff schedule and organogram of the firm/s concerned
- methods of reporting to client
- CV's of principals and staff assigned to the particular project
- firm's recent experience of similar projects
- alternatives to be considered and design innovation invited

- any special observations.

3.1.2.3 Evaluation of Proposals

This will follow after the receipt of the detailed proposals. A suitable evaluation procedure should be followed, with weightings allocated to the selection criteria determined by the client. Where the Client lacks the capacity or technical skills to adjudicate the proposals an independent consulting engineer may be appointed to assist with the process.

The result of such an evaluation will be the ranking of the preferred consulting engineers in order of preference.

The Association can provide material to assist the Client in the evaluation process.

3.1.2.4 Agreement

The purpose of this stage in the overall process is to remove any uncertainties, to compile the final brief, to determine the fees to be paid to the preferred consulting engineer and the arrangements for payment.

- Discussions should initially be conducted with the first ranked proposer to formulate the final agreement. The SAACE Form of Agreement for Consulting Services should be used to define the Conditions of Engagement. The method of calculation, quantum and payment terms of the professional fees must be agreed and form part of the contract agreement. Fees may be time based, percentage based or may be a lump sum. ECSA produces and publishes guideline fee scales in the Government Gazette. These fee scales may be used as a basis for the calculation, and can be found on the ECSA website at www.ecsa.co.za .
- In the event of failure to reach a conclusion, the client may proceed to negotiate with the second ranked proposer.
- This process can be repeated successively until a successful conclusion to negotiations is reached.

3.1.2.5 Publishing the result of the adjudication

- The purpose of this is to achieve transparency and procedural fairness, thus encouraging subsequent competitive participation. All participants should be notified of their ranking and score, prior to any other negotiation process taking place.

3.2 THE INTRODUCTION OF COST AS A FACTOR IN SELECTIONS

The Association does not support the introduction of cost as an initial or primary factor in the selection of a consulting engineer. Cost should be introduced at the agreement phase when the client negotiates the fee with the specific proposer.

It is firmly believed that it is neither in the best interest of the client nor of the project itself that consulting engineers be selected on the basis of a procurement system which includes a price comparison of their professional services. The introduction of price in the initial phases of the selection process tends to bias the process in favour of the lowest fee rather than the best quality offered.

It is however recognised that in exceptional cases there may be some instances where clients find it essential to introduce cost as a factor in the selection of a consulting engineer. This should be limited to certain very large and complex projects and in such cases an impartial third party (e.g. an independent consulting engineer) should form part of the adjudication team.

There are various methods of selection in which price pays a part in the decision making process, of which only two appear to have any merit:

3.2.1 THE TWO-ENVELOPE SYSTEM

This method of selection is similar to QBS except that consulting engineers are requested to submit a priced proposal in two separate, sealed envelopes. The first envelope contains the technical proposal exclusive of price; the second contains the proposed prices for the services.

The client or an advisory board will analyse the proposals and establish the order of merit as before. Contract negotiations will begin with the firm presenting the best proposal. The second envelope of this firm is opened in the presence of the firm and the price information will then form the basis for contract negotiations.

All other second envelopes should remain sealed and if an agreement is reached with the first firm, the envelopes should be returned unopened to their respective firms.

If an agreement is not reached with the first firm, it should be notified in writing and negotiations undertaken with the second firm and so on until a satisfactory agreement is reached. ***Once a firm has been eliminated it should not be recalled for further negotiation***.

The disadvantages of the two-envelope system:

- The client can open all the second envelopes at the same time without the knowledge or agreement of the consulting engineers. The consulting engineer with the lowest apparent price is invited for negotiations. The client therefore takes little or no account of the ability of the consulting engineer to complete the project.
- The consulting engineer has to determine the price before discussions are held with the client about the scope of the work and without an opportunity for investigations. There is therefore a risk that the consulting engineer who has a better appreciation of the scope of work required may not be selected because of an apparently higher, but probably more realistic, price estimate.

3.2.2 THE COST-WEIGHTED METHOD

The cost-weighted method involves assigning points in the appraisal of proposals from consulting engineers, which include qualification, ability, experience targeted, procurement and price. SAACE recommends that the weighted value of the price should not exceed 10 percent as an absolute maximum.

This method should be used in conjunction with the two-envelope system. The quality of the proposal should be evaluated first and ranked by the selection team. Only firms that achieve a score in the quality ranking above a satisfactory threshold will have their second (fee) envelope opened and the weighted value of the price score added.
The cost-weighted method attempts to solve the dilemma of balancing qualification against price. Unfortunately, the price submitted is not always based on a mutual agreed upon scope of services. Its advantage is that if it is conducted with integrity on both sides, it helps to ensure that no accusations of favouritism can be directed at the client organisation. It is, however, open to all the disadvantages of any priced proposal.

4. PUBLIC SECTOR PROCUREMENT

Government procurement legislation currently regulates all public sector procurement (see above).

The PFMA and MFMA are two acts emanating from National Treasury. These acts and their accompanying regulations prescribe, among other things, how procurement in the public sector should take place.

The National Treasury has also issued two sets of guidelines for accounting officers i.e. in the national and provincial spheres of government, and in the local sphere of government. These guidelines are titled: “Supply Chain Management : a Guide for Accounting Officers / Authorities” and “Supply Chain Management : a Guide for Accounting Officers of Municipalities and Municipal Entities”, respectively. These documents can be obtained from National Treasury directly, or from their website at www.treasury.gov.za.

All organs of state are compelled to procure the services of Consulting Engineers according to the prescripts of the CIDB Standard for Uniformity in Construction Procurement (SFU). The SFU also refers to the CIDB Best Practice

Guidelines to provide the detail of all the facets of procurement. CIDB Best Practice Guideline #A7, specifically deals with the procurement of professional services. All these documents can be found on the CIDB website (see above under "LEGISLATIVE FRAMEWORK")

As these documents comprehensively cover public sector procurement, and are freely available, no further detail will be given in this regard.

5 EMPOWERMENT

It is essential that the empowerment of previously disadvantaged persons in the engineering sector in South Africa takes place as rapidly as possible in order to ensure adequate increase of the capacity of local engineers to cope with the needs of the vibrant and growing economy of the country. When embarking on construction projects, clients can promote this process by making empowerment one of the criteria in the selection of a consulting engineer.

There are various means by which the empowerment process in the construction sector could be encouraged, however, the BBBEE establishes a legislative framework for the promotion of Black Economic Empowerment (BEE). The framework is broad based, and therefore utilizes a wide range of empowerment criteria. It also empowers the Minister of Trade and Industry to issue codes of good practice and to publish transformation charters for, among others, the Construction Sector. Any client in the public or private sector, procuring the services of a consulting engineering firm, will have to measure that firms compliance to BEE using the Construction Sector Charter. In order to accomplish this, consulting engineers will have to be audited by accredited auditing firms to determine their status in terms of the Charter.

In addition to the BBBEE, public sector clients have to comply with the prescripts of the PPPFA in relation to empowerment. The PPPFA sets the framework within which organs of state, as defined in the act, must carry out their empowerment (preferencing) policies.