



**A STUDY OF THE LIAISON MECHANISM BETWEEN ARCHITECTS IN
THE PRIVATE SECTOR AND THE TPA IN RELATION TO THE DESIGN
OF AND ADDITIONS TO PRIMARY SCHOOLS**

by

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FOREWORD

The Transvaal Provincial Administration is one of four governing bodies comprising the second tier of government administration in the Republic of South Africa, and one of their delegated responsibilities is the provision and administration of Pre-primary, Primary and Secondary Education for the entire white population within the boundaries of the Transvaal. To this end, the Transvaal Education Department was established and functions within the Education Acts and Ordinance prescribing its function and limitations. The Transvaal Works Department is the department of the TPA which is responsible for the provision of all buildings, plant and equipment as well as the maintenance thereof, for all the other departments usually referred to by the TWD as the user or client departments.

Ideally, there are departments that, not only require buildings but also have the expertise to determine an accommodation schedule and specify the nature of the function of the building and a large department, known as the TWD, whose function it is to provide these requirements. To render this service, the TWD employs the services of professional consultants in the private sector to prepare the necessary documentation to enable the contractors in the private sector to tender for and provide the required services.

The TWD has, for its building work, a professional section of architects, quantity surveyors and engineers who, for primary school buildings, must obtain the requirements from the client department. The TED conveys this information to the architects in the private sector for the satisfactory preparation of contract documents and subsequent provision of the school buildings.

This study is concerned with and confined to the provision of primary school buildings in the Transvaal. A superficial investigation made it quite clear that the success of the entire building programme hinges around the success of the liaison between the Architects in the Private sector and the TPA.

The success or failure of the liaison mechanism is shown to be entirely dependant on the proficiency of the TWD's Liaison Architect

the efficiency of the communication system and the completeness of the data supplied to the architect in the Private Sector.

The present liaison mechanism does have shortcomings, but fortunately contains the necessary seeds required for the relatively simple adjustments to bring about the desired improvements.



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And finally, there could be very little substance to this study if I were not so ably assisted by the members of the Architectural Profession who so meticulously, thoroughly and professionally replied to and promptly returned the questionnaires I sent to them, without prior consultation.



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A study of the liaison mechanism between architects in the private sector and the TPA in relation to the design of and additions to primary schools

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SYNOPSIS

The need for the study arises from the assumption that the present liaison mechanism between architects in the private sector and the Transvaal Provincial Administration is deficient. The weaknesses are defined and presented by way of sub-problems and hypotheses arising therefrom. In order to limit the extent of the research and investigations, the study is confined to the liaison mechanism relating to primary schools only, within the Province of Transvaal.

The data have been obtained from replies to questionnaires received

from selected but individually unidentifiable architects in private practice as well as from answers to a standard set of questions verbally put to officials in various State departments. To further illustrate weaknesses in briefing and communication, a few case histories have been described.

The assessment by related literature has largely been confined to the views of educationists, sociologists, economists and architects. In essence, these views accentuated the importance of sound communication, role expectation and role perception amongst the professionals representing the various disciplines engaged in the need for design and construction of educational buildings. Related literature leaves no doubt as to the importance of correct selection and acceptance of the architect as the leader of the professional team.

A detailed investigation of the present liaison mechanism clearly reveals the areas of weakness which consequently affect efficiency as well as the steps that can be taken to improve the efficacy of the liaison mechanism.

The progressive stages of a project from its inception to its completion are discussed in strict chronological order and in detail, leaving no doubt as to where the delays can and do occur.

In conclusion, an effort is made to pinpoint the areas which need attention. Recommendations are also suggested in regard to eliminating any misunderstandings in role perception and expectation, and for the improvement and accuracy of the initial briefing.



'n Ondersoek na die skakelmeganisme tussen argitekte in die private sektor en die TPA met betrekking tot die ontwerp van en aanbouings van primêre skole

deur

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SAMEVATTING

Die noodsaaklikheid vir die ondersoek spruit voort uit die veronderstelling dat die huidige skakelmeganisme tussen argitekte in die private sektor en die Transvaalse Provinsiale Administrasie gebrekkig is. Die swakhede word omskryf en voorgedra by wyse van subprobleme en hipoteses wat daaruit voortspruit. Ten einde die omvang van die navorsing en ondersoeke te beperk, handel die studie oor die skakelmeganismes wat slegs met primêre skole in die Provinsie Transvaal verband hou.

Die inligting is verkry uit antwoorde op vraelyste wat van gekeurde,

maar individueel nie-identifiseerbare argitekke in private praktyke ontvang is, sowel as uit 'n standaard stel vrae wat mondelings aan beamptes in verskeie Staatsdepartemente gestel is. Om die tekortkominge in opdragging en kommunikasie verder te illustreer, is 'n paar gevalllestudies ook behandel.

Die oorsig oor verwante literatuur is grootliks tot die menings van opvoedkundiges, sosioloë, ekonome en argitekke beperk. Kortliks lê hierdie menings klem op die belangrikheid van gesonde kommunikasie, rolverwachting en rolpersepsie tussen professionele persone wat die verskillende dissiplines verteenwoordig, en wat met die ontwerp en konstruksie van opvoedkundige geboue gemoeid is. Die verwante literatuur laat geen ruimte vir twyfel oor die belangrikheid van die korrekte keuring en aanvaarding van die argitek as die leier van die professionele span nie.

'n Gedetailleerde ondersoek na die bestaande skakelmeganismes toon duidelik watter gebiede ondoeltreffend is, wat gevolglik 'n uitwerking het op doeltreffendheid sowel as op die stappe wat gedoen kan word om die doeltreffendheid van die skakelmeganisme te verbeter.

Die progressiewe stadiums van 'n projek, van die begin af tot by voltooiing, word in streng chronologiese volgorde en in besonderhede bespreek, en laat geen twyfel nie oor waar die verdragings wel voorkom.

Ten slotte, is 'n poging aangewend om areas wat aandag verg uit te lig. Aanbevelings word gedoen ten einde misverstande in rolpersepsie en verwagting uit te skakel en die akkuraatheid van die eerste voorligting te verbeter.



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.

CHAPTER V - NEW SCHOOLS

1. THE SITE

1.1 With the site for a new primary school, the architects both liaison and private, find that they are given a site, with no alternative, on which to build. Since the site always complies with the minimum size requirements of 3,5 hectares, the best use must be made of it with the following restrictions:

- (i) The configuration and the ideal positioning of the units (Figure I) are given to the Private Architect who is instructed to maintain these relative positions as far as the site will permit, with a maximum of five degrees deviation from north orientation.
- (ii) The units must be placed on the highest corner of the site for the best stormwater control.
- (iii) The architect is to ascertain the existence of all services - electrical, water supply and sewerage disposal, as well as the positions of these available services.
- (iv) When the sketch designs have been approved, the TWD Structural Engineer is to be advised without delay so that the necessary soil investigations can be done which influence the structural design.

1.2 Very often a new primary school is built in a new township and, on occasions, in a township that is not yet fully or even one which is sparsely built up. Despite the fact that the site has been handed over to the architect he is still expected to check that there are no problems such as unproclamation, unusual servitudes, or any other restriction not apparent. Of this he is not always made aware.

2. THE SCHEDULE OF ACCOMMODATION

2.1 Before the schedule of accommodation can be discussed, it is necessary to understand the basis of the reasoning behind the compilation of these schedules.

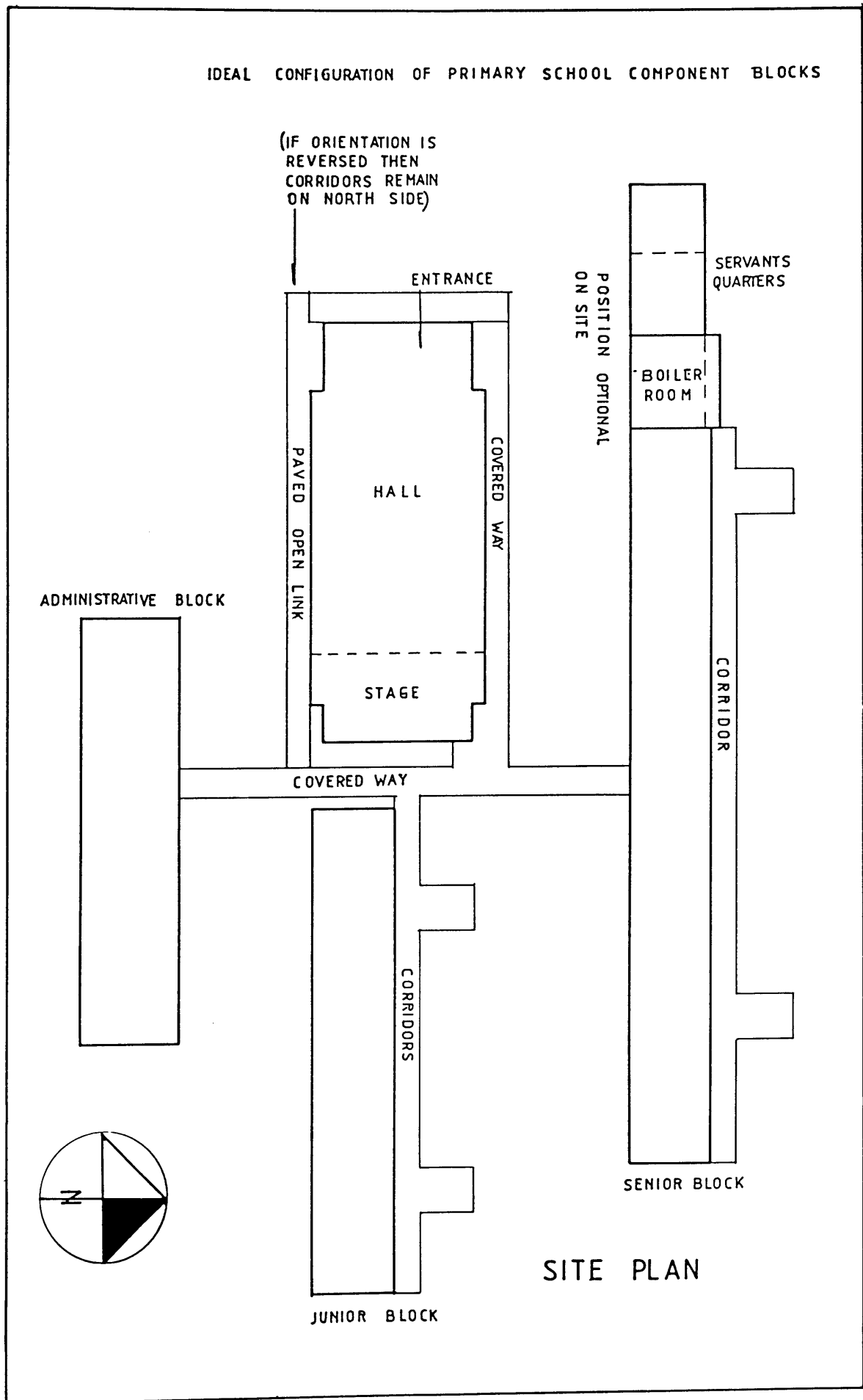


FIGURE I - IDEAL CONFIGURATION OF PRIMARY SCHOOL COMPONENT BLOCKS

- 2.1.1 The unit of measurement used to express the size of any school is the pupil, thus a school is referred to as an "X"-unit school, expressed in a determined number. Each and every unit element in this school both in size and number of similar units will relate in direct proportion to the "size" (expressed in numbers of pupils) of the school.
- 2.1.2 The size of a normal primary school in the Transvaal has been determined by the TED as 750 units regardless of its geographic location in the Transvaal or its situation in a town or city. All primary schools, therefore, are initially designed as 750 unit schools for the master plan, are built according to the demographic requirements of the particular area at that particular point in time, always with the intention of completing the school building as a 750 school.
- 2.1.3 The initial size of a primary school in the Transvaal depends on the statistics supplied by the regional offices of the TED, which office has as one of its duties, the task of continually checking the growth-points in its areas as well as projecting the apparent rate of growth with a view to establishing:
- (a) the need for a new school;
 - (b) the initial size of the new school;
 - (c) the language medium of the intended new school, or
 - (d) the required additions of a permanent nature to an existing school not yet fully expanded to the maximum 750.
- 2.1.4 Temporary accommodation is provided by means of prefabricated classrooms at a fully developed 750 school to cater for the overflow in that area until relief can be provided by way of a new school building elsewhere in the area.
- 2.1.5 The smallest school building that will be considered for building initially today is for 300 pupils although the majority of the undersized primary schools considered today are for 500 pupils. This has been proved to be the most practical viable size always with the intention of expanding, when circumstances demand, to the full 750 school.
- 2.1.6 The method employed to assess the need for, the sizes of, and the total number of the various elements required, has been based on

the optimum number of children that can be most successfully handled by a single teacher coupled with the optimum number of school teachers that can be successfully controlled by a single school principal, and the minimum clerical and professional staff required by the principal to efficiently manage this school.

- 2.1.7 The various elements required to make up a primary school for 750 pupils in the Transvaal has been carefully assessed and decided upon by the TED with the assistance of the Council for Scientific and Industrial Research aided by the architectural section of the TWD, with the scaling down required relative to the reduced number of pupils in the instances when the initial building is for less than 750.
- 2.1.8 The optimum number of children in a class for primary school children has been found to be 30 with an accepted increase to 35 before there is any significant decline in the standard of learning for that particular class.
- 2.1.9 The number of class-rooms required for a 750 school is 25. For reasons not affecting this study it has been found that it is necessary to divide a school into junior primary, consisting of Grades I and II and Standard I and senior primary, consisting of Standards II to V.
- 2.1.10 The grades children by virtue of their ab initio education require special teaching elements which are referred to as "grades-rooms". These are distinct from and larger than class-rooms and include the addition of a small store for special equipment. It has been determined that there are eight grades-rooms and seventeen classrooms required for a 750 school.
- 2.1.11 Apart from ordinary teaching elements the teaching syllabus in the Transvaal requires the provision of (a) a basic techniques classroom; (b) a junior science laboratory, and (c) a media centre which includes the library function.
- 2.1.12 A community hall primarily provided for assemblies with all the children standing, and designed with a reasonable stage, to function as an entertainment hall for small concerts, prizegiving functions and other primary school social functions.

- 2.1.13 From the days of the "one-man school" the need for effective provision of accommodation for the administrative personnel and a comfortable staff common-room to accommodate the thirty to forty members of the entire personnel has long since been recognised resulting in a separate administrative block being provided.
- 2.1.14 The final schedule of accommodation carefully and accurately describes the exact sizes and numbers of elements permitted in the complete primary school complex and may not be deviated from. To permit efficient administration of the school functions, the entire primary school is required to be physically divided into five distinct building units, namely:
- (i) The administrative block
 - (ii) The junior block (grades)
 - (iii) The senior block (standards)
 - (iv) The hall
 - (v) The services, which include the boiler room (for central heating in areas where this is provided) the labourers, male and female, wash, dining and chanqerrooms, and the storerooms for garden equipment.
- 2.1.15 Design and provision of the playing fields does not form part of the building contract. These are provided for under a separate contract and it is the exception rather than the rule that the playing fields are provided simultaneously with the building because the provision of classrooms is always considered to be the top priority. In spite of this, the architect is given the standard sizes of the various sportsfields to be catered for and it is his task to supply a design layout of the sportsfields to ensure that they can be provided for on the remaining portion of the 3,5 hectares after the school buildings have been erected.
- 2.1.16 The rigid requirements, restrictions and limitations laid down by the schedule of accommodation invited standardisation and has resulted in the standard design of a primary school in the Transvaal.

3. THE STANDARD PLANS

- 3.1 In the case of new primary schools in the Transvaal the TED has accepted the detailed design of each of the five unit blocks that comprise the complete primary school complex for 750 pupils and the Executive Committee (Exco) of the TPA has also accepted these five units for the standard primary school in the Transvaal by virtue of the Exco Resolution No. 744 dated 26.5.1980. It can only be altered, deviated from or amended by way of an official Exco resolution.
- 3.2 The prescribed layout and related positions of the individual blocks are conveyed to the Private Architect by way of a diagram illustrating a hypothetical case (Fig. I).
- 3.3 The previous standard plans became outdated and difficult to adopt for various reasons and is best explained by a report prepared in 1980 by the author, in an endeavour to explain the reasoning behind the latest standard primary school design.¹

4. REVIEW OF THE VALIDITY AND EFFECTIVENESS OF THE CURRENT STANDARDISED PRIMARY SCHOOL BUILDINGS

- 4.1 A brief description of the methods employed and the results obtained during the process of a revision and up-dating of the outdated Standard Primary School design.
- 4.2 The purpose of the exercise was to examine the current primary school drawings which, since 1971, had served a very good purpose with a view to updating the documentation as well as bringing the costs down to an acceptable minimum.
- 4.3 After some considerable research, it appeared that the approach would be to divide the entire problem into three sub-problems.
- 4.3.1 Firstly, that the technological advances resulting in a revised methodology, and the changes in the TED requirements had resulted in an initial issue of at least sixty common variation orders.

¹CANDIOTES, G., "Standard Primary School", Report presented on request of the Transvaal Education Department and instructed thereto by Mr M.K. Anderson - Chief Architect of the Transvaal Works Department, 1980.

- 4.3.2 Secondly, various regions were solving various similar problems in different ways, as well as creating other problems of their own.
- 4.3.3 There did not appear to be a sufficiently strict control over the final costs.
- 4.4 Having established and isolated the sub-problems it was then decided to direct the exercise so as to uncover anomalies, if any, and then to eliminate redundancies, all with a view to establishing a recognised and acceptable standard throughout the whole of the Transvaal. To do this, the hypotheses were formulated and the investigation revolved around these hypotheses.
- 4.4.1 The first hypothesis was that the various teaching areas could be reduced with a view to decreasing the total floor area of the primary school.
- 4.4.2 The second hypothesis was that each region had its own idiosyncrasies and aided by the necessity for variation orders as dictated by changing circumstances over the years, were, in fact, also introducing their own innovations. This was all carried out by each region on a unilateral basis.
- 4.4.3 The third hypothesis was that the total costs of a primary school could be effectively reduced by the judicious reduction in size, of the various teaching elements (areas) and circulation space after a thorough investigation of the prevailing facts.
- 4.5 The process of obtaining the data was done by following a research methodology consisting of the classification of data into three separate categories.
- 4.5.1 From published reports on instruction media and construction methods.
- 4.5.2 From responses to question put to inspectors in our regional offices.
- 4.5.3 From responses to questions put to selected primary school headmasters as well as to subject specialist educationist employed by TED head office.

- 4.6 The classification of the data and subsequent processing as applied to the design refinements produced a most satisfying and totally acceptable new standard primary school.
- 4.6.1 Final acceptance of a 3,6 metre module resulted in the most economical grid which was applied to every unit block in the complex. This module of 3,6 metres permitted the subdivision of each unit into acceptably proportioned elements.
- 4.6.2 The module permitted an acceptable and structurally economical breakdown of the various units to easily build, where necessary, a predetermined fraction of the complete 750 school. The predetermined fraction built could then, at a later stage, or in various stages, be expanded to the full 750 school.
- 4.6.3 The module also resulted in a desired reduction of total school area of 18% with an obvious resultant cost saving.
- 4.6.4 The Director of Works issued instructions to have the TPA drawing office prepare a completely new set of working drawings treating each unit block as a separate entity so that entire units where singularly needed, could be provided on a standard basis. The entire set of drawings (over 60 sheets) were each drawn on an A1 sheet, with all the notes and notations typed with a special typewriter.
- 4.6.5 Transparencies of the new set of drawings can be successfully adapted to any site by any architect in a most professional presentation.
- 4.7 The new standard primary school fulfils all the educationists' expectations, is aesthetically pleasing and is most acceptable to both teachers and pupils.
5. USE OF STANDARDISATION
- 5.1 The motivation behind the design and use of the standard plans for a primary school in the Transvaal is fully dealt with in the report. The TPA introduced standardisation for the following reasons:
- 5.1.1 The desire to save professional fees by the use of standard plans and their adaptation was never a consideration in the factors that prompted the design of a standard plan.

- 5.1.2 The rigid restrictions and limitations imposed by the accommodation schedules of a primary school and the interrelationship of the elements convinced the authorities that since the rate of growth of the school-going population requires approximately ten new primary schools per year, it is unwise to expect ten different architect firms annually to, independently, carry out the research necessary to design a primary school, or to commission one firm of private architects to execute the design, documentation and erection of all the primary schools or even to alternate them annually.
- 5.1.3 The actual research and design of a primary school was best placed in the care of architects with practical knowledge and experience in the functions and problems attendant upon the administration of a primary school. It was, therefore delegated to the architects employed by the TPA to produce an efficient and functional design for a primary school that would comply with the rigid requirements of the TED. This was done in the best interest of primary school education with absolute regard for the requirements of the pupil and teacher within the permissible budget.
- 5.1.4 The only real variable in the design of the various primary schools situated in different locations was the restrictions imposed by the site and whether or not the climatic conditions would dictate the necessity for central, or any other form of heating. Thus with only one real substantial variable that could only affect the orientation and inter-relationship of the various standard unit blocks it appeared to be the epitome of logic to employ the use of standard plans which could be updated as and when dictated in the technological advances and resultant changing systems.
- 5.1.5 The need for standardised efficiency without the total loss of aesthetic appeal is far better than mediocre design for the sake of over-emphasis on the aesthetic. Why then should the TPA be permitted to enforce standardisation for the sake of efficiency ?
- 5.1.6 The Russian launching of Sputnik I in 1957 provided a new impetus to constructive public concern for education, resulting in more acceptance of major changes in educational policy and decision-making

at the local, provincial and national levels.

- 5.1.7 It is more important to erect primary schools of a proven design than to experiment with designs by various private architects not all having the same knowledge of educational requirements. This is best summed up by Cameron (1965, p 7) who stated:

"Technological and scientific advances during the past several decades have resulted in an increasing emphasis on improving the quality of education. The American people are awakening to the fact of quality education and it is especially so in small schools with few pupils. It is also generally being recognised that safe, comfortable, healthful, attractive and well-equipped school facilities play an important role in a modern education programme".

6. ADAPTATION OF STANDARD PLANS

- 6.1 After acceptance and approval of the layout of the new school the architect is advised of the approval with the required amendments, if any. (See Appendix D2). The architect is again advised as to who the Liaison Architect will be and is asked to contact him without delay with a view towards setting the date on which they are to meet for the necessary briefing.
- 6.2 Transparencies of the original 1:100 drawings with the attendant detail drawings of the five different unit blocks, comprising some sixty-four drawings, are handed over to the private architect during the course of the briefing.
- 6.3 The Private Architect is advised to submit four copies of the detailed site plan as soon as possible to the Structural Engineer so that arrangements can be made for strategic trial holes to be sunk to determine the nature of the footings and foundations required.
- 6.4 The adaptation of the transparencies of the standard drawings require the following actions to be taken by the Private Architect.
- (i) Checking all the prints issued to ensure that the sets are complete, legible and suitable for reproduction;
 - (ii) preparing the site plan in accordance with the approved configuration for the specific service;



- (iii) describing the type or types of facebricks to be used for the specific school;
- (iv) inserting the correct foundation walling for the specific site;
- (v) completing all the sections and elevations by introducing all the relative natural ground lines as determined by the specific siting and the subsequent relative finished floor levels of the various unit blocks;
- (vi) detailing the specific covered ways required for the specific site layout.
- (vii) completing the hot and cold water supply reticulation;
- (viii) completing the entire drainage and stormwater layout for the specific site;
- (ix) furnishing detailed site plan showing all the relative "site works" for the specific site;
- (x) completing all the drawings with the correct titles, headings, sub-headings, drawing numbers and all other required information, and
- (xi) continuously attending to the co-ordination of the documentation by all the other attendant disciplines.

6.5 At the working drawing briefing all these instructions are verbally conveyed to the private architect by the Liaison Architect since a standard "procedure manual" does not exist.

7. CO-ORDINATION OF CONSULTANTS

7.1 The co-ordination of the various consultants is potentially a weak link because the procedure varies with respect to the consultants being either private or departmental. If the consultants are handled departmentally, which invariably is the case with Mechanical Electrical and Structural Engineering, the Private Architect is inclined:

- (a) to accept that the specific consultant requires no direction from him since the drawings are standard, or
- (b) the responsible official will contact him or supply him with their completed documents, or
- (c) approach him (as in private practice) from time to time, if the period of silence seems too long, or

(d) the professional consultants will, in any case, do as they are instructed by the TPA departmental heads since the primary school is of a standard design and they are reluctant to oppose bureaucracy. In fact, rather than being the team leader, the Private Architect is not made to feel secure in his supposed position of authority.

7.2 The TPA officials handling one or more of the consultancies, on the other hand, all express the view that the private Architect is paid for co-ordination and must therefore, regardless of bureaucratic opposition initiate and follow through all the involvements of the professional disciplines serving in his specific team as well as cope with the non-standardised procedures of the individual TPA works sub-departments.

8. THE COMMISSION

8.1 The standard form of appointment makes no distinction between an addition or alteration to an existing school, where the nature and layout of the school will determine the design and documentation (very much the same as in the private sector), or a new school, (where standard design is compulsory) and the adaptation of standard drawings will affect the fees structure. At present in the case of adaptation of standard drawings the time-scale applies. This fact is usually only made clear to the Private Architect at the first handing over of the site provided the Liaison Architect remembers to do so. There are cases on record where the Private Architect was not so advised and even needed to institute changes in the initial sketch design only to be told later that this was not permitted, resulting in a re-design with unnecessary waste of time.

8.2 The fact that supervision may possibly be omitted from the Private Architect's services is not clearly stated in the initial letter of appointment. Only when the architect receives the letter advising him of the successful tenderer (Appendix D1), is he advised whether or not he is to undertake the supervision of the contract. This does not always come as a complete surprise because invariably the architects enquire about the possibility of supervision of the contract at an early stage.

CHAPTER VI - ADDITIONS TO EXISTING SCHOOLS

1. THE SITE

1.1 With regard to alterations and additions, the site is obviously determined by the specific existing school building involved, and can be in any town or city in the Transvaal; the alterations and/or additions can be motivated by either the need for expansion or the need for up-dating (modernisation).

1.1.1 Prior to World War II the building of schools did not allow for possible expansion or modernisation so in these cases the planning is difficult and costly.

1.1.2 After World War II the school buildings were designed and built with a definite view to expansion and updating, except for the administrative section, so that this invariably resulted in the building of a new administrative block with attendant problems of re-allocation of the areas provided for office accommodation into teaching areas.

2. THE SCHEDULE OF ACCOMODATION

2.1 Alterations and/or additions to an existing school are only considered under the following headings:

- (i) expansion
- (ii) up-dating
- (iii) restoration
- (iv) change of function, and
- (v) temporary relief for overflow

2.2 Expansion is considered necessary by means of permanent conventional construction when the enrolment at an undersized school for less than 750 pupils has increased to the extent that one or more classrooms or teaching elements are required to replace the temporary structures that have already been provided, to cater for a projected unusual growth, or when there is a change of educational policy dictating an increase of teaching elements brought about by the reduction of pupils per class unit.

3. LETTERS OF APPOINTMENT
 - 3.1 In the case of expansion the letter of appointment to the Private Architect will read either - (a) specifying the exact number and types of elements to be added or altered, or (b) stating merely "Build out to 750" or to whatever number may be required up to 750, but has never read build out from X to Y. Clarity here would help the Private Architect greatly in assessing the size of the project before replying to the letter of appointment and afterwards discovering that the service is of such a nature that he may not be able to handle it to the satisfaction of the TPA at that point in time.
 - 3.2 Updating (modernisation) is usually coupled with some form of expansion or addition and is considered necessary when the out-dated school building ceases to cope with either - (a) the number of pupils in total or per class unit, or (b) the effective administration of the school functions. By the very nature of the necessity to update, it is always postponed until it is coupled with substantial additions and/or alterations to the permanent structures of the school buildings.
 - 3.2.1 The letter of appointment to the Private Architect has usually described this service as follows: "Provide new administrative accommodation and 'x' elements (briefly described)" or "Build out to 750"; this will include the standardisation of all the existing units in the school building to bring the school up to the present-day accepted standard. Whatever description is given to the service, the Private Architect has no idea as to the extent of the service until he is briefed at the first site meeting. More often than not the Liaison Architect finds himself in the same position.
 - 3.3 Restoration of a school building becomes necessary when it (a) is totally or partially destroyed by fire, (b) has suffered hail, rain or other damage caused by "force majeure", (c) partially or totally destroyed by earth subsidence or movement, or (d) any other cause resulting in some form of destruction or ageing to such an extent that the buildings must be restored to a state of effective function.

- 3.3.1 The letter of appointment to the Private Architect will describe the nature of the service without indicating the exact extent of the service. Once again and especially if the school building is far distant from Pretoria, both the Private Architect and the Liaison Architect will discover the exact extent of the service for the first time at the first site meeting.
- 3.4 Change of function of a school building very rarely occurs and then only when a particular school building or acquired quasi-suitable building is required to revert to the function of a primary school building. For instance, the reversion of a group II school (Grades to Standard VIII) to a primary school (Grades to Standard V) or an acquired private school to a Provincial Administration primary school or any other form of conversion where an existing building must be altered or restored to new for the first time, function as a primary school.
- 3.4.1 The letter of appointment to the Private Architect will merely give the locality, name the existing building and state that it is to be altered to a primary school for "x" pupils and once again, but this time, unavoidably so, the extent of the service will only become evident at the final site meeting to all the parties concerned with the implementation of the required service.
- 3.5 Temporary relief for overflow is always provided for by means of prefabricated structures (to be re-used at a later date) and is considered necessary when (a) the pupil enrolment exceeds 750, in the case of a full-sized school, and a new school is either not yet warranted or where there are insufficient funds or there is no suitable site, or (b) an undersized school has an excessive pupil enrolment and there are insufficient funds or a shortage of time to provide the necessary additional accommodation.
- 3.5.1 The letter of appointment to the Private Architect will clearly define both the nature and extent of the service required.
4. THE STANDARD PLANS
- 4.1 Even in the case of alterations and/or additions the Private Architect will, at the first site meeting, be given prints of the drawings or the latest accepted standard units for a primary school which he is instructed to use (a) as a guide towards the size and

internal details of a unit, be it a classroom or any other standard element; (b) as a guide to possible future requirements if, in spite of the required service, the school building will still be undersize, or (c) the complete adaptation of the transparencies when the additions are of such a nature as to warrant a complete unit block. This is only advisable when the aesthetics of the standard unit is congruent with the aesthetics of the existing school. If the aesthetics are not congruent or complimentary then the standard drawings must only be used as a guide with regard to the accommodation requirements.

- 4.2 As an aid to the Private Architect, the prints of the standard plans are particularly useful because private architects are not school specialists with a knowledge of the accepted norms of the various elements and units in the building of a primary school. By the very act, therefore, of supplying the private architects with the standard drawings as a guide, and issuing instructions for the strict adherence to the internal details, the TPA are assured of the provision of accepted standards eliminating all possibilities of a comeback.
- 4.3 Where a completely new block to be built is made possible with the adaptation of transparencies of the standard drawings, this is insisted upon in the interests of proved effectiveness in the function of the service provided and never resorted to as a means of reducing the architect's fees. Since the line of discernment between congruency with the existing building is determined by the Liaison Architect, the resultant insistence on the use of a standard building, by the Liaison Architect, as acceptable aesthetically, because of the Liaison Architect's acquired perception, often is the cause of dissatisfaction by the Private Architect and results in a subsequent dampening of his initiative, by virtue of his inherent creative instinct.
- 4.4 In favour of the use of standard plans and details, developed since the last World War, mention must be made of the American, William Caudill (1954, pp 16-17), who stated that:

"Historians might say that 1950 brought a new light to educational architecture - a new movement based on the needs of the pupil (whether or not 1950 goes down in the history books as a turning point toward improvement

of school buildings, it can certainly be said that 1950 represents a year in history when for the first time a large majority of architects and educators throughout the entire nation got together to try to solve their common problems. Many conferences were held where the average architect and the average educator participated; consequently the average school building began to approach the quality of more advanced prototypes ...

... within the new crop of young architects and educators there are many who have caught the pupil theme idea with aims to perfect it. Today architects and educators everywhere are beginning to see the value of working together, jointly, to plan schools based on the need of the pupil. Finally we are beginning to break the bonds of preconceived spaces and shapes".

- 4.5 Opposed to the use of standard plans, quite a few architects, in response to the Questionnaire, voiced the opinion that it should be their prerogative to experience the same traumas as the TPA school architects in proceeding through the full gambit of research to arrive at either the same solutions or possible better solutions. Invariably though they were content to accept that all standards were not haphazardly arrived at and did indeed have merit. But this opinion was only shared after careful explanation of the steps involved in arriving at the various solutions.

5. THE COMMISSION

- 5.1 The standard form of appointment (Appendix B1) omits to convey to the Private Architect the extent of the service, the restrictions with regard to the conformity to the standard design and the possible fragmentation of the architect's services.

6. SUMMARY

- 6.1 The object and purpose of the study in this chapter was to endeavour to bring out the 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.



- 6.2 The problems encountered with the remuneration on a time basis are very real involving two major disadvantages.
- 6.2.1 In the first place, the Private Architect is required to painstakingly keep an accurate record of all the time spent on the project by each individual involved. This record of time must be acceptable to the TPA and should it not be so, this may be either difficult or impossible to disprove. This is all most unsavoury and unscientific.
- 6.2.2 It is logical that this system will favour the inefficient or slow concern since there is no control over the actual time to be spent and since the reimbursement is quid pro quo, there is no incentive.

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 over¹ 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

¹This 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 fort  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 DPC¹ 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)

¹DPC 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.

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APPENDICES A - 1-3
QUESTIONNAIRES



APPENDIX A1 -
Questionnaire to Private Architects
Part One



SUBJECT: An investigation into the liaison mechanism between architects in the Transvaal Provincial Administration and architects in the private sector in respect of school buildings.

QUESTIONNAIRE: PART ONE

Please answer the following questions by placing a symbol in the respective block with a symbol meaning as follows:

- A. Superfluous information. _____
- B. The architect should ascertain this information as and when required. _____
- C. The Transvaal Provincial Administration should volunteer this information:
 - C.1 With the letter of appointment. _____
 - C.2 After architect's acceptance of the commission. _____
 - C.3 At handing over of the site A. _____
 - C.4 At final approval of the sketch designs. _____
 - C.5 Later; please state when. _____

Section A: Description of the Building to be designed.

- 1. Broad outline description of the project (New or alterations & additions). _____
- 2. Schedule of accommodation with tolerances. _____
- 3. The nature of the design brief. _____

Section B: The Site.

- 1. The exact location of the project. _____
- 2. Site to be defined. Surrounding atmosphere, virgin or developed, scope. _____
- 3. Site detailed with existing buildings, if any, countour plan, existing services, if any, _____

Section C: The Cost.

- 1. The projected cost. _____
- 2. Cost restrictions. _____

Section D: Time Scale: Anticipated dates

- 1. Site handover. _____
- 2. Sketch designs due. _____
- 3. Delay for approval of designs. _____
- 4. Date for questions and answers. _____
- 5. Completed working drawings. _____
- 6. Anticipated date of completion of erection. _____

Section E: Extent of professional services and remuneration

- 1. Extent of professional services. _____
- 2. Basis of remuneration for professional services. _____
- 3. Compensation for disbursements. _____
- 4. Conditions of employment and articles of agreement. _____
- 5. Stages of possible termination of services. _____
- 6. Type of supervision (full or partial) _____
- 7. Possible effects of non-acceptance of commission. _____

Section F: Organisational Framework

- 1. Details of professional team. _____
- 2. Architect's rôle in the team. _____
- 3. The name of the TPA liaison officer. _____
- 4. Individual at site meeting defined. _____

Section G: Restrictional Framework

- 1. Required design documentation (extent). _____
- 2. Minimum standard of design presentation. _____
- 3. Criteria for adjudication of design. _____
- 4. Flexibility of "standards". _____
- 5. Legal restrictions _____
- 6. Standards or restrictions for drawings. _____
- 7. Policies re siting of building(s). _____



APPENDIX A2 -
Questionnaire to Private Architects
Part Two



PART TWO

Please answer the following questions with short descriptive answers:

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 dcomentation ?
.....
.....
.....
.....
4. Will a detailed "handbook" or "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 question ?
.....

APPENDIX A 2 - Questionnaire to private architects Part Two



APPENDIX A3 -
Questionnaire to officials

QUESTIONNAIRE TO OFFICIALS

An investigation into the liaison mechanism between architects in the Transvaal Provincial Administration and architects in the private sector in respect of primary school buildings.

QUESTIONNAIRE USED IN INTERVIEWS WITH OFFICIALS

The following questions were put, and a summary of each answer was recorded separately.

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 presently used letter of appointment conveys sufficient information to the Consultant Architect ?
3. Do you think that a comprehensive "handbook for procedure 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 ? If so, what single factor do you think is the most important ?



APPENDICES B - 1-3
LETTERS OF APPOINTMENT



APPENDIX B1 -
Letter of Appointment - Sketch
design and working drawings



In your reply please quote:

W. Item

Tel.

Mr

TRANSVAAL DEPARTMENT OF WORKS
PRIVATE BAG X228
PRETORIA
0001

Sir/Gentlemen

APPOINTMENT AS ARCHITECT

SERVICE

1. This Department has decided to appoint you to do the architectural work in connection with the above-mentioned service, subject to the relevant Departmental conditions.
2. Acceptance of the commission is an undertaking on your part to give preference to this work. To avoid any delays in the planning and execution of the service it is imperative that the dates agreed on for the submission of the sketch plans, working drawings etc. be adhered to. It here are factors which make a delay unavoidable, you are requested to submit promptly a motivated request for an extension of the agreed submission date. This request must be directed to the Section SERVICE CONTROL.

With regard to supervision on this service, this will be decided on acceptance of the tender.

3. Close co-operation between the various consultants must be established by you. The following consultants have been appointed:

Structural:

Mechanical:

Electrical:

Civil:

Quantity Surveyor/s :

4. The liaison officer of the Department of Works will get in touch with you as soon as it is possible for him to arrange a site meeting to enable you to start with the service.
5. All sketch plans must be handed in at the office of the Chief Architect of the Transvaal Department of Works.
6. You are advised to make certain that you have the latest edition of the Department's standard specification for building work.
7. All documentation must be metric measurement and in English/Afrikaans.

/2. ...

APPENDIX B 1 - Letter of appointment (sketch design and working drawings)



8. In the preparation of drawings only the following scales will be accepted:
 - 1:500 (site plans)
 - 1:200 (site plans and sketch designs)
 - 1:100 or 1:50 (working drawings)
 - 1:20 or 1:25 (details: not both on the same service)
 - 1:10; 1:5; 1:2 and 1:1 (details)
9. When planning, the removal of trees on the site must be limited to a minimum.
10. Accounts must be submitted in triplicate with Item
Number quoted thereon.
11. The Drawing and Item numbers and the exact description of the service must be indicated on the sketch plans and working drawings.
12. Fees will be paid in accordance with the Statutory Scale of Fees in respect of the minimum fees chargeable by architects for professional services. (Notice in terms of Section 7(6) of the Architects' Act, 1970 (Act 35 of 1970)).
13. Should you be prepared to accept this appointment, please advise me in writing.

Yours faithfully,

DIRECTOR OF WORKS



APPENDIX B2 -
Letter of Appointment -
Working drawings only



In your reply please quote:

W

Mr/Mrs/Miss

Tel.

TRANSVAAL DEPARTMENT OF WORKS
PRIVATE BAG X228
PRETORIA
0001

Sir/Gentlemen

APPOINTMENT AS ARCHITECT:

SERVICE:

.....

1. This Department has decided to appoint you to prepare the tender documents, viz. working drawings and specifications from the Department's sketch designs which are to be procured by you and discussed; with the Chief Provincial Architect(.....) Telephone.....) before commencing with the working drawings.

2. It must be understood that your acceptance will be an undertaking to give preference to this work. With regard to the supervision over the service, this will be decided upon at the acceptance of the tender.

3. Close co-operation between the various consultants must be established by you. The following have been appointed:

Structural:

Mechanical:

Electrical:

Civil:

Quantity Surveying:

4. All documents must be handed in at the office of the Provincial Architect, Transvaal Department of Works. Final approved working drawings etc. must be submitted before.....

5. You are advised to make certain that you have the latest edition of the Department's standard specification for building work.

6. All documentation must be in metric measures and in English/Afrikaans.

7. By way of planning the removal of trees on the site must be limited to a minimum.

/2.



8. Accounts must be submitted in triplicate with Item
quoted thereon.
9. The item number and the exact description of the service covered by
the tender documents must be indicated on the drawings and specifi-
cations without exception.
10. Fees will be paid in accordance with the latest Notice in respect of
the minimum fees chargeable by architects for professional services
as applicable to partial services (Clause 5) (The whole=.
11. Should you be prepared to accept this appointment, please advise
me in writing.

Yours faithfully,

DIRECTOR OF WORKS



APPENDIX B3 -
Tender advice and appointment
for supervision



W.

Tel

Mrs/Miss

Transvaal Department of Works
Private Bag X228
PRETORIA
0001

.....
.....
.....
.....

Sir/Gentlemen

.....
.....

The Department has accepted the tender of
at B for the execution of the abovementioned
service.

You are required to exercise full supervision during the execution
of the service.

The original drawings must be handed in on completion of the
service.

Yours faithfully

DIRECTOR OF WORKS

The Regional Representative
Transvaal Department of Works
Private Bag X
.....
.....

Copy for your information.

DIRECTOR OF WORKS



APPENDICES C - 1 & 2
OBSOLETE AGREEMENTS



APPENDIX C1 -
Conditions of employment for architects


 UNIVERSITEIT VAN PRETORIA
 UNIVERSITY OF PRETORIA
 YUNIBESITHI YA PRETORIA

CONDITIONS OF EMPLOYMENT FORMING ARCHITECTURAL
 SERVICES AS PRACTITIONERS FOR THE TRANSVAAL DEPARTMENT OF WORKS

(Special Agreement approved by the Transvaal Department of Works and the Transvaal Provincial Institute of the Institute of South African Architects).

JUNE, 1959, REVISED OCTOBER, 1971

PART I : GENERAL CONDITIONS

1.1 APPOINTMENT AND DEFINITIONS

1.1 (a) DEFINITIONS:

- (i) The term "Works" shall mean the building project referred to in the Architect's letter of appointment.
- (ii) The term "Site" shall mean the land on which the Works are to be erected.
- (iii) The term "Architect" shall mean the Architect referred to in the covering letter of appointment.
- (iv) The term "Department" shall mean the Transvaal Department of Works.

(b) APPOINTMENT:

The appointment of the Architect is made subject to the following conditions:

1.2 SERVICES GENERALLY:

The Architect shall, in the carrying out of the duties set out below, do and perform all acts and things connected with the Works, which are usually done and performed by Architects in the practise of their profession, and shall give advice upon any matter which the Department may from time to time require in connection with the Works. Except, and in so far as the duties of the Architect are limited by the following provisions and/or his appointment, he shall perform all such duties and exercise all such powers as may be described in the building contract with the Contractor, promptly, efficiently and in due order and sequence so as to give the Contractor no grounds for complaint or cause for claim against the Department.

1.3 CONSULTANTS' WORK:

- 1.3 (a) Consultants for work not normally performed by Architects shall be appointed by the Department as hereinafter described and their professional fees shall be paid by the Department on certification by the Architect that the consultant service in respect of which the consultant is claiming fees, has been performed.

/2. ...



- 1.3 (b) The Architect shall act as the co-ordinator and shall check the work of the consultants in so far as it may be necessary to ensure that all work of the consultants is integrated into the Works.
- 1.3 (c) If, in the opinion of the Architect, the services of a consultant are required for a particular aspect of the Works and the Department itself does not elect to undertake such services, the Department may appoint a Consultant to carry out such work.
- 1.3 (d) Notwithstanding the provisions of 1.3 (c), the Department reserves the right to decide when the services of a consultant will be required for a particular portion of the Works in which event the Department will make known its decision in writing to the Architect.
- 1.3 (e) The Consultants' estimates of cost for those portions of the Works for which they have been appointed, shall be included as separate items in the estimate required in terms of clause 2.3.

1.4 INCAPACITY OF ARCHITECT

If the Architect shall become incapacitated or die or become unable to perform his duties under this Agreement, the Architect or his representative shall, if requested to do so by the Department, hand over all drawings, documents and papers whatsoever relating to the Works, provided that there shall be a lien on the said drawings, documents and papers until such equitable proportion of his remuneration shall be agreed upon and paid, or in default thereof, determined as provided for in clause 4.1.

1.5 TERMINATION OF APPOINTMENT

The appointment or engagement of the Architect may be terminated by the Department or the Architect at any time upon reasonable notice being given with the proviso that services of a quasi-judicial nature in respect of that portion of the Works already done under his supervision, must still be performed by the Architect.

On the termination of the Architect's appointment the remuneration shall be confined to such equitable proportion as shall be due to the Architect upon the date of such termination or as shall be determined as provided for in clause 4.1.

1.6 CLERK OF WORKS

The employment by the Department of a clerk of works shall not relieve the Architect of any responsibilities under this appointment.

1.7 QUANTITY SURVEYOR

When necessary the Department shall engage a Quantity Surveyor to prepare Bills of Quantities for the Works, to prepare certificates for payment to the Contractor, to adjust or remeasure variations to the building contract and for such



other duties as may be incorporated in the Department's building contract documents. The Architect, if required, shall within the scope of his appointment provide the Department with all information for the above purpose.

The Architect shall furnish the Department with all reasonable information required to enable a Quantity Surveyor to prepare the Bills of Quantities.

1.8 TENDERS

Tenders for the Works, including work covered by consultants, shall be called for by the Department.

The Architect, may and shall when required, and without extra remuneration, render to the Department his skilled and confidential advice on the firms tendering for the performance of the Works and he shall further, if requested to do so, advise the Department on the acceptance or refusal of any tender.

1.9 CONTRACT DOCUMENTS

All Contract Documents shall remain in the custody of the Department. If the Architect is required to carry out full supervision as provided for in clause 2.4 (a), the Department shall furnish the Architect with a true copy of all Contract documents.

1.10 AUTHORITIES

The Architect shall generally comply with the by-laws of any Local Authority having jurisdiction in the area in which the Site is situated, and shall submit to such authority for record purposes one complete set of working drawings including the site plan, and advise the Department when he has done so.

The Architect shall have regard to the rights of private owners, and shall notify the Department of all matters relating to the Works as may come to his notice which may be of immediate concern to the Department. When such matters are of such a nature that the Architect himself is unable to deal satisfactorily with them, these shall be referred to the Department for action.

1.11 POSSESSION OF DRAWINGS, PRINTS, ETC.

1.11 (a) At a time to be mutually agreed upon, all the original drawings shall be handed to the Department and shall remain its property. The Architect, if he so desires, shall be entitled to one complete set of paper prints of all drawings and copies of other contract documents for his retention.

1.11 (b) On completion of the Works, the Architect, whether he is required to carry out full or partial supervision, will be required to furnish to the Department 1:100 scale appropriation plans showing the Works as finally completed.

/4.



- 1.11 (c) The Architect, while in possession of the original working drawings and details and other documents shall, as necessary, furnish copies for the use of any contractors who may be employed by the Department in respect of the said Works, to enable them to carry out the Works in a proper manner.

PART 2: PROFESSIONAL DUITES OF ARCHITECT

2.1 PRELIMINARY DOCUMENTS

The Department shall define the Site and either it or any other Department of the Provincial Administration shall provide the Architect with a schedule of requirements for the Works.

The Architect shall acquaint himself with the Site and take such levels and dimensions as he may require to prepare a Sketch design which shall be submitted to the Department, or to such other department as may be instructed, within a time to be agreed upon.

The following informaton shall be shown:

(a) THE SITE:

- (i) boundaries, fencing and gates;
- (ii) approaches and roads within the site;
- (iii) contours related to a fixed datum;
- (iv) excavations and filling around buildings where site conditions make such cut and fill necessary;
- (v) special or extraordinary features such as rock outcrops, large trees, etc;
- (vi) existing buildings, gardens, etc.;
- (vii) an indication of the layout of playing fields - all to a scale of not less than 1:500.

(b) THE BUILDINGS:

- (i) plans of all floor levels, with names and room sizes indicated, sections and elevational treatment, all to a scale of not less than 1:200 and not more than 1:100;
- (ii) levels of ground floors and finished ground levels outside the buildings which shall be figured in relation to a fixed datum height;
- (iii) general finishes.

(c) SERVICES:

- (i) the position, size and pressure of a water connection
- (ii) the position and depth of a sewerage connection;
- (iii) the position and sizes of conservancy tanks required by the Local Authority if this is the system in operation;
- (iv) the position and sizes of septic tanks and the means of disposal of effluent with special emphasis on the depth and porosity of the soil.



(d) GENERAL:

Such further particulars as may be called for.

(e) WEATHER CONDITIONS:

If called for the Architect shall give a description of weather conditions in the area and show how he has designed the building(s) to meet these conditions.

The Architect shall also submit a preliminary estimate of the cost of the whole of the Works as itemised in the schedule, Annexure "A" and a list of proposed finishes.

If the Architect's proposals are not acceptable to the Department, the Architect shall, without extra cost to the Department, amend the preliminary documents prepared by him to the satisfaction of the Department, provided that there is no change in the stated requirements.

2.2 ADDITIONAL SERVICES

In the event of a disproportionate amount of work being required in connection with the surveys and measurement of existing buildings, the architect shall notify the Department accordingly. If the claim is reasonable, steps shall be taken to -

- (a) Provide assistance to the Architect in the form of suitable documents, or
- (b) remunerate the Architect suitably for his services in the preparation of such documents, in addition to the remuneration provided for in Part 3 of this Agreement.

2.3 WORKING AND DETAILED DRAWINGS AND SPECIFICATION

The Architect, on receipt of instructions to do so, shall, within a reasonable time as agreed upon, prepare complete working and detail drawings, necessary specifications and specification schedules for the Works. Prime cost items and provisional sums shall only be included on the written consent of the Department.

On the handing over of the completed documents, the Architect shall submit to the Department a revised estimate of the cost of the whole of the Works. (See clause 1.3 (e) ante.)

2.4 SUPERVISION

At any time before the commencement of building operations the Department shall decide and shall notify the Architect in writing of its decision to avail itself of the Architect's services for (a) the full or (b) the partial supervision of the Works.

- 2.4 (a) Full supervision shall be term used when the Architect is called on to carry out the full professional services customarily performed by an Architect in the supervision and administration of a building contract.



The Architect's duties shall specifically include the administration of the building contract and inspection and supervision of the Works during construction, in such way and at such times as will ensure that the Works are being executed in general accordance with the contract documents, the certification of the acceptance of materials and workmanship for the issue of certificates for payments in favour of the Contractors by the Quantity Surveyor, the issue of variation orders and instructions as may be necessary and generally to safeguard the Department's interests under the contract(s).

- 2.4 (b) Partial supervision shall be the term used when the actual supervision and control of the Works is undertaken by the Department with the Architect acting in an advisory capacity to the Department.

The Architect shall give assistance to the Department in the interpretation of his documents and shall, when necessary or required to do so by the Department, correct or amend plans and other documents prepared by him.

The Architect's duties shall include regular visits to the Works. Such visits shall, whenever possible, be prearranged and carried out together with the area inspector of works or his inspector of works or his representative. His duties shall not include the administration of the contracts nor the issue of variation orders or progress certificates and instructions or letters to the Building Contractor.

2.5 REPORTS, ETC.

The Architect shall report to the Department upon the progress of the Works and performance by the contractors of their obligations under the contracts.

When called upon by the Department the Architect shall, if entrusted with full supervision, prepare statements of expenditure and supply such information relevant to the Works as required by the Department.

2.6 CERTIFICATES

The Architect if undertaking full supervision shall, in consultation with the Regional Representative of the Department, issue first delivery and completion certificates as provided for in the building contract and in the form prescribed by the Department.

2.7 ADDITIONS AND OMISSIONS

If the Architect is required to carry out full supervision of the building contract he is authorised to give any orders on behalf of the Department which may be necessitated

by constructional emergencies, and he is also empowered to authorise such deviations from and alterations and additions to the building contract as he may reasonably consider desirable for safeguarding the interests of the Department in the carrying out of the said contract, provided that no expenditure in excess of the contract amount results therefrom.

If any contemplated variation order is likely to increase the contract amount, the Architect shall immediately advise the Department thereof and he shall not issue such variation order without first obtaining the consent of the Department.

All instructions in terms of this clause shall be given immediately IN WRITING by the Architect, by means of a variation order. Such variation order shall be submitted to the Department with an estimate of cost and upon approval will be sent to the supervising authority and Quantity Surveyor by the Department.

2.8 RECORDS

The Architect shall keep the necessary records together with all relevant correspondence and communications in connection with the Works, for submission to the Department if called upon to do so.

2.9 ATTENDANCE AT MEETINGS

The Architect shall, when required to do so and without extra remuneration, attend meetings of the Department and committees for the purpose of submitting or explaining any drawings or documents, or of giving information or advice in regard to the Works or any matters arising therefrom.

PART 3 : REMUNERATION

3.1 SPECIAL AGREEMENT

The remuneration for the professional services of a practising Architect shall be governed by the stipulations of this Special Agreement. Payment of fees due to the Architect shall be made in the manner described in Clause 3.3 below.

3.2 PROFESSIONAL FEES

3.2 (a) Save as is otherwise provided in this Agreement the Architect shall be remunerated at the rate of (6%) on

(i) the amount of the signed Building Contract of the Works less the cost of any Works handled by consultants and included in the Building Contract:

OR

(ii) the final cost of the Works if this amount exceeds the amount of the signed Building Contract, less the cost of any Works handled by consultants and included in the Building Contract;

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OR

(iii) the estimated amount, as accepted by the Department, for the building work when (i) and (ii) above are not applicable and when the work is to be executed departmentally.

3.2 (b) When a consultant is appointed in terms of Clause 1.3 for any portion of the Works or the Department itself undertakes the work as consultants, the Architect shall in addition to the remuneration as provided for in clause 3.2 (a) be remunerated at the rate of four per cent (4%) on the costs of the work on which the services of the consultant or consultants are engaged. Such costs shall be:

(i) the sum of the signed contract amounts for any such work;

OR

(ii) the final cost of any such work if this amount exceeds the signed contract amounts;

OR

(iii) the amount of the estimates, as accepted by the Department, for such work when (i) and (ii) above are not applicable and when such work is to be executed departmentally.

3.2 (c) Where the Architect is required only to provide partial supervision in terms of sub-clause 2.4 (b), his fee shall be reduced by one per cent (1%) on the cost of the work as set out in sub-clause 3.2 (a) (i), (ii) or (iii) whichever is applicable.

3.2 (d) Where work included in the original working and detail drawings and other documents is not proceeded with

(i) the Architect shall be remunerated separately at the rate of four and a half per cent (4½%) on the cost of such work as set out in sub-clause 3.2 (a) (i), (ii) or (iii), whichever is applicable.

AND

(ii) Where a consultant is appointed in terms of clause 1.3 for any portion of the Works or if the Department itself undertakes the work of a consultant, the Architect shall in addition be remunerated at the rate of four per cent (4%) on the cost of the work for which the services of a consultant have been engaged.

3.2 (e) Where the Architect is required to design future extensions in order to decide on the planning of the present programme, he shall prepare preliminary sketches to the satisfaction of the Department in terms of clause 2.1, and shall be remunerated for the said work at the rate of one half per cent (½%)



on the estimated cost of the building work of the whole of the future extensions. At such time as this work shall proceed, the Architect shall be paid one per cent (1%) as described in Clause 3.3 (a) less previous payments made.

3.3 WHEN FEES ARE PAYABLE

The Architect shall be entitled to remuneration as set out below on the completion of the several stages of the services rendered by him. Such remuneration shall be regarded as payments on account to be finally adjusted on the basis provided for in clause 3.2 above. The payments set out in clauses 3.3 (a) and 3.3 (b) shall be based on estimates accepted by the Department and the payments set out in clause 3.3 (c) shall be based on the signed contract amount.

3.3 (a) Sketch plans and Estimates

Upon acceptance of the Sketch Plan and estimate and the services provided for in clause 2.1, the Architect shall be paid an amount equal to:

(1) One per cent (1%) of the following:

(i) estimated cost of the building exclusive of special services;

AND

(ii) estimated cost of special services

AND

(2) half of one per cent ($\frac{1}{2}\%$) on the estimated cost of building for any future development as described in clause 3.2 (e).

3.3 (b) Working Drawings, Details and Specification, etc.

On acceptance by the Department that the working drawings, detail drawings, specification and specification schedules, etc., as provided for in clause 2.3 are completed and that the services as set out in clause 1.3 (b) have been rendered, the Architect shall be paid the following amounts:

(i) Four per cent (4%) on the estimated cost of the buildings (exclusive of special services less previous payment under clause 3.3 (a) (i) above; and

(ii) Four per cent (4%) on the estimated cost of all special services less previous payment under clause 3.3 (a) (ii) above.

When the estimated cost of the Works exceeds R200 000. (Two hundred thousand rand), arrangements will be made by the Department for interim payments of fees on account to the Architect on a quantum meruit basis during the preparation of the working drawings etc.



3.3 (c) On the due and proper signing of the Contracts for the Works, the Architect shall be paid the following amounts:

- (i) Four and one half per cent (4½%) on the Building Contract (exclusive of all special services) less previous payments made under clauses 3.3 (a) (i) and 3.3 (b) (i) above;

AND

- (ii) Four per cent (4%) on the sum of the contracts for special services less previous payments under clauses 3.3 (a) (ii) and 3.3 (b) (ii) above.

NOTE: Should the estimated cost of building work and/or the estimated costs of special services exceed the building contract amount or the contract amounts for special services, the Architect's fees are to be adjusted accordingly.

3.3 (d) For the full supervision of the Building Contract as provided for in clause 2.4 (a), the Architect shall be paid in instalments amounts equal to one and a half per cent (1½%) of each certificate issued by the Quantity Surveyor and accepted by the Department during the progress of the Building Contract.

3.3 (e) For the partial supervision of the Building Contract as provided for in clause 2.4 (b), the Architect shall be paid in instalments amounts equal to one half per cent (½%) of each certificate issued and/or accepted by the Department during the progress of the Building Contract.

3.3 (f) On completion of the Works, the Architect's total fee on the Building Contract shall be adjusted and shall be paid as follows:

- (1) For full services including full supervision and amount equal to six per cent (6%) on

- (i) the amount of the signed Building Contract less the cost of any Works handled by consultants and included in the Building Contract;

OR

- (ii) the final cost of the Works if this exceeds the Building Contract amount less the cost of any Works handled by consultants and included in the final cost;

LESS previous payments under 3.3 (a) (i), 3.3 (b), 3.3 (c) (i), 3.3 (d).

- (2) For partial services including partial supervision an amount equal to five per cent (5%) on

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- (i) the amount of the signed Building Contract less the cost of any works handled by consultants and included in the Building Contract;

OR

- (ii) the final cost of the Works if this exceeds the Building Contract amount less the cost of any Works handled by consultants and included in the final cost;

LESS previous payments under 3.3 (a) (i), 3.3 (b) (i), 3.3 (c) (i) and 3.3 (e);

OR

- (iii) the estimated amount, as accepted by the Department, for the Works when (i) and (ii) above are not applicable and when the Works has been executed departmentally, less previous payments under 3.3 (a) (i), 3.3 (b) (i), and other payments based upon estimates as accepted by the Department.

- (3) In addition the Architect shall be paid an amount equal to four per cent (4%) on

- (i) the signed contract amounts of special services handled by consultants;

OR

- (ii) the final cost of special services handled by consultants, if this exceeds the signed contract amount;

OR

- (iii) the estimated cost of special services carried out departmentally;

LESS previous payments under 3.3 (a) (ii), 3.3 (b) (ii), 3.3 (c) (ii), whichever are applicable.

- 3.3 (g) Should the Works be postponed for more than six calendar months calculated from the date of receipt by the Department of the complete working drawings, detail drawings, specifications and specification schedules, or should the Works be abandoned at this stage or scheduled for departmental building, the Architect shall, in addition to the fee accruing under 3.3 (b) (i), be paid an amount equal to four and one half per cent (4½%) on the amount of the approved estimated cost of the building work based on the working drawings (exclusive of special services) less previous payments under 3.3 (a) (i), 3.3 (b) (i).

3.4 ABANDONMENT

Should the Works be abandoned during the preparation of the Sketch plans or during the preparation of working drawings, details, etc., the architect shall be paid on a quantum meruit basis.



3.5 ALTERATIONS TO ARCHITECT'S WORK

Should the Department, having approved the Architect's work at any stage, require material alterations to be made to such work, whether before or after the building contract has been entered into, an extra payment shall be made on a quantum meruit basis for the services duly rendered by the Architect.

3.6 REPETITION OF A DESIGN

3.6 (a) Where a building project as a whole in itself is to be repeated on another site under a separate contract from the same set of documents (excepting only the site plan), the Department shall pay the Architect for each re-use of the documents, including the provision of a new approved site plan, an amount equal to three-quarters per cent (3/4%) of the cost of the whole of the Works or, if this amount is not known, on the estimate accepted by the Department.

3.6 (b) In addition to the repetition fee as provided for in sub-clause 3.6 (a) above the Architect shall be paid by the Department, either the fee for full supervision as provided for in sub-clause 3.3 (d) or the fee for partial supervision as provided for in sub-clause 3.3 (e), whichever is applicable.

3.7 ADAPTATION OR STANDARD DESIGNS

3.7 (a) Where a building project is to be erected from standard drawings, details and schedules, the Department shall pay the Architect on a quantum meruit assessment, an amount equal to one and one quarter per cent (1 1/4%) on the cost of the building work including the cost of the reinforced concrete structure for the services as described in clause 2.1, AND:

The marking up of transparent prints, which will be supplied by the Department, showing all titles, ground levels, foundations, soil, waste and stormwater drainage, water supply, fire service, fencing and gates.

3.7 (b) Should the Architect be called upon to alter the standard design or to provide for additional buildings, such work shall be paid for as described in clauses 3.2, 3.3, 3.4, and 3.5.

3.7 (c) The Architect will normally not be called upon to render either partial or full supervision in the case of the adaptation of standard designs.

Should he, however, be called upon to do so, the provision of clauses 2.4, 2.5, 2.6, 2.7, 2.8, 3.3 (d) and 3.3 (e) shall apply.

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3.8 DESIGN FOR FURNITURE

Where special design for furniture, fittings or decorations are required, the fees therefor shall be governed by a further special agreement.

3.9 REIMBURSEMENTS

The professional fees, afore prescribed, shall not include duplication or printing of drawings, or the typing and duplicating of documents specifying the Works, or for subsistence and travelling expenses incurred while visiting the site of the Works, but for those items the following rates shall apply:

3.9 (a) Plan Printing:

- (i) The Architect shall, in addition to his professional fees, be entitled to remuneration for all necessary prints of drawings, and payment therefor shall be made by the Department at the following rates:

Paper	-	standard weight	100c	per	lm ²
Paper	-	airmail	200c	per	lm ²
Paper	-	art texture	300c	per	lm ²
Paper	-	sepia transparent	300c	per	lm ²
Linen	-	opaque	700c	per	lm ²
Linen	-	sepia transparent	700c	per	lm ²

- (ii) Where Consultants make use of private firms, the Department shall reimburse them the actual costs incurred, which is to be verified by receipts.

3.9 (b) Typing and Duplicating

The Architect shall also, in addition to his professional fees be entitled to remuneration for the typing of all documents specifying the works and for all carbon or duplicated copies thereof and payment therefor shall be made by the Department at the following rates:

- (i) For typing in single spacing the full width of an A4 sheet with minimum margins:

Original sheet plus two carbon copies of above - 50c per page.

The above rates include collation and stapling.

- (ii) For typing in single spacing on wax sheets the full width of an A4 sheet with minimum margins:

- (a) Typing of a wax sheet R1,25 per sheet
- (b) Duplicating R0,02 per copy
- (c) Covers R1,00 per set

The above rates include collation and stapling.



3.9 (c) Subsistence and Travelling

The Architect shall, in addition to his professional fees, be entitled to reasonable subsistence and travelling expenses where the site of the Works is beyond a ten mile radius from his office, during the time and on the occasions when it is necessary for the Architect to visit the said site.

Subsistence allowance shall be at the rate of fifteen cents (R0,15) per hour or part thereof.

A first-class railway warrant to and from the Works, where such conveyance is available, will be furnished to the Architect by the Department or, if he chooses, he may use his private conveyance in which case he will be paid for the use thereof at such rate per mile as is or may be prescribed from time to time in the Public Service Regulations for the distance by road from his office to the site of the Works and back.

3.9 (d) Rates Subject to Adjustment

The rates contained in sub-clauses 3.8 (a), (b) and (c) above are subject to adjustment from time to time by a further agreement between the Department and the Transvaal Provincial Institute of the Institute of Architects during the currency of this special agreement.

3.10 REMUNERATION FOR WORK UNDERTAKEN ON A TIME BASIS (AS FROM 7TH OCTOBER, 1971).

Architects registered in terms of the Act	R15,00 per hour or part thereof.
Architect in training and registered in terms of the Act	R10,00 per hour or part thereof.
Other technical assistants	R5,00 per hour or part thereof.

The abovementioned rates are applicable also in cases where work on a time basis is performed under existing contracts.

PART 4 : ARBITRATION

4.1 All disputes of whatever nature, including the interpretation of this agreement and the extent of the rights and duties of the parties thereunder, and whether or not specific provision for arbitration is made in any clause thereof, shall be referred to, and determined by, an arbitrator appointed by the Administrator and the President for the time being of the Transvaal Provincial Institute of South African Architects, and the decision of the Arbitrator shall be final and binding on both parties. Failing agreement on the appointment of an Arbitrator, the provisions of the Arbitration Ordinance (Tv1) No. 24 of 1906, shall apply.



APPENDIX C2 -
Procedure manual for the guidance
of architects (now in disuse)



TRANSVAAL DEPARTMENT OF WORKS

P.O. BOX 228

P R E T O R I A

11th January, 1968.

ADMINISTRATION AND FULL SUPERVISION OF A BUILDING CONTRACT

PROCEDURE MANUAL FOR THE GUIDANCE OF ARCHITECTS



ADMINISTRATION AND FULL SUPERVISION OF A BUILDING CONTRACT

TRANSVAAL DEPARTMENT OF WORKS

The following procedure shall be closely followed by Architects entrusted with Administration of the Contract and full supervision under Clause 2.4(a) of the Conditions of Appointment.

DEFINITION OF TERMS

THE REGIONAL REPRESENTATIVE means the officer/officers deputed to represent the Director of Works, and includes the Inspectors for building and engineering works.

The Architect shall be informed of the name and address of the officer with whom he must liaise.

CONSULTING ENGINEERS mean Engineers appointed for Structural, Mechanical, Electrical or other specialist services and shall include the Departmental Engineers.

1. INVITATION OF TENDERS

1.1 The Architect shall be requested to submit two sets of all contract drawings and specifications to the Tender Section for the invitation of tenders. The drawings are to be folded separately to foolscap size with the drawing numbers uppermost.

2. ACCEPTANCE OF TENDER

2.1 When the Department has decided to accept a tender, the Architect will be advised and given a copy of the letter to the successful Contractor.

2.2 At this stage the Architect will be notified whether the Department requires him to administer and exercise Full Supervision of the service, or to carry out only Partial Supervision. See Clauses 2.4(a) or (b) of the Conditions of Appointment.

3. HAND OVER OF SITE

3.1 When Contract Documents have been completed the Architect will be instructed to hand over the site within 14 days of the date of this letter.

3.2 The site must be handed over in the presence of the Regional Representative and preferably in the presence of all the Consulting Engineers or their representatives. The Architect must make the necessary arrangements with all parties concerned and keep them informed.

3.3. Two "Handing over of Site" forms (T.W. 31) are to be completed on site and signed by the Contractor and Architect, each of whom will retain a copy. These forms are available from the Regional Representative.

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- 3.4 In completion this formality,
- (a) four complete sets of all drawings, specifications and schedules are to be handed to the Contractor;
 - (b) two complete sets as above are to be handed to the Regional Representative for his use.
 - (c) The Department will send two copies of the Bills of Quantities to the Contractor, two to the Regional Representative, one to the Architect and one to the Quantity Surveyor.
 - (d) The Architect must see proof that the Contractor has registered as an employer of labour under the Workmen's Compensation Act, 1941, and note the number of the receipt of the payment of the assessment.
- 3.5 The Architect must point out all boundary pegs and clearly define the site to be occupied by the Contractor. If boundary pegs are missing the Architect must immediately contact the Department so that steps for re-establishment of pegs can be taken.

In defining the site to the Contractor the boundaries of his working area i.e. the area he is allowed to occupy for the erection of the building or buildings, the storage of plant and material, sheds, offices etc., must be clearly demarcated.

- 3.6 Immediately after Handing over Site the Architect must confirm same in writing to the Contractor and send copies of his letter to the Chief Engineer, Private Bag 228, Pretoria, and the Regional Representative for their information and record purposes. The form this letter must take is attached as an annexure to this Manual (see Clause 19).

4. SITE VISITS

- 4.1 The Architect must visit the site at least once a week to inspect the Works and give directions to the Contractor.
- N.B. The date and duration of every visit must be entered in the Site Book.
- 4.2 The Architect should make a standing arrangement for a weekly meeting in collaboration with the Regional Representative, and is to give notice of this to the Consulting Engineers and Quantity Surveyors, Contractor, all nominated sub-contractors, and the Electrical and Mechanical Inspectors. The Regional Staff has a large programme to handle and Architects must arrange Site Meetings to suit the programme of the particular Inspectors in charge of the work.

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5. RECORDS ON SITE

- 5.1. A "Site Book" which remains the property of the Department will be supplied by the Regional Representative and is to be kept in a safe place in the office of the Inspector of Works, or where no office is provided for the Inspector of Works, in the Contractor's Office. Instructions, comments on the work and requests are to be entered in triplicate and signed by the Architect, Inspector and Contractor.
- 5.2. One carbon copy of each page is for the Architect and one for the Contractor.
- 5.3. Instructions issued to the Contractor by the Regional Representative, who will exercise as much day to day supervision as possible, will also be entered in the Site Book and will be verified by the Architect on his next visit. The Contractor shall accept these entries as instructions from the Architect but should he have objection to any ruling he must call for the Architect's decision through the Regional Representative immediately.
- 5.4. The Regional Representative will submit Weekly Reports to the Chief Engineer on the progress of the service.
- 5.5. Copies of all correspondence from and to the Contractor must be forwarded to the Director of Works and the Regional Representative for record purposes.
- 5.6. Instructions to the Contractor must be entered in the Site Book or confirmed to him in writing within seven days.
- 5.7. The Architect shall be responsible for the co-ordination of all services and the Director will advise the Architect of his wishes in regard to supervision of the Nominated Sub-contractor's work.
- 5.8. It is most important that Architects make themselves completely au fait with the Conditions of Contract T.A. 877 and that they ensure that the Contract is executed throughout strictly in accordance with the clauses embodied therein.

6. NOMINATED SUB-CONTRACTORS

- 6.1. A provisional amount shall be allowed in the Bills of Quantities for each of the Nominated Sub-Contractors.
- 6.2. The Department will call for tenders for such sub-contracts, and upon acceptance of tenders, will instruct the Main Contractor to accept a specific tender of a nominated Sub-Contractor in accordance with clauses 28 and 29 of the Conditions of Contract. Copies of this instruction will be sent to the Architect, Quantity Surveyor, Nominated Sub-Contractor and Regional Representative.

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7. VARIATION ORDERS

7.1 The Architect shall be responsible for making out all Variation Orders to be issued to the Contractor, except those to Nominated Sub-Contractors.

7.2 In the case of building and structural work the Architect will send 6 copies on form T.W. 21 to the Chief Quantity Surveyor. Upon approval by the Department, three copies will be returned to the Architect for distribution as follows:

1. The original to the Main Contractor
2. One copy to the Inspector on site
3. One copy for the Architect

Of the remaining 3 copies, one shall be retained by the Department's Chief Quantity Surveyor, one shall be sent to the Commissioned Quantity Surveyor and one to the Regional Representative.

7.3 In the case of Nominated Engineering Services Variation Orders shall be prepared by the Consulting Engineer or Regional Representative (whichever has the administration of the contract) stating the name of the Service, name of the Main Contractor, name of the Sub-Contractor and the work to be done. These Variation Orders (6 copies) shall be submitted direct to the Head Office section concerned for approval and returned to the Consulting Engineer or the Regional Representative who will issue the Approved Variation Order as follows:

1. The original to the Main Contractor
2. Copy to the Main Contractor for issue to the Nominated Sub-Contractor
3. Copy to the Private Architect for information
4. Copy to the Private Quantity Surveyor
5. Copy to the Regional Representative or Consulting Engineer (whichever applies)
6. This copy will have been retained on the Head Office file.

7.4 The omission of the Provincial Sums allowed in the Bills of Quantities and addition of the Sub-Contract amounts will be handled by the Private Architect on advice from the Director.

7.5 Under no circumstances must Variation Orders be issued until such time as the Contract has been signed and the site handed over to the Contractor. All Variation Orders sent to the Department for approval, must be accompanied by a separate note giving reasons for the order, as well as any relevant measurements and an estimate of the cost involved to facilitate the evaluation of the Variation Order. When any Variation Order refers to a Drawing, a copy of the Drawing must be attached.

Where Bills of Quantities form part of the Contract documents, no agreement must be made with the Contractor in connection

/with ...



with any price, measurement, etc. as this is the responsibility of the Quantity Surveyor. For this reason, no Variation Order on quantities must be drafted as "X" yards as agreed" or "at RY.00 as agreed". In place of such phrases, the phrase "to be measured and adjusted on completion" must be used.

If a variation order has the effect that the Contract amount will be amended by 20% (i.e. both by omissions or additions), the Department will negotiate with the Contractor.

No Variation Order must be issued which describes anything as "not measured in Bill of Quantities" or "not measured by the Quantity Surveyor" or "not shown on Drawing by Architect". Remarks of this nature should be made on a separate note and attached to the Variation Order.

7.6 The Contractor must not be authorised to proceed with any variation until approval of the Variation Order has been received from the Department. This instruction must be strictly complied with.

7.7 In the case of Engineering Services executed as Direct Contracts, these will be supervised and administrated by either the Regional Representative, as a Consultant who will be responsible for the issue of all necessary instructions to the Contractor, variation orders and progress payments etc.

Copies of variation orders will be sent to the Architect to enable him to co-ordinate all services on the site.

8. REPORTS

8.1 Once a month the Architect must submit one copy of a short, precise report of his visits, to the Chief Engineer, and send a copy to the Regional Representative.

8.2 Unsatisfactory progress should be commented on in the above report and the Department advised what steps the Architect has taken thereanent. Copies of all correspondence with the Contractor must be sent to the Director and Regional Representative.

8.3 Any suggestions or requests which may result in a Variation Order, may be discussed with the Provincial Chief Architect or submitted to the Director of Works, separately in letter form.

9. CONTRACTORS' CERTIFICATES

9.1 The Regional Representative, or the Consulting Engineer as the case may be, will prepare Valuation Certificates in quadruplicate for the work done by Nominated Sub-Contractors as follows:

1. Original to be sent to the Private Architect
2. Copy to be sent to the Private Quantity Surveyor
3. Copy to be sent to the Mechanical or Electrical Engineer.
4. Copy for retention by Regional Representative.

/N.B.



N.B. This certificate must be prepared and forwarded to the Private Quantity Surveyor to reach him in good time for the inclusion of the payment in his next certificate.

9.2 The Private Quantity Surveyor will prepare the Payment Certificates (8 copies), certify them and submit them all to the Private Architect. The Private Architect will certify and send the Original + 5 copies + the Original Valuation Certificate (9.1) above) to the Director (Attention Chief Engineer), retaining one copy for his own records, and return one certified copy to the Private Quantity Surveyor.

9.3 The 8 copies of the Payment Certificate will therefore finally be distributed as follows:

1. Original for Works Department Accounts.
2. Copy for Provincial Accounts and then to Contractor.
3. Copy for Chief Quantity Surveyor.
4. Copy for Head Office file.
5. Copy for Regional Office.
6. Copy for Private Architect
7. Copy for Private Quantity Surveyor.
8. Copy for Provincial Chief Architect.

9.4 The Original Valuation Certificate will be sent by the Works Department Accountant to the Nominated Sub-Contractor.

10. STANDARD OF WORK

10.1 The Department is entitled to, and demands a high standard of workmanship and finish with the materials specified.

10.2 The Head Office Professional staff, Regional Representative and his delegated officers reserve the right to visit the works at all times.

10.3 Full supervision by the Architect does not relieve the Regional staff of their responsibility as employees of the Administration, for the execution of the works in accordance with the Contract Documents and the Department's accepted standards of workmanship and materials. It is therefore their duty on all inspections to instruct the Contractor (and make the necessary entries in the Site Book, for countersignature by the Architect) in any matters which comprise a breach of the Contract entered into between the Contractor and the Department.

10.4 Any alterations suggested or proposals made to the Architect by the Regional Representative, in the interests of the Administration, must be given due consideration, and the decisions adopted entered in the monthly report to the Chief Engineer - see paragraph 8.1.

/11. URGENT DECISIONS ..



11. URGENT DECISIONS.

The Provincial Chief Architect or senior members of his staff will always be available for consultation.

12. TAKING OVER THE WORKS

12.1 This will normally be divided into two stages:

1. FIRST DELIVERY, which is really the stage at which the Architect and the Regional Representative consider the Works are completed and from which the Maintenance Period begins.
2. FINAL DELIVERY - the stage at which the Works have been completed under the Contract with the exception of such guarantees as run beyond this period, and all defects arising during the Maintenance Period have been satisfactorily made good.

12.2 Should circumstances demand it there can be an additional stage which can come before FIRST DELIVERY and that is BENEFICIAL OCCUPATION.

12.3 BENEFICIAL OCCUPATION

Should the Architect be instructed by the Director to allow part of the Works to be occupied, he shall, in the presence of the Regional Representative and the Consulting Engineers take careful note of the state of the Works and shall advise the Contractor in writing of any item which he considers do not comply with the Contract.

As the Contractor cannot be expected to make good any work damaged through occupation, it will be appreciated that every care must be taken to have the Works completed in terms of the Contract.

13. FIRST DELIVERY

13.1 The Architect shall advise the Director (Attention Chief Engineer) by letter at least two weeks before the time of his intention to take FIRST DELIVERY.

13.2 The First Delivery of the Works must be taken by the Architect and the Regional Representative with the necessary Consulting Engineers and the Contractor, and must be confirmed to the Contractor in writing within seven days, with copies to the Department (Attention Chief Engineer), the Regional Representative and the Private Quantity Surveyor.

13.3 Should the Architect, with concurrence of the Regional Representative, be agreeable to allow any defects to be made good during the Maintenance Period, then he shall be personally responsible for making out a list of items to be attended to on the building work, such list to be sent to the Contractor with his First Delivery letter.

13.4 The Regional Representative or the Consulting Engineer (whichever applies) shall be responsible for making out and

/submitting ..



submitting to the Main Contractor, in writing, lists of items requiring attention on the services of Nominated Sub-Contractors.

14. FINAL DELIVERY

14.1 The Final Delivery of the Works shall be taken by the Architect after the expiry of the Maintenance Period or when all defects have been made good. The FINAL INSPECTION shall be held with the Regional Representative and the Consulting Engineers (if necessary) and all parties shall agree before the Architect accepts the Works on behalf of the Department of Works and advises the Contractor that the Contract has been satisfactorily completed, with the exception of guarantees which run beyond this period.

14.2 The Architect must inform the Contractor, the Regional Representative, the Director of Works and Commissioned Quantity Surveyor in writing that he has taken Final Delivery of the Works.

15. REPORT ON DELAY IN COMPLETION OF CONTRACT

15.1 The Form T.W. 76 must be completed for every Contract, whether there has been a delay or not.

15.2 Immediately on taking First Delivery the Architect shall

- (a) submit to the Director, together with his copy of the First Delivery letter (See 19.4) the form T.W. 76 if the nett delay does not exceed 14 days in accordance with the instructions on the form, or
- (b) submit the form T.W. 76 fully completed with all due recommendations made for any delays, together with a copy of a letter from the Contractor, giving his reasons for delays, (only if the nett delay is in excess of 14 days), as soon as possible after First Delivery.

15.3 It is essential that this procedure and the instructions on the form are followed implicitly, to enable the Department to decide whether the fine for delay should be imposed.

15.4 It is most important that the Architect take all necessary positive steps during the progress of the Contract i.e. that the administration thereof is thorough and strictly in accordance with the Conditions of Contract, entered into between the Administration and the Contractor.

16. DISCUSSIONS ON FINAL ACCOUNT

The Architect must attend discussions on the Final Account if called upon to do so.

17. APPROPRIATION DRAWINGS

The Architect must prepare appropriation drawings of the service indicating the alterations made and the positions of all drains, water supply and fire service, and send his original drawings to

/the Provincial ...



the Provincial Chief Architect within three months of the Completion of the Service.

18. POSSESSION OF DRAWINGS

In terms of Clause 1.11(a) of the Conditions of Appointment, the Architect must hand all his original drawings to the Provincial Chief Architect within three months of the Completion of the Contract, or at such other date as may be mutually agreed upon.

19. STANDARD FORMS

Attached are specimen of the following standard forms referred to in this Manual and the Architect should ensure that he has sufficient stocks available for completion and issue when required.

1. Handing Over Site Form	Clause 3.3
2. Handing Over Site Letter	Clause 3.6
3. Variation Order	Clause 7.0
4. First Delivery	Clause 13.2
5. Final Delivery	Clause 14.2
6. Report on Delay in Completion	Clause 15.1



Ref./Verw. nr.
Date/Datum

.....
.....
.....

Sir/Gentlemen,
Meneer/Menere,

SERVICE/DIENS:
.....

It is hereby confirmed that the site for the above serive
Hiermee word daar bestig dat die terrein vir bogenoemde

was handed over on
diens op

from which date your Contract Period of
oorhandig is, vanaf welke datum u Kontraktydperk van

commenced.
'n aanvang geneem het.

Your attention is drawn to the Conditions of Contract and in
U aandag word op die Kontrak Voorwaardes en in besonder

particular Clauses 17 and 18 thereof.
Klousules 17 en 18 daarvan, gevestig.

Yours faithfully,
Die uwe,

PRIVATE ARCHITECT/REGIONAL REPRESENTATIVE
PRIVATE ARGITEK/STREEKVERTEENWOORDIGER



Ref. No./Aanwysingsner

Date/Datum

.....
.....
.....

Sir/Gentlemen,
Meneer/Menere,

SERVICE/DIENS:
.....

It is hereby confirmed that Final Delivery of the above
Hiermee word daar bevestig dat die Finale Oorname van

service was taken on
bogenoemde diens op aanvaar is.

Yours faithfully,
Die uwe,

PRIVATE ARCHITECT/REGIONAL REPRESENTATIVE
PRIVATE ARGITEK/STREEKVERTEENWOORDEIGER



TRANSVAAL DEPARTMENT OF WORKS
 TRANSSVAALSE WERKEDEPARTEMENT

HANDING OVER OF SITE
 OORHANDIGING VAN TERREIN

Head Office File _____
 Hoofkantoorlêer

Regional Office File _____
 Streekkantoorlêer

RE _____
 INSAKE

Received from the Transvaal Department of Works the site of
 Ontvang van die Transvaalse Werke departement die terrein van

Together with :
 Tesame met:

_____	Copies of Bills of Quantities Afskrifte van hoeveelhedslyste	No. _____ Nr. _____
_____	Copies of Specifications Afskrifte van Spesifikasies	No. _____ Nr. _____
_____	Prints of Drawings Ligdrukke van tekeninge	No. _____ Nr. _____

 Regional Representative
 Streekvertegenwoordiger

Date _____
 Datum

Date _____
 Datum

Workmen's Compensation Act of 1941,
 Werksloosheidsversekeringswet van 1941,

Reg. No. _____

Receipt No _____
 Kwitansienr.

Date _____
 Datum



APPENDICES D - 1-12
PROFORMAS



APPENDIX D1 -
Tender Advice



W

Tel

.....

Transvaal Department of Works
Private Bag X228
PRETORIA
0001

.....

.....

.....

.....

.....

Sir/Gentlemen

.....

.....

The Department has accepted the tender of
at R for the execution of the above-
mentioned service.

Your services for supervision are not required except when
such are specifically asked for by the Department during the
execution of the service, in which case fees will be paid on
a hourly basis in terms of the statutory scale for profes-
sional fees promulgated by notice in terms of Section 7(6)
of the Architects' Act, 1970 (Act 35 of 1970).

The original drawings must be handed in on completion of the
service.

Yours faithfully

DIRECTOR OF WORKS

The Regional Representative
Transvaal Department of Works
Private Bag X

.....

.....

Copy for your information.

DIRECTOR OF WORKS



APPENDIX D2 -
Letter of advice to architect



W 4/2/ Item
Tel.
Mr

TRANSVAAL DEPARTMENT OF WORKS
PRIVATE BAG X228
PRETORIA
0001

Mr/Messrs
.....
.....
.....
.....

Sir/Gentlemen

INSTITUTION:
SERVICE:
ITEM:

1. SKETCH PLANS

1.1 Your sketch plan(s) numbered
has/have been approved.

1.2 The following amendments must be incorporated during Working
Drawing stage:

1.3 YOU ARE REQUESTED AS SOON AS THE QUANTITY AND THE TYPE OF STOCK
BRICKS AND FACE BRICKS ARE KNOWN TO PLACE A PRELIMINARY ORDER FOR
THE BRICKS AT A BRICK MANUFACTURER.

/2. ...



2. ESTIMATED COST

2.1 The Department requires an estimated cost for this service.

3. FINISHES

The finishes must be in accordance with the General Specification W 107/E and the Standard Schedule of Finishes.

4. WORKING DRAWINGS, etc.

Working drawings, including all detail and services drawings, schedules, specifications and all other documents necessary for the proper completion of the service are to be put in hand immediately.

Foundation plans, including 1:20 details of foundations and foundation walling, roof and ceiling plans are to be included.

All drawings, including 1:100 scales, may be done in pencil on paper, provided a good quality rag paper is used and the drawings are of sufficient intensity to produce sharp and clear prints.

5. In preparation of drawings only the following scales will be accepted:

- 1:500 (site plans)
- 1:200 (general site plans: sketch designs, plans, sections and elevations)
- 1:100 working drawings, plans, sections and elevations)
- 1:50 general layouts: window and door schedules
- 1:20 or 1:25 (not both on the same service): details
- 1:10; 1:5; 1:2; 1:1 : details

6. CO-ORDINATION OF DOCUMENTS

You are required to scrutinise the Structural, Electrical and Mechanical Engineers' proposals to make sure that these conform to you wishes and in particular to see that these Engineers are made aware of any fittings of finishes which may influence them in their design.

7. NUMBERING OF DRAWINGS

Drawings are to be numbered/1. /2, /3. etc. starting with site plan as /1, and where drainage and water supply is shown on transparent prints, these must be numbered as above with suffix "W" e.g. 7433/12W

8. SCHEDULE OF DRAWINGS

A schedule of drawings is to be given on the Site Plan sheet.

9. SUBMISSION OF DOCUMENTS

One paper print of each drawing, schedule and draft of any specification must be submitted as soon as possible to the Chief Architect. Final approved working drawings etc. must be submitted before

.....

/3.



10. CONSULTATION WITH CHIEF ARCHITECT

In your own interest and to avoid extensive alterations to your drawings upon completion, you are required to consult the Chief Architect's Section during the preparation of your working drawings, details and schedules.

11. LOCAL AUTHORITY

Upon approval of your drawings, you are required to furnish a set of prints of the 1:100 scales and site plan to the Local Authority for its record purposes only.

Please forward a copy of your covering letter to me.

12. LANGUAGE MEDIUM

All drawings and documents must be done in English/Afrikaans.

Yours faithfully,

DIRECTOR OF WORKS



APPENDIX D3 -
First receipt of sketch designs from
architect



AO (SERVICE CONTROL)

SKETCH PLANS

INSTITUTION

SERVICE

.....

.....

ITEM:

Sketch plans in connection with the above service have been received
on and sent through to the
Education Department on

RECEIVED:

.....

CHIEF ARCHITECT

.....

DIRECTOR OF EDUCATION

DATE:

DATE:

APPNDIX D 3 - First receipt of sketch design from architect



APPENDIX D4 -
Comments for Departmental Planning
Commission



DEPARTMENTAL PLANNING COMMITTEE

Section: IIA(a)(iii)

Tel.: 0566

Refer to: Mrs Hahnel

(a) Sketchplans distributed to MR CANDIOTES on _____
accompanying sketchplans for your comments please.

(b) The plans will be presented at the D.P.C. meeting on _____
for discussion.

(c) Your comments, as well as the sketchplan will be collected from
your office on _____

(d) Institution _____

Service: _____

(e) Comments:



APPENDIX D5 -
After sketch design approval -
Details required by Service Control



Enquiries and Tel. W.

- A CHIEF ARCHITECT
- B CHIEF ENGINEER W & D
- C SERVICE CONTROL

PPC Approval and information required in order to issue instructions to proceed with working drawings:

.....

Institution :

Service:

..... ITEM:

1. Supply the following details:

- (a) Sketchplan estimate R
- (b) Drawing/Folio number:
- (c) Date for working drawings:
- (d) Specification/Bills of Quantities service

2. Plan(s) No. folio has been approved by PPC on with the following amendments:

.....
SERVICE CONTROL

APPENDIX D 5 - After sketch design approval. Details required by service control



APPENDIX D6 -
Variation Order



APPENDIX D7 -
First/Final delivery of Service



Transvaalse Werkedepartement — Transvaal Department of Works

W.

Tel.

Mnr/Mr

Die Streekverteenvoordiger
The Regional Representative

.....

.....

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.....

.....

Meneer

INRIGTING

DIENS

..... ITEM

Eerste/finale oormame van bogenoemde diens is op
..... geneem vanaf

welke datum u onderhoudstydperk van
maande begin.

Die uwe

STREEKVERTEENWOORDIGER

Die Direkteur van Werke

Aandag: Afdeling Grootwerke/Kleinwerke/Afdeling
Diensbeheer

Privaatsak X228

PRETORIA

0001

Afskrif vir u inligting.

STREEKVERTEENWOORDIGER

HENKOB PTA. — 11788

Sir

INSTITUTION

SERVICE

..... ITEM

First/final delivery of the above-mentioned service
was taken on from

which date your maintenance period of
months commences.

Yours faithfully

REGIONAL REPRESENTATIVE

The Director of Works

Attention: Major Works/Minor Works/Service
Control

Private Bag X228

PRETORIA

0001

Copy for your information.

REGIONAL REPRESENTATIVE



APPENDIX D8 -

Report on delay of completion of Contract



TRANSCAAL WORKS DEPARTMENT

T.W. 76

LAORRAYS

REPORT ON DELAY IN COMPLETION OF CONTRACT

Service W

Contractor Contract No.

Amount of Contract R Time for completion months. Damages per day R

Date of handig over site Date for completion Actual date of completion

(i.e.) date of first taking over)

GROSS DELAY DAYS

- (1) Less -
- (a) Days on which the work was delayed during the whole period of construction:-
(Vide Clause 17, Sub-section (2) of Conditions of Contract).
- * (i) Extension(s) granted. days
 - (ii) Inclement weather. days
- TOTAL ALLOWANCES under (a) days
- * NOTE - Give particulars of extentions granted (reference to Variation Orders or Head Office correspondence).

.....

.....

.....

(b) If difficulties occurred which Contractor could not have anticipated, give particulars stating what allowances should be made.
(These difficulties must be such that no ordinary business man of average capacity could have foreseen them and must not be due to Contractors fault, lack of common foresight, or bad methods).

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Allowances under (b) recommended by Regional Representative days.
TOTAL ALLOWANCES RECOMMENDED DAYS.
NET DELAY DAYS.

(2) Has any additional expense been incurred by the Province as a result of the delay?

Place Date Regional Representative

Memo to Regional Representative:

(i) Where the delay exceeds 14 days after deducting allowances under 1(a) and (b), the Contractor is to show cause why the liquidated damages should not be enforced and a copy of the correspondence is to be attached to this report.

(ii) Only one copy of report is required by Head Office. The report should be submitted immediately service is taken over. (Vide Clause 17 (5) of Conditions of Contract).



APPENDIX D9 -
Handing over of site to Architect/Engineer
by Transvaal Education Department



Verwysings No.
Reference No.
Navrac Inquiries
Tel. No.



T.O.D./T.E.D. 200

Alle mededelings moet geadresseer word aan die
Direkteur van Onderwys.

All communications must be addressed to the
Director of Education.

**TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT**

Privaatsak X76
Private Bag X76

PRETORIA
0001

HANDING OVER OF SITE TO ARCHITECT/ENGINEER

1. School: _____ 2. School Board: _____
3. Description of service to be planned.

4. Date agreed upon with architect when final sketch plans are to be submitted _____.
5. Details handed to architect/engineer: _____
6. Drawing No. _____ Folio No.: _____ (Both numbers must be indicated on the final plans.) The drawing numbers of the first set of sketch plans will be ___/A, A1, A2 etc. and the following sets ___/B, B1, B2, etc. ___/C, C1, C2, etc. The folio number always remains the same for every set of sketch plans.
7. Sketch plans must be posted to the Director of Education at the above address or handed in at room A467.
8. The latest approved site plan which is attached hereto must be consulted when additions are made.
9. SEE REVERSE SIDE FOR INFORMATION AND INSTRUCTIONS.

For DIRECTOR OF EDUCATION COMMISSIONED ARCHITECT SCHOOL BOARD SECRETARY

PROVINCIAL ARCHITECT COMMISSIONED ENGINEER PRINCIPAL

PROVINCIAL ENGINEER REGIONAL REPRESENTATIVE TWD MEMBER OF LOCAL BODY/COMMITTEE

P.T.O.



APPENDIX D10 -
Handing over of site to Architect/
Engineer by Transvaal Works Department



T.W. 149

TRANSVAALSE PROVINSIALE ADMINISTRASIE

TRANSVAAL PROVINCIAL ADMINISTRATION

ALLE BRIEWE MOET "DIE DIREKTEUR"
GERIG WORD AAN

Meld verwysing/Quote reference

ALL COMMUNICATIONS "THE DIRECTOR"
TO BE ADDRESSED TO

W _____

TELEGRAMADRES "TRANSWERKE"
TELEGRAPHIC ADDRESS

Item _____



TRANSVAALSE WERKEDEPARTEMENT TRANSVAAL DEPARTMENT OF WORKS

PRIVAATSAK X228 TELEKS: 493
PRIVATE BAG

PRETORIA,
0001

OORHANDIGING VAN TERREIN AAN ARGITEK/INGENIEUR
HANDING OVER OF SITE TO ARCHITECT/ENGINEER

- Skool: _____ 2. Skoolraad: _____
School: _____ School Board: _____
- Beskrywing van diens wat beplan moet word. _____
Description of service to be planned. _____
- Datum soos met argitek ooreengekom waarop sketsplanne ingedien moet word. _____
Date agreed upon with architect when sketch plans are to be submitted. _____
- Besonderhede aan argitek/ingenieur oorhandig: _____
Details handed to architect/engineer: _____
- Tekening no./Drawing no.: _____ Folio no.: _____
(Beide no's. moet op die finale planne aangedui word). Die tekeningno. op die eerste stel planne moet genommer word _____ / A, A1, A2 ens. en daaropvolgende stelle _____ / B, B1, B2 ens. en _____ / C, C1, C2 ens. Die foliono. bly altyd dieselfde.
(Both numbers must be indicated on the final plans). The drawing numbers of the first set of sketch plans will be _____ / A, A1, A2 etc. and the following sets _____ / B, B1, B2 etc. _____ / C, C1, C2 etc. The folio number always remains the same for every set of sketch plans.
- Sketsplanne moet aan die Direkteur van Werke aan bostaande adres gepos of by kamer C413 ingehandig word.
Sketch plans must be posted to the Director of Works at the above address or handed in at room C413.
- Die nuutste goedgekeurde terreinplan wat hierby aangeheg is, moet geraadpleeg word by aanbouings.
The latest approved site plan which is attached hereto must be consulted when additions are made.
- VIR INLIGTING EN INSTRUKSIES KYK ASSEBLIEF KEERSY HIERVAN.
SEE REVERSE SIDE FOR INFORMATION AND INSTRUCTIONS.

Namens DIREKTEUR VAN WERKE
For DIRECTOR OF WORKS

AANGESTELDE ARGITEK
COMMISSIONED ARCHITECT

PROVINSIALE ARGITEK
PROVINCIAL ARCHITECT

AANGESTELDE INGENIEUR
COMMISSIONED ENGINEER

PROVINSIALE INGENIEUR
PROVINCIAL ENGINEER

STREEKVERTEENWOORDIGER TWD
REGIONAL REPRESENTATIVE TWD



INFORMATION AND INSTRUCTIONS TO APPOINTED ARCHITECT ENGINEER

1. GENERAL (Architect and Engineer)

- 1.1 Sketchplans with regard to new schools must be jointly drawn by the architect and the engineer. The names of both must appear on the sketchplans and they must both sign the plans.
- 1.2 Sketch plans must be drawn in the language medium of the school concerned.
- 1.3 North must be clearly indicated on all sketchplans.
- 1.4 Each set of plans must comprise the following:
 - 1.4.1 A full site plan on a scale of 1:500 showing contours; special or extraordinary features such as rock outcrops, large trees, servitudes, etc. all existing permanent and temporary buildings, service and main roads, noisy areas, availability of service i.e. water, electricity, sewerage and stormwater drainage; fencing, gates and type of fence; excavations and filling around buildings where site conditions necessitate such cut and fill; fire service supply mains and hydrants; and any further particulars which may be called for by the Department.
 - 1.4.2 A sketch plan of the existing buildings on a scale of 1:200 (only extensions). Copies of the existing building plans are obtainable from the Transvaal Works Department, but the architect must see to it that the details shown on his sketch plans are a true reflection of the existing buildings and site.
 - 1.4.3 Intended construction method and list of finishes (if not shown on the plan) as well as an estimate of costs, including mechanical and electrical installations.
 - 1.4.4 Soil test results and suitability of site for layout of buildings and sport facilities. (This information must be given after the sketch plans have been approved.)

1.4.5 Six(6) copies of the sketch plans must be submitted for approval to the Transvaal Education Department on or before the date shown on the face of this form.

1.4.6 After the sketch plans have been approved the Transvaal Works Department will furnish the architect/engineer with further instructions.

2. ENGINEER (only new schools)

- 2.1 A contour plan must be submitted to the architect concerned.
- 2.2 The correct position of the boundary pegs must be located in conjunction with the regional representative of the Transvaal Works Department.
- 2.3 The number of the final sketch plan with regard to the site layout submitted for approval must be preceded by the letters WD e.g. WD 4919.
- 2.4 A short report and a preliminary estimate of the costs must be submitted together with the sketch plans.
- 2.5 Before final sketch plans are submitted for approval they must be discussed with the engineers of the water and drainage Section of the Transvaal Works Department.

3. ARCHITECT

- 3.1 The architect must determine whether services such as water, drainage and electricity are available and where the necessary connections can be obtained.
- 3.2 Before sketchplans i.r.o. new schools are submitted to the Transvaal Education Department for approval they must be discussed with the architect of the Transvaal Works Department.



APPENDIX D11 -
Handing over of building site to
Building Contractor



TRANSSVAALSE WERKEDEPARTEMENT
TRANSVAAL DEPARTMENT OF WORKS

T.W. 31

**OORHANDIGING VAN TERREIN
HANDING OVER SITE**

Lêer/File W.

Item No.

Insake kontrak vir
Re contract for

Ontvang van die Transvaalse Werke departement deur—
Received from the Transvaal Department of Works by—

(Naam van firma)
(Naam of firm)

die terrein van
the site of

tesame met —
together with —

afskrifte van hoeveelheidslys No.
copies of bill of quantities

afskrifte van spesifikasie No.
copies of specification

ligdrukke van tekeninge No.
prints of drawings

Die kontraktydperk vir hierdie diens is maande.
The contract period for this service is months.

namens/for Kontrakteur/Contractor

Getuie/Witness

Datum/Date

Hoedanigheid
Capacity

Datum/Date

Ongevallewet van 1941, soos
gewysig
Workmans Compensation Act of
1941, as amended

Reg. No.

Kwitansie No.
Receipt

Datum
Date

**VIR HOOFKANTOORGEBRUIK ALLEENLIK
FOR HEAD OFFICE USE ONLY**

Vir inligting van:—
For information of:—

Hoofingenieur
Chief Engineer

Diensbeheer
Service Control

Subseksie Grootwerke
Sub-section Major Services

Subseksie Kleinwerke
Sub-section Minor Services

Provinsiale Argitek
Provincial Architect

Hoofbourekonaar
Chief Quantity Surveyor

Werktuigkundige Ingenieur
Mechanical Engineer

Elektrotegniese Ingenieur
Electrical Engineer

Water- en Dreineringsingenieur
Water and Drainage Engineer

Registrasie: Bêre, asseblief
Registry: File, please



INLIGTING EN INSTRUKSIES AAN AANGESTELDE ARGITEK/INGENIEUR

1. ALGEMEEN (Argitek en Ingenieur)

- 1.1 Sketsplanne t.o.v. nuwe skole moet gesamentlik deur die argitek en die ingenieur opgestel word. Albei se name moet op die sketsplanne verskyn en die planne moet deur albei onderteken word.
- 1.2 Sketsplanne moet in die taalmedium van die betrokke skole opgestel word.
- 1.3 Die noord moet duidelik op alle sketsplanne aange-
toon word.
- 1.4 Elke stel planne moet uit die volgende bestaan:
 - 1.4.1 'n Volledige terreinplan op 'n skaal van 1:500 toonende terreinkoorte, spesiale of buitengewone eienskappe soos rotsdagsome, groot bome, serwitute ens. Alle bestaande en verplaasbare geboue, diens- en hoof-paaie, raserige gebiede, beskikbaarheid van dienste d.w.s. water, elektrisiteit riolering en stormwaterdreinerings omheining, hekke en tipe omheining; uitgrawings en opvulling om geboue waar terreintoestande sodanige sny en vul noodsaak; hoofbrandbestrydingstoer-
voerpyp en brandkraan; en enige ander besonderhede wat deur die Departement aangevra mag word.
 - 1.4.2 'n Sketsplan van die bestaande geboue op 'n skaal van 1:200 (slegs aanbouings). Afskrifte van die bestaande geboue se planne is vanaf die Transvaalse Werkedepartement verkrygbaar, maar die Argitek moet toesien dat die besonderhede vervat op sy sketsplan 'n getroue weergawe is van die bestaande geboue en terrein.
 - 1.4.3 Voorgenome konstruksiemetode en lys van afwerkings (indien dit nie op die planne aangetoon word nie) sowel as 'n raming van koste, insluitende die koste vir meganiese en elektriese installasies.
 - 1.4.4 Resultaat van grondtoetse en die geskiktheid van die terrein vir plasing van geboue en sportfasiliteite. (Hierdie inligting moet verstrek word nadat die sketsplanne goedge-
keur is).
 - 1.4.5 Ses (6) afdrukke van sketsplanne moet by die Transvaalse Werkedepartement vir goed-
keuring ingedien word voor of op die datum soos op die voorkant van hierdie vorm aange-
toon.
 - 1.4.6 Nadat die sketsplanne goedgekeur is sal die Transvaalse Werkedepartement die Argitek/Ingenieur van verdere opdragte voorsien.

2. INGENIEUR (slegs nuwe skole)

- 2.1 'n Kontoerplan moet aan die betrokke argitek voor-
sien word.
 - 2.2 In samewerking met die Streekvertegenwoordiger van die Transvaalse Werkedepartement moet die kor-
rekte grensplanne bepaal word.
 - 2.3 Die nommer van die finale sketsplan ten opsigte van die terreinuitleg wat vir goedkeuring ingedien word moet voorafgegaan word deur die letters WD bv. WD 4919.
 - 2.4 'n Kort verslag en 'n voorlopige raming moet saam met die sketsplanne ingedien word.
 - 2.5 Voordat finale sketsplanne vir goedkeuring ingedien word moet dit eers met die ingenieurs van die Water- en dreineringsafdeling van die Transvaalse Werkedepartement bespreek word.
- 3. ARGITEK**
- 3.1 Die argitek moet vasstel of dienste soos water, riolering en elektrisiteit beskikbaar is en waar die nodige aansluiting verkry kan word.
 - 3.2 Voordat sketsplanne t.o.v. nuwe skole vir goed-
keuring by die Transvaalse Werkedepartement inge-
dien word moet dit met die Argitek van die Trans-
vaalse Werkedepartement bespreek word.

INFORMATION AND INSTRUCTIONS TO APPOINTED ARCHITECT/ENGINEER

1. GENERAL (Architect and Engineer)

- 1.1 Sketch plans with regard to new schools must be jointly drawn by the architect and the engineer. The names of both must appear on the sketch plans and they must both sign the plans.
- 1.2 Sketch plans must be drawn in the language medium of the school concerned.
- 1.3 North must be clearly indicated on all sketch plans.
- 1.4 Each set of plans must comprise the following:
 - 1.4.1 A full site plan on a scale of 1:500 showing contours; special or extraordinary features such as rock outcrops, large trees, ser-
vitutes, etc. all existing permanent and tem-
porary buildings, service and main roads, noisy areas, availability of service i.e. water, electricity, sewage and stormwater drainage; fencing, gates and type of fence; excava-

tions and filling around buildings where site conditions necessitate such cut and fill; fire service supply mains and hydrants; and any further particulars which may be called for by the Department.

- 1.4.2 A sketch plan of the existing buildings on a scale of 1:200 (only extensions). Copies of the existing building plans are obtainable from the Transvaal Department of Works, but the architect must see to it that the details shown on his sketch plans are a true reflection of the existing buildings and site.
- 1.4.3 Intended construction method and list of finishes (if not shown on the plan) as well as an estimate of costs, including mechanical and electrical installations.
- 1.4.4 Soil test results and suitability of site for lay-out of buildings and sport facilities. (This information must be given after the sketch plans have been approved.)
- 1.4.5 Six (6) copies of the sketch plans must be submitted for approval to the Transvaal Department of Works on or before the date shown on the face of this form.
- 1.4.6 After the sketch plans have been approved the Transvaal Department of Works will furnish the architect/engineer with further instructions.

2. ENGINEER (only new schools)

- 2.1 A contour plan must be submitted to the architect concerned.
- 2.2 The correct position of the boundary pegs must be located in conjunction with the Regional Representative of the Transvaal Department of Works.
- 2.3 The number of the final sketch plan with regard to the site lay-out submitted for approval must be preceded by the letters WD e.g. WD 4919.
- 2.4 A short report and a preliminary estimate of the costs must be submitted together with the sketch plans.
- 2.5 Before final sketch plans are submitted for approval they must be discussed with the engineers of the water and drainage Section of the Transvaal Department of Works.

3. ARCHITECT

- 3.1 The architect must determine whether services such as water, drainage and electricity are available and where the necessary connection can be obtained.
- 3.2 Before sketch plans i.r.o. new schools are submitted to the Transvaal Department of Works for approval they must be discussed with the architect of the Transvaal Department of Works.



APPENDIX D12 -
Details submitted to Transvaal Education
Department



Bepanningslys
Planning List

1. SKOOL:
SCHOOL:

Begroting
Estimate

2. INSKRYWING VIR DIE AFGELOPE VYF JAAR:
ENROLMENT FOR THE PAST FIVE YEARS:

3. SKOOLRAAD:
SCHOOLBOARD:

4. DIENS:
SERVICE:

5. BERAAMDE KOSTE:
ESTIMATED COSTS:

- | | | | |
|-----|---|---|-------|
| (a) | Skoolraad:
School Board: | R | _____ |
| (b) | Begroting:
Estimate: | R | _____ |
| (c) | Argitek/Ingenieur:
Architect/Engineer: | R | _____ |

6. DATUM VAN ARGITEKSAANSTELLING:
DATE OF ARCHITECTS APPOINTMENT:

7. DATUM VAN TERREINORHANDIGING:
DATE OF HANDING OVER OF SITE:

8. BESONDERHEDE VAN PLANNE:
DETAILS OF PLANS:

- (a) Folio Nr.
No.
- (b) Tek. Nr.
Draw. No.
- (c) Argitek/Ingenieur:
Architect/Engineer:

9. EERSTE VOORLEGGING:
FIRST SUBMISSION:

Plan Nr.
No.

10. KOMMENTAAR:
COMMENTS:

T02(a)3 81-1202

APPENDIX D 12 - Details submitted to Departmental Planning
Committee for Departmental Planning Committee
Agenda



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