



CHAPTER 1 - THE PROBLEM AND ITS SETTING

1. THE STATEMENT OF THE PROBLEM

1.1 The purpose of this study is to examine the existing liaison mechanism between architects in the private sector and the Transvaal Provincial Administration (TPA) Works Department, with a view to pinpointing areas of communication breakdown and establishing their causes.

2. THE SUBPROBLEMS

2.1 The first subproblem is to investigate and establish just what the existing liaison mechanism is.

2.2 The second subproblem is to investigate and determine where areas of communication breakdown are.

2.3 The third subproblem is to establish how the areas of communication breakdown arise.

3. THE HYPOTHESES

Basically this study attempts to uncover the shortcomings, if any, of the present liaison mechanism so that the possible necessary refinements to the present liaison mechanism can revolve around the following hypotheses.

3.1 The first hypothesis is that the existing liaison mechanism is deficient.

3.2 The second hypothesis is that the breakdown of communication occurs during the setting out of the commission as well as during subsequent briefing

3.3 The third hypothesis is that communication fails because:

3.3.1 The TPA does not instruct architects about the difference between the execution of a commission for a new school and for an addition to an existing school.

3.3.2 Architects resent the fragmented use of their professional services, especially the omission of their supervisory services.

3.3.3 In the adaptation of a standard school the architects find it foreign to shift the emphasis from the design facet of their training to the ability to produce foolproof working drawings.

4. THE DELIMITATIONS

4.1 The study is confined to primary schools in the Transvaal where Transvaal Provincial Administration (TPA) and private architects are involved.

4.2 The study does not attempt to assess the merits or demerits of standardisation but accepts and will try to explain the motivation for it.

4.3 The study is confined to the present liaison mechanism as it affects private architects.

5. THE DEFINITIONS OF TERMS AND ABBREVIATIONS

5.1 Primary School. A primary school is an institution for the schooling of children of compulsory school-going age from Grade I to Standard V. In this research the children attending are white children and at least of average intelligence whilst the school is State owned, staffed and controlled.

5.2 Standardisation. Standardisation is to accept only that which is made to conform to set standards. In this study standardisation refers to the rigid conformity to standards, not only in sizes but also in design relationships of modules.

5.3 Junior Primary. For this study, Junior, being the youngest and Primary being the first, Junior Primary will refer to the the classes for children in Grade I, Grade II and Standard I of the Primary School.

5.4 Senior Primary. Senior being the oldest and Primary being the first, in this study, Senior Primary will refer to the classes for children in Standard 2 to Standard 5.

- 5.5 Transvaal Works Department (TWD). In this study TWD refers to the Works Department of the Transvaal Provincial Administration.
- 5.6 Sketch Design. In this study, the term will refer to those drawings that, to an approved scale and to an accepted standard, reflect the private architect's interpretation of the requirements, as briefed.
- 5.7 Working Drawings. In this study, the term will refer to those architect's drawings, drawn to the approved scales and to an accepted standard, which represent complete details of the proposed building works as required by normal tradesmen and professional men to prepare Bills of Quantities, shop drawings, and to competently erect the intended structure as originally proposed by the Sketch Designs.
- 5.8 TED. In this study TED refers to the Transvaal Education Department. Also referred to as the Client Department.
- 5.9 DPC. Departmental Planning Committee for the initial approval of sketch designs. The committee is composed of:
- i. Chairman (Senior official of the TED);
 - ii. Four members of the TED planning section;
 - iii. Committee Clerk provided by the TED;
 - iv. Two architects from the Works Department
 - v. Two civil engineers from the Works Department;
 - vi. Two officials from the Works Department's service control.
- 5.10 PPC. Permanent Planning Committee of the TPA Works Department for the final approval of sketch designs.
6. ASSUMPTIONS
- 6.1 The first assumption is that the need for State owned and directed primary schools will continue.
- 6.2 The second assumption is that the need for new primary schools will continue.
- 6.3 The third assumption is that the need to add to or alter existing primary schools will continue.
- 6.4 The fourth assumption is that the need for the State to employ architects to assist in the provision of school buildings both as consultants and employees will continue.

- 6.5 The fifth assumption is that liaison at all professional levels by registered professionals is desirable and that the discipline involved in the major part of the construction (building, civil engineering, structural engineering, mechanical engineering, electrical engineering or any other discipline) shall be the leader of the professional team.

7. THE NEED FOR THE STUDY

One of the primary functions of the public sector is to provide the facilities for the successful education of the Nation. Basic education begins at primary school level which, in the Republic of South Africa is compulsory for all white children who have no physical or mental disability; even in these cases, special schools are provided; these schools are not included in this study. Because of the full initial intake of schoolgoing children and later thinning out the proportion, in white South African schools is three Primary schools to one Secondary school. Thus in the Transvaal alone, there are at the moment almost 800 Primary schools which are being added to at the rate of approximately twelve new schools per annum. This is a major on-going Capital Works programme and certainly warrants an efficient liaison mechanism.

CHAPTER II - THE DATA, THEIR TREATMENT AND INTERPRETATION

1. THE DATA

1.1 The data for this research are of two kinds: primary data and secondary data.

1.1.1 The primary data. The responses to questionnaires from architects in the private sector constitute one type of primary data. The answers to standard questions put to liaison architects in the TPA and other State institutions situated in Pretoria constitute another type of primary data. The answers to standard questions put to officials in the Planning Section of the TED constitutes another form of primary data. Random case studies produced an important type of primary data.

1.1.2 The secondary data. The published studies and texts and the unpublished dissertations and theses dealing with liaison communication and school planning constituted one form of appointment, "site handing over forms" and other standard or quasi-standard procedural forms and instructions constituted another type of secondary data.

1.1.3 The criteria for admissibility of the data. Only authenticated questionnaire returns completed in a genuine unbiased approach were used in this study and can be presented on request. Case studies that have been used are unidentifiable with actual places and names but have been based on fact. Only responses from persons actually involved, whether past or present, in the liaison mechanism or affected by it, have been admitted.

2. THE QUESTIONNAIRES

2.1 Two sets of questionnaires were used. One was sent to private practising architects and the other put to officials in State institutions.

2.1.1 The questionnaire to architects in the private sector consisted of thirty-two questions to be answered with a symbol and six questions to be answered in detail (see Appendix A2).

2.1.2 The standard questions to officials consisted of five questions to be answered verbally and the researcher to assess the tendencies. (See Appendix A3)

3. THE RESPONSE

3.1 To practising architectural firms practising in the Transvaal selected at random from the firms that had already been commissioned previously by the TPA or some other State institutions a total of one hundred and fifty questionnaires were posted. An encouraging ninety-five replies were received (63,3%). With the exception of only one reply, all replies were carefully and meticulously completed in a most professional, encouraging and informative manner that does great credit to the architectural profession in the Transvaal. The summary of the replies to questions 1 to 32 can be read from Table 1. The tendencies apparent from the six free answers will be dealt with in Chapter VIII.

3.2 The standard questions to officials were put to ten officials interviewed separately on different days: three officials in the TWD, three in the TED, two in the Department of Community Development and two in the Department of Co-operation and Development. The unbiased answers and their general tendencies will be dealt with in Chapter VIII.

4. THE TREATMENT

4.1 The completed questionnaires have been screened for impartiality, correctness and completeness and the information so obtained has been categorised and referred to in the handling of the sub-problems.

5. THE INTERPRETATION

5.1 The data collected has all been categorised and has been used to test the hypotheses with a view to proving or disproving and subsequent recommendations. The data has proved to be most valuable inasmuch as the tendencies are all substantially backed with the few dissidents being attributed to their misinterpretations of the questions. The detailed interpretations will be referred under the relevant sub-headings in their appropriate chapters.

SUMMARISED RESULTS OF QUESTIONNAIRE SENT TO PRIVATE ARCHITECTS

Q	A	B	CI	C2	C3	C4	C5	TOTAL	TENDENCY
1	1	1	78	7	3			90	C = 97%
2			29	52	11			92	C = 100%
3		3	52	25	23			93	C = 96,7%
4		2	70	17	6			95	C = 97,9%
5	1	17	17	35	24			94	C = 80,8%
6		10	17	32	37			96	C = 89,6%
7		6	48	23	7	12		96	C = 93,7%
8		1	29	44	14	4	1	93	C = 98,9%
9	2	5	27	55	3	1		93	C = 92,5%
10		7	27	24	34			93	C = 92,5%
11	3	14	13	16	24	10	5	85	C = 80%
12	3	18	16	26	27	6	1	97	C = 78,4%
13		9	15	8	3	58	2	95	C = 90,5%
14	1	12	10	8	7	28	32	98	C = 86,7%
15		6	81	6	1			94	C = 93,6%
16		2	83	9				94	C = 97,9%
17		6	71	12	2	1	2	94	C = 93,6%
18			73	21				94	C = 100%
19		1	72	19		4	1	97	C = 98,9%
20		1	68	10	3	10	3	95	C = 98,9%
21	6	7	73	4	1			91	C = 85,7%
22	1	5	48	31	5	3		93	C = 93,5%
23	1	8	67	11	4	3		94	C = 90,4%
24		2	62	24	5	1		94	C = 97,8%
25		9	13	8	36	6	21	93	C = 90,3%
26		6	36	36	9	7		94	C = 93,6%
27	1	8	36	37	12	1		95	C = 90,5%
28	1	14	21	39	13	5	1	94	C = 84%
30	1	11	25	37	15	1		90	C = 86,7%
31	1	7	23	42	13	6	2	92	C = 91,3%
32		8	20	37	27	2	1	95	C = 91,6%

TABLE 1 - Summarised results of Questionnaire sent to Private Architects

CHAPTER III - REVIEW OF RELATED LITERATURE

1. INTRODUCTION

- 1.1 The subject of liaison between professional parties is not new or unexplored and consequently much knowledge on the subject and relating to the subject was found in the literature.

2. ROLE THEORY

- 2.1 With "liaison mechanism between architects in the TPA and architects in the private sector when related to the design of schools" one is concerned with the fulfilment of different roles by separate architects concerned with a common purpose. It is important, therefore, that the concept of "a role" be described.

"Role theory is a new field of study; and although it has not yet been widely recognised, it shares with more mature fields of behavioural science the fact that it possesses an identifiable domain of study, perspective, and language; and that it has a body of knowledge, some rudiments of theory, and characteristic methods of inquiry". (Biddle & Thomas, 1966, p. 17)

- 2.2 Whilst the word "theory" is often associated with the various fields of natural science, Halpin (1966, p. 12) points out that the natural scientist has no monopoly on the concept. It has been observed that the notion of role theory has also been used by amongst others, sociologists, psychologists, anthropologists and educators as a way of describing human behaviour. Walters (1978, p. 15) states:

"In role theory the person as the broadly conceived unit of action and interaction is paramount".

- 2.3 Since school systems are government agencies, it was necessary to understand all the ramifications involved in a contract between the administrative hierarchy of the school systems and a selected consultant architectural firm. In South Africa, as in most countries, educational systems are legal entities established by the State to promote educational growth of the communities



which they serve. Peculiar to South Africa, this responsibility has been delegated to each province separately to be promoted in accordance with definite guidelines dictated by the State. Each province has the relative freedom and total responsibility to establish its own unique system. In the province of the Transvaal, except for a handful of private schools, the primary schools are State owned and controlled. The TED is solely responsible for the establishment and drawing up of the necessary "schedules of accommodation requirement" for their various types of schools and are referred to as one of the client departments. It is the responsibility of the TWD to design (to the approval of the client department), prepare the necessary documentation to call for tenders and to supervise the erection of the school buildings with due regard to all aspects of economics, function and efficiency. To this end, the TWD nominates and appoints the various professional consultants required to carry out this function. The point to be made here is that all consultants employed are thus extensions of the TWD internal professional bodies and not directly involved with the TED. As a result of this system the TWD has an architectural sub-department responsible for the design, preparation of contract documents and possible supervision of the erection of a primary school building. For the control of construction projects and maintenance of buildings and plant, the TWD has divided the province into eight regions. Each region is under the control of a Regional Representative who is directly responsible to the Director of Works as far as discipline and administration are concerned. Unless the Director of Works decides otherwise, the supervision and execution of the building contract devolves on the Regional Representative who is authorised to issue variation orders, subject to the approval of the Chief Architect. When the consultant architect is given supervision (and this is only decided after tenders have been received and the contract allocated) he acts as an extension of the Chief Architect's department of the TWD. All this results in the Project Architect of the TWD having to liaise with the consultant architect in the private sector as well as act as the liaison officer between the architect in the private sector, the regional offices, the contractor and the client department. One of the more serious problems in the relationships between and

among the school boards, the TED, the Regional Officer, the Project Architect (liaison officer) the TWD administrative section and the consultant professionals in the private sector (including the private sector architect), is the failure "to identify the proper role each entity must have and then act accordingly".

3 ROLE EXPECTATIONS AND BEHAVIOUR

3.1 Getzels, Lipham and Campbell (1968, p 61) have defined role in terms of incumbent expectations and concluded:

"A role has certain normative rights and duties, which we may call expectations. When the role incumbent puts these rights and duties into effect, he is said to be performing in his role. The expectations define what the actor, whoever he may be should or should not do under various circumstances while occupying that particular role in the social system".

Because the architects in the private sector, commissioned by the TPA to render professional services with regard to primary school buildings, invariably do so with the exclusion of their services with regard to supervision, it is interesting to observe in the related literature how they will be influenced to vary the quality of their services in relation to the fragmentation or commitment of their services.

3.2 Getzels, Lipham and Campbell (1968, p 61) have also related the importance of institutional expectations and individual need-dispositions to assist in furthering the understanding of the relationships between institutional behaviour and individual behaviour. In this respect they advocate:

"To understand the specific behavior and social interaction of particular role incumbents, it is not enough to know the nature of the roles and expectations although to be sure, their behavior cannot be understood apart from these. We must also know the nature of the individuals inhabiting the roles and their modes of perceiving and reacting to the expectations. That is, in addition to the normative or nomothetic aspects of social behavior, we must consider the personal or idiographic aspects. We must, in short, attempt to integrate the individual or psychological level of analysis with the institutional or sociological level of analysis".

3.3 It is false to assume that consensus exists among the various role descriptions normally attributed to position holders. Gross, Mason and McEachern (1958, pp 72-74) claim that empirical data do not support a consensus postulate for role expectations. Each human being has a unique personality, and for this reason, roles will be performed by people who will exhibit considerable variation not only in their own performance but in their perceptions of their role expectations. No matter how carefully a role is prescribed, there will be differences in its enactments. Recognizing the dynamic aspects of those perceptions and behaviours, Ittleson and Cantril (1954, pp 1-32) contended that we are constantly perceiving simply because it is an inseparable and necessary part of everything we do, and perceiving never occurs independent of some other activity.

3.4 Getzels, Lipham and Campbell (1968, pp 72-74) extended this concept to include that, as transactional style in which they focussed on the need "for moving toward one style under one set of circumstances". They further refined this idea by saying "The handling of administrative relationships must be considered as much an art as a science".

In different situations, what appears to be appropriate behaviour, is not limited to the situation itself, but to the situation as it is perceived, defined, experienced and interpreted. Role, therefore, as is defined, involves behaviour which the individual perceives to be appropriate in terms of the demands and expectations of the situations perceived.

With regard to role behaviour, Katz and Kahn (1966, p. 174) agree that:

"Generally, role behavior refers to the recurring actions of an individual, appropriately interrelated with the repetitive activities of the others so as to yield a predictable outcome. The set of interdependent behavior comprise a social system or sub-system, a stable collective pattern in which people play their parts".

While the related literature contains a variety of definitions, "a careful review of the definitions revealed, however, that

there is one nearly universal common denominator, namely, that the concept pertains to the behaviours of particular persons" (Biddle and Thomas, 1966, p 29).

In this research, further reference is made to the roles of the leading actors.

3.5 Interaction between architects in the private sector and architects as officials of the TPA.

3.5.1 Architects do not receive any specialised training in school design during their formal university course. The ultimate design of a school building is dictated by the methodology of the TED. In the Transvaal, most primary schools are State owned, staffed and administered and therefore the entire process of design and construction is determined by current State policy. The architects of the TPA are each seconded to a specific section where they are expected to specialise during their term of office in the specific section. It follows, therefore, that a project architect in the primary school section should be a specialist in this field and as such negotiates directly with the planning officials of the TED, one of the client departments. It should follow, and is in fact so, that the commissioned architect in the private sector is wholly dependent on the architect in the TPA for his briefing and guidance in the preparation of his documentation.

3.5.2 To quote Maire (1965, p 11) -

"A public school system is a social system which has as its organizational goal the education of children. The achievement of this goal requires the coöperative efforts of a number of individuals, each executing varying duties and responsibilities in a complex network of role relationships within the institution. One individual involved in this network of role relationships is the architect engaged to provide leadership in one aspect of a school plan development program".

To this must, in our case, be added: "and another individual involved is the project or liaison architect of the TPA".

Clearly then, the position is simply that there are two architects involved; both, it is assumed, have received training to the same level of standards in general architecture as related to design, documentation and contractual supervision abilities,

the awareness of professional team leadership and the art of architectural communication; only the architect of the TPA, it is assumed, has the specialised knowledge of primary school design to the acceptable standards of the TPA. The point is that we are not concerned with a teacher-pupil relationship but an interaction between two highly-qualified professional men where the architect from the TPA is limited in his participation in a project owing to his simultaneous involvement with a number of school projects and the architect in the private sector is entirely dependent on his colleague in the TPA for briefing regarding the accommodation schedule, the restrictions and limitations in his design, his role in the team and the minimum standards to which he must comply. This relationship must be clearly understood by all parties concerned and must be so stated even at the expense of monotonous repetition since only the clear definition and understanding of each other's role can lead to a successful execution of a project. Role was conceived by Linton (1936, p 114) to be the dynamic aspect of status, which he clarified by saying:

"The individual is socially assigned to a status and occupies it with relation to other statuses. When he puts his rights and duties which constitute the status into effect, he is performing a role. Role and status are inseparable, and the distinction between them is of only academic interest".

3.5.3 Between the two architects we are involved with the concept of role interdependency, which is also treated by role theorists. Newcomb (1950, p 85) has stated - "the role prescribed for any position is necessarily defined in relation to the roles of other people". Getzels (1958, p 155) has further emphasized this concept -

"Roles are interdependent in that each role derives its meaning from other related roles in the institution. In a sense, a role is a prescription not only for the given role incumbent but also for the incumbents of other roles within the organization, so that in a hierarchial setting the expectations of one role may to some extent also form the sanctions for a second interlocking role It is this quality of a coherent interactive unit which makes it possible for us to conceive of an institution as having a characteristic function".

3.5.4 It is now obvious that emphasis must be placed on the ordering of roles in such a manner that individuals will better understand this organizational function, and at the same time, the TPA will benefit. Guba and Bidwell (1957, p. 1) have recognized the need for role assignment, and sum it up by stating that, "within an institution the system of roles should be so organized that the behaviours attached to each role are mutually consistent and are maximally productive of the goals of the enterprise".

4. THE DUTIES OF THE ARCHITECT

4.1 White (1969, pp 16-23) an educationist, devotes eight pages to the duties of an architect. It is gratifying to read that an educationist in concluding his findings quotes Boles (1965, p 126) as stating that:

"The naïveté of some school board members and some administrators as to what constitutes architectural service seems almost unbelievable".

4.2 Over the years various bodies, institutions and researchers have attempted to define the role and duties of the architect. Engelhardt (1934, pp 229-232), an educationist, contacted sixteen architectural firms in the United States of America requesting statements concerning the architectural services actually performed. From the eleven replies which he received, he formulated seventy-two duties and grouped them into the following seven steps:

- (1) Initial interviews and surveys;
- (2) Preparation of material and information;
- (3) Preliminary plans and specifications;
- (4) Preparation of Working Drawings;
- (5) Award of contracts;
- (6) Construction of the building;
- (7) Maintenance.

4.3 Sumption and Landes (1957, p 9) discussed four major roles in which the architect must be competent, listing them in the following order: co-ordinator, designer, administrative and building supervisor. "In fact, his job is not completed until the building is accepted by the owners".

4.3.1 It has been the practice of the TPA to place the responsibility for supervision of primary school building contracts firmly in the hands of the Regional Offices, and this is queried when studies have shown that supervision is essential to an architect's commission. Supervision is considered of such importance that even architects should give it more prominent and detailed attention so as to remain always above reproach since this is known to be a weakness. For example, (Thiesen 1934, p 169) pointed out that many cities have been keenly disappointed in their reliance upon the architect to furnish complete supervision and went on to comment:

"Why architects who will not render satisfactory supervisory service should be chosen is a matter of conjecture. It is indicative of carelessness on the part of boards of education in not ascertaining fully the candidate's past record. A successful architect must be more than a designer. Too many boards take it for granted that satisfactory construction will follow satisfactory planning".

4.4 Although there may be some uncertainty in the administrative hierarchy of the TPA it can be argued that there is no uncertainty in the minds of the architects in the TPA with regard to the accepted duties of an architect. It seems that there appears to be merit in the desirability of a contract between the architect in the private sector and the TPA, in which all the legal ramifications are clearly defined and agreement reached by both contractual parties which, inter alia, must clearly define the duties of the commissioned architect in the private sector. White (1968, pp 34-35) summarises:

" ... Writers agreed on the general duties of the architect. However, there was not agreement concerning all of the extra duties for which the architect should receive extra compensation.

There was consensus among the writers concerning the importance of a written contract. They indicated that the contract document should be a written representation of the meeting of the minds of the contracting parties.

Misunderstandings have arisen between architects and school boards over the interpretation of the written contract. In some instances the contract was an inadequate representation of mutual responsibilities. In other cases, the wording of the contract document was couched in technical language which the layman misinterpreted".



5. SUMMARY

5.1 The purpose of this chapter was to search for and refer to the findings of researchers in the field of human relations in general and the roles and interaction of professional architects in particular, specifically when related to the provision of primary school buildings. There is no doubt that any liaison mechanism is dependent for its successful function, primarily on the clear definition of the roles of the incumbents coupled with the incumbents' absolute understanding of the role allocated to him and the factors influencing his interaction with the other incumbents of the organisation

CHAPTER IV - GENERAL PROCEDURES

1. THE ORIGIN OF A PROJECT

- 1.1 The decision to build a new school building or add to or alter an existing school building rests squarely with the TED. It is also the responsibility of the TED to furnish the TWD with a detailed schedule of accommodation of the desired project, as well as the projected timetable as related to the budget. Whilst a detailed explanation of the origin of a project is not required, it is advisable for the purposes of this study to have some background knowledge of the process.¹
- 1.2 The initial source of the origin of a project is the TED's Regional Schoolboard Secretary. (The Transvaal is divided by the TED into six regions). One of the duties of the regional office is to continually assess the growth potential of the various residential areas in their region with a view to establishing the need for new school buildings or alterations and additions to existing school buildings. A further duty of the region is to establish the need, arising from any relevant policy factor, for alterations and additions to existing buildings either of a permanent or temporary nature. These statistics are collectively fed back to the central planning department of the TED whose function it is to determine the priorities of the various requirements within the framework of the National policy and the limitations of the budget.
- 1.3 The planning section of the TED endeavours to plan for their building requirements for at least two years ahead and supply the TWD with a detailed list of projects accompanied by the detailed schedule of accommodation for each project including an approximated estimate of costs for each project. The TWD

¹The author, G. Candiotes, is employed as a senior schools architect in the architectural section of the Transvaal Department of Works being in control of all primary schools in the Transvaal as well as being a committee member of the Departmental Planning Committee.

will check this list against the approved capital works programme before appointing the consultants in the private sector who will comprise the professional team.

Mention must be made here that this is the normal procedure, yet there are two further procedures, namely (a) building work arising out of an emergency situation to be dealt with as a capital works, and (b) building work arising out of maintenance as a minor works (less than R20 000) or destruction of property due to fire, hail and storm damage etcetera; these are very seldom of such a nature that they do warrant the employment of a professional team and can be dealt with departmentally.

2. THE PRIVATE SECTOR

2.1 It is interesting to note, that as a result of the present economic, political and social metamorphosis in South Africa, the private sector is seriously considering valuable contributions towards the schoolbuilding programme. Several primary schools are undertaking the building of additional educational elements to the required standards, with the finance being provided by the Parent Teachers Association (in some instances as much as R100 000) and at the time of writing, SAPPI, in the Eastern Transvaal have donated twenty percent of the building costs of a new primary school plus the site, for three hundred pupils, at Ngodwana.

3. THE SELECTION OF THE CONSULTANT ARCHITECT

3.1 As far as the TED is concerned, the architect for the project is the Project Architect of the TPA Works Department whose prerogative it is to either elect to render the architectural services departmentally or to appoint a consultant architect as an extension to the architects' section of the TWD. Thus it must be made clear that the commissioned architect is answerable directly to the TWD and not to the TED.

3.2 For each project that has been approved by the Executive Committee of the TPA, the Chief Architect is requested to recommend the appointment of a consultant architect from the private sector. The Chief Architect has a panel of registered architects

practising in the Transvaal who have signified their preparedness to accept commissions from the TPA. There is a prescribed procedure for any registered practising architect to have his name placed on the panel and there are certain factors governing the recommendation of an architect, namely,

- (a) he must be a registered architect;
- (b) through the correct channels have his name on the panel;
- (c) be in good standing with the architectural section;
- (d) be in close proximity to the location of the project (especially in country towns) and,
- (e) be prepared to give priority to the commission offered.

Every effort is made to maintain a strictly impartial system of rotation. The recommendations are submitted to the Executive Committee of the TPA for formal approval, who reserve the right to alter the nomination for any valid reason.

4. THE APPOINTMENT OF THE CONSULTANT ARCHITECT

4.1 Immediately after approval has been received from the Executive Committee, the architect is informed by letter of his intended appointment which he must either accept or decline (see Appendix B1). The information that this roneoed letter contains was part of the subject matter of the Questionnaire sent out to private architects and apropos the letter of appointment, the majority of architects requested the following additional information:

- (i) The exact location of the project
- (ii) The projected cost
- (iii) Expected data for sketch designs
- (iv) Extent of professional services and basis for remuneration
- (v) Architect's role in the professional team
- (vi) Restrictional framework applicable to sketch designs
(Questions 26-30)

4.1.1 In answers to Question 4 in part 2 of the questionnaire, the general consensus was that a "handbook" or "guide book" is desirable. Such a handbook/guidebook, if comprehensive enough,

it was felt, would eliminate most areas, if not all, of uncertainty or they would have a direct bearing on the architect in the private sector's decision as to whether or not he can, at the specific point in time, or for any other reason, accept the commission offered.

5. CONTRACTUAL AGREEMENT

5.1 The related literature consulted all stated quite strongly that there should be some form of contractual agreement between the owners and the architect. This research has shown that not only is this desirable but that it is essential and that the contract document could eliminate a great deal of contentious points when clearly stated. It is correct that the appointment of an architect should be based on a sound footing because the architect, who previously had been considered a master builder and an artist, has now become a business man as well. (Bannister, 1954, p 17).

5.1.1 One of the most important single decisions the TWD takes in planning a school building programme is the selection of an architect as the leader, and the balance of the professional team. For the purpose of this study, the major concern in selecting an architect lies in the legal consensus of understanding between the TPA and the architect in the private sector with regard to offer and acceptance of the commission. (The two major ingredients of a contract). It is important to have affirmative answers to questions such as: Have the architect and the TPA in fact agreed upon the duties, responsibilities, and authority of each to the other ?

Is this agreement clearly delineated in a contract ? Is this contract written or verbal ? Is there, in fact, a contract in terms of the legal definition ?

5.2 The Value of a Written Contract is an undisputed fact. Mc Ginnis (1956, p 107) stated that:

"To secure the optimum in educational planning and economy of construction from their architects, school districts have found it profitable to devise contracts which would accomplish the realisation of their objectives".

5.2.1 It would appear that in the United States of America there is more concern with regard to architect-owner agreement than in the Republic of South Africa. The National Council on Schoolhouse Construction U.S.A. (1964, pp 17-18) points out that "a formal written agreement that is legally binding is the only satisfactory means of protecting both the owner and the architect". The American Association of School Administrators indicated that one of the values of a written contract is that it ".... defines the scope of the architect's work and the method of payment and protects both parties from unlikely but still possible contingencies". Sumption and Landes (1957, p 14) stated that a contract insures a clear understanding by both parties as to the services to be performed and the terms of remuneration.

Mc Ginnis (1956, p 2) stressed the necessity for a written contract by pointing out that:

"... a carefully prepared contract ... between the school board and the architect provides a means for outlining and defining relationships as well as providing a legal basis for the performance of / the architect's / professional services and the payment therefore ... "

5.2.2 It is interesting to note on the other hand, that the American Association of School Administrators cautiously indicated that when a good job in selecting an architect has been done, the critical importance of an airtight contract between a board of education (in the Transvaal, the TWD) and an architect is less vital than when a haphazard selection process has been followed. They simultaneously point out that no authority should employ an architect without basing his services on a carefully worded contract. It is interesting to note that the American Institute of Architects have a standard contract form, which says:

"The basic obligations of an owner-architect agreement are that the architect agrees to furnish professional services to an owner, and that the owner agrees to make payments or other compensation to the architect in exchange for such services. Thus a clear statement of the architects's services and of the compensation to be paid in return for these services and the fundamental part of any owner-architect agreement".

5.3 Inadequacies in Contract Documents must be carefully guarded against. A review of the literature clearly indicated that certain

inadequacies existed in Contract Documents. The essence of the inadequacies was summed up by Mc Ginnis (1956, p 58, p 28) when he stated that he found that school administrators and architects often felt that the contract by which they were bound was inadequate and warned that:

"Ambiguous in meaning, lack of clarity in phrasing, omitting essential elements, and prevalence of generalities rather than specific direction, are all characteristics of contracts which may lead to misunderstandings and possibly court action".

5.4 The Contents of Contracts should be clearly defined and all-encompassing as referred to by Edwards (1955, p 200) who listed the five prerequisites common to all simple contracts as:

"(1) Legal capacity on the part of the contracting parties; (2) mutual assent of the contracting parties to the terms of the contract, or what is commonly known as a 'meeting of the minds'; (3) a valid consideration; (4) rights and liabilities sufficiently definite to be enforceable; and (5) an agreement of such a nature as not to be prohibited by the statutes or the common law".

5.5 Conditions of Employment for architects performing architectural services as practitioners for the TWD has been put to paper, but is not used currently and has not been issued to architects as part of their appointments. It has become obsolete and is being revised. After careful study and objective legal considerations, it cannot be considered to be a contract document or a successful guide or handbook and deserves further investigation (See Appendices C1 & 2).

6. THE ROLE OF THE LIAISON ARCHITECT

6.1 For the purpose of this study, the architect in the TPA will be considered to be the TPA's project architect, functioning primarily as the liaison architect, being the common entity in the interaction between the TWD and the architect in the private sector and the TED. When this is fully understood, and it must be understood, especially by the liaison architect himself; it then becomes clear that the liaison architect must act in two separate and distinct roles, namely: (a) as a specialist in the field of primary school architecture guiding and supervising the commissioned architect in the private sector during the various stages of the architectural services he has been commissioned to render as well

as to advise him on matters pertaining to procedures as required by the TPA, and (b) as a specialist in the field of primary school design to correctly interpret the schedules of accommodation for each specific project prepared by the TED and to convey this successfully to the private architect for his execution as well as commanding the required knowledge of the procedures to be followed between the TWD and the TED.

7. THE LIAISON ARCHITECT'S DUAL ROLE

7.1 In this instance, his role requires him to be an administration professional (technical) with the ability to execute his duties always in an objective and impartial manner allowing no room for subjectivity.

7.2 Whilst all architects receive formal training in architecture, the architects in the TPA are not required to undergo formal training in public administration but are expected to learn the administration required purely by example and doing by trial and error. This appears to be a weakness since, in reply to Question 3, part two of the Questionnaire: "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?" nobody dared to say a direct no, but what was written was a progression from a -

"yes", to a -

"yes , but guidance could be improved - maybe with an architect's manual or procedure" to a

"primary schools - yes. Other TPA services range from almost none at all to so much that one has the feeling that one must please 'GOD' even if you know 'HE' is wrong (remember he pays !" to a

"NO. eq. letter of appointment refers (para. 1) to latest departmental conditions. I asked in letter of acceptance for a copy and again later but never received a copy". to

"yes, and no. In one instance the list of accommodation was outdated and this was only discovered when the sketch plans were completed". to a final, bitter,

"For my sins, once. Guidance, No., Irritation, YES !"

7.3 In the Questionnaire used to question architects in the public sector it was interesting to note their attitude in the reply to

to the question which requested whether they thought that their briefing of the appointed architect was complete. The majority gave the impression that they had done their best by conveying the requirements to the architect and that in any case the private architect was paid to find out what he needed to know in order to comply with his instructions. The private architects, on the other hand, in their replies to the questions in Part One of the Questionnaire, indicated that all of the relevant information should be volunteered by the TPA.

- 7.4 A solution to the successful fulfilment of the liaison architect's role would be (a) careful selection of the liaison architect; (b) some form of training in public administration and (c) very definitely, a well compiled guide or handbook to ensure thorough and uniform liaison.

8. THE ROLE OF THE PRIVATE ARCHITECT

- 8.1 For the purpose of this study, the commissioned architect in the private sector will be referred to as the Private Architect. It must be accepted that the Private Architect is appointed to function as a professional extension of the TWD, architectural section, and under the supervision and guidance of the Project Architect, but certainly not to the extent of employer/employee relationship. The guidance and supervision is restricted to the specialised school design and construction experience and the administrative procedure laid down by the TPA. The criteria then is that the Private Architect must unambiguously be made fully aware of his specific role and the role expectations of the complimentary professional members of the team when, in this case, the architect is the leader of the team.

- 8.1.1 In planning an educational facility, including a primary school, it is the architect who translates the educational specifications into the design that makes sound construction possible. He is part of a planning team, in fact, the leader of this team. Because of his special knowledge in such areas as acoustics, lighting, colour, heating and ventilation, and other special

requirements, the architect will ordinarily be a valuable source of help. Edgar L. Morphet, in Education Organisation and Administration, (1968), A-67, p 63) stated: "schoolmen confronted with the need for new plants are facing the most difficult problem of their careers - difficult because the results may be more affected by their knowledge and vision, than in any recent period". The selection of the architect is therefore a critical decision to be made.

8.2 The method used by the TPA for selecting an architect has merit inasmuch as it is based on rotation coupled with proximity to the site location, but one is inclined to advocate that this could be coupled to the comparative selection method. In this procedure, the architect is chosen from a group of architects who have submitted for consideration information and references concerning their qualifications. In the Republic of South Africa, the right to call oneself an architect is protected by the Architects Act of 1970 which stipulates the requirements to be complied with before a person may practise as an architect.

8.3 The American Institute of Architects offers the following five questions representing appropriate areas of exploration:

1. Has the architect under consideration the experience necessary for the work at hand ?
2. Has he the technical knowledge needed to control the design of the highly complex structure and equipment, of a modern building, of space or money ?
3. Has he executive ability and the force to maintain an appropriate level of performance ?
4. Has he successfully done work of like character from which his ability to properly serve the owner may be inferred ?
5. Has he such honesty and incorruptibility as are essential to the owner's safety ?

8.4 The services which an architect renders to the TPA are not confined to the normal subdivision of (a) preparation of sketch designs; (b) preparation of working drawings and contract documents, and (c) calling for tenders and supervision of the building contract. The letters of appointment are of two types. The first

one (Appendix B1) is known as the full appointment which means the full gambit from (a) to (c) although it very often transpires that the project is either suspended or cancelled after approval of sketch designs. In paragraph 2 of the letter of appointment, the architect is advised that the rendering of supervision services will be decided upon after the acceptance of a tender. Experience has shown that the normal procedure for primary school buildings is that the supervision is carried out by the Regional Representative and his staff with full authority except for the fact that variation orders, in theory, are subject to the approval of the Chief Architect. This approval is invariably sought after the issuing of the variation instruction order! The second type of letter of appointment (Appendix B2) is for the preparation of tender documents from TPA sketch designs with the same reference to the supervision in paragraph 2 as with the final letter of appointment which once again, is purely of academic value.

8.5 With respect to architectural services to primary schools there is invariably a fragmentation of the architect's services and in this regard reference is made to Question 1 part 2 of the Questionnaire which reads: "Can advance knowledge that the architect will not be required to supervise the construction have an adverse effect on the quality of the documentation?" Note the question states "Can ... " and not "Does ...". The answers to this question, although mostly evasive and cautious can be categorised as follows:

- 8.5.1
- (i) A small percentage of the replies indicated that the architect accepted the appointment with the absolute knowledge that his supervision services could be dispensed with and therefore this factor "should" not affect the quality of the documentation.
 - (ii) The greater percentage of the replies were cautiously couched, all using the term "should not" instead of a strong "must not" or "does not".

- (iii) One architect was bold and answered "Yes, but it should not have".
- (iv) A large percentage referred to the "integrity" of an architect to guard against this.

8.5.2 Three common categories can be summed up as follows:

- (a) "Not quality of documentation, but adverse effect might become evident through differing interpretation of documents during construction"
- (b) "No - but the end product could well suffer because when Variation Orders occur, Head Office personnel have not the time to devote to a problem that the original designer would spend on a solution", and
- (c) "It should not - I understand that in the way the architect's responsibilities are defined in the Act, as revised, an architect must supervise in order to discharge those responsibilities - this should be carefully checked".

8.6 Judging from the replies to this question, it is reasonable to conclude:

- (i) The advance knowledge that the architect will not supervise can have an adverse effect either on the documentation or the final product or both.
- (ii) The absence of the appointed architect's supervision and possible misinterpretations by the Regional Representatives can lead to abuse.
- (iii) Architects are not in favour of the fragmentation of their services.
- (iv) It is not advisable to exclude the supervision of a project from the appointed architect's services.

The only "advantage" is a saving of professional fees which can easily be outweighed by possible abuse in the issue of variation orders.

9. THE STAGES IN CHRONOLOGICAL ORDER

9.1 Since "The origin of a project"; "The choice of a consultant architect", and "the appointment of a private architect", have been dealt with, in that chronological order, we will follow the stages of the progress of a project, taking it up from the appointment of the professional consultants and their acceptance and progress as follows:

9.1.1 The handing over of the site to the architect is the first joint effort of the various disciplines to launch a project and takes the form of a meeting on the site of the following persons:

- (i) The Project or Liaison Architect of the TPA
- (ii) A representative of the appointed firm of architects of the private sector
- (iii) The liaison officer from the Water and Drainage Department, which department also takes care of the site layout with regard to playing fields and on-site parking facilities
- (iv) The appointed Civil Engineer to design and prepare the documentation for the site layout of the playing fields, etc.
- (v) The appointed Structural Engineer, should his services be required
- (vi) An official from the office of the Regional Representative for that region (as previously explained a sub-division of the TWD)
- (vii) The appointed Quantity Surveyor, if one is required
- (viii) An official from the TED planning department
- (ix) The local school board secretary, and
- (x) The School Principal should the service be an alteration or addition to an existing school building.

9.1.2 The site meeting is always chaired by the Liaison Architect of the TWD whose function it is to explain the projected service. He should explain the fact that the appointed architect will be the leader of the planning team and should

also proceed to briefly explain the roles of the incumbents of the planning team. The Liaison architect will hand over to the Private Architect a detailed site plan showing:

- (a) if it is for a new primary school, the contours at accepted intervals, the roads, with names, which surround the school site and adjacent sites; or
- (b) if it is for an addition to an existing building, the positions of the various buildings in general and details of the affected portion in particular.

The Liaison Architect will also hand over:

- (a) in the case of a new primary school: a complete set of plans of all the separate buildings comprising a standard school and explain the desired juxtaposition of the various units to be adapted to the site, or
- (b) in the case of additions or alterations, standard details of the units or unit affected and the method of adaptation.

The planning team, at this stage, under the direction of the Liaison Architect will then briefly confer as to either:

- (a) the best position on the site and alternative positions if it is a new school, or
- (b) if it is for additions and alterations, the approach to the various solutions to be investigated.

9.1.3 After this the preliminary date for the submission of sketch designs will be agreed upon and the "handing over site" form (Appendix D9) completed in all respects and signed by the parties concerned. The original copy is given to the Private Architect who now assumes the leadership under guidance of the Liaison Architect. Later the copy is returned to the "Control Section" who will follow up the submission of sketch design date. Before dispersing, the Liaison Architect should agree with the Private Architect to a date for a preliminary discussion in the office of the Liaison Architect before finalisation of the sketch designs.

9.1.4 The submission of sketch designs is the next step and should take place on or before the date stipulated or, when circumstances demand, at a later agreed upon date. The Liaison Architect then completes the sketch plans form (Appendix D3) in

duplicate, takes the required number of copies of the sketch designs to the Planning Section of the TED who sign for their receipt. The original copy of the sketch plan form is sent to "Service Control" for the necessary noting and filing of the form.

- 9.1.5 Preliminary approval of sketch plans is now required, and to this end, the TED will circulate copies of the sketch plans to its planning department to the Water and Drainage Department for site layout, and also to the Liaison Architect for comment on the accompanying form (Appendix D4) so that the comments may form part of the agenda. Each project will appear on the agenda separately in the format as illustrated by a typical project (Appendix D12) so that the project, in its own turn, can be dealt with at a convened meeting of the "Departmental Planning Committee" referred to as the DPC. This committee is chaired by an appointed chairman and is comprised of a minute clerk; a plans register clerk of the TED planning section; three members of the TED planning department, and at least three members from the TWD: an architect, an engineer, and a member from the "Service Control" who will monitor the proceedings to ensure that the project design does not deviate from the accommodation requirements approved of by the Executive Committee of the Transvaal Provincial Council, also ensuring that the budget limits are adhered to.
- 9.1.6 The sketch designs, having been previously studied are discussed and after debate are either approved or disapproved, with reasons being given. The architect must then redesign for re-submission to the same committee at a later date. Before the sketch plans can be finally approved even although acceptable to the DPC, the Local Government Ordinance lays down that the local school board and school committee, if it is for an existing school, must be given the opportunity to comment on any intended building plans.
- 9.1.7 Having eventually passed comment, the school board advises the planning section of the TED of their comments. The sketch plans, with comments, are once again placed on the agenda in similar format plus the inclusion of any contentious letters as illustrated

by the form in Appendix C12. The DPC have the right to note the comments and ignore them if they wish although they always take cognisance of any adverse comments if they are reasonable and within the scope of the intended service.

- 9.1.8 Should the DPC decide that the school board's comments warrant a redesign then the sketch plans must go back to the private architect for redesign, with instructions, and the amended design must then proceed through the channels of the original design. Should the DPC decide to ignore the adverse comments, or approve the sketch plans with amendments, they will do so and endorse the sketch plans accordingly. The TED then files a copy and sends an approved endorsed copy to the TWD.
- 9.1.9 Final approval of the sketch plans is a formality attended to by the Service Control section of the TWD after satisfying themselves that the service finally had not deviated from the service as approved of by the Executive Committee of the Transvaal Provincial Council and that funds are in fact available. The sub-committee dealing with this is a section of the TWD's administrative section and is referred to as the Permanent Planning Committee (PPC). This committee now stamps and endorses the sketch plans and sends them to the architects' plans registry office where they are filed for reference purposes. The person checking the final working drawings can then ensure that there have been no deviations from the approved sketch plans. Simultaneously the Service Control will ascertain from the Liaison Architect what the final date for handing in the completed working drawings should be (Appendix D5) so that they can now advise the Private Architect on a roneoed form, filled in by hand (Appendix D2) advising him that his sketch designs have been approved of and that he must proceed with the working drawings and tender documents.
- 9.1.10 Documentation is now proceeded with in all earnestness under the supervision of the Liaison Architect and the involvement of all the other disciplines with the Private Architect as co-ordinator. This is very much the same as in private practice except for a laid down procedure involving the other disciplines. In this regard the Private Architect is entirely dependent upon the Liaison Architect for briefing and elaboration.

- 9.1.11 Tenders are now called for by the Tender Section of the TWD independently of the architectural section. The next step is when the architect is advised of an acceptance of a tender and whether or not he is to supervise (Appendix B3).
- 9.1.12 Supervision for primary schools is not normally given to the Private Architect. He is advised accordingly, with the rider that should his services be required for interpretation of his documents or additional architectural services, he will be so called upon and remunerated on an hourly basis. Should he be required to supervise he will be advised accordingly and guided by the Liaison Architect for procedure as well as assisted by inspectors from the particular Regional Office as clerks-of-works. He will supervise in the otherwise normally accepted professional method and system. There does exist a procedure handbook for architects (Appendix C) which has fallen into disuse although the procedure described therein is followed as an accepted norm.
- 9.1.13 At the time of writing it would appear that the decision to give the supervision of all services having "Bills of Quantities" to the Private Architect is being seriously considered and has partially been implemented. This makes yet a stronger case for a procedural handbook.