

CHAPTER VII - DOCUMENTATION AND EXECUTION OF CONTRACT

1. THE SKETCH PLANS

1.1 At the site meeting it is the TPA Project or Liaison Architect who takes the lead and chairs the meeting. He has a sound knowledge of what the solution to the particular problems should be and how they should be approached, solely by virtue of his regular confrontation with similar problems. The presence of the TED representative is to ensure that the schedule of accommodation is complete and correctly compiled, conveyed to the Private Architect and, especially with respect to alterations and additions, the schedule of accommodation satisfies the physical requirements of the particular existing school building.

1.2 In the case of a new school building, the actual design input of the architect is limited to the most suitable configuration of the five (the service blocks are considered as one) independent unit blocks relative to the ecology, shape and contours of the site. If the site is not in a zone where central heating is provided then the boiler room will not be included in the school building complex (the mechanical department has zoned the Transvaal into the various areas and the architect is given this information). The initial site meeting is intended as a site handing over<sup>1</sup> to the Private Architect (as future team leader) as well as the first opportunity for all interested parties to become acquainted with one another. It should comprise the following persons:

- (i) the Liaison Architect
- (ii) the appointed Private Architect
- (iii) the Quantity Surveyor

---

<sup>1</sup>This reference to "site handing over" is not to be confused with the "handing over of site" as used in private practice, and which refers to the handing over of the site to the contractor to commence building operations. Rather, this term is unique to the Transvaal Provincial Administration and refers to pointing the site out to the architect and other consultants.

- (iv) the Structural Engineer
- (v) the Mechanical Engineer
- (vi) the Electrical Engineer
- (vii) the Civil Engineer (site layout for sports-fields)
- (viii) a representative of the TED Planning section
- (ix) the Regional School Board Secretary, and
- (x) the Regional Representative of the TWD.

1.2.1 For reasons unknown, the Structural, Mechanical and Electrical Engineers are never present at this site meeting and the Quantity Surveyor, only rarely.

1.2.2 The members of the meeting move about the site to locate the boundary pegs. The project is discussed until consensus is reached as to the most effective siting of the complex, and/or alternatives as well as the best possible configuration of the units, so that the Private Architect leaves the site with a clear and well-defined perception of the proposed project with the agreed approach towards the solution. Between the Liaison Architect of the TPA and the Private appointed Architect, a date for the finalisation of the sketch designs is agreed upon as well as the first date for preliminary discussions, including the presence of the members of the attendant disciplines. During the entire process of preparing the sketch designs the Private Architect is dependent on the specialised knowledge, experience and guidance of the Liaison Architect; so much so that the success of the project is dependent on the efficiency of the liaison at this stage. At this stage especially the effectiveness of the liaison is proportionately more dependent on the thoroughness of the Liaison Architect of the TPA. He must establish a sound relationship with the Private Architect, with an absolutely objective approach towards the effective solution of the problem. It is here that the first flaw can be detected with a view to elimination. The use of the adjectives "efficiently" and "effectiveness" are based on Barnard's concepts, (1938, pp 60-61) which were elucidated as follows:

"Effectiveness relates to the accomplishment of the coöperative purpose, which is social and non-personal

in character. Efficiency relates to the satisfaction of individual machines and is personal in character".

1.3 In the case of alterations and/or additions the site meeting has two additional members in the persons of the School Principal as well as the Chairman of the school's Parent Teachers Association. The duties of the Liaison Architect in association with the official representative of the TED planning department is to check the listed schedule of accommodation against the state of the existing school building. Having done this, it will now become apparent whether or not the service as described in the letter of appointment will, in fact, satisfy the needs of the existing school. It may well be that the correct interpretation of the intent of the proposed service must be clarified. It now remains for the parties to decide on the most suitable approach by the appointed architect to implement the adjusted schedule (if necessary) of accommodation to effectively achieve the desired result. This is done by implementing the true intent of the described service.

1.3.1 The finalisation of the sketch designs leading to ultimate approval follows the same course as in the case of a new school building.

## 2. THE WORKING DRAWINGS

2.1 Whilst effective liaison between architects in the TPA and architects in the private sector is important in all the phases of the architect's service it is vitally important during the preparation of "working drawings" to ensure the efficient fulfilment of the proposed service. To quote Crabtree (1964, p. 149):

"The working drawings and the accompanying specifications are a pictorial and written translation of the educational program (sic) and are the sole documents from which the general contractors gain their information upon which a price is placed. This importance in determining the unit cost cannot be overstated".

Crabtree continues:

" ... in order to meet the definition of 'economy' in school buildings it is essential to have a harmonious, close-working relationship between educators, building committee and architect".

2.2 A visit to the TWD architects' plans-registry is sufficient to be convinced of the evidence pointing to misinterpretation by

the Private Architects. This has resulted in the absence of uniformity in the presentation of the working drawings. It is quite apparent that this could have been eliminated by the successful application of effective liaison between the architects of the TPA and those of the private sector, coupled with a uniform approach towards the "standards expectations" amongst the architects of the TPA. The common factors in the evidence found are briefly:

- (i) lack of uniformity of drawing sheet sizes with discrepancies often even in a single set;
- (ii) lack of uniformity of drawing sheet layout;
- (iii) inconsistencies in the application of drawing and folio numbers;
- (iv) undated drawings
- (v) drawings often without scales;
- (vi) poor quality drawing paper;
- (vii) unindexed sets of drawings.

2.2.1 The demand for a high standard as well as for uniformity of working drawings and documentation does not necessarily restrict the creativeness of the architect. On the contrary, there is still sufficient scope for style and creativeness.

2.3 In the case of a school building all these problems are taken care of inasmuch as the Private Architect is given a complete set of transparencies of the standard working drawings on A1 sheets which he has to adapt to the contours of the site to the approved configuration of the complex, leaving him with the preparation of the site plan and the one or two detailed sheets that may be required for the individual covered ways. For this purpose the Private Architect is given the necessary amount of blank sheets with the accepted logos printed thereon.

2.4 Rigidity of detail and design.

2.4.1 Approximately 25% of the architects insisted that the Private Architect should be given more freedom of design. This may be true for buildings that are not as highly specialised as those that have such a profound effect on the future of the nation from an educational point of view.

2.4.2 Cocking, (1963, p 75) observed that economies gained in the United States of America through creative and imaginative design in schoolbuilding construction existed in only about five per cent of the buildings currently being built. However, he pointed out that:

"Our greatest hope lies in the five per cent of excellent buildings we have designed and constructed. They demonstrate that if educators and architects employed the best competence available, we would continue to advance and improve ...

Each building offers new problems and requires a new and better solution than any we now have. It is the joint responsibility of architects and educators to accept this challenge and to find a better educational and architectural solution for each one".

2.5 In the case of alterations and/or additions the private architects have found themselves continually in a quandary with regard to uniformity. Very often the drawings that are available of the existing building have, over the years, been prepared by more than one firm of architects using different techniques. By sheer coincidence the introduction of metrication in general has forced the Liaison Architect, with the approval and coöperation of the Private Architect, to insist on all the drawings being presented on A1 size sheets, although uniformity in format is still lacking.

2.5.1 In detailing the fittings to classrooms or offices the Liaison Architect must instruct the Private Architect that whilst it is correct to match the architectural style of the existing buildings as far as is possible and practical, every effort must be made to introduce the latest standard fittings and cupboards as well as layout since they have been objectively altered to make them more effective. Often, this is not done and the Private Architect, unwittingly with every good intentions matches the obsolete style, invariably at unnecessary extra costs, as well as to the dismay of the teachers and pupils that have to use them.

### 3. CO-ORDINATION OF DISCIPLINE

3.1 This is dealt with separately instead of being included in "working drawings" because there exists some misunderstanding in this field, and not surprisingly so.

3.2 In normal private practice, there is no doubt in the architect's mind that he is the leader of the team and as such he must co-ordinate the contributions of the related professional disciplines. In keeping with the demands of his expanded role, the architect has indeed become a "man of many parts" as is aptly illustrated by Strevell and Burke (1959, p 68) when they say:

"One considers the architect as a designer and engineer, an artist and planner, but he also must be an administrator and co-ordinator, a legal and financial expert, a supervisor and a safety engineer. He should be adept at public relations and a shrewd business executive both in managing his own office and the affairs of the district which employs him".

3.3 However, when employed by the TPA on a primary school project, the role of the architect and his role expectation are not made very clear and perhaps it is easier to itemise the basic factors as follows:

- (i) At the first meeting (handing over site to the Private Architect) the Structural, Mechanical and Electrical Engineers are not present, so apologies are made for them, which tends to make the appointed Private Architect assume that the co-ordination will remain in the domain of the Liaison Architect.
- (ii) Following on (i) the TPA Project or Liaison Architect chairs the meeting with the result that the Private Architect expects all the initiative to come from him because he is not specifically introduced as the new team leaders at this meeting, and even if it were made known that he is the leader the affected parties in any case are not present.
- (iii) In the letter of appointment, page 1 clause 3, the appointed architects are advised of the full professional team as follows: The blank spaces opposite the particular disciplines are filled in with the name of the appointed firm viz.

Structural Engineer: Name of firm or often  
"departmental"

Mechanical Engineer: always "departmental"



Civil Engineer: Name of firm or often  
"departmental"

Quantity Surveyor: Name of firm or often  
"departmental"

The addresses of the consultants are not given, Where a specific firm is mentioned the architect assumes that either he must make contact himself or wait until he is contacted. Where the word "departmental" is inserted opposite the discipline, the Private Architect has no idea what is meant or whom is meant and whether the contact must be made, because not even a reference name in the specific department concerned is given; how is he expected to guess that the Civil Engineer falls under the direction of the Water and Drainage Department ?

- (iv) The Private Architect is not given a handbook or guide book on procedure, so will wait until he is instructed. A handbook in fact does not exist.
- (v) The Private Architect is not advised as to what his "conditions of employment" are, whether the service will be classified under a "time basis" or "percentage basis" as far as professional fees are concerned, neither does he know whether or to what extent he will be reimbursed for printing, duplicating or subsistence and travelling. (The Liaison Architect is not very certain of the facts here either because he is not pertinently advised).

3.3.1 It is the function of the Liaison Architect of the TPA to instruct the Private Architect to co-ordinate all the disciplines and who will or should (because this is not always done) advise the Private Architect of the different procedures adopted by the various departments as follows:

3.3.2 The Structural Engineer, if departmental, will require four sets of the site plan immediately to enable him to arrange for trial holes to be sunk, to enable the type of foundations to be determined as well as all 1:100 plans and sections to enable him to adapt the standard drawings or to redesign if he,



the departmental Structural Engineer, is convinced that there is good reason not to use the standard design. Should a private engineer be appointed then the architect, without prompting, is required to contact the private engineer immediately and to liaise directly with him and who in turn will be strictly limited in design by the TPA Chief Structural Engineer.

- 3.3.2 The Electrical Engineer whether departmentally or privately appointed requires a set of transparencies of the site plan and 1:100 plans. The TPA Electrical Engineering Department insists on issuing these plans personally and directly to the appointed Electrical Engineer who must prepare his documents in conjunction with the TPA Electrical Engineering Department. They place their distribution boards, draw-boxes and the like where best suited to themselves without reference to the architect. The Private Architect will have no say in the choice of the electric light fittings and if he is not commissioned to supervise, will never know whether or not a distribution board or trunking has been placed in an unacceptable position. Since primary schools are of standard design this does not often happen, but it can be shown on record where it has happened. Whilst the blame for this is put down to lack of co-ordination it must be understood that it is a combination of lack of co-ordination and bureaucracy.
- 3.3.3 The Mechanical Engineer is always "departmental", being responsible for the forced air ventilation to the hall as well as the central heating system in the areas where it is provided. The systems employed are rigid and inflexible where bureaucracy dictates that there can be no alterations or deviations from the standard system causing all fittings to be designed to accommodate this system.
- 3.3.4 The Civil Engineer is primarily concerned with the provision of the sports facilities and roadworks so does not really come into the building picture, except for the position and specification of the service road and the official "on site" parking area.
- 3.3.5 The Quantity Surveyor is concerned only with providing the



customary estimate at sketch design stage, followed by the preparation of the "Bills of Quantities" after receipt of all the disciplines' working drawings. Up to the end of 1981 the building, mechanical, electrical and civil engineering contracts were put out to separate tenders closing on different dates and individually controlled on site by the particular regional representative, whose department consisted of inspectors for the various disciplines. However, since the beginning of 1982, the quantity surveyor measures the builder's work plus the mechanical and electrical engineering works including them all in one set of "Bills of Quantities" forming one contract although still controlled by the regional representative's different inspectors.

- 3.4 The calling for tenders after completion of the tender documents is undertaken by the "tender section" of the TWD, which operates under the supervision and ordinances of the State Tender Board. When the tenders have closed and a tenderer is found to be acceptable, he is accepted formally. The architect is at the same time advised of the acceptance of the tender and whether or not he is required to supervise the building operations (see Appendix B3).

#### 4. HANDING OVER THE BUILDING SITE

- 4.1 Whether the Private Architect is to supervise or not he is advised of the date that the site is to be formally handed over to the contractor. At the same time he is requested to deliver six sets of prints of the working drawings including the Structural Engineer's drawings.
- 4.1.1 With no supervision being given to the architect, he will merely file the advice note for his records as well as use the tender price to calculate the professional fees due to him at that stage if, in fact, the fees are to be based on a percentage basis.
- 4.1.2 With supervision delegated to the architect, he will, in due course (although he is not advised about this) receive a "letter" in roneoed form with the blank spaces already filled in, from the relative regional office, advising him of the date and

time that the site is to be formally handed over to the contractor. He is not advised that he is to chair the site meeting and unless he makes it his business to find out or has previously supervised a project for the TPA he will only learn this at the site meeting. He will then have nobody to turn to but the Regional Representative because the Liaison Architect is never advised to attend this "handing over site meeting". There is no standard procedure laid down for the handing over of the site when the Private Architect has full supervision and only the experience and expertise of the Private Architect will ensure a smooth start of the project with the help of the Regional Representative.

5. SUPERVISION AND VARIATION ORDERS

5.1 The Private Architect is not present at the signing of the contract, is not given a copy of the Conditions of Contract, is no longer rigidly bound to the Liaison Architect. He suddenly then finds himself under the guidance of the Regional Representative and his inspectors who will, hopefully, pilot the contract through its various stages to its inevitable conclusion. The Regional Representative assists the Private Architect by guiding him where he is able and assisting in all forms of quality control with all the inspectors being present at the formal site meetings as well as visiting the site at regular intervals. Although the Private Architect is still at liberty to liaise with the Project Architect of the TPA he finds that he is, in fact, liaising with the Regional Representative.

5.2 The issuing of variation orders is given on form T.W. 21 (see Appendix D6) which is made out in sextuplicate, given to the Quantity Surveyor to price one copy, then it is sent to TPA head office, with the motivation for each variation. The variation order must be approved by the Liaison Architect. The Private Architect is verbally warned not to issue any variation order without the prior approval of the Director of Works through the Liaison Architect.

5.3 The only real contact the Liaison Architect has with the project now is through the circulation of the relevant file

advising him of the progress of the service, the site minutes, if they are issued, the variation orders for signature, queries from the Regional Representative and finally the advice when the service is taken over. There is a form of contact between the regional office and the Liaison Architect on an "S.O.S." basis; similarly with the Private Architect. The Liaison Architect can, if he so wishes, keep regular contact with the project.

5.4 From the commencement of the building operations the liaison between the architect of the TPA and the Private Architect is reduced to a minimum often becoming only academic.

5.5 All breakdowns in a project can be traced back to the supervision and more will be written about this in the chapter dealing with the results. However, for now, it does appear that it is not always the architect's supervision that is to blame but that more often more detailed supervision is required. Briggs, (1906, pp 75-76) an architect writing as early as 1906, which still holds good, had this to say:

"I find a very widespread and erroneous idea among committees and laymen as to the architect's duties in regard to the superintendence of school or other buildings ...

These views of the committee, to my mind, arise entirely from a total misconception of the architect's duties, which are confounded with those of a superintendent or inspector kept constantly on the ground, and commonly known as the clerk of works".

5.5.1 The architect's function in this regard is complicated by the fact that his specific supervision duties are not defined in the first place and in the second, he has very often to rely on the natural bureaucratic behaviour of the inspectors attached to the regional representative's office.

## 6. AUTHORITY AND RESTRICTIONS OF THE PRIVATE ARCHITECT

6.1 In the design and documentation of new primary schools, alterations and/or additions to primary schools, the one single restriction that the Private Architect is faced with is the application of and adherence to standardisation. However, once the Private Architect understands, or tries to understand, the value of standardisation as applied to primary schools, backed

with research and experience, which is constantly being looked at with a view to improvement, he will realise that it is not static but dynamic to the extent that the "powers that be" are open to suggested improvements. The Private Architect can turn it into an exciting experience or, of course, he can look past all of this and accept it merely as another "job" to provide him with a living.

6.2 The authority that the Private Architect is given as an appointed Private Architect, commissioned to execute the architectural services of a primary school for the TPA, varies only from a normal commission in the private sector inasmuch as he is to function as an extension of the architects' section of the TWD as opposed to his direct involvement with the "owner". The satisfaction that the Private Architect will enjoy from this delegated authority depends entirely upon his ability to accept and follow the guidance of the Liaison Architect assisted by the ability and diplomacy of the Liaison Architect to effectively lead his colleague by seeing to it that he is supplied with the correct information.

## 7. THE ROLE OF THE PROVINCIAL INSPECTORATE

7.1 The role of the provincial inspectorate with regard to the building of new primary schools or alterations and additions to primary schools is of a dual nature.

7.1.1 Firstly, when the Private Architect is not commissioned to carry out the supervision of a contract then the supervision with all its ramifications devolves on the office of the regional representative which will include the supervision as is normally performed by the architect as well as the duties of a "clerk of works".

7.1.2 Secondly, when the supervision is given to the Private Architect then the role of the provincial inspectorate in the persons of the regional representative's inspectors of the various disciplines is purely and straightforwardly that of a non-resident "clerk of works". It also includes attending to the administrative duties peculiar to the TPA, with the right of

appeal to the Director of Works should they not agree with either an act of commission or omission on the part of the Private Architect in respect of the issuing of variation orders.

7.2 The dual role of the inspectorate is not always fully perceived by the role incumbent, and case histories have shown that there is often the tendency on the part of an inspector to unconsciously try to handle both roles of "supervisor" and "clerk of works" when there is a Private Architect appointed to carry out the supervision on the one hand, and at the other end of the scale, case histories have shown that the inspectorate adopt the attitude of leaving everything to the supervising architect and blatantly allowing the architect to act contrary to the policy of the TPA.

7.2.1 Case histories have also shown in a few instances where the Private Architect ignores the inspectorate to self edification and often to the detriment to the project.

7.2.2 Investigation into these case histories has shown that the existence and use of a clearly defined set of procedures and role definitions will eliminate these tendencies to a large extent and thus promote sound administration on the site. Murray and Kluckhohn, (1953, p 19) identified roleship as:

".... the need to become and remain an accepted and respected, differentiated and integrated part of a congenial functioning group, the collective purposes of which are congruent with the individual's ideals".

## 8. THE DELIVERY AND ACCEPTANCE OF THE BUILDINGS

8.1 Having successfully supervised the execution of the contract, hopefully in the time stipulated in the agreement, the architect is now ready for acceptance of the building from the building contractor. He will take first delivery only after satisfying himself that there are no further outstanding items, as would be the case with a building project in the private sector, except for this difference: in the case of a service for the TPA the architect must lean heavily on the experience and knowledge of the provincial inspectorate to guide him in setting the level of the standard of workmanship required. The Private Architect is never at the mercy of the inspectorate and must never experience such a feeling. He is wise to use the accumulated specialised

knowledge of the inspectorate. However, should the Private Architect entertain any doubts regarding a decision, it is his duty to discuss the matter with the Liaison Architect because the Liaison Architect always remains the controlling official to whom the Private Architect is primarily responsible.

8.2 The completion of the building works passes through two phases.

8.2.1 The first phase is known as the "first delivery" at which stage the building work must be complete in all respects as well as being acceptable to the TPA through the Private Architect. It is at this stage that the "client department" may take beneficial occupation if they so desire because they, at this stage, are also given the prerogative to either accept or reject the building within reasonable limits as acceptable in common practice. With the issue of the "first delivery" notice (Appendix D7) the second stage is entered, known in both the private and public sector as the retention period; the time of three months, in both cases once again, is allowed for the undetected defects to manifest and be attended to.

8.2.2 Whilst the architect is still engaged in the supervision service during the maintenance period he no longer visits the site; this duty now devolves on the provincial inspectorate who will advise the Private Architect, after the retention period, and only when the provincial inspectorate are satisfied that there are no further defects that the "final delivery" certificate (Appendix D7) can be issued. All that remains is for the Private Architect to be available to settle any queries that the Quantity Surveyor may have in the preparation of the final account.

## CHAPTER VIII - THE RESULTS

### 1. DATA

1.1 In order to accumulate data relevant to the problem and its setting with the subsequent emergent hypotheses, four distinctly separate sources were employed, namely:

- (i) Related literature
- (ii) Questionnaire to private architects with their written replies
- (iii) Questionnaire used for oral replies from officials
- (vi) Study of case histories

### 2. RELATED LITERATURE

2.1 The review of the related literature was confined largely to the writings of the American educationists who show a particularly keen interest in the involvement of the architect in the design and building of schools. In this study the opinions of educationists and other non-architects or professional technical consultants were welcomed as an objective review on school building programmes by the end user on their perception of the role expectancy of the architect. The majority of writers referring to the building of schools accentuated five important aspects deserving attention.

2.2 Without a doubt the most important emergent factor in any form of association of team members is the absolute necessity for clarity in definition and unambiguous perception of the various roles by the role incumbents as well as the extraneous although affected interested parties.

2.3 Flowing out of the previous statement is the cardinal necessity for the elimination of any form of misunderstanding of the role extent of any of the professional consultants by the use of a clearly phrased and legally acceptable written form of agreement, contractually binding on the appointed professional consultants



and the appointee body corporate, or its legal representative. It must also contain an unambiguous and detailed setting out of duties and responsibilities of the contracting parties, in this case, the Private Architect and the TPA.

- 2.4 There is no doubt that educational buildings in general and primary school buildings in particular serve highly specialised functions which must rigidly comply with the local requirements as dictated by the socio-political, economical and geographical circumstances as well as the National educational policy. It is for this reason, therefore, that all aspects of a primary school building must be dealt with by highly specialised professional persons.
- 2.5 As a member of the highly specialised professional team the architect, who will be the leader of the team, has functions that must be comprehensively and unambiguously defined in writing. It must be so phrased that all the incumbent members of the team clearly understand as well as signify their acceptance of this function with the emphasis on the architect. The role and function of the "client department" (TED) who must subsequently move in and utilise this building, must also be clearly stated and accepted.
- 2.6 Whilst it is evident that the majority of educationists are not quite clear as to the extent of or meaning of the phrase "supervision by the architect", they are all unanimous in their opinion that the comprehensive and responsible supervision of the contract is possibly the most important function of the architect.

### 3. THE QUESTIONNAIRES

- 3.1 The Questionnaire to the Private Architects, not only received the precision and neatness that one would expect from an architect, but the high percentage return (66%), the intelligent replies and the factual completeness of the replies are all evidence that the architects in the private sector would welcome a study of the liaison mechanism between the architects in the TPA and the architects in the private sector.
- 3.2 Part One of the Questionnaire (Appendix A1) consisted of thirty-two questions to be answered with a symbol in a square. The

questions, divided into seven distinct categories were couched in such a manner so as to determine the amount of information the architect requires from the TPA and at what stage this information should be forthcoming. For an analysis of the answers, see Table I.

- 3.2.1 When the comparison is made between what the architects would like to be included in the letter of appointment (Appendix A1) and what information is actually volunteered, then it is obvious that the original letter of appointment (Appendix B1) should contain far more information than it actually does.
- 3.3 The Questionnaire to the private architects, Part Two, contained six leading questions to be answered in the architect's own words:
1. Can advance knowledge that the architect will not be required to supervise the construction have an adverse effect on the quality of the documentation ?
  2. Is payment on a time basis for the adaptation of a standard set of drawings fair reimbursement ?
  3. If you have previously performed a service for the Transvaal Provincial Administration, did you, in your opinion, receive sufficient guidance in the preparation of the documentation ?
  4. Will a detailed "handbook" on "guide book" explaining his responsibilities assist the Private Architect in executing a commission for the Transvaal Provincial Administration more efficiently ?
  5. What, in your opinion, is the greatest single factor that will contribute towards a more successful liaison between the architects in the Public sector and the architects in the Private sector ?
  6. I thank you for your valuable time. Would you like to be informed of the response of the profession to this Questionnaire ?
- 3.3.1 Question 1 is thought-provoking and the answers had to be interpreted and not taken literally since the answers vacillated between indignation, surprise, evasion and blatant hypocrisy. However, the consensus of opinion is that the advance knowledge that the architect will not be required to supervise the construction should not affect the quality of the documentation but can, and that the architect should in any case supervise the construction since

the interpretation of the drawings during the construction is an ongoing process and guarantees continuity. Reading between the lines, it becomes evident that the majority of the architects object to the fragmentation of their services, especially the omission of their supervision, which they regard as inseparable from the preceding service and that the fees are only broken down because of the fact that that portion of the fees only accrues proportionately during the construction period.

- 3.3.2 In Question 2 the word "fair" was misinterpreted to mean a degree between "good", "fair" and "bad" where it was actually intended to mean the opposite to unfair. Where the word was interpreted as a degree, the answer was "yes it is fair" not good or bad but fair. Where it was interpreted as the opposite to unfair, the answer was "No, it is not fair to pay on a time basis for the adaptation of a standard set of drawings since it penalises the efficient office".
- 3.3.3 In question 3 the consensus was that all received sufficient guidance in the preparation of the documentation with varying degrees depending on the sub-department concerned.
- 3.3.4 With positive emphasis, replying to Question 4, all were agreed that a "handbook" or "guide book" explaining the duties, responsibilities and procedures of a Private Architect would more than assist this architect, especially in the case of a first appointment.
- 3.3.5 Question 5 was the most provoking and as such received the most attention. The usual "dig" at the inefficiency of the Civil Services is disposed with and thereafter the following emerges as "greatest single factors" to contribute to more successful liaison:
- (a) The Primary accent is on "communication" at its best and highest.
  - (b) Second is placed "The Brief" initially to be more comprehensive and comprehensible.
  - (c) Third is absolute honesty between parties.
  - (d) Fourth was the participation of the other disciplines which should accept the architect as the leader of the team, and

- (e) Finally, a few architects feel that they should be given more design freedom, while one architect even expressed it by saying that they should be allowed "ARCHITECTURISING" (sic) !!!

3.3.6 Without exception all of the architects who replied to Question 6 stated that they were interested to be advised of the response to the Questionnaire.

#### 4. ANALYSIS OF ANSWERS

4.1 The interviews with the various officials in different departments of the public sector had to be on a "low key" so as to minimise bias. The Questionnaire used for these interviews proved to be successful, resulting in conclusive consensus in most cases. The questions were:

1. During the initial contact with the private consultant architect during the handing over of the site, has the subsequent briefing been complete and satisfactory ?
2. Do you think that the currently used letter of appointment conveys sufficient information to the consultant architect ?
3. Do you think that a comprehensive "handbook for procedures to be followed by consultant architects" should be compiled for distribution to appointed consultants ?
4. To what extent do you think that the consultant architect should be given a free hand during the design of a primary school ?
5. Can the present liaison mechanism be improved upon ?  
If so, what single factor do you think is the most important.

4.2 The first question has a tendency to incrimination, but the officials under protection of anonymity, were perfectly honest and six out of the ten admitted that the briefing could have been more comprehensive because the tendency was to repond to questions put by the consultant architect rather than volunteer information which had, in any case, to be given at a later date.

4.3 From the discussion on the letter of appointment now in use, emerged a great deal of interest and general consensus of opinions.

All, without exception, agreed that the initial letter of appointment needed to be revised as well as expanded to include definite instructions with regard to the duties and responsibilities of each consultant appointed from the various disciplines involved. To ensure a better understanding between the parties, it was conceded that the inclusion of role definition coupled with the role expectation would assist in the smooth functioning of the professional team.

- 4.3 From the discussion on the letter of appointment which is currently in use emerged a great deal of interest and general consensus of opinions. All, without exception, agreed that the initial letter of appointment needed to be revised as well as expanded to include definite instructions with regard to the duties and responsibilities of each consultant appointed from the various disciplines involved. To ensure a better understanding between the parties, it was conceded that the inclusion of a role definition coupled with the role expectation would assist in the smooth functioning of the professional team.
- 4.4 Flowing from the previous question and answers it followed naturally that the issuing of a comprehensive "handbook for procedure to be followed by appointed consultants" after the appointment is accepted, would most certainly be of great assistance to both the architects in the private sector as well as the architects in the TPA in their subsequent close relationship.
- 4.5 The question of the degree of freedom of expression a Private Architect should be permitted evoked a mixed reception. However, when confined to primary schools, which are very much standardised, the architect's "freedom of expression" must not exceed the boundaries of standardisation and this must be carefully explained to the appointed architect.
- 4.6 The question "can the present liaison mechanism be improved ?" is badly phrased and should have read "How can the present liaison mechanism be improved ?" However, the question is qualified by begging the question "If so, what single factor do you think is the most important". From the individual discussions with the officials there emerged a general consensus of opinions on three pertinent points:

- 4.6.1 All were adamant that there should exist a healthy and constructive communication flow at all levels without gaps or unnecessary time-lag and that the main promoters of this communication system should be the public sector officials with its origin squarely on the shoulders of the Liaison Architect. The architects should, if necessary receive training in the maintenance of healthy person relationships.
- 4.6.2 The majority agreed that the various systems of appointment should be so designed that, at no stage should the appointed professional consultants experience a lowering of their professional status. This is particularly so during their involvement in primary school buildings, which are rigidly bound by standardisation. All of the consultants and especially the appointed architect should be made to understand that no particular facet of their repertoire is being ignored or replaced but rather that the emphasis is being shifted from the strong design forté over to the ability to produce fool-proof documentation for the subsequent ease of efficient supervision and execution of the contract.
- 4.6.3 Finally, after prompting, it was agreed that it is unwise to employ any professional consultant to provide fragmented services because the original author of the documentation is best suited to interpret his documentation during the ensuing stages. Certainly the emphasis is shifted from design to execution but no service is omitted, rather the public sector should assist the Private Architect with the "paper work" because this must dovetail with the set routine and the requirements of the various departments in the public sector.

## 5. CASE HISTORIES

- 5.1 The study of case histories was confined to those cases that threw light on the points of breakdown in liaison, being confined to constructive investigations all of which highlighted the following common errors resulting from poor liaison.
- 5.2 Because the appointed architect was not warned about or given the standard sizes of areas other than the teaching areas, the

sketch designs were very often rejected by the TED because of their non-compliance with standard permissible areas since school buildings are subject to authorised area limits.

- 5.3 In cases where the appointed architect has not been warned of the rigidity of application of standardisation, the architects deviate from standard layouts of teaching areas only to have their drawings rejected, even as late as at working-drawing stage.
- 5.4 In cases, (and this is very common) where the appointed architect is not warned of his total responsibility with regard to co-ordination of the related disciplines, he is obliged to change his drawings even after completing his working drawings, in order to comply with the requirements of the mechanical, structural, electrical or drainage engineers.
- 5.5 In a few instances the appointed architect proceeded with working drawings only after consulting with the Liaison Architect and assuming that approval by the Liaison Architect is, in fact acceptance of his sketch designs, only to have to redraw them when the DPC<sup>1</sup> has rejected the sketch designs. There is no previous warning in writing telling him that he must wait for written approval of his sketch designs before proceeding with working drawings.
- 5.6 Poor liaison has resulted in a lack of uniformity in drawing sizes as well as discrepancies in the title block often resulting in misfiling of drawings
- 5.7 Very often, the authorities are faced with apparent under-detailing or extravagance in material use as a result of poor liaison or misunderstood verbal instructions.
- 5.8 Private architects are never certain when and how many sets of prints of their drawings are required with the result that there is often a great deal of wastage that must be paid for.

## 6. PRO-FORMA LETTERS

- 6.1 A study of the various pro-forma letters (Appendices D)

---

<sup>1</sup>DPC is the Departmental Planning Committee set up to approve sketch designs.



to the Private Architects has revealed that these pro-forma letters have been compiled for the convenience of the departmental officials rather than for the advantageous reaction by the Private Architect.

- 6.2 The initial letter of appointment is accepted without comment only because it is the bearer of good news that the Private Architect has received an appointment.
- 6.2.1 Paragraph 1 states that the appointment is "... subject to the relevant departmental conditions". Nobody really knows what these conditions are and they should be able to be referred to by way of documentation.
- 6.2.2 Paragraph 2 states, inter alia, "with regard to supervision on this services, this will be decided on acceptance of the tender". This does not only suggest fragmentation of the architect's services, it also suggests the possibility of no supervision being carried out at all !!!
- 6.2.3 Paragraph 3 instructs the architect to ensure close coöperation between the various consultants but no address of the consultants is provided and when the consultant is "departmental" no person is nominated or any address or telephone number provided.
- 6.2.4 Paragraph 5 should state how many copies of the sketch plans are required.
- 6.2.5 Paragraph 10 does not qualify to whom the accounts must be submitted.
- 6.2.6 Paragraph 12 states that fees will be paid in accordance with the Statutory Scale of Fees, but says nothing about disbursements.
- 6.3. The letter of appointment for working drawings only and the letter advising approval of sketch designs and instruction to continue with working drawings (Appendix "B") are incongruent in detail.
- 6.4 At no time is the Private Architect specifically advised that this is a new school or additions to an existing school, given the exact address of the site, or instructed to check the site for accuracy of pegs or service connections, or whether or not he must "contour survey" the site. The Private Architect is

left to decide, at his own discretion, the limits of the additional information he requires.

7. THE HYPOTHESES

7.1 At this stage sufficient data has been collected to deal with the hypotheses.

7.2 Hypothesis One

The existing liaison mechanism is deficient.

7.2.1 The Oxford Dictionary defines "deficient" as an "adjective". Being incomplete, defective, wanting in, insufficient in quantity, force etc; half-witted.

7.2.2 The study of the responses to the Questionnaires, as shown in parts 3.2.1 to 3.2.6 shows that whilst not catastrophic the existing liaison mechanism is incomplete and wanting.

7.2.3 This hypothesis is accepted.

7.3 Hypothesis Two

7.3.1 Breakdown of communication occurs during the setting out of the commission as well as during subsequent briefing.

7.3.2 The Oxford Dictionary defines the noun "communication" as "Imparting (esp. news); information given; intercourse; access or means of access, passage, connection by rail, road, telegraph, etc., between places".

7.3.3 This being so then the study has proved, not a breakdown of communication but rather the lack of establishing complete communication although possibly, in some instances, strengthening the weak communication.

7.3.4 This hypothesis is rejected in part.

7.4 Hypothesis Three

7.4.1 Communication fails ....

7.4.2 From the study of the responses to the Questionnaire, as discussed in parts 3.2.1 to 6.3, the study of the pro-forma letters to the appointed architects and by definition, since the initial information is given is incomplete, then it is correct



to deduce that throughout the liaison, communication fails.

7.4.3 This hypothesis is accepted.

## CHAPTER IX - SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 1. INTRODUCTION

1.1 This chapter is devoted to a summary of the study and to conclusions based on the findings in Chapter VI and VIII, as well as to recommendations for approaches to improvements of the existing liaison mechanism.

### 2. SUMMARY OF THE STUDY

2.1 The purpose of the study was to examine the existing liaison mechanism between architects in the private sector and the TPA Works Department with a view to establishing weaknesses in liaison for examination. The problem central to the study was to find the main cause of breakdown, if any.

2.2 In order to examine the problem in depth, the study was limited to primary schools in the Transvaal and the liaison between architects in the private sector and architects of the TPA Works Department.

2.3 The acceptance of Hypotheses One and Three and the partial rejection of Hypothesis Two warrant the purpose of this study with a view to the suggestions of valid recommendations.

### 3. RECOMMENDATIONS

3.1 Implications of a need for corrective action with possible further research have resulted from the findings of this study. It follows therefore that the following recommendations deserve consideration.

3.1.1 Data obtained during the course of this study indicate a very definite need for a "handbook of procedure for professional consultants" which would be the first positive step towards improving the liaison mechanism, not only by providing both architects in the private sector and architects in the TPA Works Department with authoritative guidelines at all levels and in all respects, but would certainly enforce or encourage uniformity in the processing of all services.

- 3.1.2 To avoid any misunderstandings, it would appear that the introduction of a "form of agreement" between the consultant and the TPA Works Department that is not only contractually binding, but that will unambiguously set out the responsibilities of the consultant as well as the TPA Works Department. It must also clearly define the duties of the consultant during all the various stages of rendition of his professional services. This would be a legal document and, as such, should be vetted and approved of by both the legal advisors of the TPA as well as the relevant professional disciplines.
- 3.1.3 All the pro-forma letters to be revised so as to be congruent, complete and unambiguous.
- 3.1.4 Strict standardisation of documentation could be investigated for efficiency and pragmatism and for immediate introduction. Possibly the advisability of issuing blank printed drawing sheets complete with blank title blocks, could be investigated.
- 3.1.5 The application of the "time-basis" fees structure should be investigated so as to limit the application to an absolute minimum whilst keeping it within the spirit of intention for its introduction into the Statutory Scale of Fees so that it, at no time, will actually be inversely proportional to the efficiency of an office. In Chapter VI it became evident that there is a real difference in the approach to and the handling of the service when applied to a new school building as distinct from that of additions and/or alterations to an existing building. The conclusion is that the difference is of such a nature that the Private Architect should be made aware of this either by the rewording of the present letter of appointment, or by the use of separate letters of appointment for new buildings or additions and/or alterations to existing buildings. The primary reasons for this is that in the case of new primary schools limited to adaptation of standard transparencies the fees structure is rated on a time basis, whereas with alterations and additions, the fees structure is rated on a percentage basis as prescribed by the Architects Act (1970). Prior to this Act, when under the Architects Private Act (1927) the fees were prescribed,

by statute, as follows: " ... In the absence of a special agreement ... ". This permitted the TPA to enter into a special agreement with an architect which (in the case of an adaptation of standard drawings) was one half percent of the building costs for sketch designs plus one and a quarter percent for working drawings plus one half percent for partial supervision. This meant that the architect only attended the site on request and only in an advisory capacity. If full supervision was given then it would be at the statutory fee of one and a half percent of the builder's certificates. Because the new Act does not appear to permit of a special agreement, it appears that the TPA is left with no alternative but to rate the fees on the statutory time basis, because consensus cannot be reached as to whether or not an adaptation can be classified as a "repeat".

3.1.6 Arising from the previous statement, legal advice should be taken as to the means whereby the adaptation to a particular site using a standard set of transparencies of a standard primary school can be rated on a percentage basis (as a repeat) plus a time charge for site adjustments and services.

3.1.7 To avoid the detrimental effect of bureaucracy as well as eliminate misunderstanding or lowering of professional status, serious consideration by the authorities should be given to the principle that - when a Private Architect is commissioned for a service he should be assisted in all the relevant disciplines by private professional consultants, each under the guidance of senior professional technical sub-departments of the TWD.

#### 4. CONCLUDING STATEMENT

4.1 This study, designed to pinpoint the areas of weaknesses in the existing liaison mechanism between architects in the private sector and the TWD represents an honest inquiry into the possibility of streamlining the professional services employed for the execution of the construction and erection of primary school buildings in the Transvaal. Despite the limitations inherent in any research project, it is believed that the findings of this study have contributed in some measure to the clarification and

and delineation of the TED, the TPA Works Department, the relevant consultants including the architects' roles, as well as to the basic perceptions needed for the efficient and effective functioning of their roles.

While recognising the necessity for continued refinement of methodology, it would appear that the approach utilised in this study would be of assistance to additional research efforts. New and improved methods of achieving desired school facilities must continually be determined. If all parties concerned, including the architects, are given more information concerning their roles in the process, thus improving the liaison mechanism, the planning, designing and construction of a school building can be made more effective.