

THE COMPILATION OF A TENDER SUBMISSION: THE ROLE OF METHOD STATEMENTS AND CONSTRUCTION PLANNING CHARTS

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In contrast to the material available on the price forecasting procedures employed by professional quantity surveyors in South Africa, little or no evidence exists of an understanding of the contractor's tendering process. This paper attempts to establish the construction planning procedures adopted by contractors during the preparation of tender submissions, based on a national questionnaire survey of building contractors in South Africa. The study concentrates specifically on activities related to the production and use of method statements and construction planning schedules during the early stages of the bid preparation process - focussing on the communication patterns set up with professional consultants and site investigation procedures.

Keywords: Bidding, construction planning, method statements, resource management, tendering.

INTRODUCTION

In the traditional building procurement process, the procedure undertaken to produce a cost estimate, which forms the basis of a tender, may be categorised into four distinct, yet interlinked areas of activity, namely: the project enquiry stage; preparation of a method statement and construction plan; preparation of a tender estimate; and lastly, the estimator's report and adjudication decisions.

A collaborative research programme dealing with these issues is currently being conducted by several South African universities. No previous studies documenting the South African experience have been undertaken, and whilst isolated studies relating to other countries can be found (Harris and McCaffer 1989, Smith 1986, Smith 1995, Kwakye, 1994), a holistic understanding is lacking. The South African research project comprises a national questionnaire survey of general contractors, selected structured interviews with respondents, as well as a workshop dealing with an in-depth assessment of the research findings. Preliminary findings relating to the project enquiry stage have previously been documented (Pearl *et al.* 1997). The questionnaire instrument was sent to all firms described as 'general contractors' in the membership directories of the Master Builders' Associations throughout South Africa. Replies were received from 99 firms, spread throughout all 9 provinces of South Africa and were considered to appropriately represent the degree of economic activity on a geographical basis. There was an even distribution of responses from large and medium-sized, as well as small construction companies (30%, 35% and 35% of responses respectively), with responses being received from virtually all the most prominent construction firms. The questionnaire was comprehensive, dealing with the

nature and quality of tender documentation; the cost estimation process; sources and composition of cost data; methods of cost and price determination; the role of construction planning; communication with the design team; and the process of deciding upon whether or not to submit a bid and the level of mark-up to be applied. This paper describes the preliminary findings relating to the role of method statements and construction planning charts in tender bid compilations.

SURVEY RESULTS

The survey results deal with issues relating to the methods by which firms become involved in contract tendering, the documentation provided by consultants for tender purposes, and the interpersonal communication processes adopted during the project enquiry stage. Each section is dealt with on a question by question basis, reflecting percentages of firms responding to specific questions.

Question 1: The importance of a method statement

Table 1 below shows the results for this question. It was established in the preliminary sections of the survey that method statements are compiled by larger companies on most projects (82%), whilst less than half the smaller enterprises participating in the survey normally undertake this task. This is presumably due to the greater complexity of the projects that the large organisations normally tender for or, possibly, a lack of skills in method statement preparation by the smaller contracting organisations.

Table 1: Degree of importance of method statement (% of respondents)

	Very important	Important	Moderately important	Seldom important	Never important
For establishing how the project will be constructed	55	31	8	4	2
For scheduling when activities will take place	37	42	12	7	2
For calculating the anticipated cost of the project	45	26	16	10	3

Table 1 shows that large construction firms attach greater importance to establishing how the project will be constructed (i.e. allocation of resources) than smaller enterprises. Interestingly, the responses from small/medium scale enterprises are similar to those reflected in a study of the logistical effectiveness of similarly-sized enterprises in the North East of Scotland (Watson and McInnes 1997). In the South African research there is virtually no difference between the opinions expressed by firms of differing size with regard to the importance of activity scheduling or cost estimation. The responses to Question 1 indicate that the firms that do compile method statements use them with the primary objective of establishing the resources required for the project, and, to a lesser extent, for activity scheduling.

Question 2: The importance of a construction programme

The results to Question 2 are depicted in Table 2 below. Once again, the larger companies indicated that they routinely prepare pre-tender construction programmes (90%) whilst only 70% of the smaller firms do so.

Table 2: Degree of importance of construction programme (% of respondents)

	Very Important	Important	Moderately important	Seldom important	Never important
For establishing how the project will be constructed	59	32	7	1	1
For scheduling when activities will take place	59	30	6	4	1
For calculating the anticipated cost of the project	40	29	18	10	3

It is interesting to note that, whilst usage patterns between the various sizes of enterprises are similar for the purposes of scheduling activities and cost prediction, small firms attach greater importance than medium or large companies to the use of the construction programme in establishing how the project will be constructed. A possible reason for this could be the infrequent use of method statements by the smaller companies.

Question 3: Do you normally have questions for the consultants relevant to your preparation of the method statement and construction plan?

It is noted that textbooks vary with regard to when construction programmes and method statements are normally compiled. However, it would seem prudent that these activities are best conducted after the site has been inspected and critical contractual and project details have been discussed with the consultants. In framing this question, it was anticipated that tender documentation distributed to contractors would sometimes require clarification with regard to contractual issues. This question received a mixed response, with 59% of respondents stating that they do normally direct questions to the consultants at this stage of the bid preparation process. There was no marked difference in approach by firms of differing size, although large firms indicated that they were marginally less likely to submit such queries.

Those respondents who did not routinely submit queries indicated that there was a preference by them for submitting such questions verbally, while consultants generally tended to reply in writing. This difference in the medium of communication is presumably a reflection of the traditional project contractual relationship between the parties where the consultants' instructions would normally be required to be 'in writing'. The survey did not investigate the nature of 'typical' queries - this aspect is being addressed in the workshops being conducted with selected contractors.

Question 4: Is a preliminary method statement produced prior to a visit to the consultants and / or site?

It can clearly be seen from Table 3 that few contractors consider compiling a detailed method statement before establishing the nature of the project and/or site conditions.

Table 3: Frequency of 'preliminary' method statements being compiled

always	frequently	occasionally	seldom	never
2%	15%	28%	32%	23%

A possible reason for this is the tendency amongst contractors to produce a preliminary site layout drawing together with the initial method statement. Small contracting firms display a different preference, with all the respondents stating that they 'always' compile a preliminary method statement. Interestingly, the major proportion of those that say they 'never' prepare a method statement are small firms.

Question 5: Is a preliminary construction programme produced prior to a visit to the consultants and / or the site?

The general response to this question was similar to that relating to the preparation of preliminary method statements. It is noteworthy that predominantly small firms usually produce a preliminary construction programme before becoming conversant with the project and site conditions. However, the respondents that stated that they ‘never’ compile such a document were more evenly distributed amongst the different categories of firms than for the previous question.

Question 6: If the major items of work are listed prior to the preparation of a method statement and/or construction plan, indicate who in your organisation is responsible for this:

Answers to this question are clearly influenced by the size and organisational structure of the responding firms. Very few of the respondent firms have independent planning departments, those that do being predominantly large firms. The most common organisational matrix of respondents reflects a structure where the planning and estimating functions are accommodated within one department, often by multi-skilled personnel. It is noteworthy, however, that none of the respondents from the large firms indicated that their planning sections take responsibility for listing major items of work at this stage of the tender bid. The research highlighted that in small contracting firms, individuals are required to fulfil multi-faceted roles, often being identified as ‘project managers’. In designing the survey questionnaire, however, it was not anticipated that project managers would be indicated as playing such an important role in the early stages of the tender/estimate preparation within the medium-sized firms. This issue is receiving detailed attention in the ‘workshop’ stage of the research.

Question 7: Do you visit the consultants and/or the site prior to finalising the method statement and/or the construction plan?

The purpose of this question was to establish how fully contractors utilise the potential to be fully briefed on project issues before committing themselves to construction planning and estimating of a detailed nature. Full disclosure would obviously be imperative for decision-making on vital issues relating to the basic planning of the project and the resultant cost estimation.

Table 4: Frequency of visits to consultants/site at the ‘preliminary’ planning stage (% of respondents)

	always	frequently	occasionally	seldom	never
Visit to architect’s offices	9	14	32	34	11
Visit to quantity surveyor’s offices	2	8	16	49	25
Visit to site	50	36	8	0	6

As it is fairly common practice for tenders to be called for without the provision to tenderers of layout drawings, it is surprising that so many respondents indicated that they infrequently visited architects’ offices where the full set of drawings are normally made available for scrutiny. Although few contractors visit quantity surveyors’ offices, this should not necessarily be construed that there is no communication between these parties at this stage. As the quantity surveyor normally provides detailed procurement documentation for tender computation purposes, issues relating to this documentation can normally be adequately dealt with telephonically.

It is disturbing to note that as many as 14% of the respondents at most occasionally undertake a preliminary site inspection before compiling their bids. A detailed analysis of the responses shows that this is limited to the smaller and medium-sized firms.

Respondents were requested to indicate whether they felt that visits of this nature were beneficial to the preparation of their tenders. Most contractors reported that the usefulness of visits to consultants' offices was directly related to the quality and level of completeness of the documentation produced by the consultants. However, the majority of respondents felt that pre-tender site inspections were 'essential'. A number of issues were identified as being of prime importance when conducting such a visit. Among the most common were: establishing the nature of soil conditions; investigating access limitations/proximity of other buildings; establishing the extent of site services in place; and lastly, inspecting security considerations.

In addition to the aspects listed above, particular attention is paid on 'out-of-town' projects to the availability of local material suppliers, and, availability of local labour. The issues listed as being of particular importance correspond fairly closely to those identified in theoretical texts, the most notable exception being "a description of the facilities available for the disposal of spoil" (Harris and McCaffer 1989, Smith 1986).

Question 8: If you do visit the consultants' offices and/or the site, do you prepare query lists prior to the visits?

The responses to Question 8 are depicted below in Table 5. Although the majority of respondents claimed that they compile a formal set of queries before visiting consultants' offices, it was noteworthy that approximately 20% of small companies indicated that they do not normally do so. This anomaly was repeated with regard to site visits, with even more (35%) of small contracting firms stating that site visits are conducted without reference to query lists.

Table 5: Frequency of preparing query lists at the 'preliminary' planning stage (% of respondents)

	always	frequently	occasionally	seldom	never
Prior to visiting consultants' offices	31	31	26	8	4
Prior to visiting site	28	37	20	9	6

The use of a 'pro-forma' query list for site visits such as that provided by the CIOB (1989) may be a useful way to ensure that all relevant information is collected on site.

Question 9: Do the estimating and planning departments liaise in the preparation of the query lists?

The results to this question were clearly influenced by the different organisational structures found in the respondent companies, with the negative responses being submitted predominantly by medium and small enterprises that do not have separate estimating and planning departments. The responses indicate that there is a reasonable level of co-operation and communication amongst those firms that do have these departments as functionally separate entities in that 65% of the respondents stated that they always/frequently liaise with the other departments in the preparation of query lists.

Question 10: Do representatives of both the estimating and planning departments visit the consultants’ offices and / or the site?

In the introductory section of the survey, 98% of respondents claimed to visit the site prior to the preparation of the tender estimate, whilst 51% indicated that they normally consulted with the design team at this stage. The responses to this question validate these figures, with estimators being significantly more active than planners in visiting project sites (79%/65%). Although visits to consultants’ offices are less common, the estimators are more active than the planners in this function as well (49%/39%). Earlier sections of the survey indicate that project managers are often utilised quite early in the tender preparation process. The question did not provide for other members of the contracting organisation, such as contracts managers visiting either the site or consultants’ offices. This aspect is being addressed in the workshop stage of the study.

Question 11: Are visits to the consultants’ offices and / or the site normally done by all tenderers simultaneously?

In the civil engineering sector, in addition to group site visits, it is fairly common practice to have the tenderers attend a briefing meeting in the consultants’ offices. The intention of this question was to establish the extent of this practice within the building sector, the results of which are depicted below in Table 6.

Table 6: Frequency of all tenderers simultaneously attending information sessions (% of respondents)

	always	frequently	occasionally	seldom	never
Visit the consultants’ offices	7	6	28	36	23
Visit the site	21	42	25	11	1

It is clear that, while it is fairly common practice for site inspections to be conducted with all tenderers present, it is most unusual for tenderers to visit consultants’ offices as a group. There is a danger in this practice as differing information could be given to contractors, or different interpretations of information / instructions could occur when individual contractors visit consultants’ offices. Respondents were asked to comment on whether or not they find the ‘group’ approach to visits of this nature beneficial to the preparation of a tender. Respondents were in agreement that group visits to consultants’ offices would not be beneficial. The overwhelming opinion concerning the worth of site visits was that the tendering process was enhanced by group visits being conducted. Several contractors indicated that the best arrangement was to have a ‘group’ visit, to be followed by individual visits at the discretion of each tenderer. The major benefits to be derived from the ‘group visit’ approach were identified as being that: queries are often raised by individual contractors that may have been omitted/overlooked by other tenderers; it allows tenderers to establish the nature of their competitors; and lastly that when complex issues/difficulties on the project are identified, it enables a greater number of potential solutions to be considered, due to the diverse background/experience of the contractors and consultants that may be in attendance.

Question 12: When determining the resources required for constructing the project, do you use any of the following forms of data recorded from previous projects?

One of the reasons put forward for poor estimating performance by South African quantity surveyors is the dearth of useful historical project data available to them (Pearl 1992). The responses depicted in Table 7 indicate that contractors have an

advantage over the consultants in this regard as the data required for estimating purposes is typically found in a contractors' office. Small contracting firms appear to be marginally disadvantaged in this regard as their responses indicate that they are unable to access / compile labour productivity figures. No other significant difference in data usage was discernible between the various sizes of contracting enterprise, with climatic conditions being the only listed data form that did not enjoy widespread usage.

Table 7: Use of historical data for resource planning (% of respondents)

	always	frequently	occasionally	seldom	never
Labour productivity	39	42	7	7	5
Material usage	36	40	14	6	4
Plant output	29	44	14	9	4
Materials wastage factors	27	45	13	9	6
Effects of climatic conditions in certain areas	17	26	27	17	13
Effects of soil conditions on output factors	30	31	25	8	6
Duration of key elements	28	40	18	7	7
Usage of preliminaries items	33	34	14	13	6
Project profitability	37	43	10	2	8
Risk	42	36	13	3	6
Other	17	50	0	16	17

Unfortunately, although being invited to do so, no details were provided by respondents as to the nature of the 'other' data used by them. There were indications in individual responses however that this section was misinterpreted, with reference being made to the 'project plan' - not data extracted from previous projects.

Question 13: Do you normally have to revise the method statement and / or construction plan after visiting the consultants or the site?

There was a mixed response to this question. Slightly less than half of the respondents indicated that they normally revise both the method statement (46%) and construction plan (48%) after the initial visits to the consultants' offices and the site. Small firms expressed a different opinion, however, in that over 60% of these companies indicated that they do not normally revise these planning documents at this stage.

Question 14: Does the planning department explain the method statement and / or construction plan to the estimating department prior to the preparation of the tender estimate?

Responses to this question were heavily influenced by the functional separation (or otherwise) of the estimating and planning departments in respondent firms. The responses provided by large organisations therefore are taken as being the most appropriate, as most of these companies possess separate planning and estimating departments. The close liaison between these sections, which is of critical importance to good communication, appears to be recognised by these contractors, with more than 75% indicating that both the method statement and construction plan are explained to the estimating department prior to the detailed bid being compiled. Whilst this is commendable, it is noteworthy that a quarter of all large companies, and as many as half of the middle-sized organisations with these structures in place, do not ensure that this liaison takes place. Respondents were encouraged to elaborate on the manner in which this communication is normally done. Responses indicate that few

firms appear to conduct formal 'interface' meetings at this stage of the tender process - the normal procedure being *ad-hoc* 'verbal' discussions between the various parties.

Question 15: When compiling the method statement, does the person who prepares it normally consult any form of recorded data?

There was a mixed response to this question, with 53% of respondents stating that they do refer to historical data when compiling the method statement. Large companies tended to do so more often (68%) than their smaller counterparts. Very few firms chose to elaborate upon the sort of data commonly employed in method statement preparation, although many respondents referred to 'historical records of previous jobs - compiled at completion'. The only specific example given by a number of firms related to 'formwork and scaffold usage'.

Question 16: In the preparation of the construction plan, do you use typical planning constants / productivity norms?

As in the previous question, there was a clear distinction between the practices of larger firms and others. Approximately 93% of the large firms use typical planning constants / productivity norms that they have established, whilst approximately 65% of medium and small firms do so. This is an interesting statistic (particularly for medium-sized firms) as many more respondents in this category indicated in their response to Question 12, that they did use labour productivity data when compiling an estimate. Several negative comments were received, claiming that 'productivity norms' were non-existent in the present South African construction industry due to severe problems having been experienced with local labour over recent years.

RECENT DEVELOPMENTS IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

In South Africa there is currently widespread commercial and industrial 'transformation' taking place, with an expressed objective of encouraging the establishment and development of large numbers of small / medium sized enterprises. The manner in which this is taking place in the construction industry is the widespread use of 'labour only' sub-contractors, encouraging the more competent of these businesses to develop into small contracting firms that are then invited to participate in joint venture projects within the 'formal' construction sector, the established firms normally preparing the tender submission.

There is clearly a need to ensure that these 'new' contractors are given appropriate management training, without which the long-term potential of the construction industry is unlikely to be realised in the intended manner. An important part of this training should relate to the theory and practice of tender bid submissions, with pre-tender submission planning being an integral part of this area of study.

CONCLUSIONS

The majority of South African contractors compile method statements and construction planning charts as part of the tender preparation process in a competent manner. Where variances occur between the procedures described in current textbooks and actual practice, these are normally the product of specific organisational structures, or in response to local conditions and the manner in which professional consultants manage the procurement process. Project managers were found to play a more prominent role than anticipated during this stage of the tender compilation. The

interaction between the project managers and the other participants is focussed upon in the workshop sessions with selected contractors that follow this survey. Notwithstanding the similarity between local tendering practice and that described in the literature, there are a significant number of contractors that do not undertake detailed project planning in the manner described in the literature. Most of these firms are in the category of small / medium organisations. It is recommended that local building industry organisations should consider offering management training in this specific field to improve industry awareness of good practice.

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