KOGI STATE PARLIAMENT COMPLEX, LOKOJA: TOWARD FLEXIBILITY IN SPACE UTILIZATION

BY

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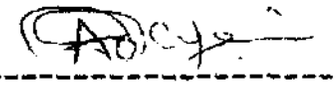
A Thesis Submitted to the Postgraduate School, Ahmadu Bello University, in Partial Fulfillment of the Requirements for the Award of Master of Science in Architecture (M. Sc Arch)

DEPARTMENT OF ARCHITECTURE
FACULTY OF ENVIRONMENTAL DESIGN
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D E C L A R A T I O N

I, Albert Olubamidele Adeyemi of the Department of Architecture, Faculty of Environmental Design, Ahmadu Bello University, Zaria, hereby declare that the work presented in this thesis is a personal academic undertaking executed under the supervision of my mentor, Arc. Mbina of the Department of Architecture, Ahmadu Bello University. It has not been accepted wholly or partially in any previous application for a higher degree and all quotations, information utilized and their sources have been dully acknowledged by way of reference.



Student's Signature

19/12/92

Date

D E D I C A T I O N

This thesis is dedicated to God Almighty, who has given me good health, my wife, Mrs. Beatrice Feyisike Adeyemi, who has endured with me throughout the period of my studies and my children, Aderonke and Adenike Adeyemi.

CERTIFICATION

This thesis entitled Kogi State Parliament Complex, Lokoja: Toward Flexibility in Space Utilization, by Adeyemi Albert Olubamidele, meets the regulations governing the award of Master of Science in Architecture (M.Sc Arch) of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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May God in His infinite mercy bless each and everyone.

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A B S T R A C T

Nigeria is undergoing trasition to the third republic under the civilian government. This is after intermittent military intervention in the political arena of the country.

The bid to attain a democratically elected type of government in 1992 and beyond calls for transitional programme which gives high consideration to grass root democracy. Elections have been held into different arms of the government — Executive and Legislature at different levels. The transitional programme which has now reached advanced stage called for conducive environment under which parliamentary work could be carried out in the old and newly created states.

Some of the existing parliament buildings — Kwara and Ogun States House of Assemblies were designed without consideration in the use of the spaces. Adaptability and modification can not be easily carried out.

This thesis attempted to create a design in response to the challenge posed to one of the newly created states. The design proposal for the complex should portray the

traditional type of architecture practiced in the area, in terms of concept and forms.

The facilities provided in the complex are in tune with the needs of the parliamentarians. The facilities are grouped under the following headings;

- Legislative chamber
- Administration
- Information
- Welfare
- The parliamentarians' office
- Auxiliary facilities.

It is hoped that an architectural insight will be found to cope with the needs and foster the use of flexible space to cater for different functions and this has been possible after a lot of attempts on the design of the complex.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Historical Preamble

Nigeria was made up of twenty-six provinces before Cameroons and Bemenda broke away, (Table one refers). Most of the provinces eventually became one of the present state, except some few ones which include Kabba Province. After a long, hard struggle by the dedicated citizens of the province, the Babangida Administration on August 27th 1991, made the dream of the people come to reality by creating Kogi State which is made up of the people of the former Kabba Province who were in Kwara and Benue States. The headquarter of the new state is Lokoja which had been the headquarter of the province. The problem of making the young state functional politically became apparent.

Isang E. E. (1981), Cross River State House of Assembly page X "We alone regard a man who takes no interest in public affairs, not as a harmless, but as a useless character; and if few of us are originators, we are all sound Judges of policy." From the aforementioned, the importance of participation in the governance of the state by the people through their representatives can not be over-emphasized.

CHAPTER ONE

The government of a nation which is based on democracy has three main super structures. The Executive, the Parliament or Legislature and the Judiciary. Each of these arms of the government performs different functions, the Executive administers or carries out the act of governing, the Judiciary adjudicates while the Parliament or Legislature has the absolute special prerogative power of making laws. At this stage, one may define what legislature is. The International Encyclopedia of Social Sciences volume 9, p. 232 defines legislature as "The group of conscious lawmaking body which is generally composed of one or two relatively large bodies of people in a state or country respectively, who derived its authority from some scheme of representation, most often the population living in a delimited geographical area."

The functions which those arms of the government perform determine the type of structure which should be provided for them. From the aforementioned and from architectural point of view, the functions of law making performed is very important. As such there is the need to provide a befitting, comfortable and durable parliament complex to house this arm of the government. Parliament Complex can be described as the venue where the parliamentarians assembled frequently in order to enact and deliberate on laws and issues that concern the people or population living in a delimited geographical area.

The divergent opinion of people causes disagreements over issues and there should be reconciliation of those disagreements. When there is conflict, there is the need to resolve the conflict. The legislature, apart from making the laws, settles the conflicting ideas through compromise in the parliament.

Going through the history of Greece, Roman and some other ancient world, it is important that the government institutions should be symbolised architecturally since they are designed to communicate with the future generation, the design of this complex will not be an exception.

The comfortability of the parliamentarians is one of the parameters that spur them to work harder so as to make enough progress, the author is concerned with the progress of the state and to achieve this, the complex must possess some essential amenities such as educational, welfare and other supporting facilities in addition to the legislative chamber.

Flexibility in the use of space will allow the interchange of functions, create additional functional space and enlarge the available ones without destroying the main structural components of the building, the principle and parameters which guide a flexible design will be studied and employed in the

design of the complex right from the planning stage to solve the problems highlighted.

In conclusion, the author views the parliament complex differently from the politician. From the political point of view, it is just a place to make or enact laws whereas from the author's point of view, it is the relationship in parts that makes the whole to function.

1.2 Statement of Problems

The effective performance of any legislature in the parliament has a bearing on the availability of tools, comfort and conducive environment and when one examines the existing parliament complex or house of assemblies in the country, it will be observed that functions are not interchangeable in most of the functional spaces. This phenomenon has been brought about by the rigid approach in those designs, such situation has not been allowing the optimum utilization of functional spaces, resulting in:

-- Inadequacy in functional space allocation

-- Ineffective utilization of the complex when there is military intervention in the government

-- Lack of progress in the work of the house.

This thesis is an attempt to solving the problems of non-accommodation as well as that caused by rigidity in design which do not allow the interchange of functions within the available functional spaces and also the problem of creating and enlarging the functional spaces without destroying the main structural components of the building. The author will conduct a study into how flexibility in design can affect space utilization.

1.3 Validity of the Proposal

In a proposal of this nature, it must be shown to have identified very closely related with the goals and aspirations of the parliament. It is only then, there could be a sound basis for such a proposal. Hence, the aims and objectives can be summarized as follows:

-- To provide a conducive venue of deliberations for the parliamentarian.

-- To create a suitable landmark in the capital.

-- To encourage efficient performance by providing adequate facilities in the proposed state parliament complex. This adequate facilities spur the parliamentarians to give efficient service thereby bringing the much needed progress to the state.

-- To examine how flexibility in design can affect space utilization.

-- To provide natural comfort such as lighting and ventilation to achieve good working environment.

-- To utilize the result obtained in the research as a guiding principle in the design of the complex.

-- To achieve an efficient and effective functional integration of parts in the complex.

-- To maintain interaction among the members, which will occur by the use of common amenities.

-- To develop adequate planning scheme for effective spatial and functional organization.

1.4 Motivation

The recent creation of states by the Babangida Administration met the desire of the people after much agitation for the former Kabba Province to become a state. The complexities involved in legislative business and non-availability of a building that conveniently take care of the parliamentarians in the state brought about the need to build a parliament complex.

As a citizen of this young state, the author is keenly interested in contributing to the state by providing a design for the complex which will not only serve as a house for legislation but also a lasting edivice of pride to the entire citizens.

One of the main charges given by the President at the announcement of the state creation was that the governor and parliamentarians in the new states were to be sworn-in along with the ones in the old states after the conduct of the election, this spurred the author in selecting this project.

1.5 Architectural Significance

Flexible designs allow interchangeability of functions, creation, reduction and enlargement of functional spaces at any required time, these permit effective utilization of space. If this method is adopted in the proposed design, it is envisaged that the complex will still meet the needs of the parliamentarians, this is because the flexible design allows the creation of new space if there is increase in the membership.

It is the opinion of the author that the project will be a source of inspiration to the building team and a working model for the young Architects involved in the building industry.

It is envisaged that the research study will propose an architectural design that will not only potray the activity of parliamentarian, but find solution to the problems associated with non-adaptability of functional space in a rigid parliament complex design.

It is envisaged that when flexibility in space utilization is applied, it will meet the need of the users for a long time.

1.6 Scope of the Project

Much as it is the desire of the author to design a total and well integrated parliament complex, it may not be possible to design all the functional spaces which made up the complex, because of time constraint. As such, the design of the complex is intended to be limited to the requirement that can make the functions of the parliament easy to carry out and bring progress to the state. In addition to the legislature chamber, committee rooms and public gallery, the following departments will be provided:

-- Administrative Section

-- Welfare Section

-- Information Section

-- Auxillary Facilities.

1.7 Research Methodology

Data on the existing parliament complexes were obtained through visit to some of the existing House of Assemblies and interviewing some of the staff involved in the running of the assembly buildings. The interview was conducted orally. However, it must be mentioned here that some problems were encountered during the visit. Such problems are: Taking of photograph was not allowed, neither were the drawings made available to me, this is because of security reasons. Reference was also made to the textbooks, magazines, journals and other information from the library source.

The data relating to the site for the proposal were obtained from recorded sources and through the visual survey of the site. These were in addition to library source.

Discussions were held with classmates, friends, lecturers, politicians and administrators.

Table 1:

Province	Headquarter	States Created From the Province	Capital
Sokoto	Sokoto	Sokoto Kebbi	Sokoto Birni-Kebbi
Katsina	Katsina	Katsina	Katsina
Kano	Kano	Kano Jigawa	Kano Dutse
Borno	Maiduguri	Borno Yobe	Maiduguri Damaturu
Ilorin	Ilorin	Kwara	Ilorin
Niger	Minna	Niger	Minna
Zaria	Kaduna	Kaduna	Kaduna
Bauchi	Bauchi	Bauchi	Bauchi
Oyo	Ibadan	Oyo Oshun	Ibadan Oshogbo
Kabba	Lokoja	Kogi	Lokoja
Plateau	Jos	Plateau	Jos
Benue	Makurdi	Benue	Makurdi
Adamawa	Yola	Adamawa Taraba	Yola Jalingo
Abeokuta Ijebu	Abeokuta Ijebu Ode	Ogun	Abeokuta
Colony	Lagos	Lagos	Ikeja
Benin	Benin	Edo	Benin
Warri	Warri	Delta	Asaba
Onitsha	Onitsha	Anambra Enugu	Awka Enugu
Ogoja	Uyo	Akwa-Ibom	Uyo

Table 1 (Con'd)

Province	Headquarter	State Created From the Province	Capital
Bamenda) Cameroon)	Now part	of Cameroon	
Rivers	Port-Harcourt	Rivers	Port-Harcourt
Calabar	Calabar	Cross River	Calabar
Ondo	Ondo	Ondo	Ondo
Owerri	Owerri	Imo Abia	Owerri Umuahia

SOURCE: Map of Zaria Province, by Department of Survey Nigeria, 1958.

CHAPTER TWO

CHAPTER TWO

REVIEW OF LITERATURE

2.0 DEVELOPMENT OF HOUSE OF ASSEMBLY AND CONSTITUTIONAL TRANSITION

2.1 House of Assembly Development and Democracy

The word state refers to a geographically delimit area which has an organized political system with its apparatus of government. A state has her own law making body and financial budget. The states are controlled by the Federal Government, the autonomy of each state will depend on each country where it is operated. The autonomy of the state in United States of America is more than that of the states in Nigeria in terms of finance and area of jurisdiction.

The history of state originated in the ancient world, and the most important of them was the Greeks in the old Greece Empire. The most important proof was the political theories and the practice of the Greeks. By the fifth century B.C, the Greece had started living in a number of city-states, among the most famous of these states are Athens and Sparta. The word city-state is an english translation of the Greek word polis. City-state such as that of Athens consists of Athens and the country area which can be found in her immediate surroundings.

The Greek politics may be said to have three outstanding importance and these can be found in Athens which is one of the city-states in Greeks. Firstly, there was a highly organized system of government. The Athenian political system became a democratical one.

Secondly, the Athen city-state government was governed in accordance with a known constitution and known laws which were made by the people. The rulers who carried out the act of governing were subject to the rules of law and established code.

Thirdly, there were significant contributions by the Greeks to the discussion of fundamental political problems and the development of political theories. An example of the contribution to the theory was that of Plato and Aristotle, the great Greek thinker. Plato described the organization of government of what seemed to him as an ideal community as those who were competent to rule should be carefully selected and trained for the supreme task ahead of them.

In the sixth century A.D, when the Empire in the Western Europe had collapsed, Emperor Justinian ordered his lawyers together and write down the civil laws, the laws written down were to be used for order and justice whereby the people settle their differences and were judged in

accordance with the established laws.

The idea of making laws started and grew in the ancient world to the extent that there arose natural laws. That is the laws which are dictated by nature. These natural laws make a reasonable man to know what is wrong from what is right, and what is naturally right can not be made wrong while what is naturally wrong can not be made right.

In Nigeria, before the advent of Europeans there existed some ruling methods in each locality. For example, in the western part, the 'Obas' with the assistance of Council of Chiefs and that of elders ruled his domain. In the northern part, the 'Emirs' had some personal appointees who assisted him in the act of ruling and sent his decision through the district head to the village rulers who carried out his order. But there was a disparity in the eastern part, where each small family unit and clan had their own separate rulers.

At the advent of the Europeans, the native authority provinces and regions were created for easy administrative purpose. This system was on for many years without the people's representatives in the government of their own country.

The constitutional transition started in 1922 without any representation of the Nigeria citizen in the body which ran the affairs of the country. As time went on, a handful of the citizen were selected to represent the interest of the whole country, this continued until 1954 when the first election took place. Finally, the citizen of the country started to administer their affairs, since 1963 when she had her republic after the 1960 independence from Britain. Each of the regions elects its law makers and the premier, the Premier is the head of the government in the region while the Prime Minister is the head of the federal cabinet. This continued until 1966 January, when the Military took over power.

By 1967, General Gowon's administration created the twelve states which had increased to thirty under different administrations. During the first, second and third republics, each state had her own governor, judiciary and legislature which make her own laws. House of Assemblies were built in each of the old states to cater for the legislatures, so there is the need to build parliament complex in the new states like Kogi.

In conclusion, the development of states and the House of Assemblies originated from the ancient world of Greek and

spread gradually to other parts of the world like United States of America and Nigeria.

Democracy:

The word Democracy came from the Greeks word Demos, meaning 'people' and Kratos, meaning 'rule'.

Different definitions and connotations have been given to the word democracy by different people, among them are:

The Oxford Advanced Learner's Dictionary of Current English (pp. 96) gives the meaning as "A form of government in which the supreme power is vested in the people."

Abraham Lincoln, an American, defined democracy as the "government of the people by the people for the people."

The meaning of this word had been a source of confusion in the society. This word could not take its rightful position in England not until several civil war of the seventeenth century. Also the revolution which took place in the French land has two types of democracies as its aftermath effect. They are the democracies of the physocrats, upon which the modern democracy is based, it is the democracy which is political and not economy while the second one is the democracy which is both political and economy. A more stricking definition was pioneered by Jean Rousseau, he defined it as "the rule of

general will." The totaliterian system of government upon which the former Soviet Union based their government originated from Jean Rousseau definition. It was the opinion of the generality that the civil war fought in Nigeria will herald the era of democracy but Nigeria is yet to be a democratic state.

A state could be said to be democratic when her faith and affairs are determined by her citizen, this is where each person has equal right and share the same priviledges, duties and responsibilities in the society. And also where radio, television and press are freed of government censorship. However, it is noted that democracy is still the wish of the governed in many countries.

2.2 Administrative Set Up of Northern Nigeria in Pre-Colonial Era

This chapter intends to examine the ways and manner by which the Northern Region was being administered before the advent of the Europeans and to trace the tradition by which the people have been governing themselves from ages to the present day sixteen states, and Kogi State in particular.

The administration of the Northern part of the country was carried out by the rulers of each locality and controlled at the centre of each emirate such as Kano, Adamawa, Ilorin

and many others. This was before the advent of the Arabs who came to spread the trans-sahara trade in Nigeria and other West African countries. They came along with Islamic religion which was spread mostly in the northern part of what became known as Nigeria. The Fulanis under Usman-Dan Fodio Islamic Jihad, which conquered and took over the already existing centre of control, (the emirate) established a Feudalistic type of government in which a council of personal appointees assisted the Emir who was the absolute head. Under the Emir's directive are the districts heads who passed instructions from the Emirs to the village heads. The village heads ruled through the council of elders.

In the Yoruba part of the Northern Region, the 'Obas' were the supreme heads. They were assisted in the act of governing by the Council of Chiefs and elders. There was a centralised organised emirate type of government in the Northern Region. The political and the administrative structure of this area formed the basis of the Native Authority System of government that was first introduced in the north and later in the southern provinces by 1900.

The Native Authorities were grouped together to form the provinces for administrative conveniences. Laws were made to legalise and modernise the native authority, a

system which evolved through the centuries into the present day Local Government Authorities. The unit of the administrative set up is the native authority of which there were about seventy of them in the Northern Region. A few of such Native Authorities are: Bida, Ilorin, Kano, Yagba West, Kabba, Igbira, Igala, table 1 refers.

Powers of the Native Authorities were received from the Native Authority laws (No. 4 of 1954). These laws made no distinction between a large native authority like Kano with population of over four million and that of United Hill with a population of about twenty thousand then. The Northern Nigeria is covered by native authorities except Kaduna Capital territory and two township within the development areas - Bussa (Niger Dam) and Bacita (Sugar factory).

The Native Authority laws were made in two ways:

i. By the Chief-in-Council

ii. By the Chief and Council.

In a native authority appointed as chief in council, the chief has power under certain circumstances to make a decision without previous consultation with his council but he must consult with at least two of the council members after he has taken the decision.

decision. He can also make contrary decisions to the advice of his council but in the latter case, he must make an immediate report submission to the governor.

A native authority appointed as chief-and-council, the chief has no power whatsoever to make a decision contrary to that of his council, Also he can not take any contrary action to the majority of the council. In both cases, the chief presides over the business meeting of the council.

The composition of the native council are as follows:

-- Ex-officio members

-- Personal members

-- Nominated members

-- Elected members.

The work of the native authority was carried out either by portifolio councillor or by committee. So, they have council chamber where bills are passed to bye laws and other problems affecting the council and native authority are discussed and decision taken.

The District Officers (D.O) co-ordinate the activities of the districts which made up the native authority and send their report to the provincial administrator who

co-ordinates the activities of the province and reports to the governor of the region.

At the provincial level, representative of each ministry acted as an adviser to the native authority. The provincial administrative officers, that is the provincial secretaries and Divisional Officers had the specific duties of ensuring that the native authorities carry out their duties and government policies.

2.3 Constitutional Transition in Nigeria

Nigeria was the biggest African country which the colonial master depended upon before she attained independence and republic in 1960 and 1963 respectively from Britain.

The country has a recent history but the history of her people is very old. The existence of Nigeria as a country came to being in 1900 when Britain declared Lagos and the area around rivers Niger and Benue a protectorate. The British established its influence and claim over Nigeria at various stages during the nineteenth century. The Royal Niger Company was formed to administer the area but by 1900, the crown took over the administration of the area.

2.3.1 The Amalgamation of the Protectorate and Colony

The country was administered as two separate parts, not until 1914. They are:

-- The Protectorate of Northern Nigeria

-- The Colony and Protectorate of Southern Nigeria.

In 1914, the two protectorates were amalgamated as the colony and protectorate of Nigeria. Between 1920 and 1992, Nigeria had seven constitutions with the eighth one in the making. They are as follows:

-- The 1922 Clifford constitution

-- The 1946 Richards constitution

-- The 1951 Macpherson constitution

-- The 1954 Lyttelton constitution

-- The 1960 Independence constitution

-- The 1963 Republican constitution

-- The 1979 Republican constitution

-- The 1992 Republican constitution which is in the making.

Between 1922 and 1958, the legislative body grew from thirty Europeans to a body of three hundred and twenty elected Nigerians with real legislative power. The Council of Ministers was evolved in 1957 while the Federation of Nigeria was formally established in 1940.

The parliamentary system of government was practiced during the First Republic with the Prime Minister as the head of government while there was a Ceremonial President. The House of Representatives and Senate were maintained at Federal level while in the Regions, House of Assemblies and House of Chiefs were operated in Northern Region. Initially, only the regional House of Assemblies were operated in the Eastern and Western Regions, the House of Chiefs were later operated in addition to the House of Assembly. Later the Middle Western Region was created out of Western Region.

The presidential system of government was praticed during the second Republic with an executive President as head of the government. Both the Senate and Representative Houses were maintained at the Federal level. Between first and the second republics, the four regions have been split into nineteen states, only the House of Assemblies were retained in those states.

The proposed third republic is to be run under the presidential system of government, the House of Senate and Representatives will be maintained at the Federal and the states will maintain only the House of Assembly.

There were military intermittent intervention between the first, second and the third republics, thereby punctuating

the continuous flow in the political arena of the country. It was during the military intervention that the country was split into thirty states from the former four regions. The states created brought about a lot of development both physically and politically, the physical development are in form of building structures such as the different House of Assemblies of the different states.

As the constitutional transition was going on at the Federal level, the Regional governments were not left out. In the Northern Region which is the area of concern, the House of Chiefs and the regional House of Assembly were developing. The political development which started at the region are still developing at the different states.

2.4 Kogi State in the Third Republic

Kogi State is created from the former Kwara and Benue States (Kabba Province). It is her first attempt of participating in the nation's election as an entity in the Federation. It is therefore necessary to have knowledge of the structure of the government as specified in the constitution of the Federal Republic of Nigeria.

The Arms of the Government

The government of Kogi State shall have three arms as follows:

-- The Executive

-- The Judiciary

-- The Legislature.

The Executive:

Section 174, sub-section 5-(2) of the constitution of Federal Republic of Nigeria promulgated by decree number 12 of 1989 states as follows.

The executive powers of a state shall be vested in the Governor of that state and may, subject as aforesaid and to the provisions of any law made by a House of Assembly, be exercised by him directed or through the Deputy Governor or Commissioners of the Government of that state or other officers in the public service of the state; and shall extend to the execution and maintenance of this constitution.

The executive powers of a Local Government shall be vested in the Chairman of that Local Government, the power is to be exercised directly by him while the Vice-Chairman, Supervisory Councillors or other officers in the service of the Local Government exercise the power indirectly.

The Judiciary:

The power to adjudicate shall be vested upon the following:

-- The High Court of the State

-- The Sharia Court of Appeal of a state

-- The Customary Court of Appeal of a state.

Legislature:

Section 174, sub-section 4-(6) of the Constitution of Federal Republic of Nigeria vested the absolute legislative powers of a state of the Federation in the House of Assembly of the state and its powers shall be defined by the constitution.

Since this thesis is concerned with the design of a parliament complex, the author will examine closely the set up of the state parliament with a view to providing information leading to the creation of a brief for the design.

The Parliament:

The constitution states that the parliament shall be made up of two representatives from each Local Government Area, this brings the total number of the parliamentarian to thirty two in Kogi State which has sixteen Local Government Areas. There shall be a Speaker and Deputy Speaker of the House as well as the Majority and Minority leaders who shall be elected by members of the House from among themselves.

There exists a department of the Clerk of the House. This department shall be responsible for all the

administrative functions and the daily running of the House. The department shall be headed by the Clerk of the House who shall have Sergeant-At-Arm and the Internal Audit under his direct control. The administrative structure of the department of Clerk of the Assembly is as shown in figure 4.

The business of the House shall be conducted in a hall and English Language shall be adopted as they are many ethnic dialets in the state. The Governor shall annually address the House and he (the Governor) can attend any session of the House to deliver an address on any matter that concerned the welfare of the state, or he can make statement on the policies of his government that he considered to be important.

There are some other facilities such as library, printing department and maintenance which will promote efficient performance.

2.5 Client and Site

The client of the project is the Kogi State Government and the users of the complex would be the Kogi parliamentarian, the administrative staff and occasionally by the public.

It is located in Lokoja, the Kogi State Capital, which is in the middle belt of Nigeria. It stretches roughly between latitude 46000^{O}N and 66000^{O}N and longitude 42000^{O}E and 54000^{O}E.

CHAPTER THREE

CHAPTER THREE

FLEXIBILITY

3.0 FLEXIBILITY AND ADAPTABILITY

3.1 Introduction

Flexibility in architecture means that the design should be adaptable in case of any form of changes, such as future expansion, addition and alteration which might occur due to change in needs.

The major problem of the existing parliament complex is the rationalization of the existing functional spaces to cater for the needs of the members in the presence of unstable government policies as regard the number of representatives to the state House of Assembly.

The problem of converting the complex to other uses when the situation arose, among such situation are the take over of government and some unforeseen conditions. There had not been much successes made in this direction in the existing House of Assemblies.

3.2 Open Plan Approach

The design of the existing assembly complexes like Kwara, Ogun and Niger States were based on the form which did not follow any flexibility principle. The method of the design

used does not lend itself to any easy change of function nor modification in the use of space.

Rigid construction materials are also used which resulted into rigid functional spaces. It does not allow easy and economic partition of any functional space.

This thesis will attempt to provide solutions to such problems through the use of the following principles:

-- An open plan approach

-- Use of an adaptable and flexible form.

The open plan system (Fig. 3.A1) permits easy and economical partition of functional floor space without causing any destruction to the main structural components. Le-Corbusier who is one of the fathers of architecture was the first to evolve the open plan system when he initiated the Domino principle.

They are based on five cardinal points:

-- The use of pilotis (a large column) to raise the building off the ground. The created space can be used for other purposes.

-- The use of roof top for park and gardens, this is recapturing the lost ground.

-- Open plan by the use of widely spaced columns and concrete slabs, this allow the use of large space without interruption and the large space can be partitioned further into smaller functional space.

-- Ribbon windows that will allow uniform light into the rooms or spaces.

-- He advocated for free facade, this will allow for opening of the exterior walls at will to satisfy functions and aesthetics, this is possible because the exterior walls are no longer load bearing walls.

Flat and Curved Monolithic Grid:

There are other structural systems which allow the use of open plan system. Among them are:

-- Triangular

-- Diagrid

-- Square

-- Hexagonal

-- Circular

-- Isostatic.

Fig. 3.A2

Multi-Storey Frames:

It is a system whereby vertical frame structures are positioned parallel to each other and connected by horizontal

beam forming a cage structure that allows free movement within the building. It is employed mostly in high rise buildings, Fig. 3.A3.

Structural Materials:

-- Reinforced concrete in-situ structure

-- Pre-cast concrete structure (post tensioned and pre-stressed)

-- Steel sections.

Flooring Materials:

-- Ceramic materials on steel joists

-- Concrete floor on steel joists

-- In-situ hollow block floor

-- In-situ tee beam or ribbed floor

-- Pre-cast slabs.

3.2.1 Advantages of Open Plan System

There are many advantages of open plan system, some of them are:

-- Considerable reduction in structural depth.

-- Rigidity of the structure, with the connection of beams and columns to ensure that the structure is rigid.

-- Good interior aesthetics. The difference in materials and pattern, which the structure forms bring the aesthetics.

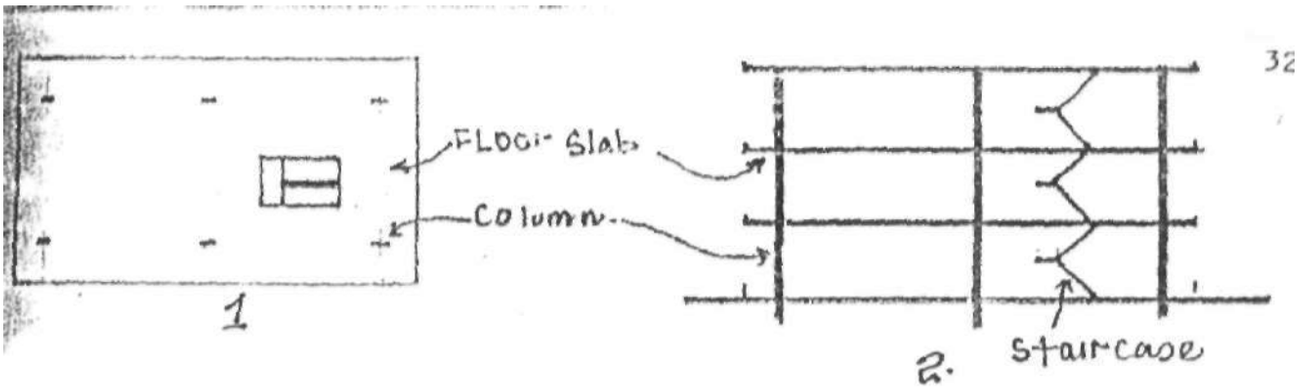


Figure 3A1. Le Corbusiers Open Plan.

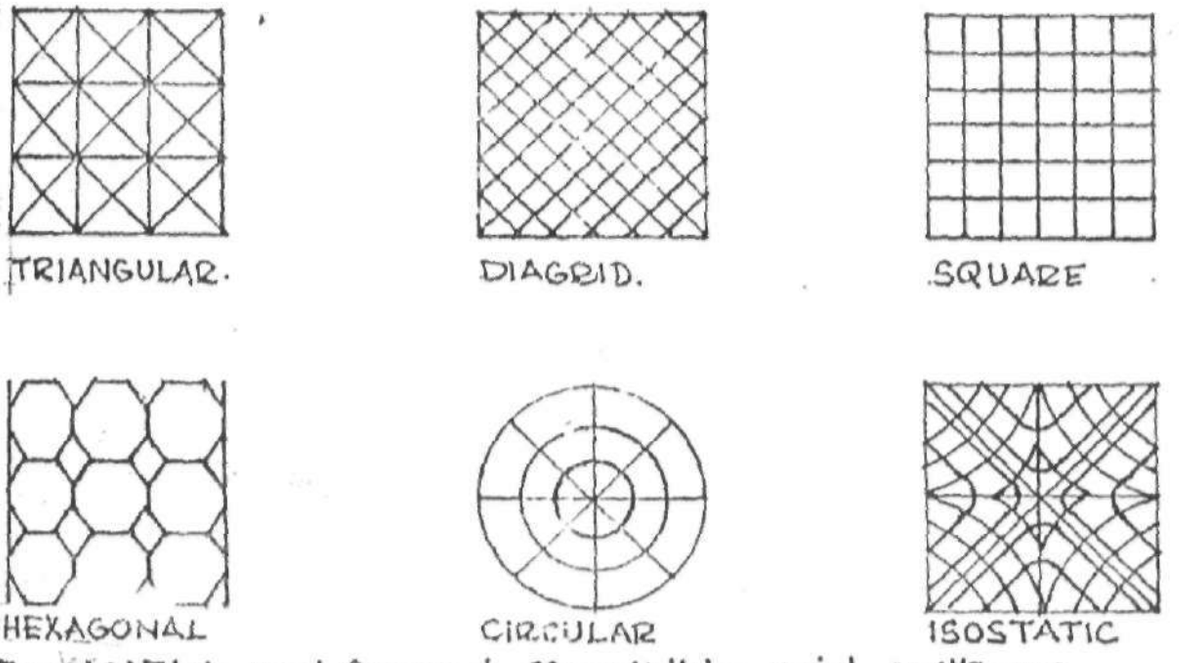


Fig. 3A2: Flat and Curved Monolithic grid patterns.

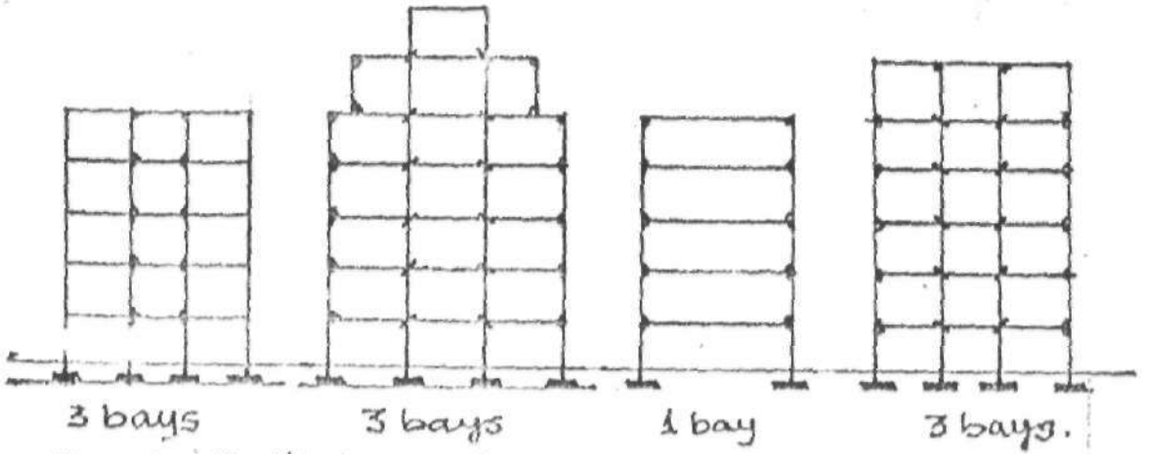


Fig 3A3: Multistorey frames.

SOURCE: Filiga 1987.

-- It allows flexibility in the use of functional spaces. That is a functional space can be easily converted to another use.

-- It allows possible coverage of large space without interruption since it is only columns and beams that are used.

3.3 Partition

Partitions are those internal walls which are used to divide a functional space into rooms or two separate stalls, they are usually non-load bearing walls. There are different types of partitioning when classified on the type of materials used, they are the solid thin walls, the demountable and flexible partitions. This thesis will be concerned with the demountable and flexible partitions.

Demountable partitions are the types of partitions which can be dismantled at the point of installation and reassembled in another place. They are assembled as solid, multilayered with dead air space or solid sound proofing cores of mineral wool, fibreboard, or other materials between the layers.

Flexible or folding partitions are fixed at two ends and folded to join two separate spaces. It is also possible to dismantle them for assembly else where.

In order to discuss the issue of partition properly, it has to be considered under the following headings: Demountability, Acoustic, Properties, Provision of services, Fire resistance, Finishes and Cost.

Demountability

The demountable partitions are carried out in two ways. The wet and dry construction, in the wet construction which is the least easily demountable system, the materials are not usually recoverable when they are to be moved from one location to the other, so the use of this method is very minimal.

The demountability of dry partition depends basically on individual method of construction and erection. It is established that the greater the number of the sections of which the partition is made up, the less it is to demount and move.

Some factors that affect the demounting and re-assembly are as follows:

When a partition is fixed between structural soffit and floor, there is little difficulty in demounting and re-erecting, in this method good sound insulation can be achieved, Fig. 3.1A.

A partition erected between the floor and suspended ceiling, may not be possible to supply enough pressure from

the ceiling. There is a poor sound insulation unless top surface of the ceiling is lined with good sound insulator. Fig. 3.18.

The problem which arose in Fig. 3.18 can be overcome by the insertion of a piece of wood between the suspended ceiling and the structural soffit in line with the partition's vertical stands. By the addition of this piece, better sound insulation can be achieved but there may be some difficulties in repositioning of the partition 1.C.

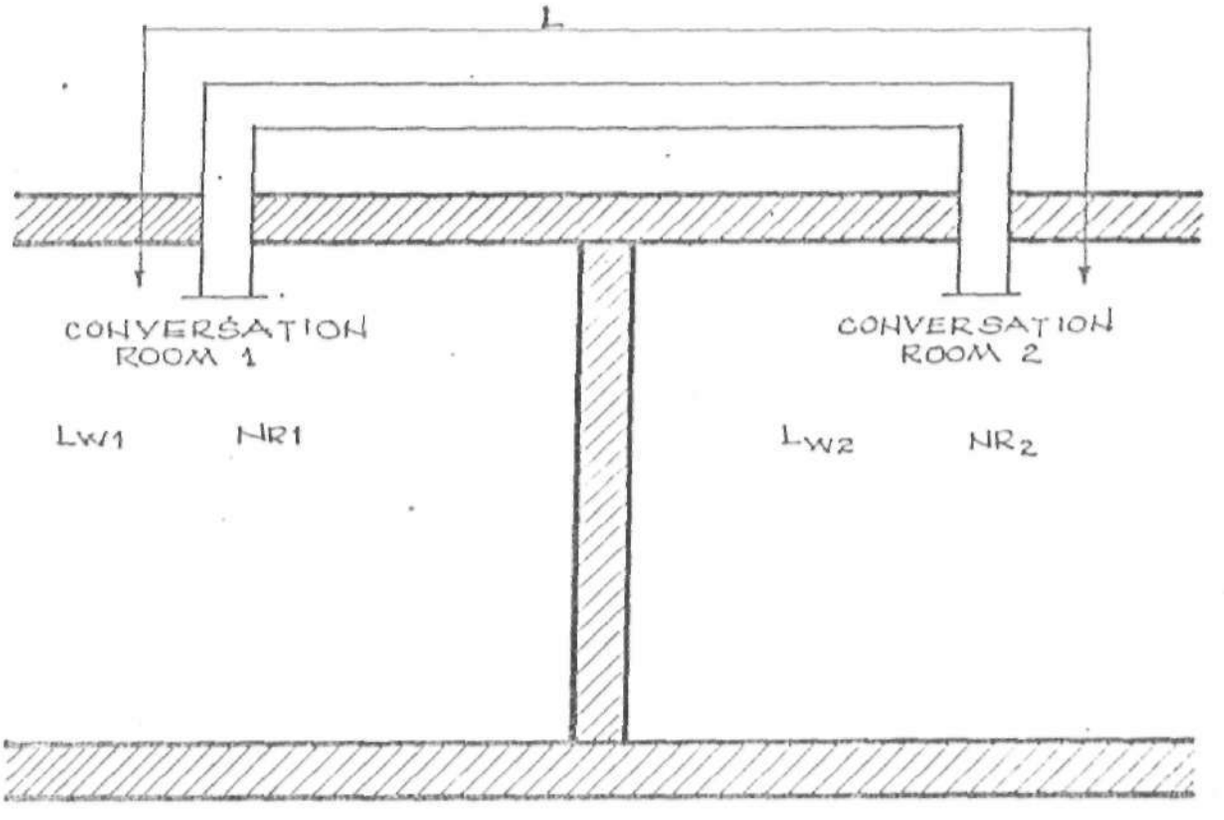
When the partition is fixed between the structural soffit and the floor, the suspended ceiling can be erected around it. The sound insulation system is good but subsequent repositioning of the partition may bestory the modularity of the ceiling except where extra caution is taken. Fig. 3.1D. Thus where the use of movable partition is contemplated, it is important to ensure a stable ceiling at all points where partition is to be installed. This type of partition can be in office, halls, toilets, schools and many others.

Acoustic Properties

Air Borne Insulation

The transmission of sound in building is a complex process illustrated in a simplified form in Fig. 3.2. When sound is generated in room, one impinges on all its surfaces

FIG. 32 cross-talk via airconditioning duct. and other openings.



IN THE DUCT ATTENUATION OF NdB PER UNIT LENGTH AND GENERATION OF GdB PER UNIT LENGTH.

SOURCE:- ORIOLA 1991

and set them into vibration. These vibrations are transmitted to the second room not only by the direct path through the separating wall but also by various other indirect or flanking paths involving the other elements of the structure. The relative weight and rigidity of these elements and the nature of their junctions affects the magnitude of transmission by all paths. The effectiveness of insulation between the rooms is determined by whichever path has least resistance.

Sound insulation is, therefore, a property of a structure as a whole, and flanking transmission sets a limit beyond which it is valueless to increase the insulation of direct path. In heavy, solid structure, the limit is usually about 50dB, but in lighter buildings, may be lower. It is important that this fact should be taken into consideration when planning partitioning. The importance of taking noise from within into account at the early stage, so that problems can be avoided by using suitable materials and taking right measure can not be over-emphasized.

When insulation is measured in actual buildings, it is termed the Level Difference and it is influenced not only by flanking transmission but also by the size of the partition and the sound absorption in the receiving room.

Partitions and Suspended Ceilings

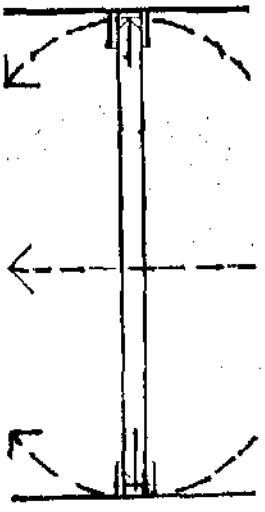


Diagram A. Partition fixed between structural soffit and floor. Little difficulty in demounting and re-erecting. Good sound insulation can be achieved.

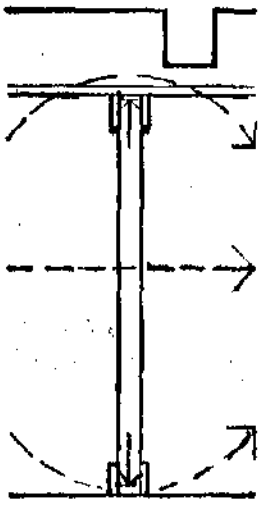


Diagram B. Partition erected between floor and suspended ceiling; may not be possible to apply enough pressure to ceiling. Sound insulation poor unless top surface of ceiling is lined with good sound insulator.

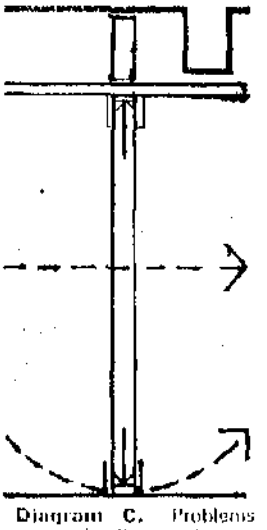


Diagram C. Problems arising in diagram B may be partly overcome by the insertion of a piece between the suspended ceiling and the structural soffit in line with the partition. Better sound insulation can be achieved but difficulty in repositioning of partition.



Diagram D. tion may be fix th so. erec sound insulation is subsequent re of the partitio troy the modul ceiling and i siderable extra

Fig 3·1 METHODS OF FIXING PARTITION.

SOURCE: HARRISON DEX 1967.

In partitions of low insulation, the sound Reduction Index (SRI) and normalised differences are usually equivalent. Sound insulation is concerned with the passage of sound energy through a barrier from one space to the other while sound absorption is concerned with the reflection of sound from the surfaces with a space. There is no direct connection between the insulation of a partition and the absorbent properties of its surfaces. Hence, any finishes could be used for the surface of the partition. The only situation in which absorbent materials can increase the insulation of partition is only within the cavities of multi-leaf construction.

Mass

The sound insulation of non-porous homogeneous partitions is determined almost entirely by their mass. The important relationships are that insulation increases by approximately 5dB for each.

-- doubling of weight

-- doubling of frequency (that is per octave).

When the weight of a partition is known, its sound insulation can be predicted within few dB and Table 3.3 which shows the average insulation against weight can be used to obtain the prediction. It will be seen that there are practical hints to useful improvement in insulation by weight.

Uniformity

In a situation where the compact nature of texture of partition material is not evenly distributed, there is the tendency of direct air path through the material at weak points which reduces its insulation capacity disastrously, this applies not only to obvious openings, holes and cracks, but also to the materials which are not air tight. All porous materials must be sealed with plaster or other materials to achieve uniformity.

Areas of lower insulation in a partition, such as doors or windows, similarly reduced the net insulation of the whole.

Impact Insulation

All sound must be airborne before it is heard, noise may be generated also by impacts or vibrations communicated directly to the structure. The most frequent source is footsteps.

The noise levels, either tabulated or in form of graph which are measured by a tapping machine when a succession of standard blows are applied to floor described the performance of the floor.

The principles of impact insulation are quite different from those of airborne insulation. The simplest way of

(b) The insulation of double windows is increased significantly by lining the surfaces of the interspace with sound-absorbent material.

(c) Provided that one sash of a double window is sealed the other may be openable for cleaning but must be well fitting.

(d) The marked losses due to coincidence which are typical of glass can be minimised by using different weights of glass in double windows.

(e) Normally both sashes should be fixed firmly to the structure but for special windows of high insulation (e.g. observation windows) one sash can with advantage be held on a resilient gasket.

Doors

Just as a doorway usually reduces the insulation of a partition, so do the cracks round the door reduce the insulation of the doorway. The insulation of door panels can be estimated from their weight, but cracks are frequently large enough to reduce the effective insulation, whatever the weight of the door, to less than 20 dB. If the cracks are sealed, or the door itself is exceptionally well fitting, the value of the panel itself will be approached. Normal draught stripping of doors incorporating compressible rubber or similar strips can be used for sealing doors, but it is very difficult to make them truly effective and to ensure that they remain so; success is essentially dependent on quality of materials and accuracy of workmanship. If these can be assured, as by specialist manufacturers, single doors of special construction but otherwise suitable for use in normal rooms can reach 40 dB. Exceeding this, it is doubtful whether anything better than a well-made solid hardwood door is worth while.

Double-swing doors are especially troublesome; where sound insulation is important, doors should be hung in rebated frames and meeting stiles of pairs of doors should be rebated. Cracks can also occur between the frame and the opening. For all these reasons the insulation figures given in Table I are only approximate.

It should be noted that privacy cannot be ensured between two rooms separated by a single door of any normal type. For such situations and for many others double doors are necessary. For both convenience and efficiency it is preferable to make the space between them large enough to form a lobby. The space or lobby should contain as much sound absorption as possible, which may be placed on the faces of the doors. The doors should be heavy and well fitting but seals are not usually necessary.

Folding and Demountable Partitions

What has been said about doors applies to folding partitions, their cracks are even more difficult to seal and the area of cracks and partition is much larger. The insulation of ordinary types is likely to be 10-15 dB, and of those designed specially for sound insulation about 25 dB. As with doors, these figures can be improved by using double panels.

Figures quoted by manufacturers for demountable partitions are usually laboratory measurements for the panels themselves and may bear little relation to the reduction which is obtained when the partitions as erected in a building, the latter being much influenced by the joints and by the connection to the structure. Insulation of 20-25 dB. is common; up to 30 dB. is sometimes obtained, but higher values are very difficult to achieve.

Table I

Values of Sound Insulation Values

Mostly from C.P.3

	Weight lb./ft.²	Weight kg/m²	Average insulation 100-3,150 Hz	Remarks
Sheets and Boards				
25 mm insulation board	0·75	3·7	18	Porous
3 mm hardboard	0·66	3·2	20	
10 mm plasterboard	2	9·9	25	
19 mm blockboard	3	14·7	27	
6 mm plate glass	3·5	17	28	
3 mm steel	5	24·4	30	
3 mm lead-cored (4 lb., 2 mm lead) plywood	5	24·4	34	
Stud Partitions				
100 × 50 mm stud frame faced both sides with:				
3 mm hardboard	1·3	6·3	23	Weight of studs excluded
10 mm plasterboard	4	19·5	30	
10 mm plasterboard with plaster skim coat	6	29·3	32	
10 mm plasterboard with 13 mm plaster	16	78	37	
Single-leaf Walls and Partitions				
Two sheets 10 mm plasterboard joined by cardboard egg-crate core; 57 mm thick	4	19·5	26	
50 mm wood-wool slabs plastered 13 mm both sides	14	68	35	
75 mm hollow clay blocks plastered 13 mm both sides	22	107	36	
75 mm clinker blocks plastered 13 mm both sides	30	146	41	
112·5 mm brickwork, unplastered	45	220	35-40	Porous at joints
112·5 mm brickwork plastered 13 mm both sides	55	270	45	Grade II
225 mm brickwork plastered 13 mm both sides	100	500	50	H.P.W. Grade
337·5 mm brickwork plastered 13 mm both sides	145	700	53	"
450 mm brickwork plastered 13 mm both sides	190	925	55	"
175 mm dense concrete plastered 13 mm both sides	95	460	50	"
Cavity Walls and Partitions				
Two leaves of 50 mm wood-wool slabs, 13 mm plaster, 50 mm cavity, butterfly ties	20	98	42	
50 mm clinker block, 13 mm plaster, 150 mm cavity, no ties	38	185	50	Grade I
75 mm clinker block, 13 mm plaster, 75 mm cavity, butterfly ties	50	240	50	H.P.W. Grade
100 mm clinker block, 13 mm plaster, 50 mm cavity, butterfly ties	64	312	50	"
112·5 mm brickwork, 13 mm plaster, 50 mm cavity, butterfly ties	100	500	50-53	"

	Average insulation 100-3,150 Hz	Rating Airborne	Rating Impact
Concrete Floors			
Solid or hollow pot floor weighing not less than 220 kg/m² with:			
Hard finish	45	II	
Wood boards or 6 mm linoleum	45	II	
Thick cork tiles, or sheet flooring on sponge rubber underlay	45	II	II
Floating wood raft or floating concrete screed	50	I	I
Solid or hollow pot floor weighing not less than 366 kg/m² with:			
Hard finish	48	I	
Wood boards or 6 mm linoleum	48	I	II
Thick cork tiles, or sheet flooring on sponge rubber underlay	48	I	I
Floating wood raft or floating concrete screed	50	I	
140 mm solid concrete slab, 50 mm expanded clay lightweight screed, 19 mm dense topping, thermoplastic tiles	52	I	

Source: Specification Handbook 1977.

Table 3.3 Sound insulation against weight

preventing the transmission of the impact to the structure is by using a soft floor finishes. The floor finishes can roughly be classified into three categories as follows:

-- Soft: good insulation.
Thick carpet. Sheet flooring covering on underlayer of sponage rubber, hair felt, or fibreboard.

-- Medium soft: Moderate insulation. Thin carpet or matting. Thin linoleum or rubber on solid.

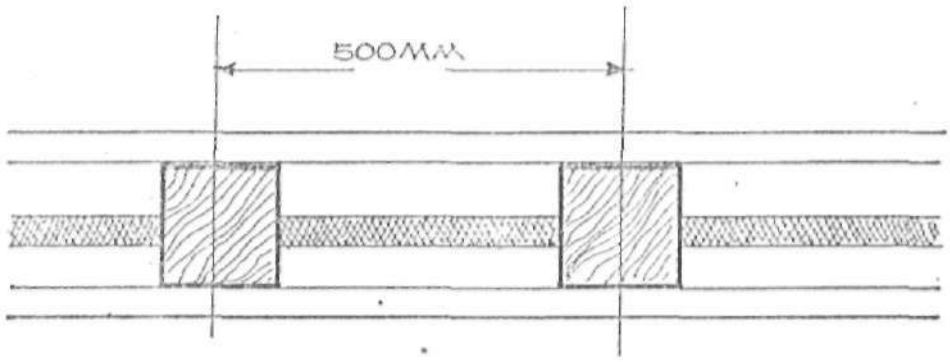
-- Hard: Poor insulation. Grawlithic and jointless floors. Clay, concrete, stone, aspult and wood block.

Alternatively, the insulation of impact sound may be accomplished by a resilient layer, which will not be too highly compressed within the floor construction. That is using a floating floors. Fig. 3.4.

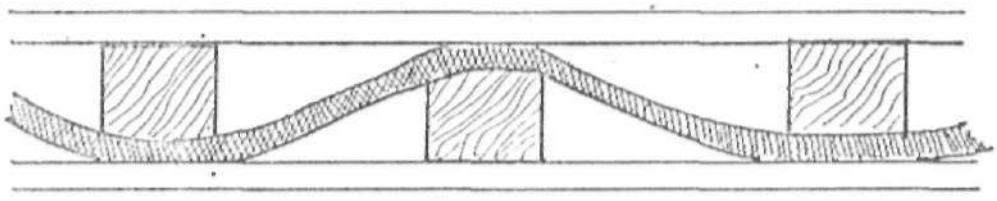
Provision of Services

A fixed wet construction partition will usually prove the most suitable for a large number of services routening and outlets can be in virtually any position. The main disadvantage however, is that alteration of the services during the life of the partition involved much work and destruction of the partition material.

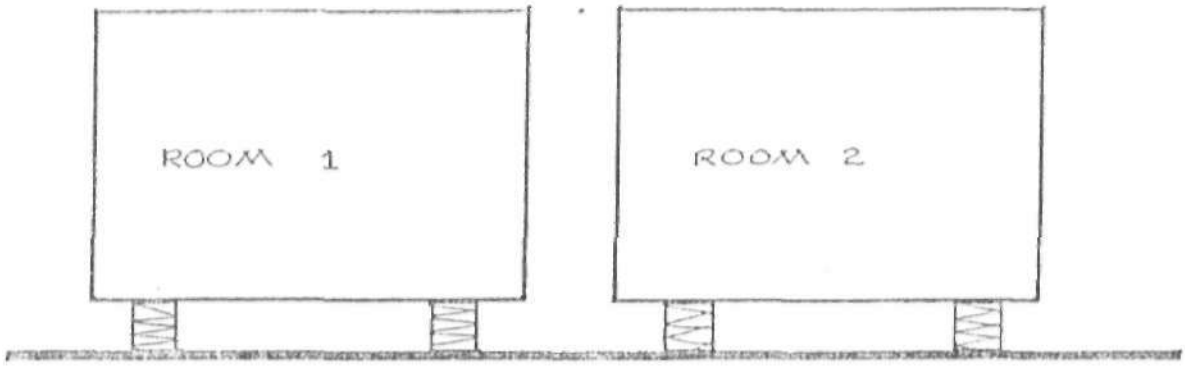
Most demountable partitions always have some provisions for servicing, though this may be inadequate where highly



(a) UP TO 40dB



(b) 40 to 50dB



(c) ABOVE 50dB

FIG. 3.4 [illegible] floating floor

SOURCE : ORIOLA 1991

service area is involved. Servicing ducts are often incorporated within the partitions themselves, in which case they can be within plasters, skirting or incorporated, usually by prior arrangement, in and part of the core. Some partitions have clip on skietings, carring services, and if alterations are to be made during the life of the partition, then this type and the one where the duct are covered are similarly removable, and they prove convenient.

Fire Resistance

Fire resistance of a building material can be described as the reasonable period by which the building materials will be able to support their structural loads during fire, curtain the spread of smoke and fire gases, and prevent excessive heat flow.

Demountable partition of most construction and finishes can be obtained with a fire resistance of half an hour or one hour rating. Higher ratings can be obtained with fixed or certain demountable partition. Statutory requirements may play a large part in the selection of the system of partitioning.

Materials such as gypsum plaster, mineral wool membrane, gypsum board membrane are spread on the surface of the partitioning materials to prevent fire from consuming the construction materials and spread to the other parts.

When gypsum is exposed to fire, chemically combined water within the gypsum (called calcination) is slowly released as steam to retard the heat flow, Fig. 3.5.

Finishes

Painted partition can easily be redecorated after the re-erection but where partitions with permanent finishes are used, it is important to make sure that the finishes chosen will satisfy future requirements and will not result in inconsistencies in a new layout.

Cost

The initial cost of partitioning system will depend, mainly on the performance specification. If the system is to be demounted and reassembled, then it is important to determine the percentage of replacement cost for each reassembling, they can be high, particularly when the specifications for other properties are complex.

The different area of partitions applications are indicated in plates 1 - 7.

Flexible Partition:

Flexible partitions are generally folding partitions which are used to divide functional space such as wall into rooms, when it is folded, the two spaces become a large one.

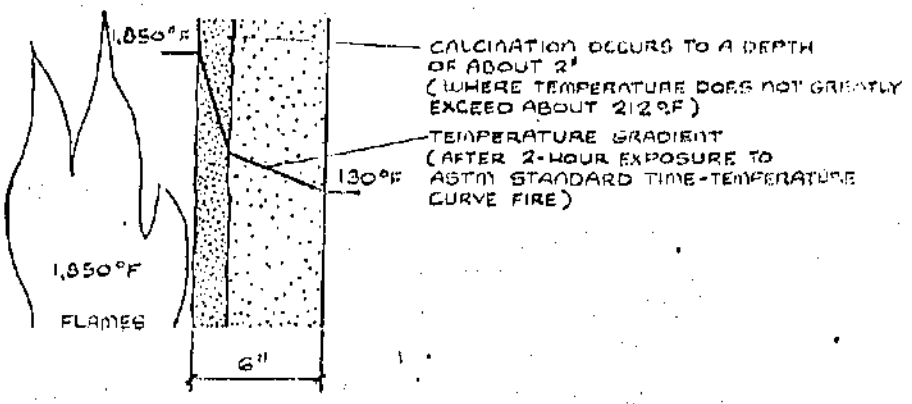
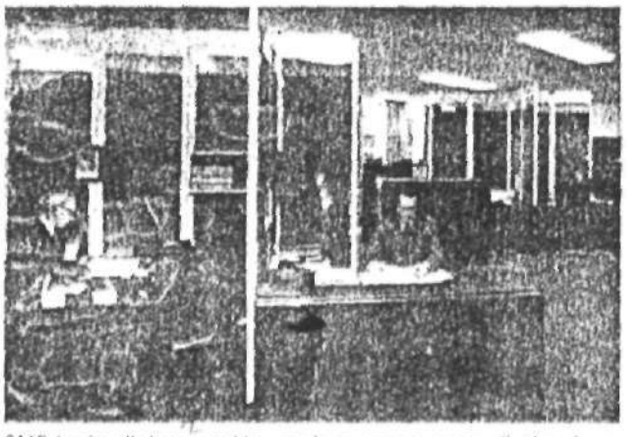


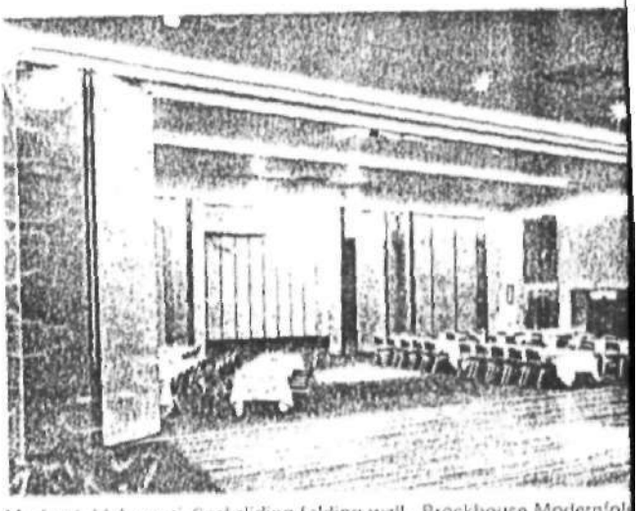
Fig 3.5 Heat Flow

SOURCE:- EGAM. D.M 1977



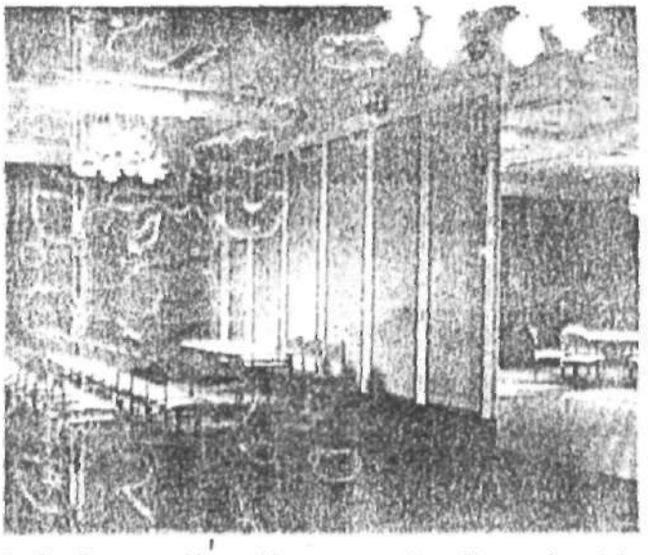
SMP Lockwall demountable panels in use as space dividers in an open plan office. The sense of openness in the ceiling high partitions can be retained by finishing the solid infill panel at a lower height.

plate 1 : space Divider



Moderatold Acousti-Seal sliding folding wall. Brockhouse Modernfold Ltd.

Plate 2: Sliding folding Doors



Trackwall – a movable partition system with ceiling track and for which good sound insulation is claimed. Industrial Acoustics Company Ltd.

plate 3: movable partition.

SOURCE = HARRISON DEX 1977

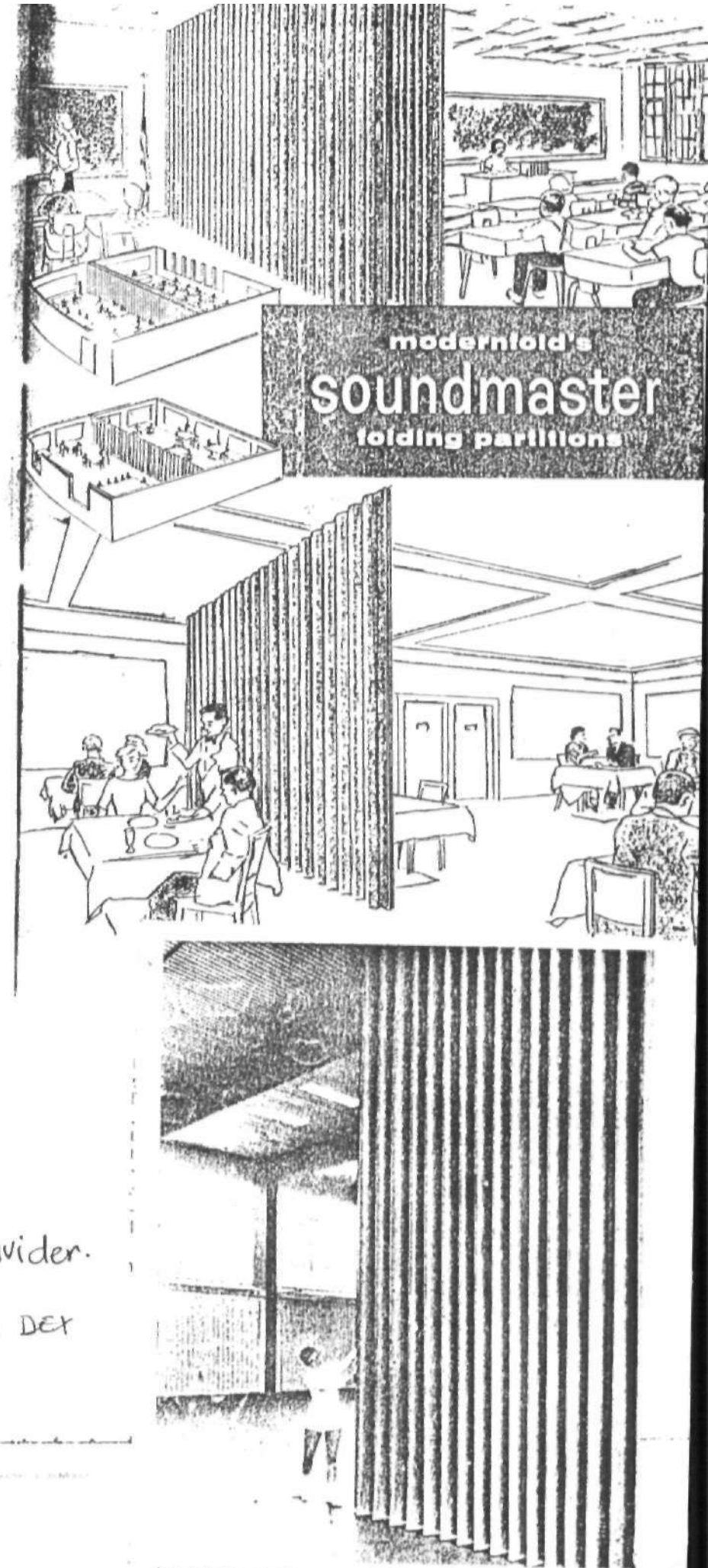
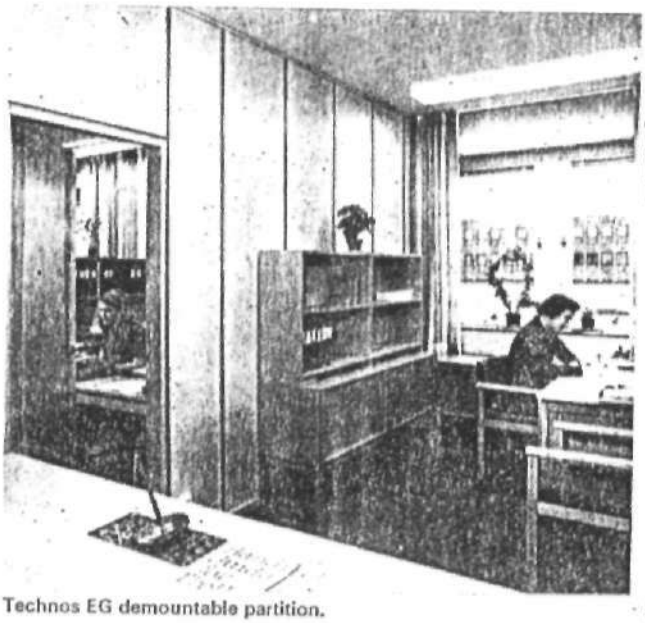
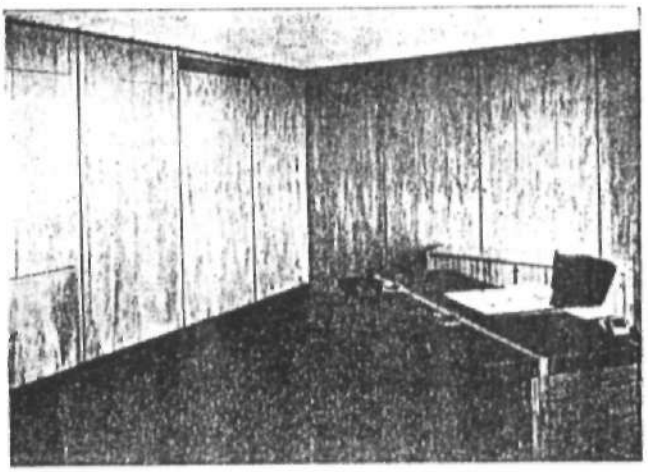


plate 4: Space Divider.

SOURCE: HARRISON DEY 1977

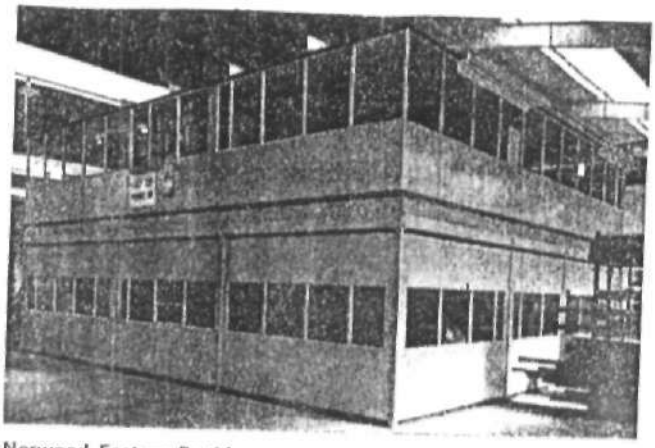


Technos EG demountable partition.



Soundlock partitioning. William Mallinson & Sons.

Plate 5: Demountable partition for Offices



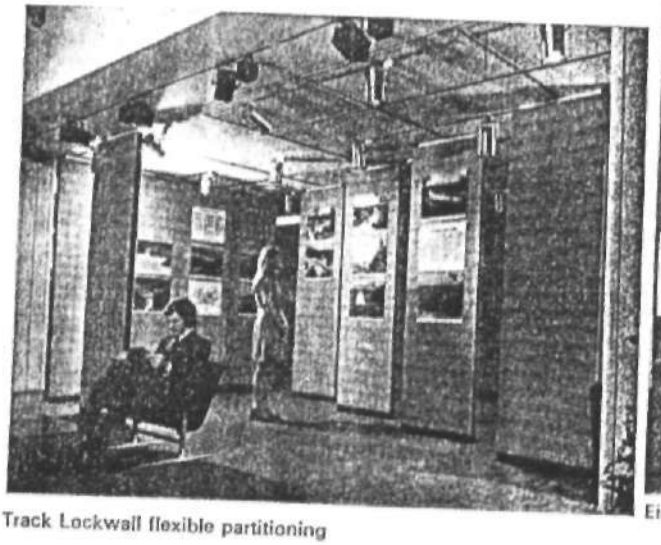
Norwood Factory Partitions as a two level space saver, supplied by Norwood as a complete package including floor and staircases.

plate 6: Factory partitions.

SOURCE: HARRISON DEX 1977



Flushform by Firmin and Collins.



Track Lockwall flexible partitioning



Eiderline partitions in a traditional setting.

plate 7: flexible partition.

SOURCE: HARRISON DEX 1987

It is also used to divide offices into smaller spaces, they are not rigid like the demountable, they are easily movable.

The materials used can be solid, core or fibres. The fibres may have tract at the top and the bottom along where it can fold and slide. They are easily adjusted, removed and relocated in other places.

3.3.1 Advantages of Partitioning:

-- They are easy to install

-- They enhance flexibility and adaptability in the utilization of functional spaces.

-- There is economy of materials used, since there will be no wastage because the material used in one location can still be used in another place.

-- It is less in cost when compared to solid wall construction.

-- Less time is spent on installation since they are installed internally where there is no delay in the installation.

3.3.2 Disadvantages of Partitioning:

-- There is problem in controlling the movement of sound from one space to another.

-- The construction material may not be able to withstand fire for long as the solid wall construction before fire spreads to other compactments.

3.4 Partition Materials

Partition serves as means of demacating the internal spaces of a building into rooms. Partitions may be categorized into two groups: The load bearing and non-load bearing partitions. The load bearing are the ones which aid in supporting the floors and roofs while the non-load bearing partitions are in no way supporting the roofs and floors.

The materials generally used in building partitions of load bearing are concrete blocks, clay blocks, and timber while those used for non-load partition are of lighter construction in form of panels, fixed to frames work. They are Wood-wool slab partition, Gypsum panels, Plywood panel and framed partition. Demountable partition material are in the form of panels and flexible materials.

This thesis will examine the non-load bearing type of partition which makes use of panel, slabs, framed and flexible materials.

Wood-Wool Slab Partition

Wood-wool slabs can be erected as blocks to form partitions. They are manufactured in large sizes, often 1800 x 600 x 25mm thick, Richard LLEWELYN-DAVIES (1969). They consist of long, tangled, wood fibres, uncompacted, coated

and bounded together with cement or plaster, and with a rough, open surface which provide a good key for plaster.

Wood-wool slabs have a large movement, this is due to changes in moisture content, the movement can be controlled by providing expansion joints at the edges of the partition, which are divided by studs into panels not exceeding 6m in length. The expansion joint provided are covered with 100mm wide strips of scrim applied with neat plaster of paris. The points of changes such as the door heads are reinforced with expanded metal lath. Door frames are carried up to ceiling where possible.

Partitions of wood-wool slabs have sufficient strength, this enables partitions to be erected to sufficient height for normal purposes, and up to 6.00m in length, but for any length greater than this, permanent framing must be provided to give sufficient rigidity.

Duct for electrical services can be cut easily, but this should not be more than one-third of the slab's thickness.

When wood-slabs are not plastered, their open texture gives good absorption property over a wide frequency range, the thicker slabs give a better absorption than thinner ones.

They can be sprayed with paint but the paint should not block the voids in the slabs.

When wood-wool slabs are plastered on both sides, they give one hour's resistance while 75mm thick plaster gives a higher resistance.

Framed Partition:

Frames

Framed partitions have been used in building construction for many centuries. The traditional lath and plastered internal walls are made up of timber uprights to which horizontal lath were nailed to take a plaster surface. There are varieties of sheet materials in addition to the lath and plaster which can be fixed to a framework in order to form a partition.

Timber, metal and aluminium sections are employed for the frame and they have come into widespread use in the day-to-day partition construction. Example of wood frame, plate 8 & 9.

Framed partition are usually very light. They can be designed to provide for easy dismantling and re-erection, they are therefore, employed where freedom to re-arrange the internal spaces in building is necessary. These types of construction are less effective as barriers to sound and fire then solid partition of equal thickness.



Norwood office partitions in 60mm style, flush cover plates, alun finish.



Covent Garden Site. Two miles of specially designed Norwood p tition by Blakdale-NSE Ltd., who make a feature of working to i dividual requirements of Architects and Consultants.

Plate 8: Office Partitions in Flush Cover plates With aluminium Finish.

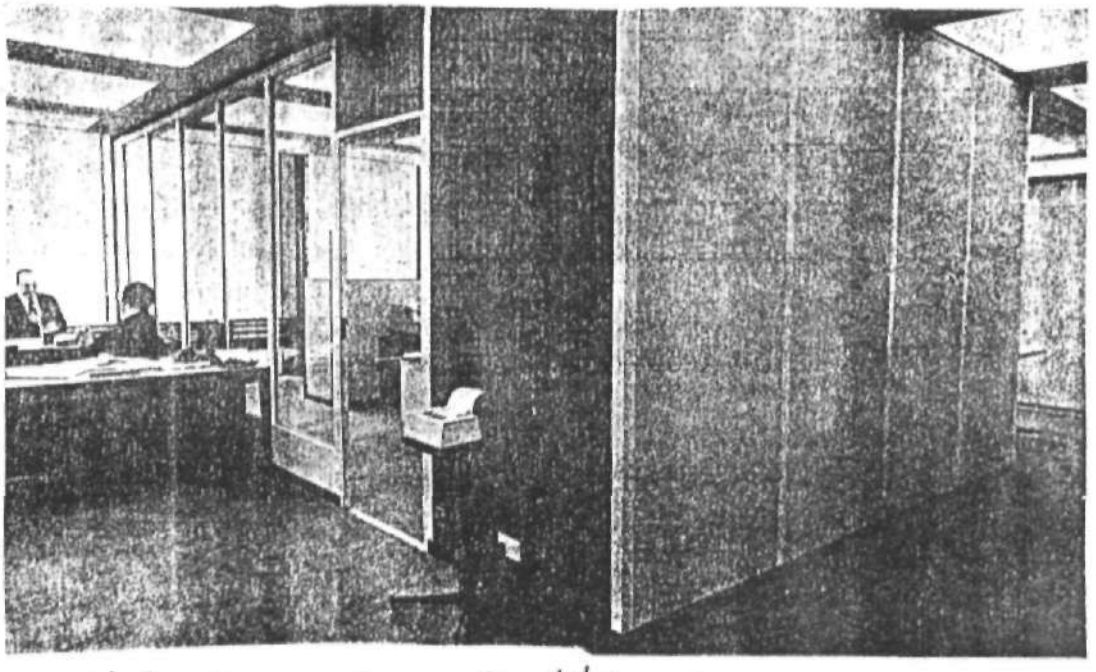


Plate 9: Office partitions in Wood and Aluminium frame

SOURCE: HARRISON 1977

The timber frame consists of uprights or studs fixed to the head and sole plates, which may be attached to ceiling and floor. The intermediate vertical stud are strengthened horizontally by noggings. Fig. 3.4.2 shows some methods of frame, partitions and fixing to the structure.

The type of covering to be used normally determines the dimensions and spacing of frame members. Table 3.4.1 gives some suggested sizes for members of partition frames.

Extra noggings are provided where studs do not provide sufficient support for fixing skirtings rails and the likes.

The frames must be rigidly connected either in wood, metal or aluminium so as to avoid cracking in the covering. Proper connection between either the walls, floors and ceiling should be ensured by the use of plugs in the wall, connecting angles or channels in the ceiling and floors.

The fire resistance of any partition rests with the covering rather than the frames. Fire retardent should be applied to the timber frame in order to reduce the risk of collapsing of the main structural frame.

Covering for Framed Partitions:

Fibre Building Board

Fibre building boards are composed of wood or other vegetable fibre compressed or laminated. They varied from

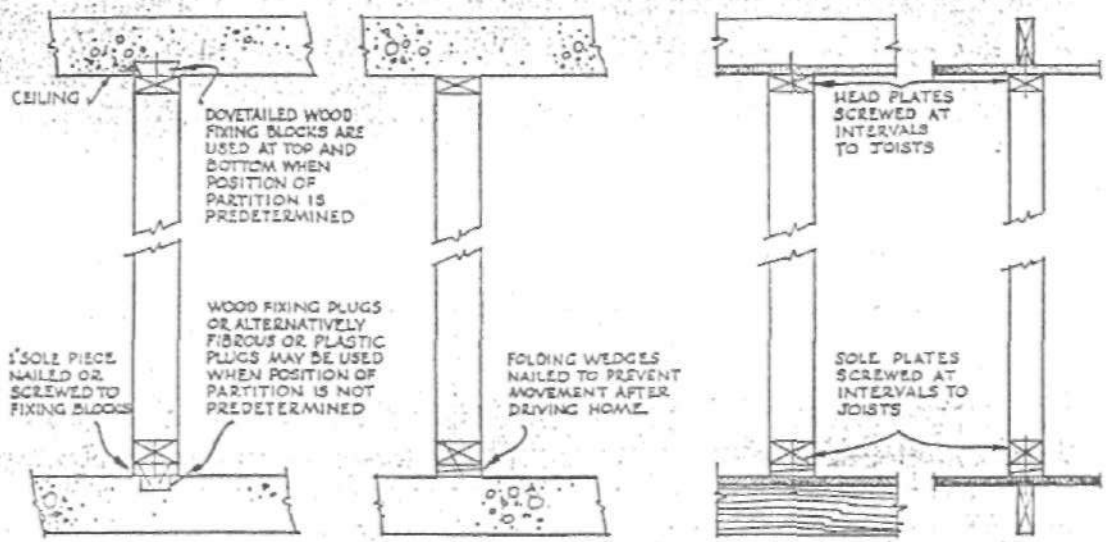


Fig. 62. Methods of fixing uprights for partitions

Fig 3.4.2A. Metho of fixing to structure

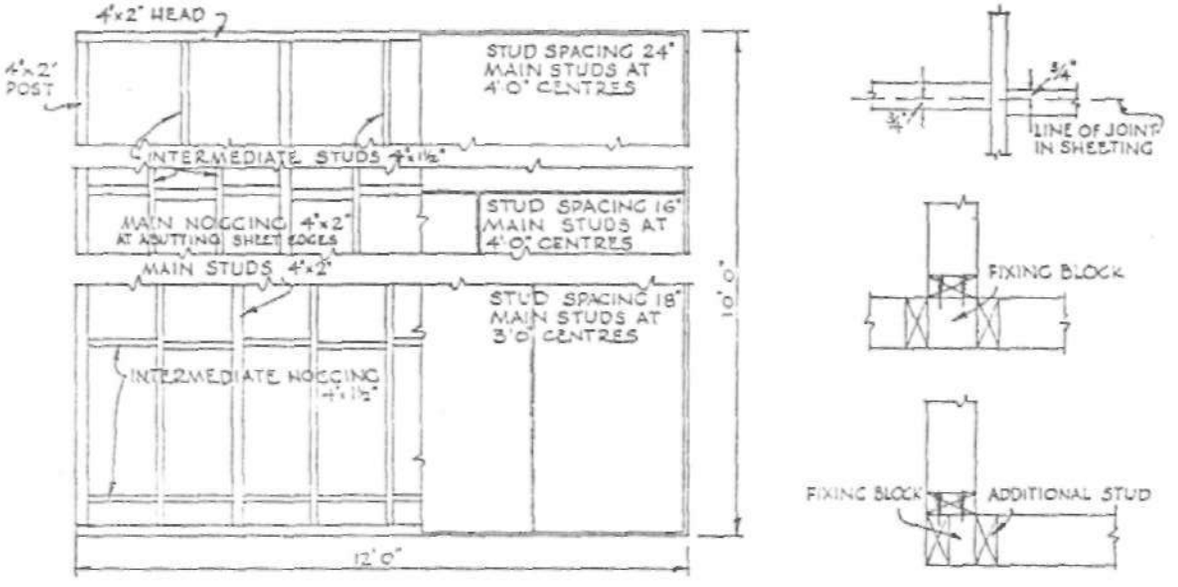


Fig. 63. Partition framing

3·42B

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Framed partiti
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to be a problem.

The timber fr

TABLE 30

SUGGESTED SIZES FOR MEMBERS OF PARTITION FRAMES

Height up to		*Posts and Studs*	*Head and Sole Plates*	*Noggings*
A. Lath and Plaster	*B.* Other Coverings	(18 in. centres)		*Main* *Intermediate*
7 ft. 6 in.	8 ft. 6 in.	3 in. × 1¼ in.	3 in. × 1¼ in. or 3 in. × 2 in.	3 in. × 2 in. 3 in. × 1¼ in.
10 ft. 6 in.	12 ft. 0 in.	4 in. × 1½ in.	4 in. × 1½ in. or 4 in. × 2 in.	4 in. × 2 in. 4 in. × 1½ in.
14 ft. 0 in.	16 ft. 0 in.	5 in. × 2 in.	5 in. × 2 in.	5 in. × 2 in. 5 in. × 2 in.
17 ft. 0 in.	20 ft. 0 in.	6 in. × 2 in.	6 in. × 2 in. or 6 in. × 3 in.	6 in. × 2 in. 6 in. × 2 in.

The minimum centres for supporting members for six types of sheet and board covering are set out in table 31.

TABLE 31

SPACING FOR FRAMING MEMBERS FOR BOARD AND SHEET COVERINGS

Covering	*Standard Width of Sheet* *	*Maximum centres of support* *Horizontal*	*Vertical*
Insulating fibreboard	4 ft. or 6 ft.	12 in. to 18 in.	4 ft. 0 in.
Hardboards	4 ft., 5 ft. or 6 ft.	15 in. to 20 in.	4 ft. 0 in.
Gypsum plasterboard	1½ ft., 2 ft., 3 ft. or 4 ft.	12 in. to 24 in.	4 ft.
Plywood	3 ft. to 6 ft.	12 in. to 48 in.	3 ft. to 6 ft.
Synthetic resin bonded paper sheets	3 ft. to 4 ft.	Not exceeding 25 in.	4 ft.
Asbestos cement flat sheets	3 ft. or 4 ft.	16 in. to 24 in.	at end of sheets
Asbestos wallboard	4 ft.	16 in.	4 ft.
Asbestos wood	4 ft.	24 in.	4 ft.
Wood-wool building slab	6 ft.	18 in. to 36 in.	None

* Supports at edges of sheets may need to have wider fixing faces than intermediate supports, to allow for fixing of two edges of adjacent sheets.

Figure 3.4.1
Sizes of partitions.

slightly compressed soft board with rough surfaces to highly compressed board with hard smooth surfaces. The latter is known as hardboards. These types of boards are economical in use because of their light weight and it is easy to cut to a desired shape. Table 4.4.2 indicates some sizes and thickness of building boards. The durability of the material makes its utilization adequate for normal use but it has not sufficient strength to withstand impact or abrasion.

Sound Insulation: Where thermal insulation or sound absorption is necessary, insulating fibre board is useful as partition covering. Fireboards are not good sound insulators, but the application of plaster will slightly improve the sound insulation.

Fire Resistance: All fibre buildings board are combustible, that is they have weak resistance to fire. Fire-retardent treatment should be applied as an integral part of manufacturing. Retardent, such as asbestos paper, sodium silicate paint, Gypsum or anhydrite plaster which is not less than 3mm should be applied.

Finishing: All boards of this type can be finished with paints, or left in their natural state.

Gypsum Plasterboard

Gypsum plasterboard is made of a core of gypsum plaster encased in a strong paper on both sides. They are in different sizes and thickness. The commonest types of gypsum, wallboard which come in form of large sheet are indicated on table 4.4.3.

Gypsum baseboard, gypsum lath and gypsum plank are the materials used as a base for the plaster. Gypsum wallboard are designed either to be plastered or decorated directly, one side is covered with paper to take plaster while the other is with papers that are suitable for decoration.

Method of Fixing: where it is possible to use the board in the manufactured size without cutting, buff joints can be used but where it is necessary to cut a board, many edges may result and the joints will require covering. Plaster finish can be employed to fill up the joints. The joints should be reinforced with scrim to prevent cracking, Fig. 3.4.3a.

The risk of cracking when a smooth surface is required can be reduced by creating a recess at joints which can be filled during plastering. When the plaster is used in filling the joint, the reinforcement should be avoided, Fig. 3.4.3b. By utilizing the joint filled with plaster or reinforced with scrim, it is possible to have a jointless surface throughout the partition if so desired.

BUILDING ELEMENTS

TABLE 33

Gypsum wallboard	Length	6 ft, 7 ft, 8 ft, 8 ft 6 in., 9 ft, 10 ft, 11 ft, 12 ft.
	Width	2 ft, 3 ft, 4 ft.
	Thickness	¼ in., ⅜ in., ½ in., ⅝ in., ¾ in.
Gypsum baseboard	Length	2 ft, 4 ft, 6 ft, 8 ft, 10 ft, 12 ft.
	Width	1 ft.
	Thickness	½ in., ⅝ in.
Gypsum lath	Length	2 ft, 4 ft.
	Width	1 ft.
	Thickness	½ in.
Gypsum plank	Length	6 ft, 7 ft, 8 ft, 9 ft, 10 ft.
	Width	1 ft 6 in., 2 ft.
	Thickness	4 in.

Table 3.4.3.

Sizes of Gypsum Board.

Fig 3.4.3

Fire Resistance: One of gypsum plasterboard's most valuable quality is its high fire resistance, and this increases with thickness of the plasterboard used. When plastered, it is classified as incombustible and when there is no plaster, the flame spread is very low.

Sound Insulation: Gypsum plasterboard has a moderate insulation quality and it can be improved by plastering. Its strength is adequate for normal use but continuous dampness will cause serious deterioration of the board.

Finish: Gypsum plasterboard does not require a special finishing.

Plywood

Plywood boards are built up from a number of veneers glued together, with the grain of each at right angles to the next. The number of piles for a given thickness varies, the greater the number the stronger the ply. There are different designs for the face cover of different plywood. Its appearance makes it a suitable material for partition covering. Very often, plywood is used where a decorative partition finish is required, and in order to obtain it, a special venear may have to be applied so as to obtain ready faced on one side or all the sides.

By the nature of its manufacture, plywood is uniformly strong and the dimension is much more stable than natural. It is not subjected to moisture movement, precautions against cracking are only necessary with board exposed to local sources of heat.

Method of Fixing: The method for jointing and fixing will depend on the type of finishes required. When decorative finish is not required, secret fixing method may be adopted. When decorative effect is required, closed fitting flash joints, decorative joint or cover fillets methods are used by creating between 6.5mm and 9mm strip between the sheets or panels and this strip or gap must fall on the stud. Aluminium channel can also be used to achieve the decorative effect, plate 8.

Fire Resistance: Plywood has no resistance to fire, it burns rapidly and allows the spread of fire easily. Plywood should be impregnated in the solution of mono or di-ammonium phosphate to cause delay in flamespread.

Sound Insulation: Plywood is a poor sound insulator, good insulating material should be sandwiched in the panel of the plywood.

Finishes: Some plywood has a permanent decoration while some do not have. Those without decoration can be sprayed with paint of choice or polished.

Asbestos Cement

There are many varieties of asbestos cement sheets, the most common of them is the semi-compressed, unreinforced sheet obtainable in flat form or corrugated in shape where extra strength is required. Sheets of fully compressed or reinforced asbestos cement and wallboard are also available.

Method of Fixing: Asbestos covering are usually made in double layers with air space in-between them. When fixing the sheet to the horizontal lath, it is advisable to leave spaces between the edges, to prevent cracking when there is any movement in the frame, this is particularly important with cement asbestos sheet as these become increasingly brittle with age.

Sound Insulation: Asbestos sheets are not good insulator, in order to improve its insulation, some insulating materials should be sandwiched inside the double layer used in covering the frame.

Finishes: A satisfactory hard surface for decoration is provided by fully compressed asbestos cement coverings. Asbestos cement and asbestos wallboard are also suitable for an applied decorative finish. Asbestos or asbestos composition sheets are not suitable for plastering.

Fire Resistance: When asbestos cement sheet is under heat influence, it tend to shatter, thus it have a poor resistance to fire. It also have a faily low resistance to heat transmission.

Demountable Partition Materials

In some buildings such as halls, offices, schools and factories, it may be necessary to provide partitioning in a form that can be very easily dismantled and re-erected, so as to allow for change of space utilization. When partition is to be demountable in this way, it must be composed of fairly large components which can be fixed in position quickly and simply without the use of cement and other wet process. Each of the units should be finished to allow dismantling and re-erection without having to be redecorated at each movement. There are many different types of demountable partition materials in use today, the most economic systems are the ones making use of either steel units or sheet materials; various forms of connecting and locking devices are employed for putting the panel in position easily. Sheet materials, such as strawboard, plasterboard, plastics, plywood panels and many others are used. They are fixed in either metal or aluminium channels.

3.5 Flexibility and Changes

The House of Assembly is a public building. It is built for a very long life use and many changes will occur in its locality during the period. As the building is intended to communicate between the present and the future generations, the changes that may occur will exert a strong influence on the viability of the appearance in that locality and may not be able to communicate the reality of the initial construction, the need to bring it in line with the new conditions might well be expected and required. It is even conceivable that due to either decay, upgrading of the locality, increase in the number of the parliamentarian due to population increase of the state and the unstable government policies on the number of the parliamentarian, the complex may become obsolete. The choice of adaptable and flexible form which can accommodate other uses might be essential.

Most House of Assemblies have some basic facilities, these must be developed and utilized to the fullest, such facilities do not often constitute problems to adaptability of the complex when the need arises but they enhance the changes because of the importance of the service that these

facilities render to other users. An example is the library, the chamber, the printing and binding unit.

The House of Assembly is not a static organ of the government, it developed with the society where it finds itself, therefore the changing requirement which might become necessary as a result of the development should be accommodated by the flexible space arrangement. In the hall, flexible partition and other expedient which will facilitate the adaptability and use of the available space to full capacity should be considered. Thus during the early stage of planning, a degree of flexibility should be considered to allow for possible change of function at future dates.

3.6 Adaptable and Flexible Forms

Adaptability of a functional space is the possibility of changing the use of that space to other purposes or activities other than what it was originally meant to serve. A flexible form of design is a method of design which allows easy change, the use of functional space to another one without destruction to the main structural components of the building.

Among the pattern used for the design are:

-- Square grid pattern

-- Rectangle grid pattern

-- Triangular grid pattern

-- Regular polygon grid pattern

-- Circular grid pattern

-- Free form.

Generally in architectural design, the grid pattern and the free form are commonly used in design. An analysis of the patterns shows that the square grid pattern is the most adequate form to be used for an adaptable and flexible space. Though other form could be used, but it has to be with modifications. Each of the patterns will be examined so as to establish the type that will be most suitable for a particular type of design.

Square Grid Pattern

The square grid pattern is the most widely utilized of the grid patterns in architectural design. Changes in circulation is minimal after partitioning, this is because the circulatory system has been taken into consideration right from the planning stage. Also, uniformity in circulatory system is maintained with little changes.

The grid pattern minimizes wastage of partitioning materials, it is economical to make use of this pattern in a framed structure where cost is an important factor in the design.

This pattern allows the use of modular co-ordination since modular grid is based on square grid.

Rectangle Grid Pattern

The rectangular grid patterns are used in architectural design but it has a less advantage to the square type.

Triangle Grid Pattern

The triangular grid pattern is of the patterns used in architectural design, but is seldom used in public buildings, this is due to the sharp building angles that normally resulted from the angles. When partitions are used in framed structures in this pattern, more sharp angles are created.

This pattern encourages waste of partition materials. Hence, the use of the pattern is uneconomical. Also, it changes the circulatory system considerably when partitioned. A triangular pattern is not used as a modular grid.

Regular Polygon

Aesthetically, the regular polygon pattern is used in the public building for it creates an interesting pattern, especially when half of it is used in theatre designed as a fan shape. When this is partitioned, it does not affect the pattern of circulation greatly but it could create sharp angles.

There is also waste of material, thereby increasing the cost of the project. This type of grid is not used as a modular grid.

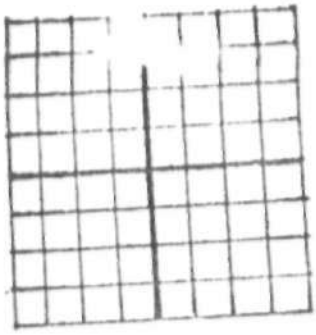
Circular Grid Pattern

The circular grid pattern is next in architectural use to the square grid pattern, this is predominant in African traditional houses. Partitioning in this pattern creates sharp angles except when there are some modification by introduction of a smaller central circle. The module unit based on the square could be applied to circular partition.

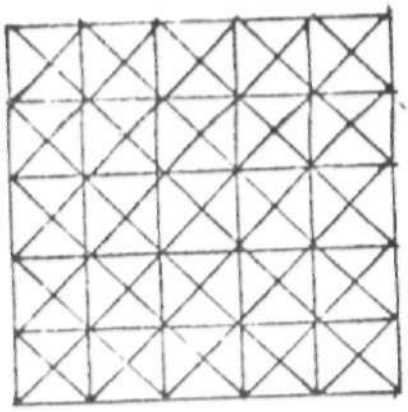
Free Form

The free form pattern of design is commonly used in architectural design, but it is seldomly used in public building, this is because it does not allow repetativeness which is common to public building. There are lots of difficulties encountered in the partitioning of free form pattern.

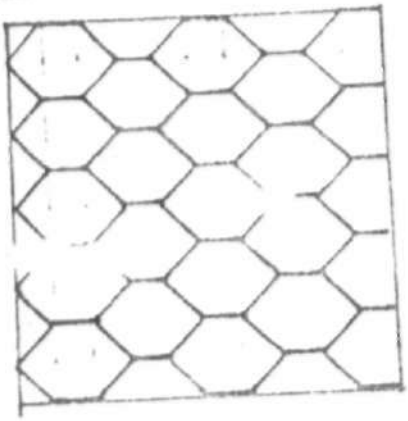
It wasted a lot of partitioning materials. The irregular shape must have affected the circulatory system which has not been very straight because of the free form.



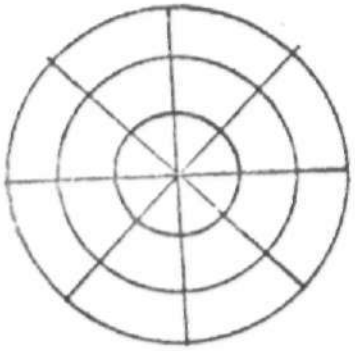
Square Grid



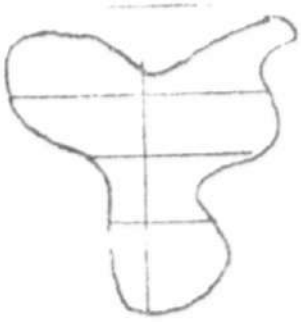
Triangle grid



Regular Polygon



Circle



Free form

Fig3.4.4: Design Grid Patterns

CHAPTER FOUR

CHAPTER FOUR

CASE STUDIES

4.0 INTRODUCTION

There is the need to study similar existing buildings in order to identify functional arrangements, and the relationship between these arrangements. One should be able to find out from the study whether the buildings satisfy the needs for erecting them.

Three of such complexes as case studies have been selected and they are: Kwara State House of Assembly, Ilorin; Ogun State House of Assembly, Abeokuta and Parliament House, New South Wales.

4.1.0 CASE STUDY ONE: Kwara State House of Assembly, Ilorin

4.1.1 Introduction

This project was designed by a team of Architects in Kwara State Ministry of Works, Ilorin. It commenced in 1977. Many reviews were subsequently carried out between 1977 and 1980 when the contract for the construction was awarded to Solel Boneh, Nigeria Limited.

Kwara State House of Assembly is located along Asa Dam-Offa Garage road. It is off Ilorin-Ibadan bye road. That is at the eastern part of Ilorin.

4.1.2 Facilities

The complex comprises the following components:

The Parliament Building

-- The chamber

-- Voting cubicles

-- Public, V.I.P. and Mass Media gallaries

-- Members lounge

-- Radio and Television rooms

-- Clerk of the Assembly's office.

Administration Apartment

-- Offices

-- Restaurant

-- workshop hall.

Auxiliaries

-- Generating plant

-- Store

-- Parking for members and other staff

-- Public parking spaces.

Appraisal

The Kwara State House of Assembly is a one-linear rectangular building which is made up of two distinct buildings with a link. The building has three levels, the ground, first floor a[illegible] roof levels.

The link between the parliament and administration comprisee offices and visitors' reception hall. The administrative building is of block wall and slinde window construction, the two floors compose of partly offices, restaurant and workshop hall on the ground floor, while the whole first floor comprisee offices. The roof construction is a mono-pitch roof built of long span aluminium roofing sheet on timber rafters.

The airconditioning equipments in the building are the unit types which has been carefully designed and installed to prevent any negative effect on the elevation.

Observations

Positive

-- The tarred area is kept away from the building. Planted area separates the parking space from the building so that the reflected heat from parking space will have minimal effect on the building.

-- Single entrance access to the site is good for control and reduce cost of keeping too many staff.

-- Circulation on site is well defined.

-- The building is well orientated to avoid glare effect.

-- Simplicity is observed.

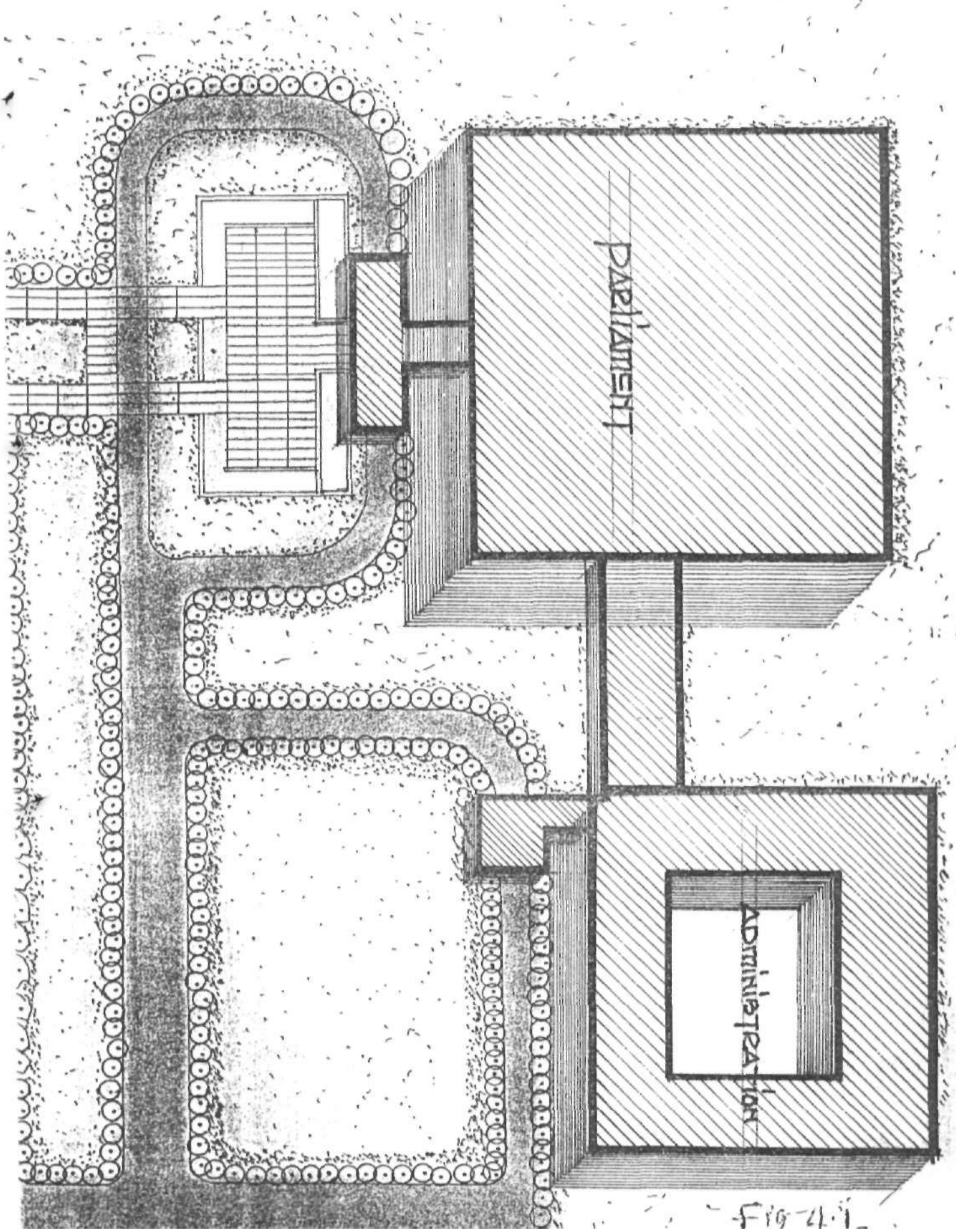
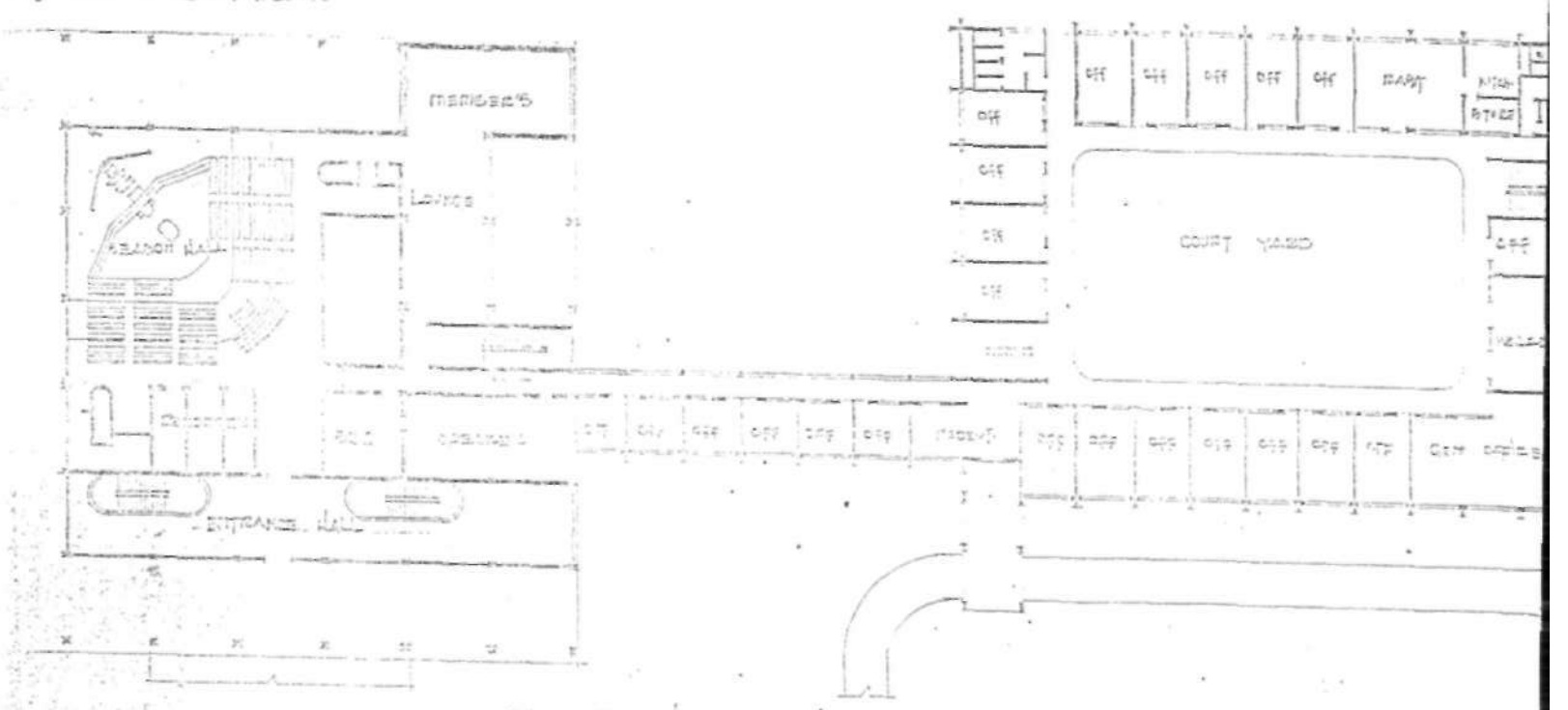


Fig 4.1

STUDY 1

KHARA STATE HOUSE
OF ASSEMBLY, Ilorin



GROUND FLOOR PLAN

Fig 4.16

First Floor Plan

Fig 4.1C

4.2.0 CASE STUDY TWO: Ogun State House of Assembly, Abeokuta

4.2.1 Introduction

Ogun State House of Assembly was designed by a team of Architects from the State Ministry of Works and Housing, Abeokuta under the directive of the State Chief Architect, Arc. J. O. Beckley and the Project Architect, Arc. F. J. Bautista. The project which commenced in 1978 was awarded to Solel-Boneh, Nigeria Limited.

Ogun State House of Assembly is located along Abeokuta-Shagamu road in the state capital.

4.2.2 Facilities

The following sections constitute the complex:

The Parliament

The parliament is made up of the following parts:

-- The Session Hall

-- Delegate Lounges

-- Mass Media Rooms

-- Television Rooms

-- Special Guest Unit

-- Entrance Hall

-- Public Gallery

-- Toilets for both delegates and public.

Administrative Section

-- Offices

-- Restaurant

-- Workshop.

Auxiliary

-- Generating plant

-- Store

-- Assembly members and other staff parking

-- Public parking.

Appraisal

Ogun State House of Assembly is an inverted " " " " shape type of building, with a long corridor connecting the administrative block and the Assembly Hall. There is an external court yard separating the administrative block and the assembly hall.

The complex is located very close to the governor's office, which enhances a close co-ordination of activities between the executive and the legislature.

The two separate buildings have one approach and two separate entrances for each building. In the assembly hall, the visitors enter through the main entrance while the parliamentarians enter through the other door which has a

separate direct entrance to the office. There are three entrances to the office. The main, side and parliamentarians' entrances. The visitors use the main one, the staff use the main and side ones, while the parliamentarians use the last one.

The building which is of two parts is made up of the chamber and the offices. The chamber is made up of partly two floors and partly double volume space. (The ground and first floors). The ground floor comprises session hall, entrance hall, mass media room, special guest room, parliamentarians lounges, toilet facilities for both delegate and public. The first floor comprises public gallery, television rooms, lighting and electronic control room, observation and toilet facilities. There are two entrances, one for the public and the other for the parliamentarians. There is a security control which prevents the public from having a direct access to the session hall. There exists only stair case for the vertical transportation.

The walls are built of sandcrete blocks, finished externally in sandtex and internally partly with paint and partly in panel timber. The windows are built of tinted glass in aluminium frames. Corrugated asbestos roofing sheets on

steel purlins and steel trussed rafters are used for the hipped roof which slopes into a roof gutter constructed round the building.

The office is a three floor building, a part basement and joint ground floor, first and second floors. The slope of the site utilized resulted in the part basement. The ground floor is utilized for services such as the restaurant and workshops, while the first and second floors are used for offices.

The drawings for administrative building and the sketch of the office could not be obtained due to the restriction placed on visitors. The measures are for security reasons.

Observation

Positive

-- There is good separation between the parliamentarians' circulation and that of the public.

-- Both the pedestrian and vehicular traffic are well defined.

-- There is adequate security measure to prevent the public from entering the session hall.

-- There is effective utilization of the natural site.

-- Location of facilities like the toilet is good.

-- Locations of the mass media and the television camera men are good.

Negative

-- Inadequate seats at the public gallery.

-- Incomplete supporting facilities such as printing and library departments.

-- Adaptability of the hall and offices to other functions are not possible since flexible materials for construction are not used.

-- There is glare effect on the building because there are no planted area between the buildings and the parking space.

Conclusion

The inadequacies of facilities within the complex may have adverse effect on the effective performance of the parliamentarians.

Consideration was not given to flexibility in the use of spaces, hence it can not be adapted to other functional use.

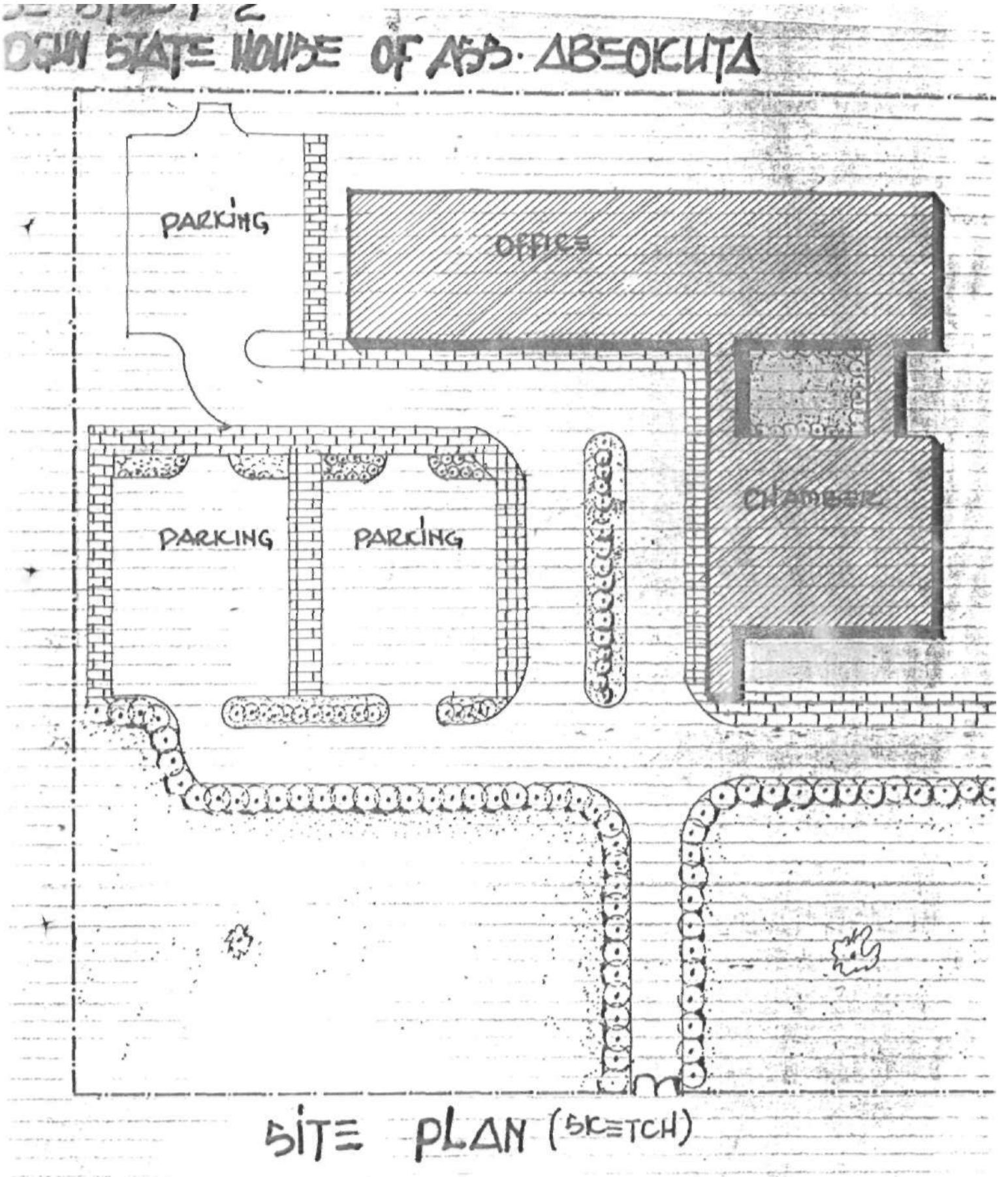


FIGURE - 4.2[A]: Ogun State House of Assembly, Abeokuta.

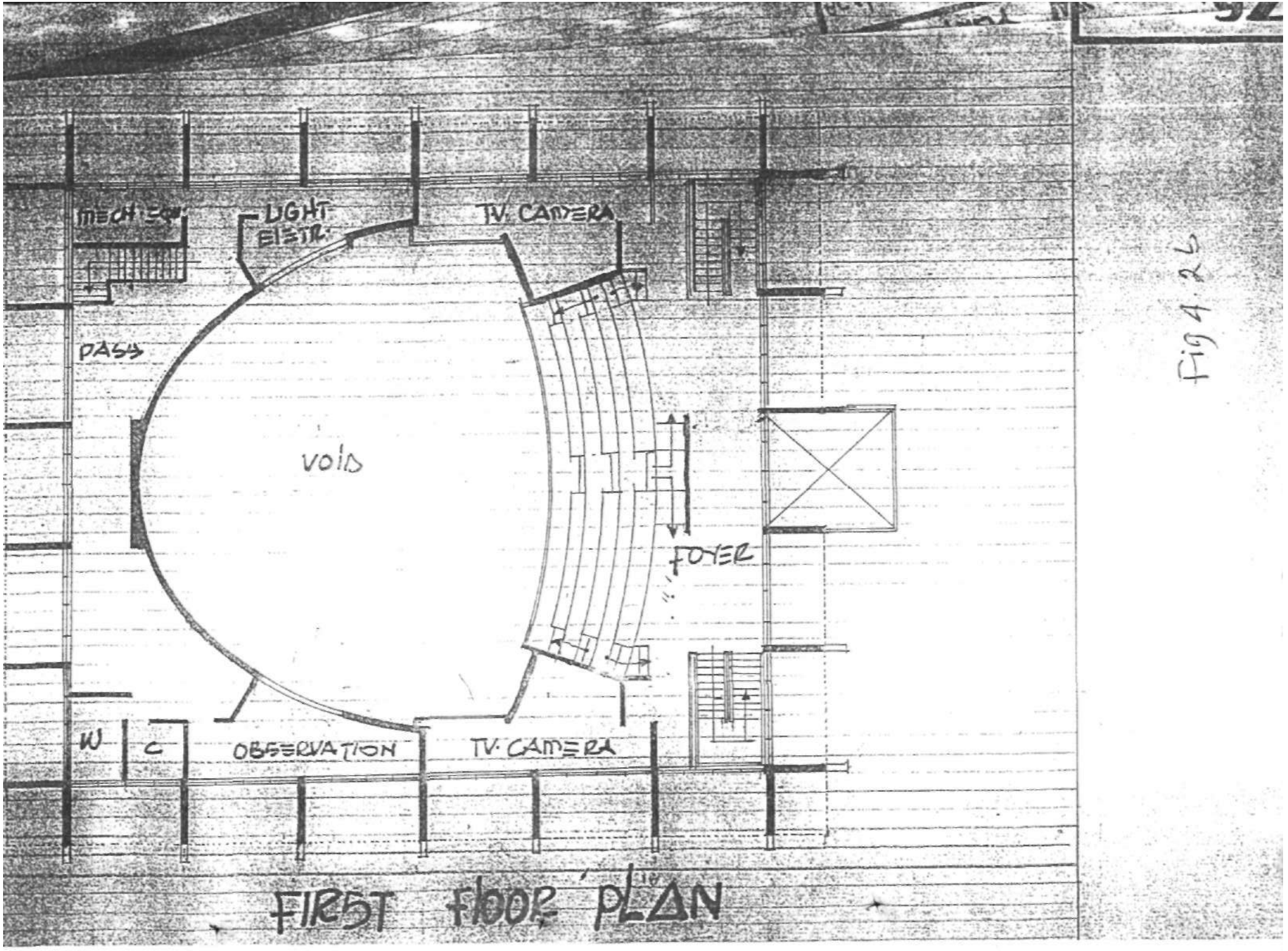
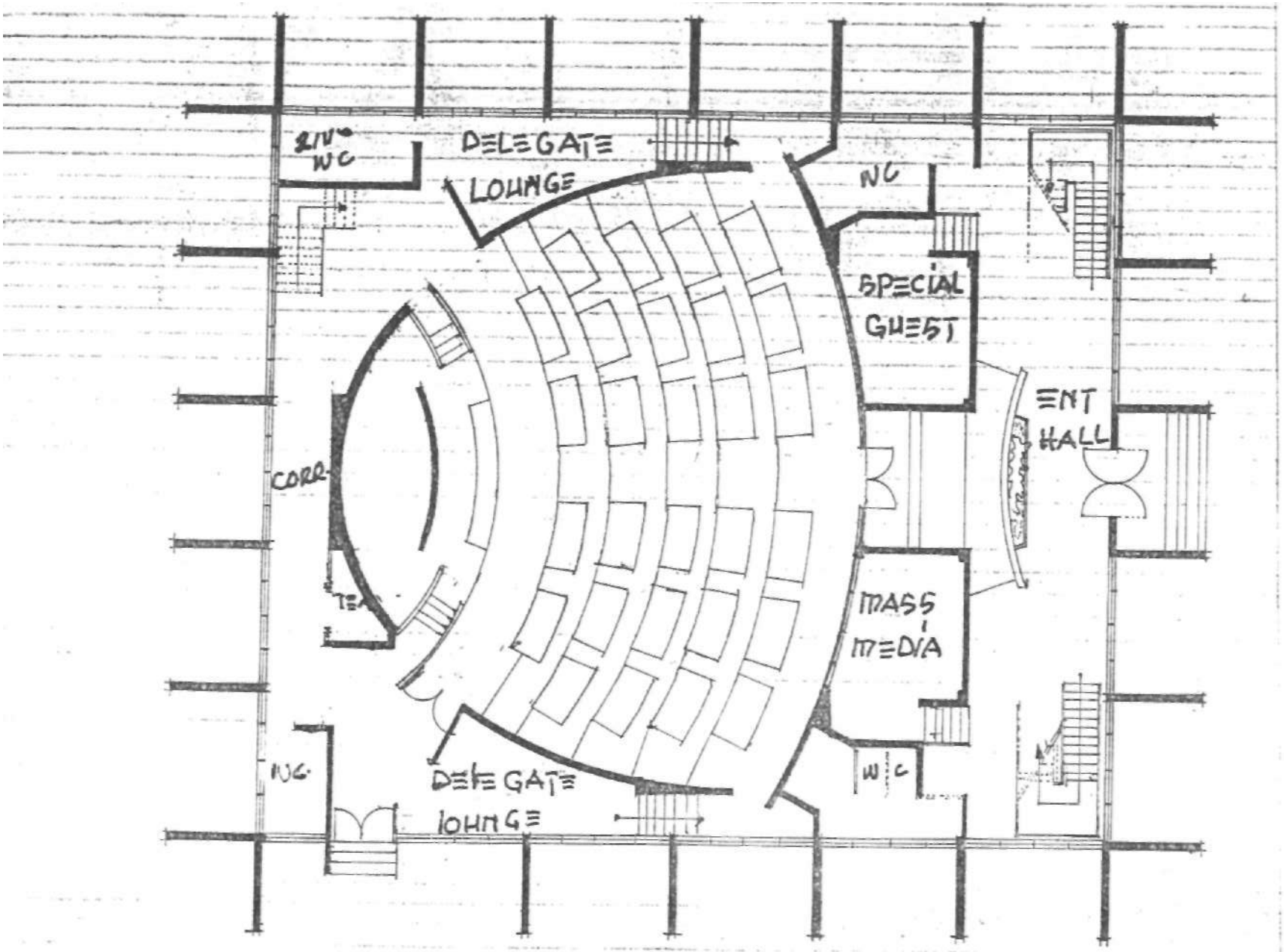

MECH EQP
LIGHT ELEC.
TV. CAMERA
PASS
VOID
FOYER
W
C
OBSERVATION
TV. CAMERA
FIRST FLOOR PLAN

Fig 4.26



GROUND FLOOR PLAN

Fig 4.22c

Fig 4.2D

4.3.0 CASE STUDY THREE: Parliament of New South Wales

4.3.1 Introduction

New South wales Parliament House was designed by a team of Architects from Government Architects brange, Department of Public Works, New South Wales, under the supervision of the project architect, Arc. Andrew Andersons.

The project is sited at Macquarie Street Sydney, between Library of New South Wales in the north, Sydney Housjutal in the south and Momain in the east.

The original building was constructed between 1811 and 1814; it was appropriated to use of the executive and legislative council in 1829. The increase in the membership in 1842, necessitated the building of another chamber at the north end of the first building called Historic building. At a later stage, a pre-fabricated cast iron frame building was erected, this was used with piecemeal additions made at rear of the site over a period of one hundred and twenty years.

By 1972, the existing acommodation was considered inadequate and coupled with structural defect in some parts of the building, a new parliament house was conceived.

4.3.2 Facilities

The facilities that are available in the parliament house are as follows:

Parliament

-- Assembly chamber

-- Interview room

-- Council chamber

-- Parliamentary museum

-- Public lobby

-- Members lounge

-- Visitor lounge

-- Staff dining

-- Visitor dining

-- Speaker

-- Toilet facilities.

Administration

-- Offices

-- Reception

-- Press room.

Auxiliary

-- Parking spaces

-- Plant room.

Appraisal

New South Wales House of Assembly is a single massive rectangular building constructed in two stages. The first stage has a thirteen level structure, with five below the ground level (basement) with a total area of 32,600 square

meter. The second stage has a four level structure, with an area of 7,400 square meter. This second stage is an infills between the first stage and historic building.

The first four levels at the basement are used for parking spaces, the fifth level is used to house the plant and other services. Also part of the roof which is concrete is used to house the plant. The sixth level houses all spaces mentioned under the parliament previously, also the library is located in this floor. The museum, public lobby and refreshments are located on the seventh level which form the first of the four levels structure, while the offices are located within the eight to twelveth levels. The height of four level structure is kept in proportion with the scale of the state library of New South Wales.

The new accommodation catered for forty-five members of the legislative council and ninety-nine members of the legislative assembly, there was provision for a little increase in the number of members later. Each member was provided with a private office and an office attached for secretary. The ministers have a large office with adjoining rooms for the staff.

The site has two approaches, one from Carlill expressway while the other is from Macquarie Street. The building

has two approaches, one from the north and the other from the east.

The building is constructed of framed structure with glass infills as the walls. A corridor is constructed round the building to enclose the glass.

The roof of the twelve levels structure is constructed of reinforced concrete while that of the four levels structure is constructed of long span aluminium roofing sheets on steel purlins and rafters.

Observations

Positive

-- The design is properly integrated as a single solid building which allows proper co-ordination.

-- Adequate provision of facilities.

-- Part of the design is adaptable because of the use of flexible materials and open plan system.

-- Proper separation of facilities between the visitors and the members facilities.

-- Adequate grouping of functional spaces together. Example, the speaker and Assembly chamber.

Negative

-- Inadequacy of land which led to the parking spaces being located at the basement.

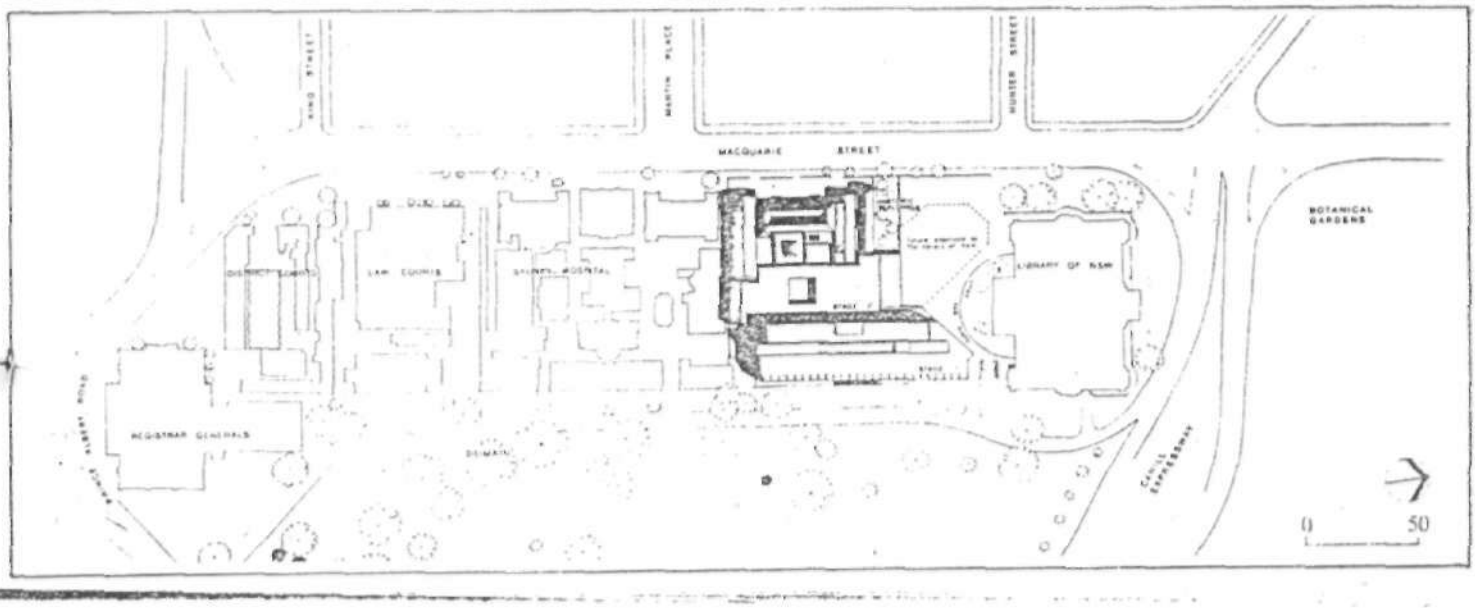
-- Clumsy circulatory system.

-- Too many undefined entrances at the seventh level.

-- Servicing the toilets located internally will bring problem, if the system is adopted.

Conclusion

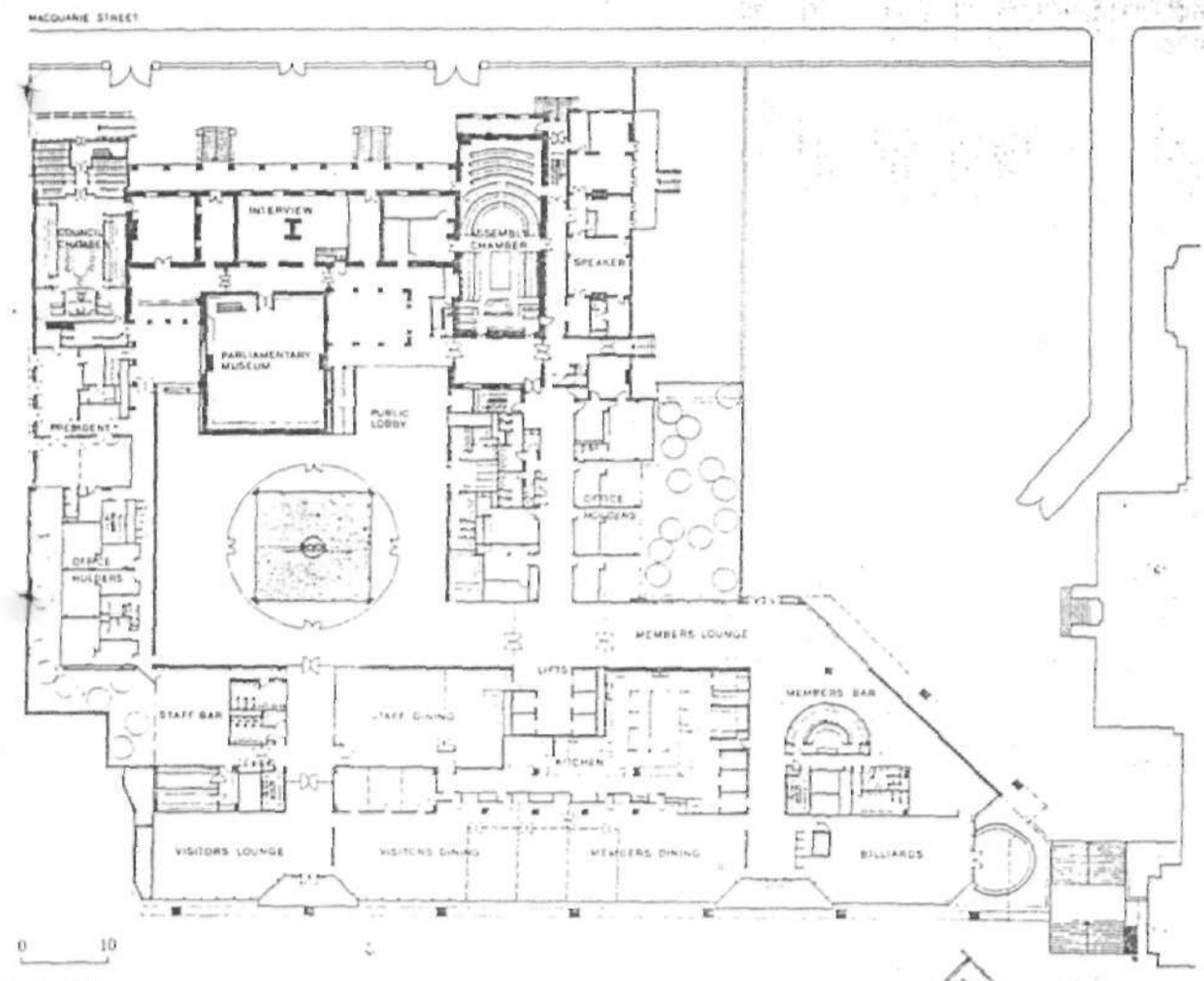
Though the use of the parliament has spanned over many years and still meets the need of the House, yet there are some problems like clumsy circulation, too many undefined entrances and insufficient land.


KING STREET
MARTIN PLACE
MACQUARIE STREET
HUNTER STREET
BOTANICAL GARDENS
LAW COURTS
LIBRARY OF NSW
REGISTRAR GENERALS
DOMAIN
0
50

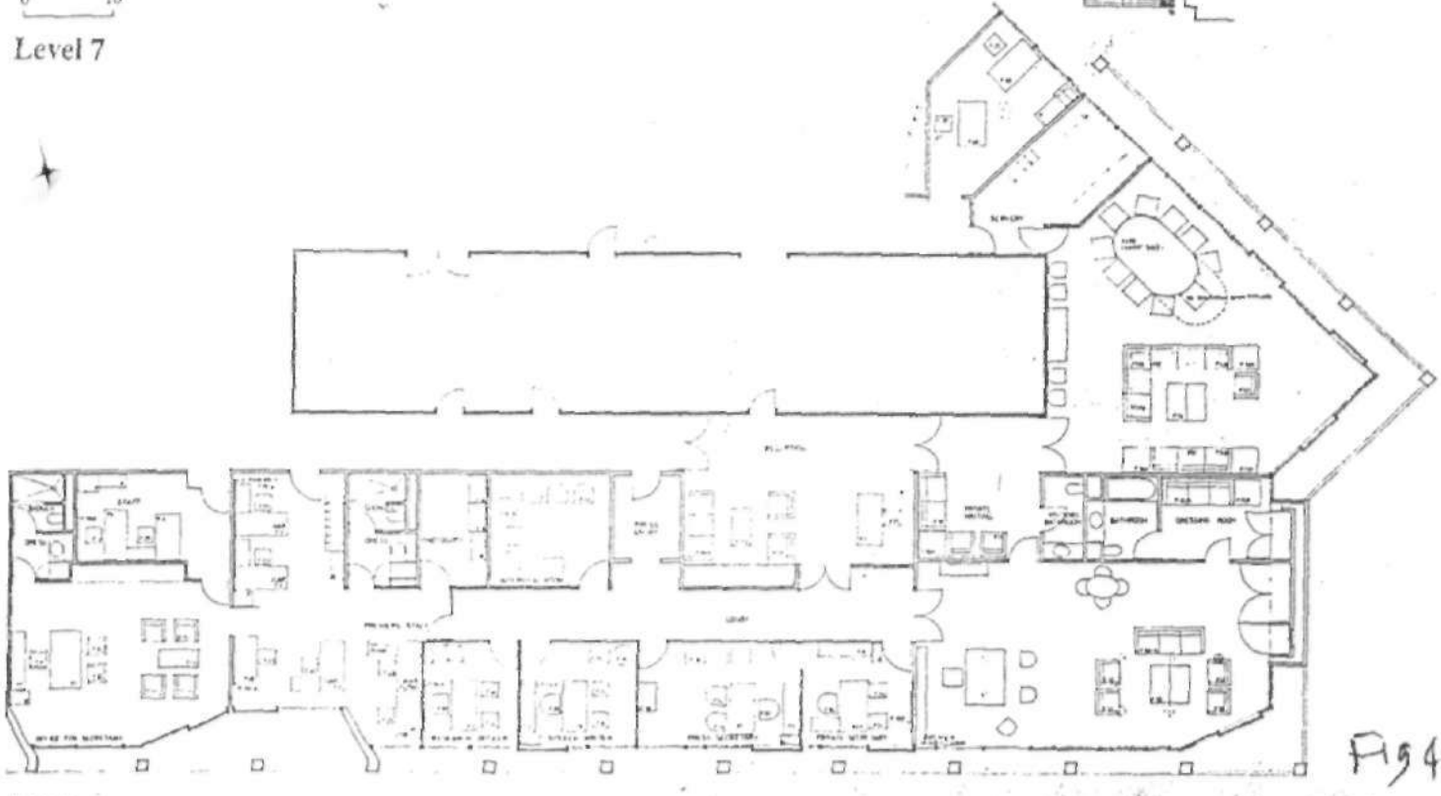
4·3A

Parliament House NSW

Parliament House New south Wales.
Source: Architectural Austrian 1981

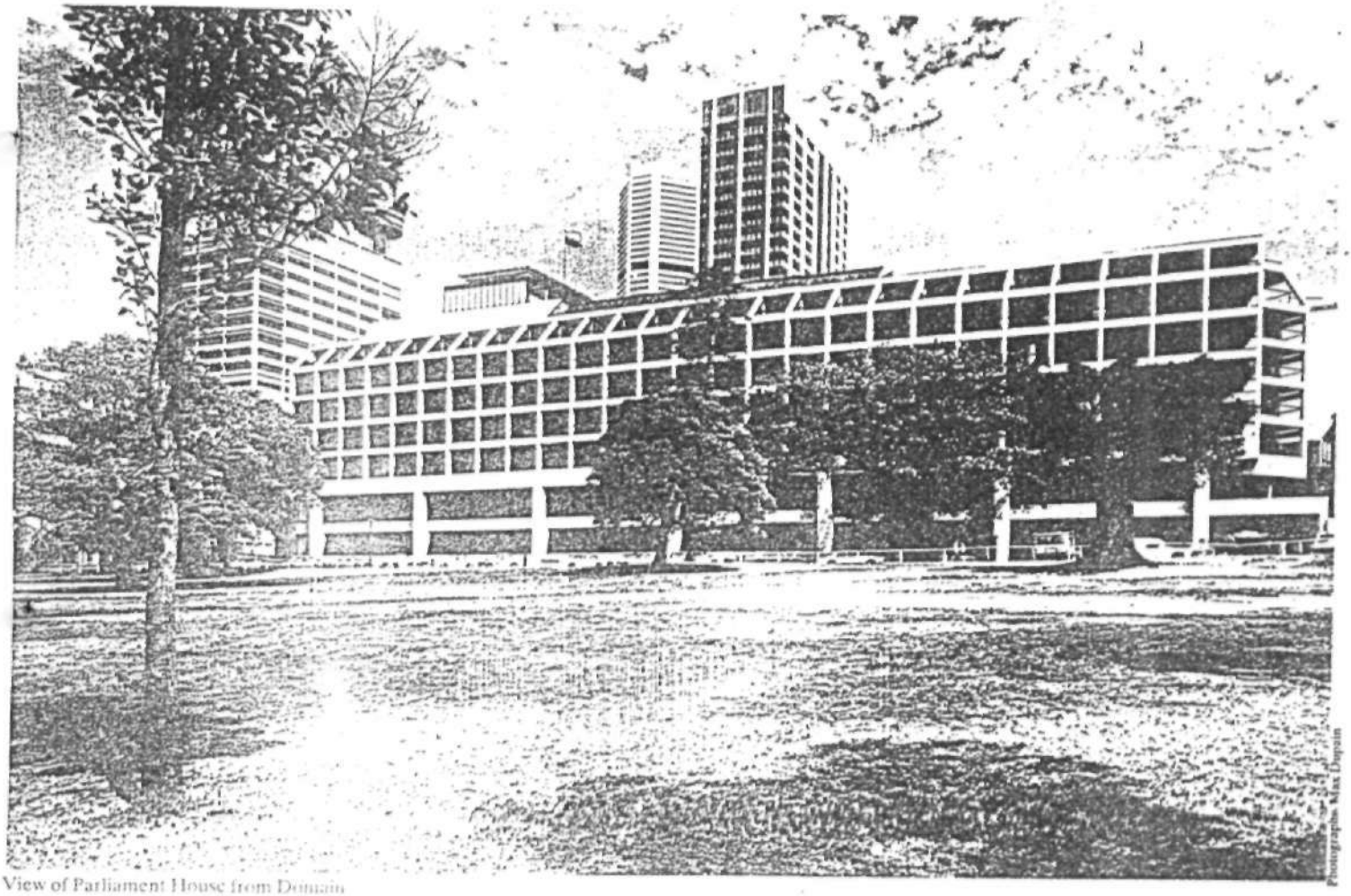


Level 7



Level 6

Fig 4.3



Photographs: Max Dupain

View of Parliament House from Domain

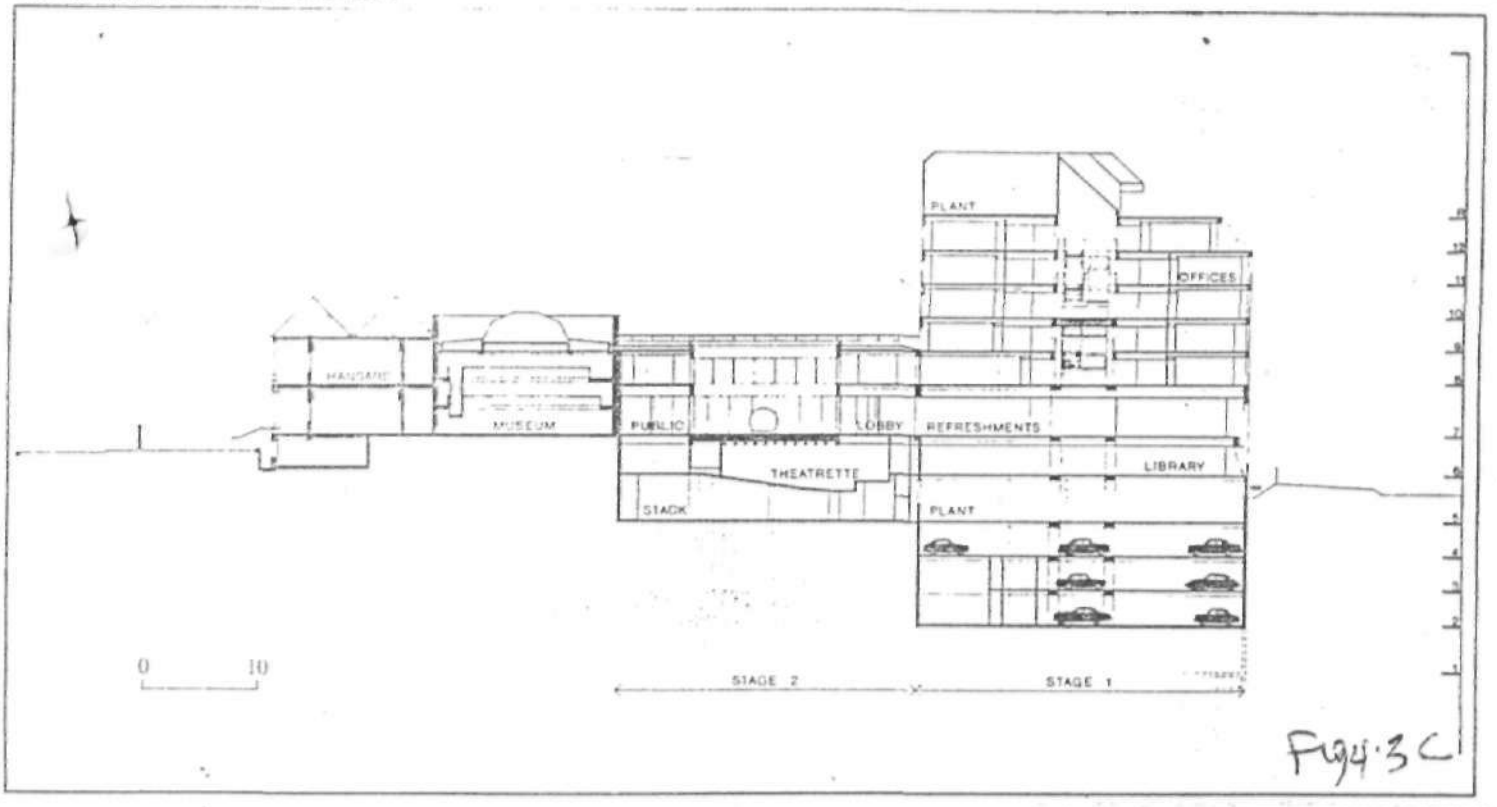


Fig 4·3 C

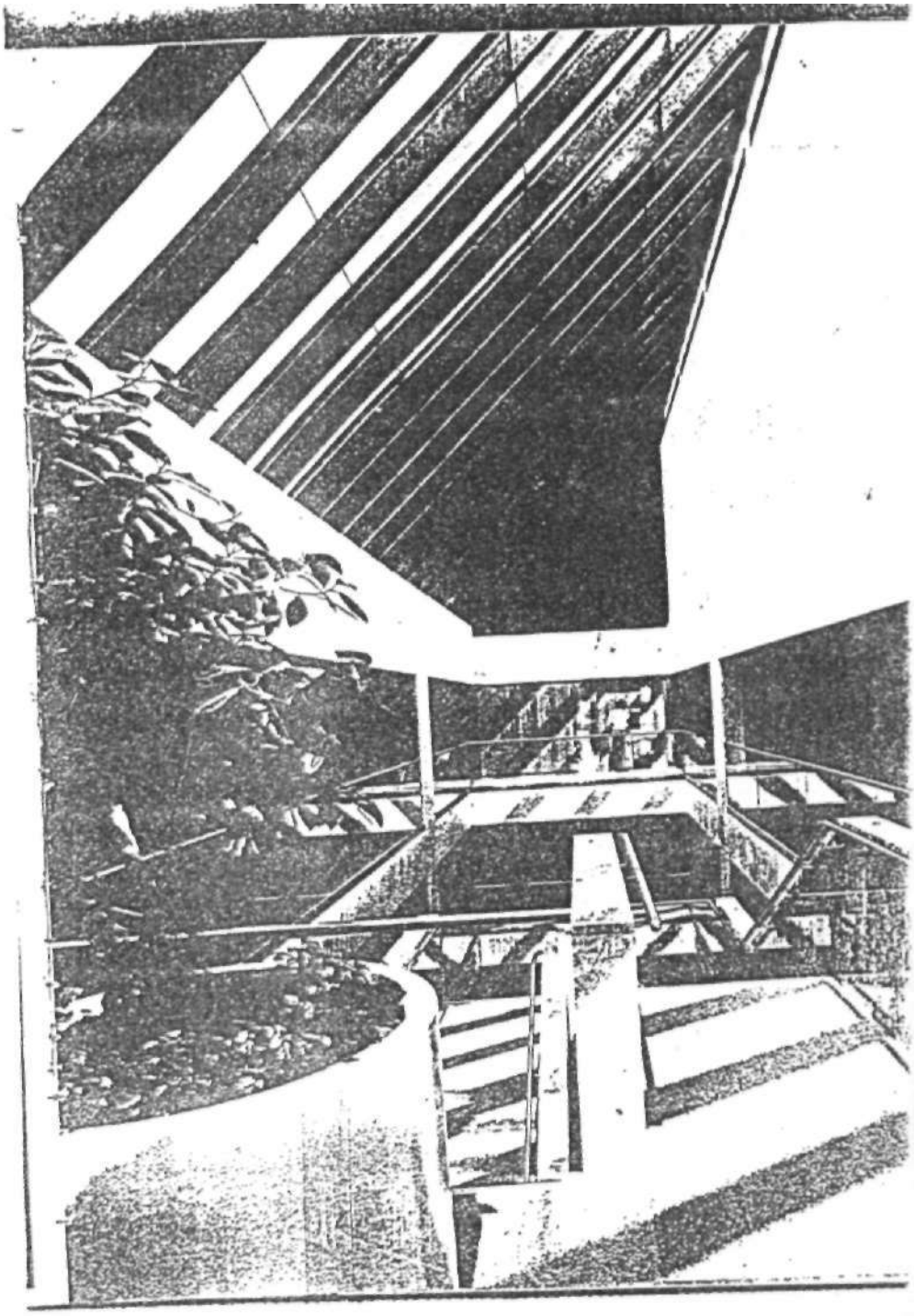


Fig 4.3D

CHAPTER FIVE

CHAPTER FIVE

5.0 THE SITE

5.1 Site Selection Criteria

In selecting a site for a parliament complex which is a government project in State Headquarter, it is very necessary to consult a master plan, urban development map of the town and the published urban laws and regulations. Options are available from the surveys, hence the following criteria are used for the selection of the best site.

i. Accessibility: The location should normally be accessible by public transport, private and pedestrian routes, hence it should be closely located to a well known route.

ii. Availability of Land: There should be enough land for the project so as to facilitate expansion and flexible design.

iii. Proximity of Utilities and Services: The site should be within the vicinity where essential services such as electricity, water and communication can be easily tapped.

iv. Landscape Resources: Natural land features such as trees, streams, Rock outcrops and many others that may be of added advantages in the design which can enhance the landscape quality.

v. Topography: The site should have a naturally gradual, well drained direction; have interesting topographical features such as changing ground elevations, but the site should have fairly levelled surface and good stable soil to minimize cost of foundation.

5.2 Site Location

In Lokoja Master Plan, land use proposal is now undergoing partial implementation before it is made the headquarter of Kogi State. Two sites were selected and analysed. Ultimately, the better one of the two was chosen for siting the parliament complex (site two). One of the sites is within the area reserved for government and civic building, while the other one is along Lokoja and the army barrack road.

5.2.1 Analysis and Choice:

Site One

This site is located in the centre of the town where other government buildings such as the police station, court and some ministries are located. It is bounded on the North

by Lugard Road, on the South by Wallace Road, on the East by the court and police station and on the West by the intersection of Lugard and Wallace Road, Fig. 5.2.1. The analysis of this site was based on the site selection criteria which are as follows:

-- Accessibility to the site is good as three roads converge on the site. The roads are Lugard, Wallace and the one separating the police station, court and the site.

-- There are provision of utilities and services on this site and could easily be connected for use, but the location of the project on this site will bring inadequacy to the facilities in this area thereby bringing hardship to the surrounding occupants.

-- Availability of enough land for expansion and flexible design is impossible as the land is small, congested with activities and it is impossible to locate any other arm of the government closer.

-- Lokoja as a new capital, the development is intended to be along Lokoja-Okene/Kabba road, the site is not central as expansion of the town moves very fast, so proximity to all the area will not be achieved.

-- Landscape resources: The land lacks any natural resources like vegetation and rock outcrops.

-- Topography: The land is relatively flat and drained towards the southern direction.

Site Two

The site is located between Lokoja town and the army barrack along Okene/Kabba road and the Commissioner Road, which link the government residential area. The analysis of the site was based on the selection criteria.

-- Accessibility, the site has good access, it is accessible from the Lokoja-Okene/Kabba road and also through the Commissioner Road.

-- Topography; the site has gentle slope with natural drained direction. There are no rock outcrop. It has seasonal stream.

-- Landscape Resources, the site is endowed with few trees, seasonal streams and few contours.

-- Availability of Land, there is sufficient land that can be utilized for the present need and future expansion. The main secretariat of the state which can house an arm of the government can be built on the nearby plots.

-- Utilities and Services. Electricity, telephone lines and water supply are available around the site, they can be easily tapped. The consumption of the complex will not have adverse effect on the surrounding users since the lines running through are main lines.

-- Proximity. The area which will become centre of the town when it must have been fully developed will be easily accessible from all parts of the town.

The site was considered as an ideal one for the building of the parliament complex, when compared to Site One, Fig.5.2.1A.

5.2.2 Pattern of Settlement:

Lokoja consists of three undistrict linear settlement, which is like triangular in shape. The first of all the three is 'Filele' area which is along Okene-Kaduna road and spread along the Old Okene-Kaduna road to link the main town.

The development continued along the road and spread towards the Panti Ridge in the north to a certain extent. On the east and southern parts, River Niger prevents the continuous spread. There exists a market before getting to the centre of the town, as from the market the commercial centre of the town exists. At the centre of the town which is



Fig 5.2.0 Map of Nigeria.

RECEIVED
Land, Survey

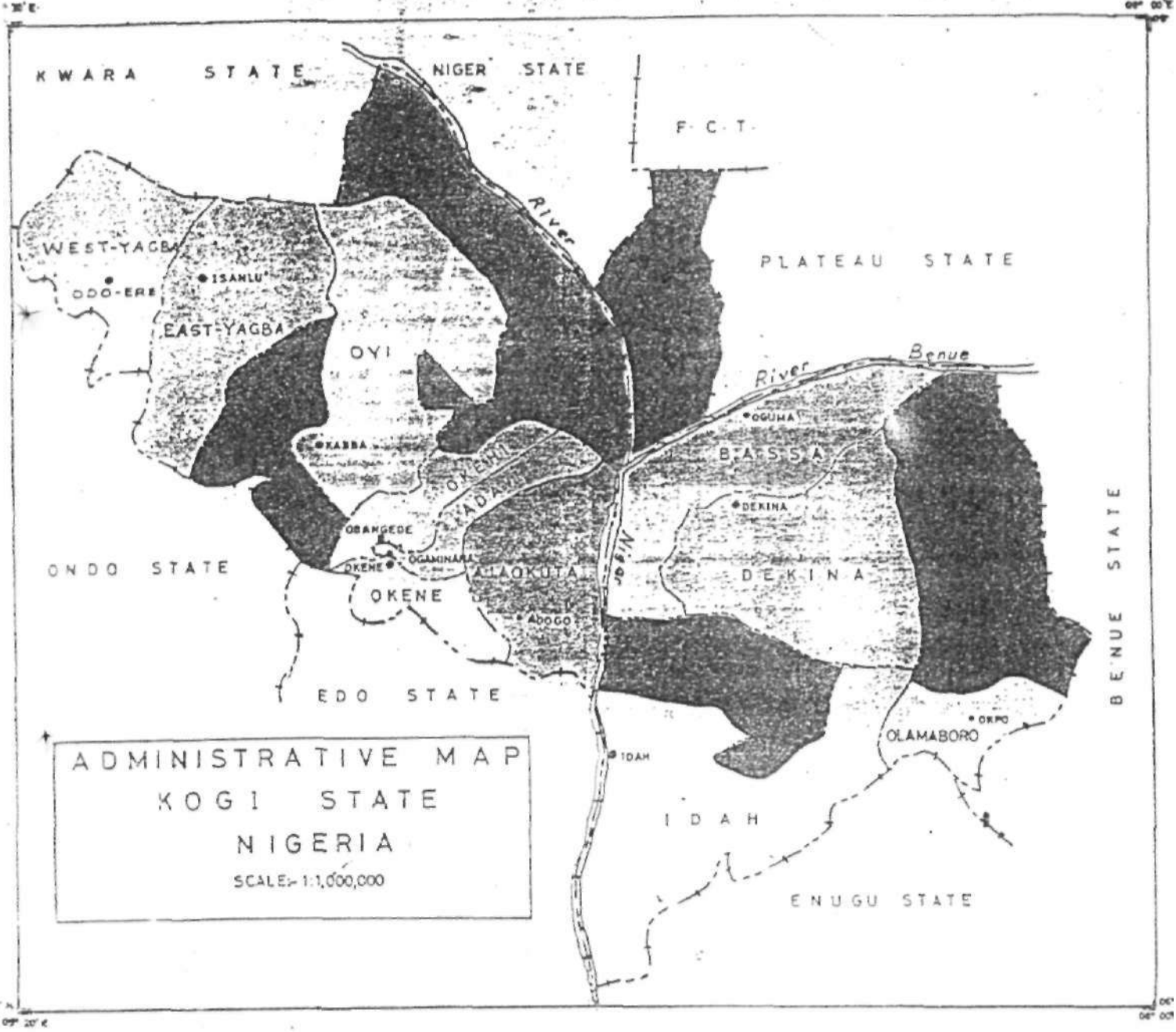


Fig 5.2.0
Map of Kogi State

Source: Land & Survey
Lokoja



Fig 5.2.1 MAP OF LOKOJA

source: Lokoja Topo sheet 1966

Fig 5.2:1A. Site location

SOURCE: LOKOJA TOPO: SHEET 1966
AND PERSONAL SITE VISIT.

M.Sc. '92

between the traditional settlement and the new layout lies the area for government and civic buildings, such as the court, administrative offices, police station and the hospital. The expansion of the town which is expected to be rapid as a result of the state capital development will be toward the central, south-west and along Lokoja-Okene/Kabba road, Fig. 5.2.2.

Lokoja is a town founded in 1860 by a Briton, William Baikie (Lokoja Master Plan). The first settlers are the Hausas who migrated from Katsina. The major ethnic groups in Lokoja are the Nupes, Yorubas (Kabbas), Ibos, Igbirras and Bassa Komos. The settlement is made up of the above named people who live together, a situation whereby strangers live outside the traditional area is absent in Lokoja. There are new layout areas. This covers the Police barrack, private residential areas, Government Residential Area (G.R.A). Some educational institutions can be found at the northern part, which is bounded by the hill; in the extreme south-western part of the town, beyond Mimi River is slated for the industries while the Army barrack is located towards the north-west along Lokoja-Okene/Kabba road. There were little development at the western part before the creation of the state.

5.3 Services and Utilities

Services and utilities are one of the most important part of facilities which a government can provide for her people to make life comfortable fur living. Such services are road, electricity, transportation system, communication and water supply.

5.3.1 Road Network:

Lokoja is situated at a strategic point on the federal highway network. The Federal trunk A_2 road provides the town with three links, one to Jamata in the north which leads to the Federal Capital Territory, another to Zongo in the west from which the A2 provides the link to Okene. Another A123 which took off from the A_2 provide a link to Kabba. Lokoja town has Ferry service across the River Niger to Shinteku where the tarred Federal trunk A223 originates leading to Dekina, Ankpa and some Local Government Headquarters. Lokoja is important as far as the north-south and east-north traffic is concerned. Another major link is the proposed Ajaokuta-Lokoja road which has just been awarded by the state government.

There are many internal roads but only two of these roads link the site to other internal roads. With the bye-pass created to meet the need of the north-south traffics, only the

traffic going to Lokoja town will go through the Lokoja-Okene/Kabba road which is off the main north-south road, Fig. 5.2.4. Accessibility to the parliament complex shall be through the Commissioner road which is off the Lokoja-Okene/Kabba. This ingress and engress to the site along the Commissioner road will not cause any traffic hold-up along Lokoja-Okene/Kabba road.

5.3.2 Electricity Supply:

Electricity supply to Lokoja town is through the national grid 132KVA line, local distribution within the town is carried out by means of overhead cables. The parliament complex is to be supplied with electricity by National Electric Power Authority (NEPA), whose main supply line is very close to the proposed site. In addition to NEPA supply, there should be a stand-by generator which can supply electricity when NEPA line is off.

5.3.3 Transportation:

A well designed transportation system is a determining factor in the development of the physical structure of a town. It should provide economic and efficient route for the movement of the people and commodities.

Survey by Daral-hand consultant has shown that many of the inhabitants of the town are without cars and as a result in the down turn in the economy of the nation, the situation has got worsened.

The means available for public transportation is by taxis, motorcycle express service and a few buses provided by Kogi Travellers, an organ of government involved in the transportation activities. The taxis ply only major tarred roads while the motorcycle which ply all routes, (both tarred and untarred) charges more money. There is the need for the Kogi Travellers to provide more buses in Lokoja, not only to facilitate urban transportation system, but also to assist in accessing the parliament complex.

5.3.4 Telecommunication:

There is a big post office at the intersection of Wallace and Lokoja-Okene/Kabba road, there is also a NITEL building beside the post office. The new exchange has about six thousand lines (6,000). The policy of the government's target, set to achieve a telephone ratio of 1:30 by 1985 has not been achieved, but a good number of public telephone booths have been located along the major streets for public use, though some of them had been vandalized. A direct network line is already passing by

the side of the site, the complex can be connected to this network line.

5.3.5 Water Supply:

The water demand of Lokoja is estimated to be about 12,150,000 litres per day for both domestic and industrial consumption assuming a population of about 95,000 people. A substantial percentage of this has not been achieved. The sources of water to cope with this are from wells, boreholes and the small waterworks being presently maintained. There is the need for this complex to have its own water supply or have a water reservoir since there is acute supply of water, or expand the existing waterworks to cope with the demand.

Sewage Disposal and Drainage

Lokoja has no sewage treatment plant presently neither is there any plan to embark on such programme in the nearest future, despite the fact that it has a potential of having enough water to utilize in a waste disposal scheme.

The method being currently adopted for the solid waste disposal is the latrine and septic tanks. Waste water is discharged into the street or open drain where they are available.

Lokoja has many streams that go through the town, the streams will provide a suitable emptying points for a storm water network of drains to be constructed throughout the town, the complex will adopt the same method for storm water while it makes use of septic tank for solid waste disposal. All the waste materials from the office and kitchen which are combustible should be burnt on the site while the non-combustible ones should be taken to incinerators. By this, burning cubicals should be provided in an area which will not cause discomfort to the people. Hence, it should be on the lee-ward side.

5.4 Geographical Analysis

5.4.1 Climate:

Lokoja town which falls within the middle-belt has two main seasons; the wet season from March to October, and the dry season from November to early part of March. Each of these seasons is characterised by a specific type of prevailing wind. The wet season brings with it south-westerly wind originating from equatorial rain belt and blowing from the high pressure zones which occur over the Atlantic during their period. The dry season is accomplished by harmattan, a dust-laden wind blowing from the sahara Desert.

5.4.2 Temperature:

The monthly mean temperatures are 33.7^{0}C maximum and 22.7^{0}C minimum. The hottest months are between mid-February and mid-April with temperatures soaring as high as 38.3^{0}C maximum and 25.8^{0}C minimum. The temperature graph shows that there is thermal discomfort throughout the year with temperature variations of up to 10^{0}C on the average.

The area of influence on design will be on thermal comfort, cooling installations, effect on joints and panel movements, roofing types and opening. Table 5.3.1.

The table of rainfall (5.3.2) indicates the pattern of rainfall, the annual mean rainfall is about 1279.85mm (Meteorological station, Lokoja 1987 - 90). The highest rainfall is recorded in June/August.

The area of influence on design will be on roof slope, efficient drainage of site and roof, problem of decay, corrossion, break down of finishes and joints.

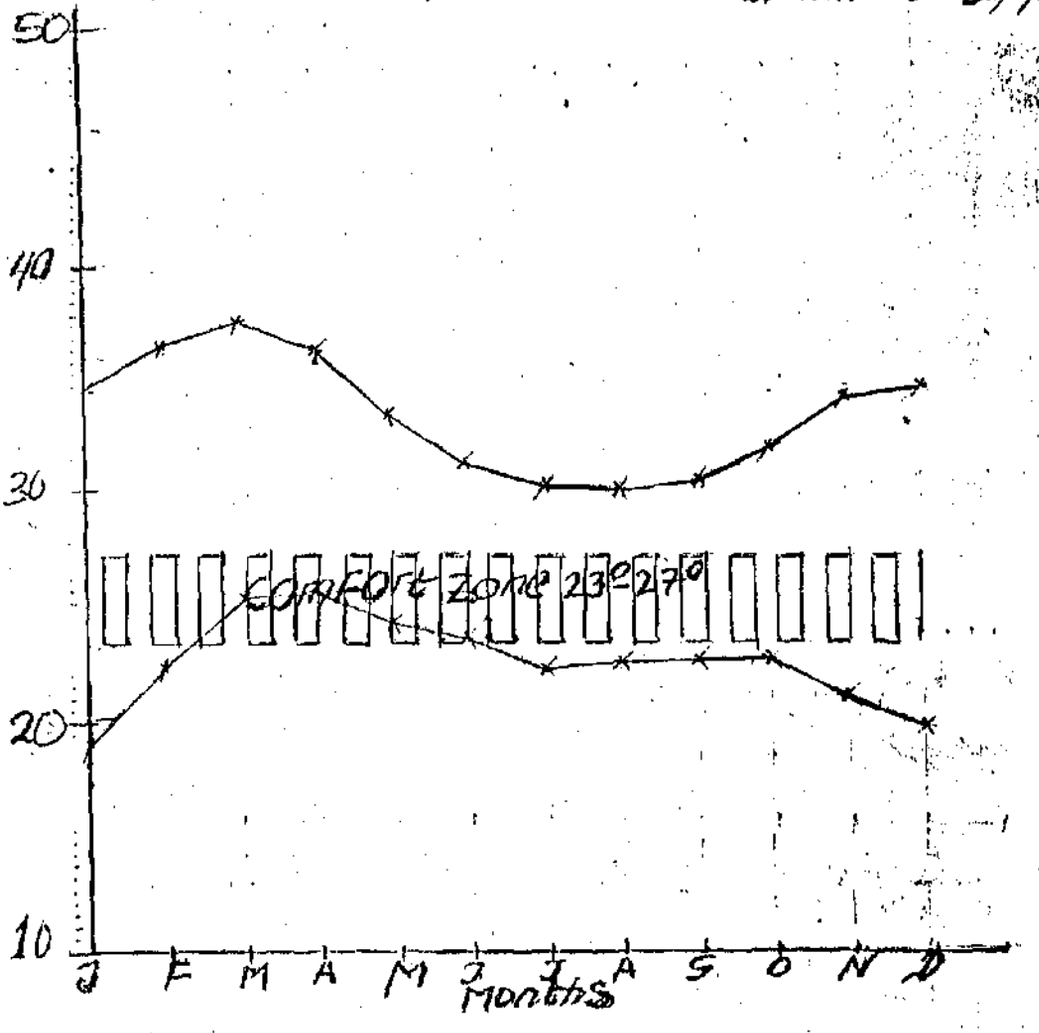
Relative Humidity

The relative humidity of the area fall as low as 21% during the dry season and rise as high as 81% during the rainy season.

Mean Monthly Maximum and Minimum temperature °

January	34.91	19.10
Febuary	36.60	22.50
March	37.60	25.10
April	36.60	25.80
May	33.90	24.4
June	31.90	23.5
July	30.60	22.8
August	30.40	22.9
September	30.70	22.9
October	32.20	22.9
November	34.70	21.1
December	34.80	20.1

Figure 5.3.1 Mean Monthly Maximum and minimum temperature °

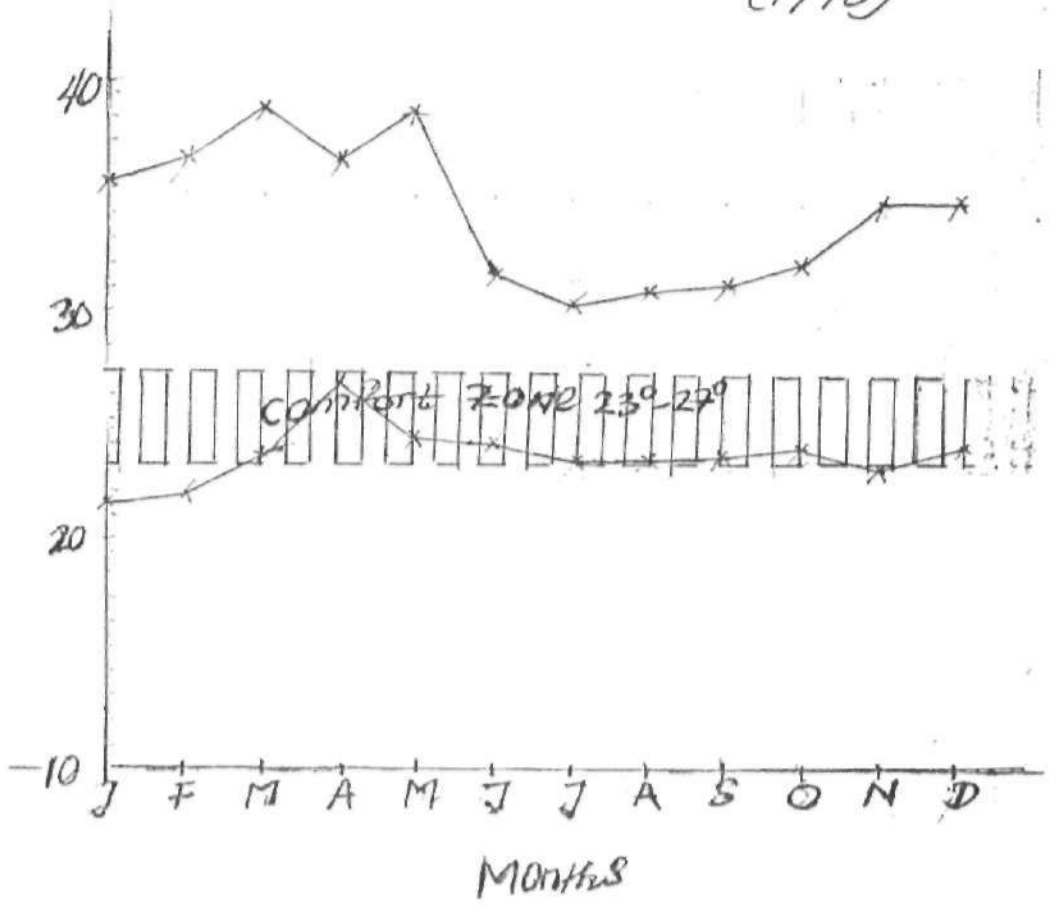


SOURCE MET. LOKOJA

Mean daily maximum and minimum temperatures (1990)

Months	M.d.	m.d
January	35.2	21.6
Febuary	36.2	21.9
March	38.5	23.5
April	36.2	25.7
May	38.2	24.2
June	31.7	23.8
July	30.1	23.0
August	30.5	23.0
September	30.8	23.1
October	31.9	23.3
November	34.3	22.6
December	34.3	23.4

Figure 5.3.1 Mean Daily maximum and minimum temperatu (1990)



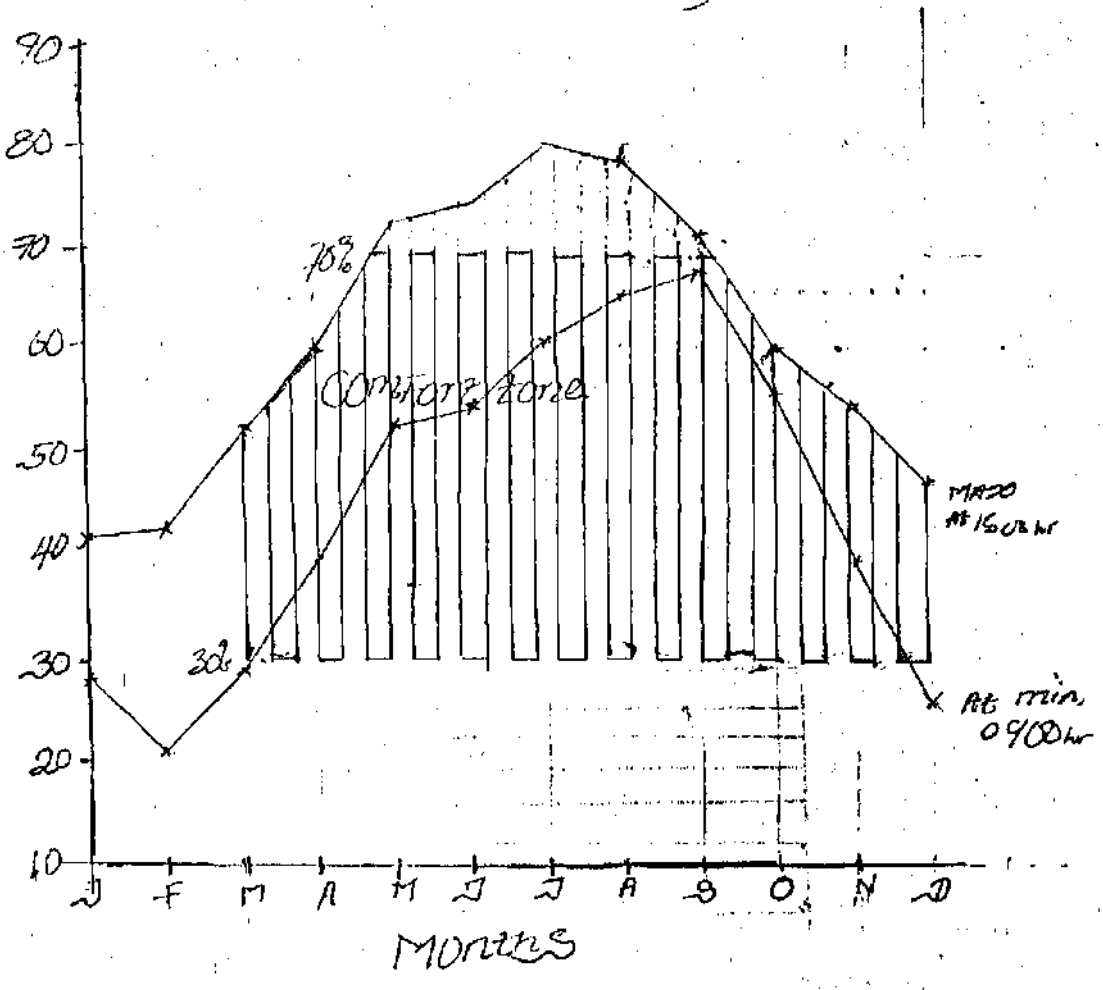
SOURCE :- MET. Lokoja

Table 5.3.2 monthly mean relative humidity (1987–1990)

At 1500 hr 0900 hr

Month	RH MAX	MIN
January	41.0	28
February	42.0	21
March	51.6	28.5
April	59.8	39
May	73.	52.5
June	75	54.5
July	81.	61.5
August	74	66.5
September	71	68.5
October	54	54
November	38	35
December	44.5	25.5

Figure 5.3.2 monthly mean relative humidity (1987–1990)



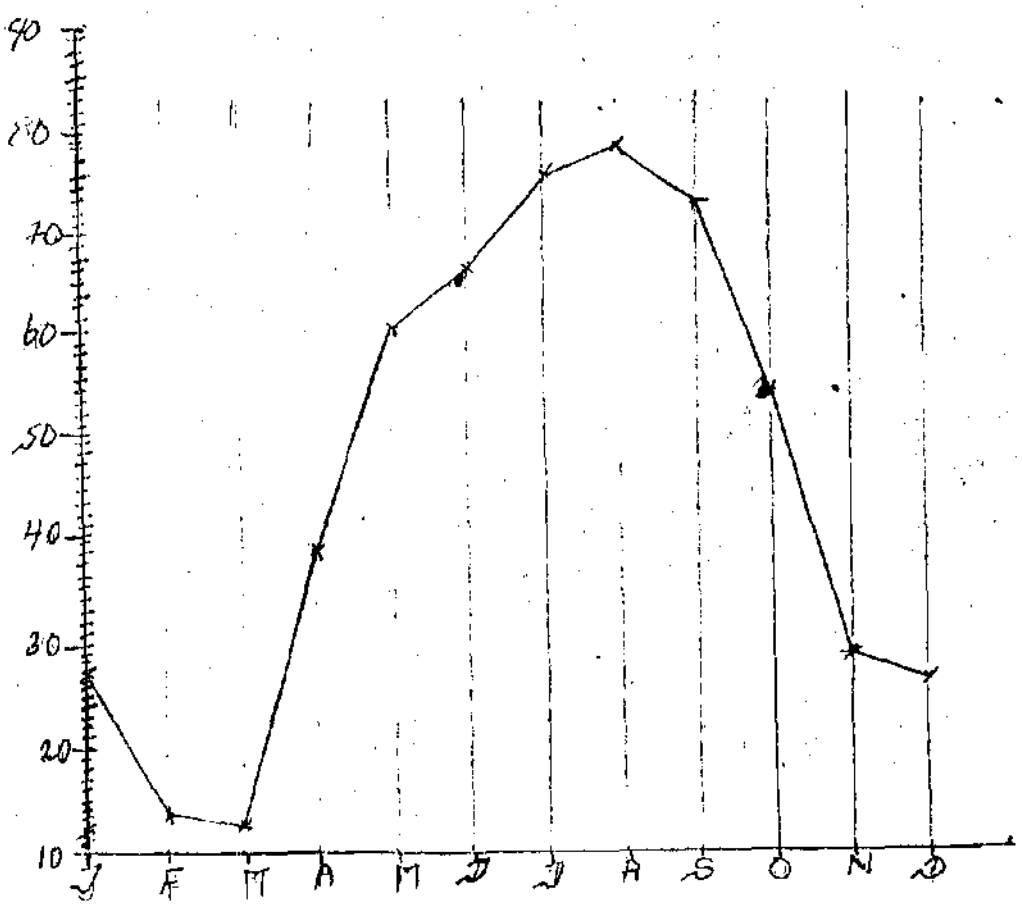
SOURCE: MET. Lokoja

Table 5·3·2·A Relative Humidity

Monthly mean Values & Daily mean Values at 10a.

Months	RH Mean Values %
January	27
February	24
March	23
April	48
May	60
June	66
July	76
August	78
September	73
October	54
November	29
December	28

Figure 5·3·2A Monthly mean Values & Daily mean Relative Humidity Observation at 0900

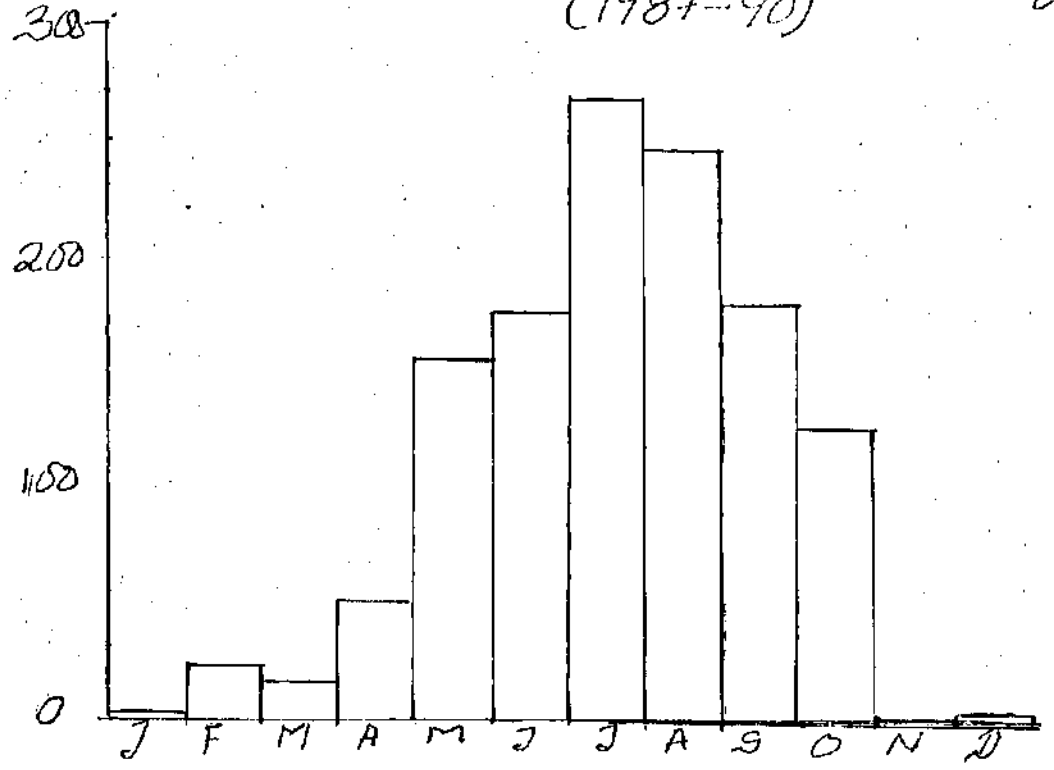


SOURCE: MET LOKOJA

Mean Monthly values Of the Daily Rainfall

Months	Rainfall mm
January	2.2
February	29.30
March	22.50
April	54.50
May	152.90
June	174.50
July	272.90
August	254.10
September	182.15
October	128.8
November	1.0
December	4.3

Figure 5.3.3 mean monthly values of Daily Rainfall (mm) (1987–90)



SOURCE: MET LOKOJA

The interplay of temperature and humidity factors determines how comfortable or otherwise the person involved would be. Comfortable relative humidity (30% - 70%) occurs in the months of April to June and October.

The possible influence of relative humidity on the design will be on the following areas:

-- Ventilation

-- Cooling plant design and building material

-- Thermal insulation

-- Landscape design.

Wind

The wind flows are recorded from different directions, but the two most prevailing wind directions are: The north-east trade wind which brings the harmattan, a dry laden-wind blowing from the desert between the months of November and February while the south-west trade wind which is humid in nature brings the cool breeze from Atlantic Ocean between the months of March and October, the cool breeze brings about the rainfall.

Sunshine Hours and Radiation

Lokoja town is in the tropic with a lot of sunshine. The hours of bright sunshine are greatest during the months of

December, February and March but values decrease during the successive months. The average daily sunshine period is about 8 hours and the highest sunshine period is about 9 hours.

Solar radiation occurs more in the months of November, December, January, February and March while the lowest is in the months of May, September and October.

Glare effect is caused by radiation, from the aforementioned, the possible area of influence on the design are as follows:

-- The wall finishes
-- Roof and wall materials
-- Thermal comfort
-- Shading device and its depth
-- Building orientation
-- Landscape planning.

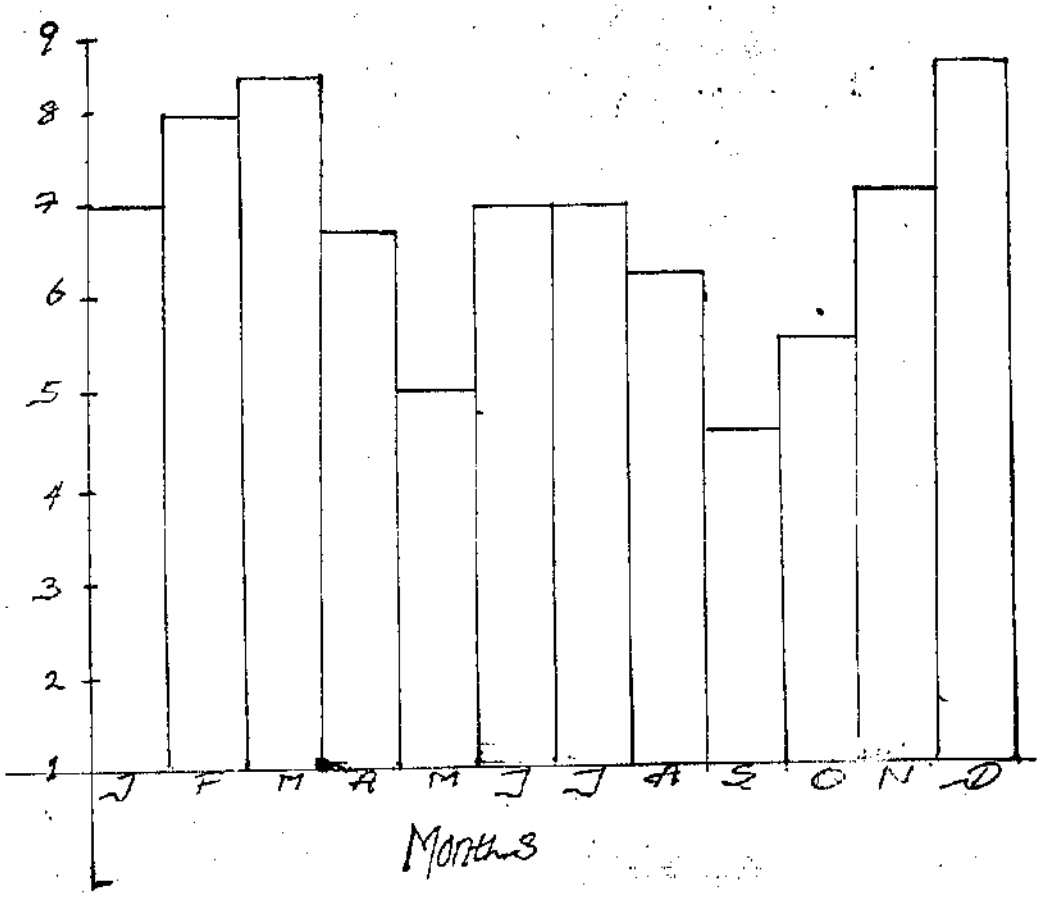
5.4.2 Topography:

Lokoja town is situated at the confluence of Rivers Niger and Benue. The town lies on the west bank of the River Niger at an altitude of 125 metres above the sea level. Towards the north-west of the town is dominated by a high plateau, the panti ridge, which reach an altitude of 400 metres above sea level.

Table 5·3·4 Sunshine Hours
1988-90

Months	Sunshine hours
January	7
February	8
March	8·5
April	6·8
May	5
June	7
July	7
August	6·2
September	4·72
October	5·5
November	7·2
December	8·8

Figure. 5·3·4 mean monthly sunshine hours
1987-1990.



Source: MET. Lokoja.

The town itself is penetrated by a number of streams, which join either the Niger or Mimi Rivers. Most of the parts of the town form an undulating land.

The possible influence of this on the design, is that the natural land will be utilized to make the design interesting.

Geology

Lokoja and its surrounding area underlain by igneous and metamorphic rocks belonging to a basement complex which is composed mainly of Granites, Micaschists and metasediments. The area features a rough terrain with mountainous landscape and high-lying flat areas, forests and valleys.

Vegetation

Lokoja which is situated within a savannah woodland belt has a modified vegetation, the thin soil cover which is caused by the underlying metamorphic and igneous rock has brought about this effect. The vegetation is characterised by short grass, trees of medium size up to four metres high or more. Most of the plain have been exploited for cultivation and burning has reduced most of the vegetation to sparse acacia shrub.

CHAPTER SIX

CHAPTER SIX

DESIGN CRITERIA

6.0 BRIEF

6.1 Brief Development

A parliament complex within the context of this thesis will comprise the following sections:

-- The legislative chamber

-- Information section

-- Administrative section

-- Welfare section

-- The parliamentarian offices

-- Auxiliary facilities.

6.2 Functional Analysis

Functions are associated with human activities taking place within a definite space. The process of functional analysis define the space and establish the activity taking place within a given space.

6.3 Spatial Analysis

Spatial analysis is the process by which dimensional requirements of spaces are established to serve a particular activity for a defined number of people. The two methods are adopted for the establishment of these space areas.

Activity Analysis:

Activity analysis is the drawing out of the space in scale based on the activity being carried out in that space, indicating furnitures, circulation area and other useful spaces.

Objective Rationalization of Standards:

Text books on design such as Architect's Data, established some space requirement for various functions, such spaces are not usually applicable to the tropical needs because, the design of these spaces are based on temperate environment and traditional criteria which are different from ours. In this type of situation, an objective rationalization of the space is carried out in line with Nigerian tradition, environment and other social and physical factors.

6.4 Functional Spaces

From an indepth analysis of these facilities, the following are proposed under the various sections of the complex:

6.4.1 Legislative Chamber:

-- Session Hall

-- Public Gallery

-- Mass Media Gallery

-- Waiting Lounge (public and parliamentarians)

-- Entrance Hall

-- Toilets for members and public

-- Team Room

-- Committee Rooms

Attached to the chamber:

-- Speaker's Office

-- Deputy Speaker's Office

-- Chief Whip

-- Receptionist/Secretary

-- Sergeant-at-Arms

-- Deputy Sergeant-at-Arms

-- Male/Female Attendance's Office.

6.4.2 Information Section:

(a) Printing Department

-- Printing Hall

-- Principal and Senior Printing Officer

-- Printing Office

-- General Office

-- Store

-- Toilets and Charging Room.

(b) Library Department

-- Control area

-- Senior librarian

-- Reading Room and Stack Area

-- Reference Section

-- Journals and Dailies.

(c) Hansard Department

-- Editor

-- Deputy Editor

-- Senior Reporters

-- Reporters

-- Interpreters

-- General Office

-- Store

-- Toilets.

6.4.3 Administrative Section:

(a) Clerical Department

-- Clerk of the House

-- Deputy Clerk of the House

-- Private Secretaries

-- Administrative Officers

-- Executive Officers

-- Open Registry

-- Secret Registry

-- Store

-- Toilets

-- Typing Pool.

(b) Accounts Department

-- Controller of Finance

-- Chief Accountant

-- Principal Accountant

-- Accountants

-- Accounting Pool

-- Store, Toilets.

(c) Audit Department

-- Chief Auditor

-- Principal Auditors

-- Senior Auditors

-- Auditors

-- General Office

-- Store.

(d) Budget Department

-- Chief Budget Analyst

-- Principal Budget Analyst

-- Budget Analysts

-- General Office.

6.4.4 Welfare Section:

(a) Protocol Department

-- Principal Protocol Officer

-- Protocol Officers

-- General Office.

(b) Catering Department

-- Cafeteria

-- Kitchen and Store

-- Catering Officer

-- General Office

-- Toilet and changing.

(c) Maintenance Department

-- Principal Maintenance Officer

-- Senior Maintenance Officers:

(i) Electrical

(ii) Mechanical

-- Maintenance Officers for (i & ii) above

-- Workshop:

(i) Electrical and Electronics

(ii) Mechanical

-- Store Keeper

-- Toilet and changing room.

(d) Purchasing and Supply Department

-- Principal Purchasing and Store Officer

-- Store/Purchasing Officer

-- Store Keeper

-- General Store.

(e) Entrance Section

-- Ceremonial/Entrance Lobby

-- Receptionist

(Telephone and Radio Board Room).

6.4.5 The Parliamentarians:

-- Majority Leader

-- Deputy Majority Leader

-- Secretaries

-- Minority Leader

-- Deputy Minority Leader

-- Other Parliamentarians

-- Toilets

-- Radio and Television Rooms.

6.4.6 Auxillary Facilities:

-- Generating Plant

-- Security Gate

-- Water tank

-- Parking spaces:

(i) Public

(ii) Parliamentarians

(iii) Other staff

(iv) Service parking.

6.5 Functional and Spatial Analysis of Facilities

6.5.1 Legislative Chamber:

Session Hall:

This is the hall where debates of the laws to be enacted are held. When the issue must have been properly discussed, a voting takes place and if the majority were in support, it is passed into law, sent to the governor for his assent, and when the governor must have assented to it, it becomes law.

Capacity: The number of the parliamentarians are thirty-two, 32 + 25%.

Space Requirement: The number of seats are forty-four, 1.79m^2 including circulatory space was used per person = 44 x 1.79 = 78.76m^2.

Public Gallery:

This area is expected to be used for public sitting, that is the audience.

Capacity: 120 persons at peak.

Space Requirement: The seat and circulation is 0.9m^2 per person = 120 x .9 = 108m^2.

V. I. P. Gallery:

This is an area where the very important personalities within and outside the government stay when they come to observe the House proceeding.

Capacity: 15

Space Requirement: The seat and circulation inclusive,

$0.9m^2$/person = 15 x .9 = $13.5m^2$.

Mass Media Gallery:

The Radio and news reporter staff are paired together while the television staff stay separately.

Capacity: 15

Space Requirement: The seat and circulation space = $0.9m^2$/ person, = 4.5 x 3 = $13.5m^2$.

Waiting Lounge (Parliament):

This is the functional space where one can relax.

Capacity: 23 persons

Space Requirement: 2m/person = 7 x 6.6 = $46.2m^2$.

Waiting Lounge (VIP):

This is a functional space where they can be entertained, relax before and after the House session.

Capacity: 15 persons

Space Requirement: $3m^3$/person = 6.6 x 6.6 = $43.56m^2$.

Waiting Lounge (Public):

It is the hall where the parliamentarians can entertain or receive visitors before they are taken to their offices when there is need. It will also serve as a waiting area for visitors before they can see whoever they come for.

Capacity:

Space Requirement: 8 x 6 = $48m^2$.

Team Room:

Space Requirement: 2 x 3 = $6m^2$.

Committee Rooms:

These are rooms where the sub units of the House can deliberate further on any matter refered to them by the House.

Capacity: 5 Nos.

Space Requirement: 24 x 8 = $192m^2$.

Speaker of the House:

Using furniture arrangement.

Space Requirement: 7.2 x 5.5 = $39.6m^2$ including toilet.

Deputy Speaker of the House:

Space Requirement: 4 x 5 = 20m^2

Secretary: 1 No.

Space Requirement: 4.2 x 5.5 = 23.1m^2

Sergeant-At-Arm:

The sergeant-at-Arm maintains law and order; he carries the mace which signifies authority.

Space Requirement: 4.2 x 5.5 = 23.1m^2

6.5.2 Information Section:

Printing Department:

Printing Hall

Capacity:

Space Requirement: This is where the actual printing work is carried out. The machines used for printing were used to determine the space.

Principal and Senior Printing Officer (1 Principal & 1 Senior)

Space Requirement: 4 x 4 x 2 = 32m^2

The remaining six intermediate officers are to share one common room and one for general office; and one for store.

Space Requirement: 3 x 4 x 2 + 3.5 x 5 = 41.5m^2

Library Department:

Control area

Space Requirement: $5 \times 4 = 20m^2$

Periodical — 4×8

Capacity: $20 = 32m^2$

Senior Librarian's Office:

Capacity: 1

Space Requirement: $3 \times 3 = 57m^2$

General Office: 3×2.4

Capacity: $7.2m^2 = 9 + 7.2 = 16.2m^2$

Reading Room:

This is where the members can update their knowledge and carry out some researches relating to the parliamentary work.

Capacity: 36 persons

Space Requirement: $1.7m^2$/person including circulation,

$36 \times 1.7 = 61.2m^2$

Toilets:

Capacity: 9 Nos.

Space Requirement: $2.7m^2$/toilet including lobby, 9×2.7

$= 24.3m^2$

Hansard Department:

Editor and Deputy Editor

They are to carry out the administration of the department.

Capacity: 1/office (2 offices)

Space Requirement: $4 \times 4 \times 2 = 32m^2$

Secretary and Waiting (1 office) $4 \times 4 = 16m^2$

Reporters and Interpreters

Open space is to be used for these two categories of staff.

Capacity: 10 persons

Space Requirement: $55m^2$

General Office

Capacity: 3

Space Requirement: $4.2 \times 3.6 = 15.12m^2$

Legal Department:

Legal Adviser

He is to take charge of administration in the department in addition to his duty of advising the House.

Capacity: 1 person

Space Requirement: $4.2 \times 4 = 16.8m^2$

Senior Legal Adviser

He is to assist the legal Adviser in carrying out his duty.

Capacity: 1 person/office (2 no. offices)

Space Requirement: $3.3 \times 4 \times 2 = 26.4m^2$

General Office

To be occupied by clerks who will assist in keeping records.

Capacity: 2 persons

Space Requirement: $3 \times 4 = 12m^2$

6.5.3 Administrative Section:

Clerical Department:

Clerk of the House

He is the administrator in the parliament complex, he keeps the record of the parliament.

Space Requirement: $6.3 \times 6.2 = 39.06m^2$

Deputy Clerk of the House

He is to assist the clerk of the House and act for him during his absence.

Space Requirement: $4.5 \times 4 = 18m^2$

Secretaries

They are directly responsible to the clerk of the House and his deputy.

Capacity: 7 persons

Space Requirement: $3 \times 4 = 12m^2$

Administrative Officers

They are directed by the clerk of the House and they assist in implementing the policies formulated as regards the running of the administration.

Capacity: 2 persons/office

Space Requirement: 3 offices are to be provided, $4 \times 4 \times 3 = 48m^2$

Executive Officers

They assist the administrative officers in their day-to-day activities.

Capacity: 3 persons/2 for 2 offices

Space Requirement: $9.2 \times 4 = 36.80m^2$

Typing Pool

A centrally controlled typing pool is recommended for efficiency and reduction in the employment of too many hands.

Capacity: 11 typists, $7.2 \times 4.0m = 28.8m^2$

Open Registry

This is where records are being kept, despatches made and other clerical duties performed.

Capacity: 6 persons

Space Requirement: $6.2 \times 6.5 = 40.3m^2$

Secret Registry

The private files of the staff and other classified documents are kept and treated in this section.

Capacity: 5 persons

Space Requirement: $4 \times 3 = 12m^2$

Accounts Department:

Controller of Finance

He directs and oversees the accounting procedure of the organization.

Capacity: 1

Space Requirement: $5 \times 8 = 40m^2$

Principal Accountants

They assist the controller of finance in implementing the financial policy of the House.

Capacity: 1 person/office (2 offices)

Space Requirement: $4 \times 5 + 4 \times 4 = 36m^2$

Accountants

They carry out the actual work. The three persons are to use separate office spaces.

Capacity: 3 persons

Space Requirement: $3.6 \times 4 \times 3 = 43.2m^2$

Accounting Pool

This is an office where the accounts clerks who prepare salaries, wages and other charges work.

Capacity: 6 persons including a supervisor

Space Requirement: $6 \times 8 = 48m^2$

Store

It is for keeping the materials used .

Space Requirement: $4 \times 8 = 32m^2$

Audit Department:

Chief Auditor

He is to administer and supervise the work in the department, in addition to other works that might be assigned to the department by the House.

Capacity: 1 person

Space Requirement: $4.5 \times 6 = 27m^2$

Principal Auditor

He is to assist the Chief Auditor in execution of the works in the department.

Capacity: 1 person

Space Requirement: 4 x 4 = $16m^2$

Auditors

They are to do the actual work.

Capacity: 3 persons

Space Requirement: 4 x 4 $16m^2$

General Office

The office will be used by the audit clerks.

Capacity: 3 persons

Space Requirement: 3 x 4 = $12m^2$

Budget Department:

Chief Budget Analyst

He is a specialist, he acts as a consultant to the parliament on all the budgetary matters, presented by the executive.

Capacity: 1 person and visitors

Space Requirement: 5.5 x 8 = $44m^2$

Principal Budget Analyst

The duty is to assist the chief budget analyst and carry out other works assigned to him.

Capacity: 1 person

Space Requirement: 4 x 6 = $24m^2$

Budget Analysts

They assist in the analysis.

Capacity: 2 persons

Space Requirement: $4 \times 4 = 16m^2$

General Office

Capacity: 3 persons

Space Requirement: $4 \times 4 = 16m^2$

6.5.4 Welfare Section:

Protocol Department:

Principal Protocol Officer

He is responsible for orranizing reception for officer V.I.P coming to the complex and makes provisional arrangement for the speaker and clerk of the House whenever they are out of the state for official engagement.

Capacity: 1 person

Space Requirement: $4 \times 4 = 16m^2$

Protocol Officer

They are to assist above.

Capacity: 2 persons

Space Requirement: $3.6 \times 4 = 14.4m^2$

General Office

Capacity: 2 persons

Space Requirement: $4 \times 6.5 = 26m^2$

Catering Department:

Cafeteria

Capacity: 66 persons

Space Requirement: $2.11m^2$/person = $2.11 \times 66 = 139.26m^2$

Kitchen

The kitchen is made up of different areas such as preparation area, cooking area, servery and scullery wash up. Minimum of 1/3 of the dining is recommended for the kitchen.

Space Requirement: $8 \times 8 = 64m^2$

Catering Officer

Space Requirement: $4 \times 3.6 = 14.4m^2$

General Office

Capacity: 2 persons

Space Requirement: $3 \times 4 = 12m^2$

Maintenance Department:

Principal Maintenance Officer

This is the head of the department, he co-ordinates the affairs of the department.

Capacity: 1 person

Space Requirement: $4.2 \times 4.2 = 17.64m^2$

Senior Maintenance Officers

They assist the above officer (Electrical & Mechanical).

Capacity: 1 person/office, 2 Nos.

Space Requirement: $5 \times 4 = 20m^2$

Maintenance Officers, Elect. & Mech.

They carry out the actual work.

Capacity: 4 persons

Space Requirement: $4.2 \times 4.2 = 17.64m^2$

workshop

This is where the repairs are done.

Capacity: 1 No combining Electrical & Mechanical

Space Requirement: $7.2 \times 6 = 43.2m^2$

Store and Charging

Space Requirement: $5 \times 4 = 26m^2$

Purchasing Department:

Principal Store Officer

This officer is to purchase the store's needs and supervise the supply to other units.

Capacity: 1 person

Space Requirement: $4 \times 4 = 16m^2$

Central Store

Space Requirement: $89m^2$, including store keeper

Entrance Section

Entrance/Ceremonial Hall/Receptionist

There should be a large entrance/ceremonial hall. It should terminate at the entrance to the session hall.

Space Requirement: 11 x 12 = 132m^2

Telephone and Radio Room

Capacity: 2 persons

Space Requirement: 6.6 x 3 = 19.8m^2

6.5.5 The Parliamentarians:

Majority Leader

Space Requirement: 5.5 x 6 = 33m^2

Minority Leader

Space Requirement: 4.5 x 6.6 = 29.7m^2

Secretaries

Capacity: 1 person/office, 2 Nos.

Space Requirement: 23.55 x 2 = 47.1m^2

Other Parliamentarians

Capacity: 32

Space Requirement: 17.68 x 3 = 530.4m^2

Toilets: 13 toilets at 2.7m^2 each = 35.1m^2

6.5.6 Auxiliary Facilities:

Generating Plant

To supply power whenever NEPA line is off.

Capacity:

Space Requirement: 5 x 4m = $20m^2$ including store.

Security Gate

This was located at the entrance of the complex.

Capacity: 2 persons

Space Requirement: 2.4 x 3, toilet inclusive = $7.2m^2$

Water Tank

This is to store water in event of failure from the Water Works, it should be elevated for gravity distribution.

Capacity: 22000 litres = $22.5m^3$

Space Requirement: 3 x 3 x 2.5 = $22.5m^3$, using 110 litres/person/day.

Parking Spaces

Public

Capacity: 40 parking spaces

Space Requirement: $22.5m^2$/car, 22.5 x 40 = $900m^2$

Parliamentarians

Capacity: 40 cars including that of the House

Space Requirement: 2.5 x 9m including circulation

= 22.5 x 40 = $900m^2$

Staff

Capacity: 17 cars

Space Requirement: 22.5 x 17 = $382m^5$

Design Features:

Legislative Chamber Section

Session Hall

In the session hall, timber is used to create the floor raking over a flat concrete floor. When the timber is removed, the floor can be adaptable to other uses.

Rug floor finish is used over timber.

Galleries

-- It is raked to bring the spectators nearer to the hall.

-- Pre-cast terrazzo floor finishing to be used

-- Foldable plastic chair is used for visitors and press gallery and fixed cushion chair for the V.I.P.

Waiting Lounge

-- Rug is used over terrazzo floor finishing.

Entrance Hall

-- Terrazzo floor finishing is used.

Committee Rooms

-- P.V.C tiles is used for the floor finishing

-- Folding partition is used to divide the Committee rooms. This is to facilitate arrangement of space.

Speaker and other Areas

-- Demountable partition is used between the secretary, speaker and waiting area.

-- Movable partition is used between the secretary and attendants.

Information Section:

Printing Department

Printing Hall

-- Printing hall layout must conform to printing process and ample space should be provided around the machine for safety and convenient working space.

-- Terrazzo floor finish is used.

-- Demountable partition is used to create all the offices.

Hansard Department:

-- Demountable partition used for partitioning the offices

-- Open office system used for some groups of officers.

Legal Department:

-- Demountable partition is used for the partitioning of office.

-- Rug is used over terrazzo floor finish in the senior officers' offices.

-- P.V.C tiles is used in the other offices.

Administrative Section:

In all the departments, the same treatment is applicable to all of them.

-- Demountable partition is used for all the offices

-- Rug is used for all senior officers' offices over cement sandscreed.

Welfare Section:

-- Demountable partition is used for creating all the office spaces.

-- Rug is used for all the senior officers' offices.

-- P.V.C tile is used for other offices.

Catering Department:

-- All walls are solid sandcrete block wall construction

-- All floors are terrazzo floor finish

-- All corridors are finished in hard clay floor tiles.

Maintenance Department:

Workshop

-- All walls in solid sandcrete block construction

-- All floors are terrazzo finish

-- Ample working space should be provided round the machine for safety.

Purchasing and Supply

-- All walls in solid sandcrete block construction

-- All floors finished in hard clay tiles.

Parliamentarians

-- All offices are demountable partition to the soft or ceiling

-- All offices are rug finished

-- Corridors are finished in hard clay tiles

-- All toilets walls are white glaced ceramic tailes finishing

-- All toilets floors are terrazzo finishes.

CHAPTER SEVEN

CHAPTER SEVEN

DESIGN PROCESS

7.0 THE DESIGN

7.1 Site Consideration

The site exists naturally, but the conscious efforts of man to make use of this natural environment causes interference. That is modifying some elements like trees and site topography.

During this design, some of the few trees have to be removed and new ones planted.

The site has almost flat land as indicated by only three conutor lines on site plan.

All these factors were put into consideration during the design.

7.2 Design Concept

In the parliament complex, debates on bills, motions and meetings of the general House take place in the chamber. The public also watch the debate from the gallery which over looks the chamber directly.

Since the chamber is the focal facility in the design of the parliament, other supporting facilities such as welfare, administration and information are designed to radiate away from the chambers.

Communities which made up the state have court yard as a common feature in the design of their buildings. The court yard serves as relaxing and transitional space between the main building and other parts of the house.

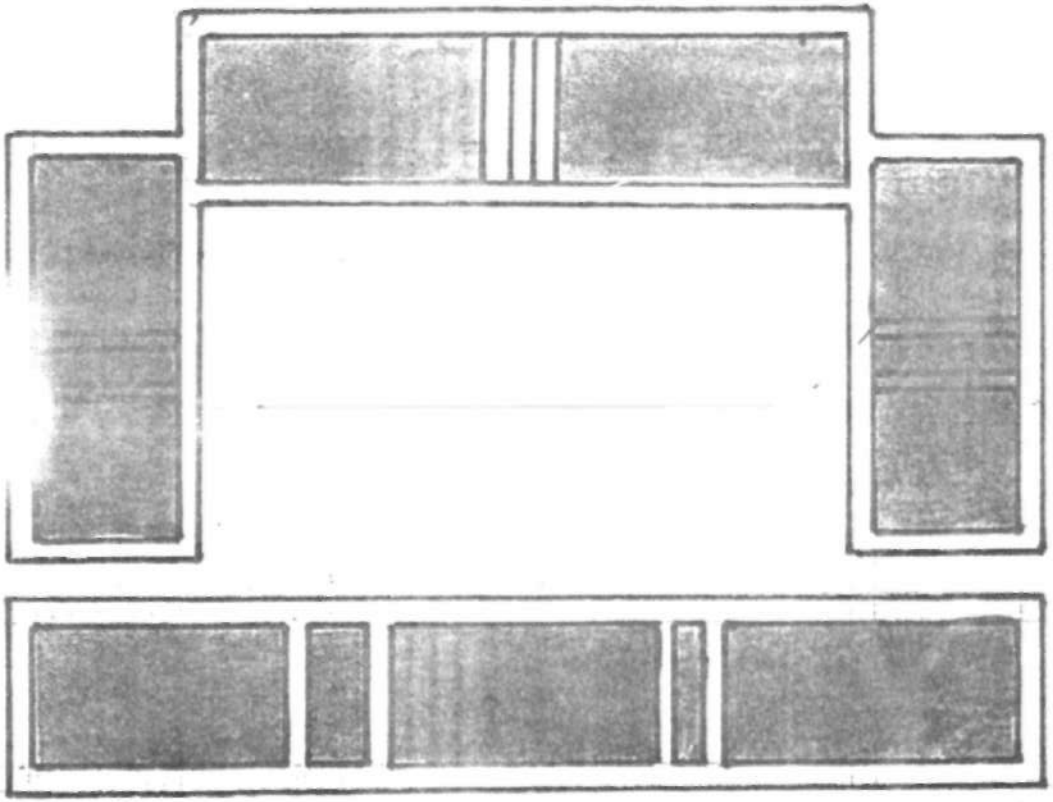
The cluster, linear, radia and court yard concepts were considered during the process of design.

With respect to the concepts considered, the chamber is made the focal point of the design while various units of the complex are organised around it. These units are also organised with court yards separating them. The court yards are used for sculpture garden and landscape.

This thesis is principally aimed at making the chamber accessible to the people, this can be achieved by laying design emphasis on visibility of the chamber to the people, hence the chamber was located close to the entrance and the height of the structure is taller than any other part of the complex. Other components which made up the complex are linked to the chamber by corridors and lobbies. Well

CONCEPT D

CLUSTER APPROACH CONC.



MERITS

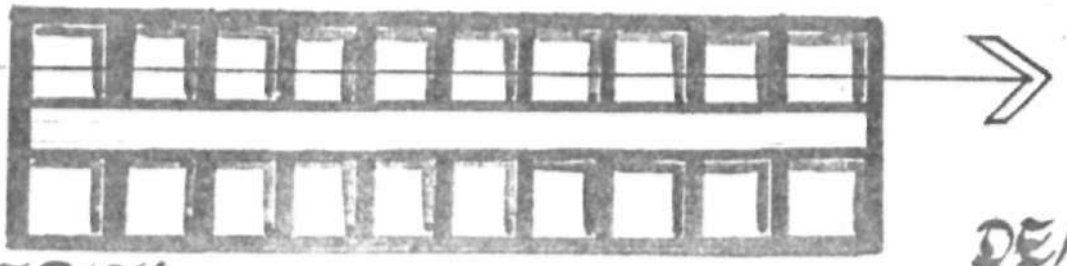
- TO ASSESS THE SERVICE IS EASIER.
- SOCIO-CULTURAL ASPECT IS MOST EFFICIENT.
- THE MOST COMMONST
- GIVE SECURITY

DEMERITS

- CONGESTION AT THE CENTRE
- CIRCULATION MAY POSE PROBLEM

Fig 7.1A

LINEAR APPROACH CONCEPT



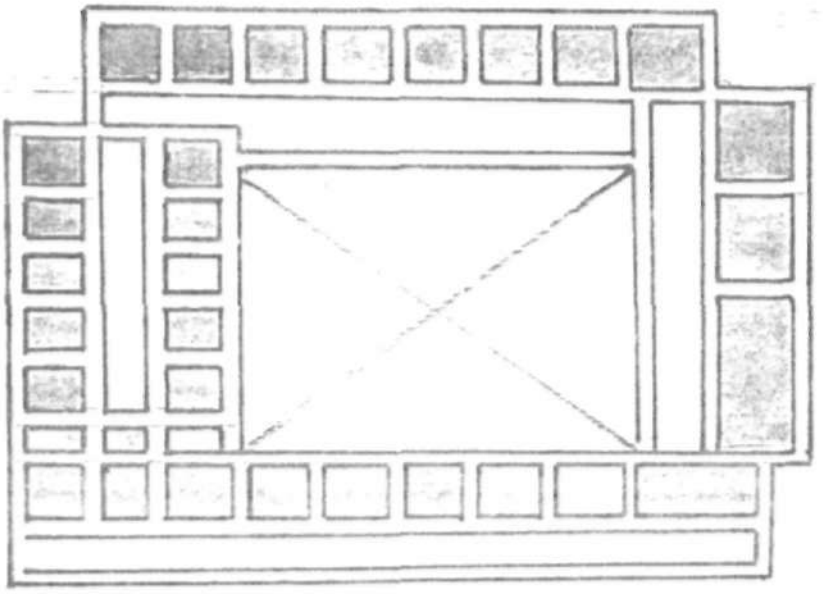
MERITS

MAXIMUM ACCESSILITY
EASY EXPASION LATERAIY
EASY SERVICING

DEMERITS

- HAS PROBLEM OF CIRCULATION COULD BE BORING
- LONGER SERVICE LINE, RESULT IN EXTRA COST.
- MONOTONOUS LONGER DISTANCE

INTEGRATION OF CLUSTER & LINEAR CONCEPT

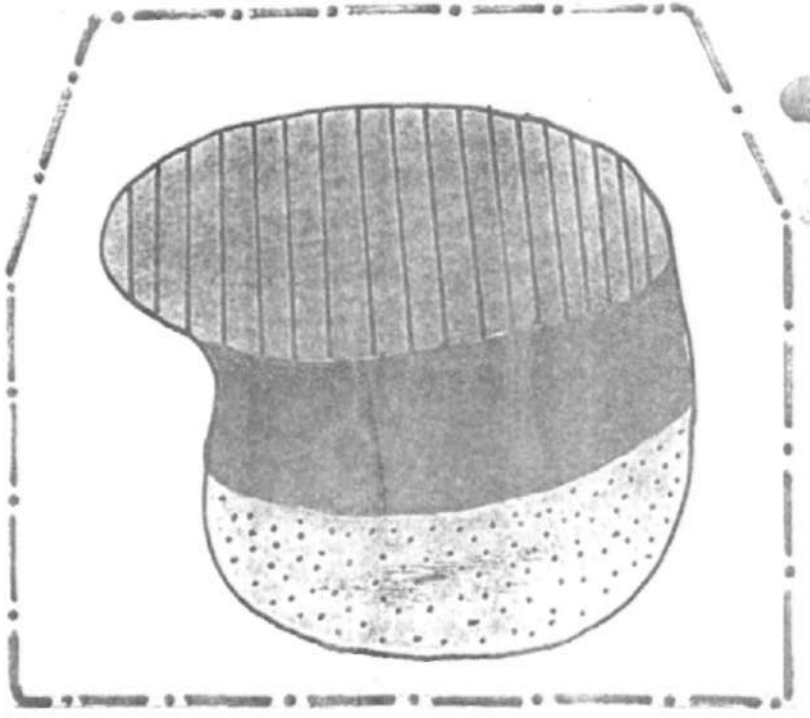


COMBINE THE ADVANTAGES OF THE TWO AND ELIMINATE THE DISADVANTAGE OF EACH.

Fig 7.16

SITE CONCEPT

ZONING



NO SECURITY
LEGISLATIVE

LESS SECURITY
PARLIAMENTARIAN & ADM

HIGH SECURITY
WELFARE & INFORMATION

1. LEGISLATIVE CHAMBER
   - SESSION HALL
   - PUBLIC GALLERY
   - MASS MEDIA GALLERY
   - LOUNGES.

2. INFORMATION
   - PRINTING
   - LIBRARY
   - HANSARD

3. ADMINISTRATION
   - CLERICAL DEPT.
   - ACCOUNT
   - AUDIT
   - BUDGET

4. WELFARE
   - PROTOCOL
   - CATERING
   - MAINTENANCE
   - PURCHASING
   - RECEPT. HALL

5 PARLIAMENTARIAN

Fig 7.24

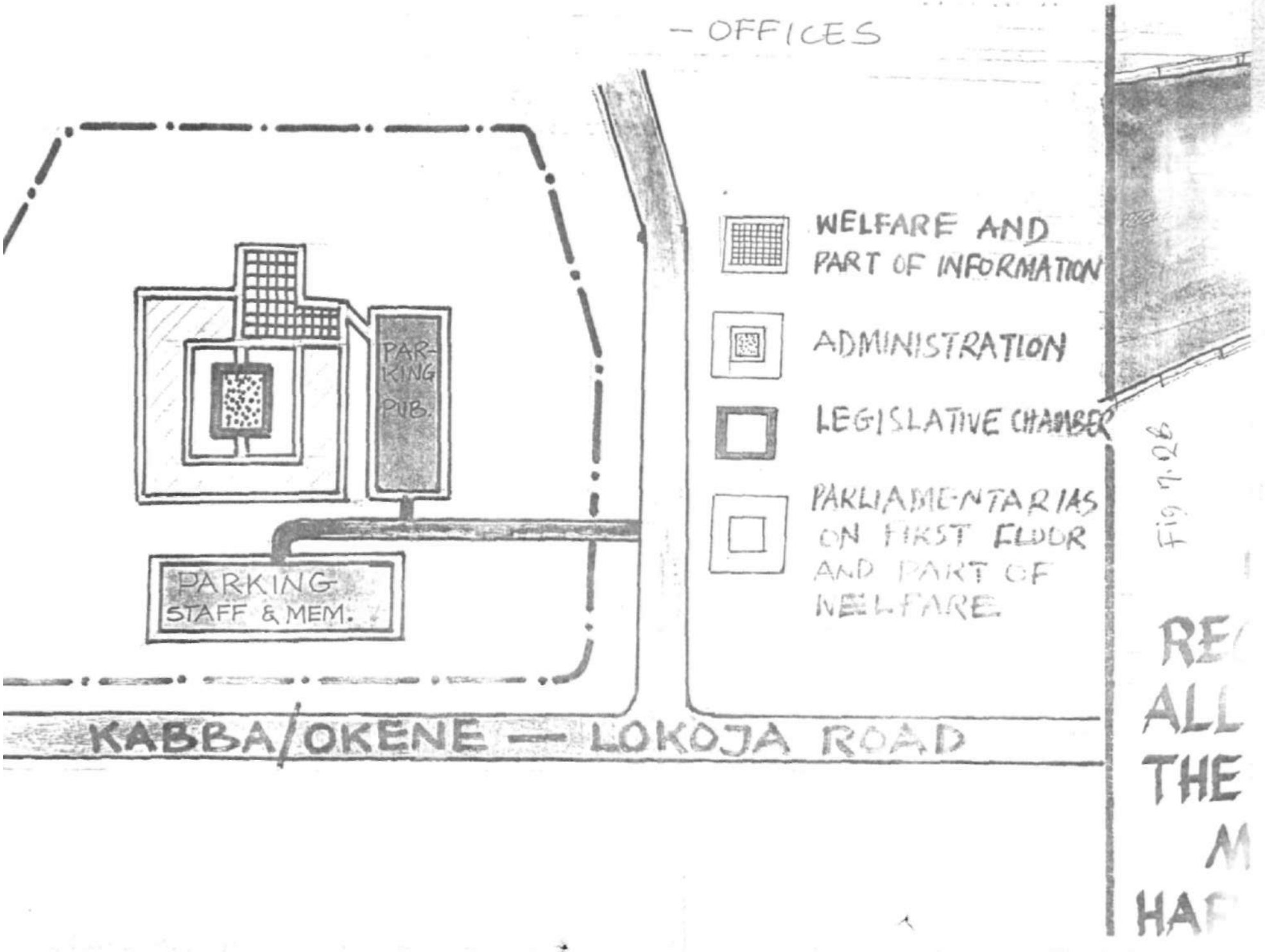


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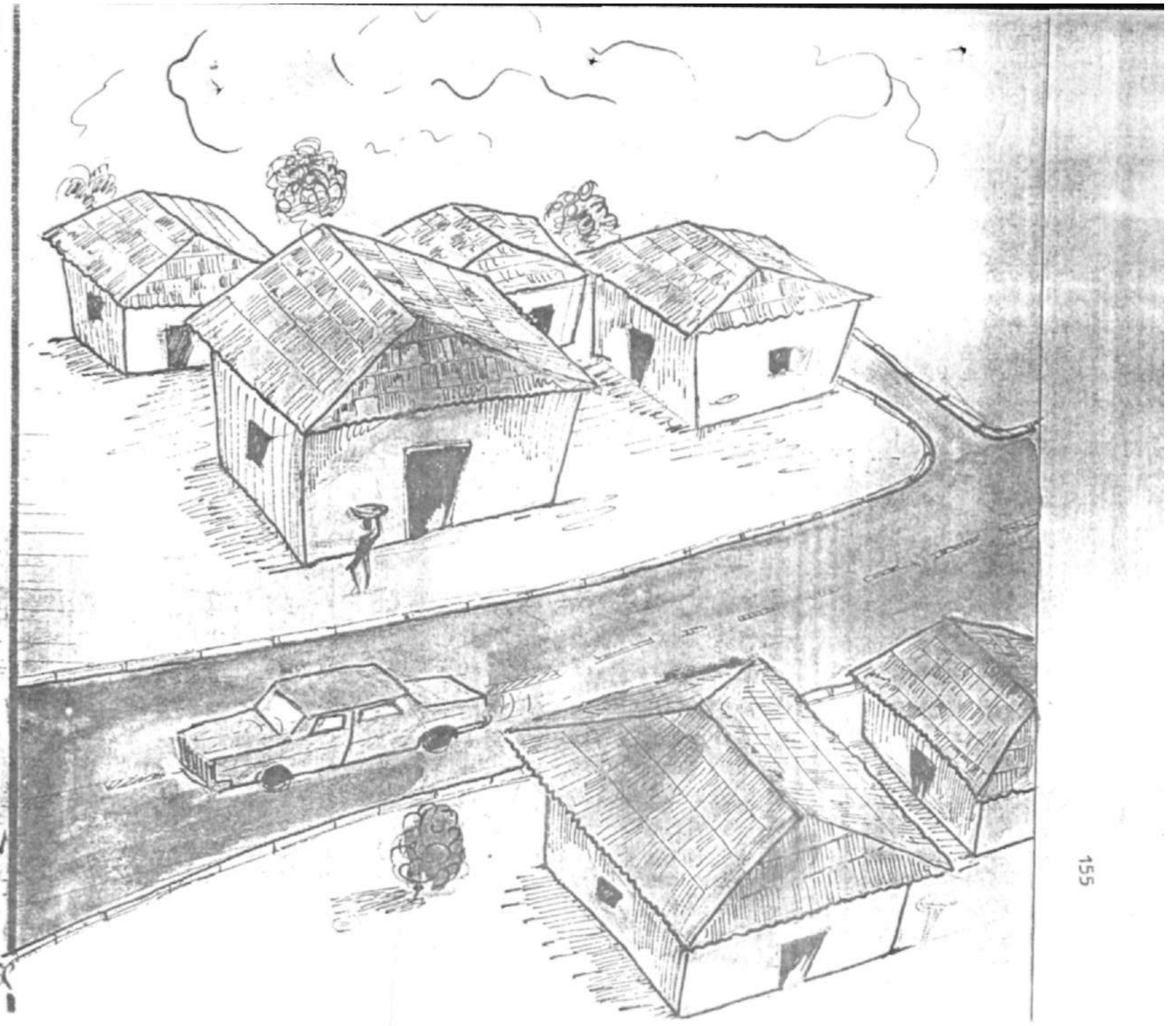
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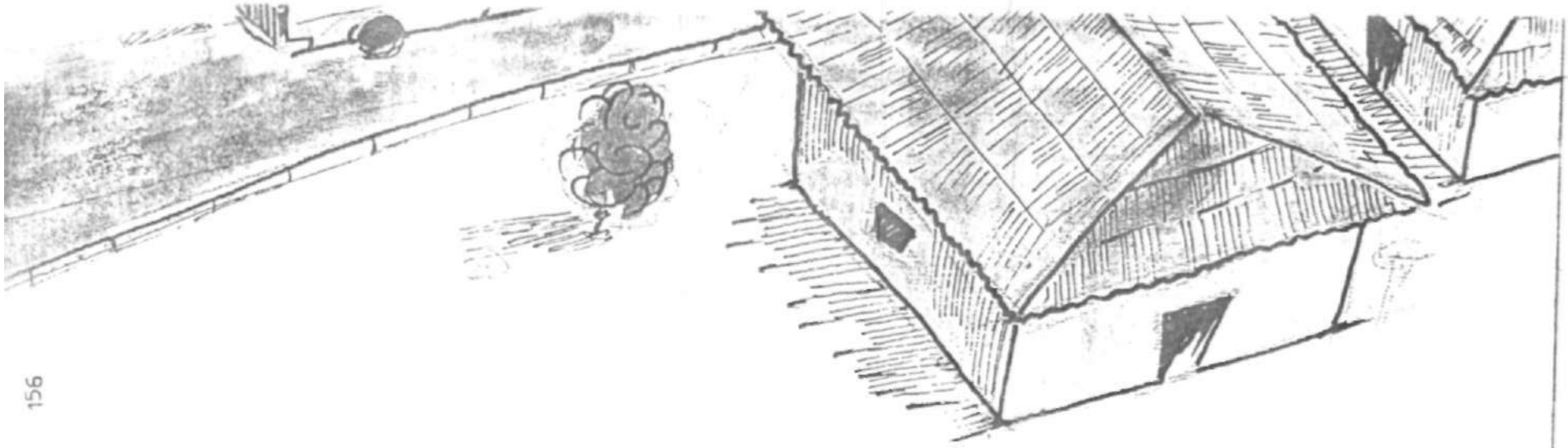
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HEAP ROOF AND SQUARE OR RECTANGULAR PLAN ARE COMMON TO ALL THE COMMUNITIES THAT MADE UP THE STATE.

MODIFIED HEAP ROOFS ARE USED TO GET HARMONY WITH WHAT IS EXISTING IN THE STATE.

landscaped court yards are used to separate other units from the chamber.

7.3 Hierarchy of Spaces

There must be effective and adequate hierarchy of spaces for the occupants of the complex to perform effectively.

The space allocation and facilities provided for each officer must be in a hierarchical order. That is, top officers like the clerk and speaker of the House must be provided with largest office spaces among the officers, because they receive more visitors and therefore require more furniture and other conveniences. The allocation of space will decrease as the responsibility decreases.

In the area of common facilities like the chamber and the committee rooms, the number of users determines the area provided, hence the chamber is larger than the committee rooms while large committee members were provided with proportional spaces. This is applicable to the small committee members.

7.4 Circulation

The circulation in the building can be categorized into two main groups: The vertical and horizontal circulations.

The vertical circulation is by means of stair cases and special elevator. The stairs are well distributed to facilitate the movement of the people at different points in the complex. The treed width is 300mm while the riser is 150mm. The width of each flight of the stair is 2000mm to accommodate enough people at a time.

Elevator which can be used to move disabled people in wheel chair from floor to floor is recommended in this complex.

The horizontal circulation in the design are through corridors. The corridors linked various units, they are not too long but are wide enough to cope with the traffic envisaged.

7.5 Building Design

7.5.1 Spatial Form:

There are two major forms utilized in the design of the floor space. They are the rectangular and a sector of polygonal forms. The rectangular form facilitates space flexibility and adaptability. It was used in the design of the administration, welfare, information and legislatures offices, while the sector of a polygon was used in the design of the chamber.

7.5.2 Planning:

The core of the design which is bringing the chamber to the focus of the people brought the chamber to the front part of the whole complex.

The building entrance is oriented toward the south overlooking the main highway — Lokoja-Kabba road. This allows pedestrian and vehicular traffic on the two major roads bounding the site, namely Lokoja-Kabba road and Commissioner way have a good view of the building as they enter or pass-by.

The other facilities were organised based on the following features:

Legislative Chamber

-- It was located on first floor of the three-floor building at the southern part.

-- It is linked to the ground floor by a stair case in the entrance hall and a special lift for the disabled people.

-- The configuration of the chamber is directly visible from outside.

Administrative Area

-- It was situated on both ground and first floors at the north western part.

-- It is directly accessible from the entrance hall.

-- It is accessible to other parts of the complex.

Welfare Area

-- It was located at the north west and south east of the site, partly on the ground and first floors.

-- There is easy access from the service park.

Information

-- The information section which comprises many departments are spread throughout the three floors.

-- The conference hall was located on the ground floor, it is accessible from the entrance hall.

-- The hansard was situated on the first floor at the south western part of the site.

-- The library was located on the second floor at the north eastern part, it is one of the quiet areas on the site.

Legislatures Offices

-- They are located on the second floor of the two storey building.

-- This area will fall within private, it will be quiet and have less traffic.

Parking Spaces

-- There are three parking spaces. The first is on the southern part for the members, the second one near the first is for the public while the third one at the north eastern part is for servicing the welfare area.

7.5.3 Elevational Composition:

Architectural building design in Kogi State is of traditional sequence and rectangular buildings styles with heaped roofs. This style was used with modification in elevational composition to give a distinct outlook among the modern infrastructures in the state, therefore enhancing its status as a land mark.

7.6 Security

Security in any parliament complex is of great importance, members of the public are not allowed into spaces without being checked. Transitional area such as the lobby at the entrance of the chamber, and controlling points at the end of public areas are adopted in this design for security control. Reception halls are created at each floor where members of staff can meet their guests.

7.7 Lighting and Ventilation

Natural lighting and ventilation in any building is most ideal. In this design, most of the functional spaces were ventilated and lighted naturally.

Artificial lighting and ventilation will only be used to complement the natural. For reason of technology, unit and split unit system of airconditioners are recommended to be used in the complex.

7.8 Design Appraisal

The site plan has a simple functional layout with separate parking spaces located side by side for the staff, members and the public. Cycles park was also provided. The building which is square on plan in oriented at angle for complete visual appreciation and to receive the westerly cool wind thereby having good cross-ventilation. Area that faces the west is properly treated with shading devices to reduce solar penetration into the interior of the building.

The pedestrian and vehicular traffic are properly separated.

Expansion of the building is possible towards the north and south west, whereby one of the escape stair cases becomes a main stair way. The parking spaces can also be expanded.

There are two entrances to the site, the main entrance which is to be used always and the service entrance which can be used occasionally and locked while not in use.

7.8.1 Problems encountered:

In a project of this standard, there is every possibility that some problems will be encountered during the design process. Some of these are:

-- Elevational composition that will be symbolic and blend within the environment should be evolved, this problem was eventually over after series of trial.

-- The climatic condition of Lokoja falls within area of high humidity and temperature throughout the year resulting from the influence of River Niger and obstructing effect of Pati hill. This problem was tackled by the use of single banking and large opening.

7.9 Building Structure

The goal of the thesis is to achieve flexible and adaptable space in the parliament complex. Hence, one major need was creating an open plan. This was achieved by using beam, column and waffle plate floors where necessary to create

open space within the building enclosure which was then partitioned according to requirement. Various grid modules were adopted at different areas. They are:

-- 5 x 6m

-- 5 x 10m

The 5m spacing was adopted along the building length, 6m and 10m across the building width.

The building frame is made up of two storey buildings exclusing the ground floor.

7.10 Building Materials

The construction materials utilized in this design are the type that will be durable or last long as the complex is the seat of power which represents permanency of democracy.

The materials used are categorized in ascending order from the roof.

-- Roof

-- Structural system

-- Partition

-- Floors

-- Surfaces.

Roof

The main roofing materials are:

-- Long aluminium roofing sheets

-- Concrete

-- Iron rafters and purlins

-- wood.

The aluminium roofing sheets constitute the main roofing materials while concrete is used on some of the stair cases.

The aluminium is partly covered by a parapet fascia.

Iron rafters were used in the chamber which has a large area while wood rafters were used on the offices with small span.

Structural System

The column and beams used in the chamber is a composite of I beam section and concrete.

Partition

Since the building is a complete framed structure on columns and beams, extensive partitioning was used to subdivide the internal functional spaces. Module of 1000mm was used for the materials described in chapter three. Demountable partition is recommended to facilitate flexible and adaptable space.

Floors

The finishes of the floors in the offices, corridors, toilets, entrance halls, stair cases, kitchen was hard-wearing pigmented terrazzo which can prevent excessive wear caused by the high traffic. The surfaces is of high quality and well polished.

Well seasoned and polished hard wood ■ was recommended for the raking of the chamber and covered with red rug. This will facilitate flexibility in the use of the space.

Surface

The exterior surface of the building was completed with paint of carefully selected colours over the sandcrete block walls.

Vertical concrete fins were used at some specific areas. Brown clay tiles were used at some points to brake the monotony of the painted walls.

7.11 Building Fire Protection

The three categories affected by fire hazard are:

-- Hazard to the structure from within and outside.

-- Hazard to the occupants of the building.

-- Hazard to the content of the building.

Causes of Fire Outbreak

Among the various causes of fire outbreak are:

-- Defective or misuse of equipment — lighting, heating and other electrical equipments.

-- Smoking.

-- Spontaneous combustion of oily and other materials especially in the kitchen.

Control of Fire Outbreak and Escape

The decree which was promulgated by the Federal Government baning smoking in the public places should be enforced in this complex.

Testing and inspection of electrical equipments should be done regularly.

Other fire fighting equipment should be provided at the appropriate places or locations.

By design, escape stair cases are provided within recommended distances. Straight corridors which can easily lead people out in case of fire hazard are provided.

7.12 Summary and Conclusion

The process of producing a design that will satisfactorily meet the present need and still be adaptable to other functional uses will require detailed a

comprehensive study of the past masters of architecture principles on alternative use of functional space or flexible space.

The idea of having the possibility of using functional space effectively other than what it is initially designed to serve will go a long way to solve the problem of ineffective use and possibly abandoned the government or public buildings which could have been converted to other uses.

Optimum utilization of a building designed for a particular purpose for other different functions can only be achieved by detailed and adequate study of the principles that guide a flexible design.

Therefore, in planning and designing for flexibility and adaptability adequate attention was given to the following:

-- Open plan system

-- Adaptable forms

-- Methods of partitioning

-- Partitioning materials.

Adequate attention should be given to easily movable materials which will not have effect on the structural components and the materials themselves should be damaged, hence demountable

partitioning and flexible partition in form of collasible doors were considered.

The process of manufacture by modular principles can be encouraged in the building industry when this type of project that utilized their products are carried out.

7.12.1 Finance:

Though the legislature has a separate vote from that of the executive arm of the government, the construction of public building, parliament inclusive is the responsibility of the government and the maintenance is usually carried out through votes in the annual state budget. Hence, Kogi State Government is the client who is going to finance the project entirely.

The proper study given to this project will ensure adherence to the principles guiding such designs, it is possible to adapt this complex for other uses.

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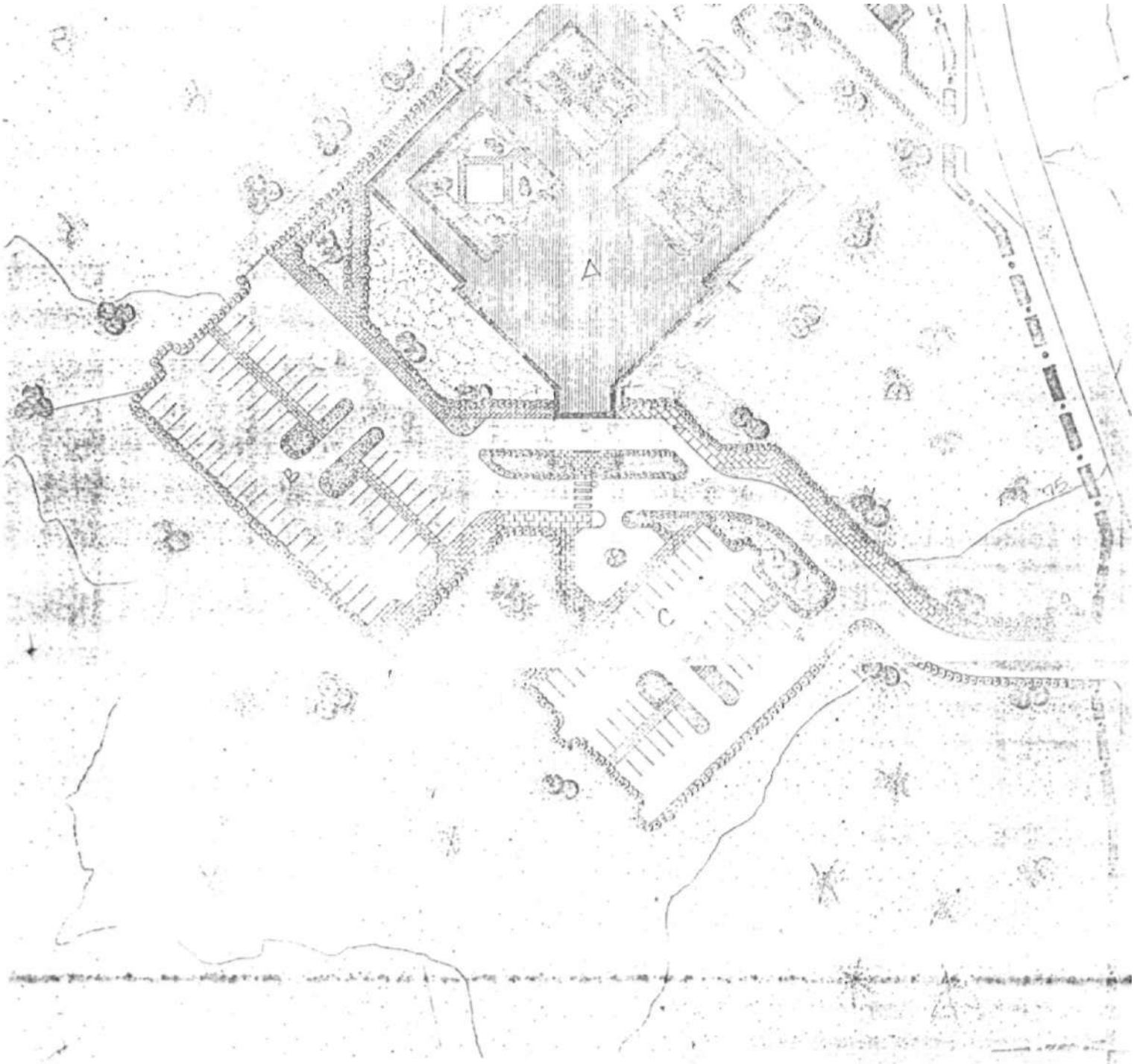
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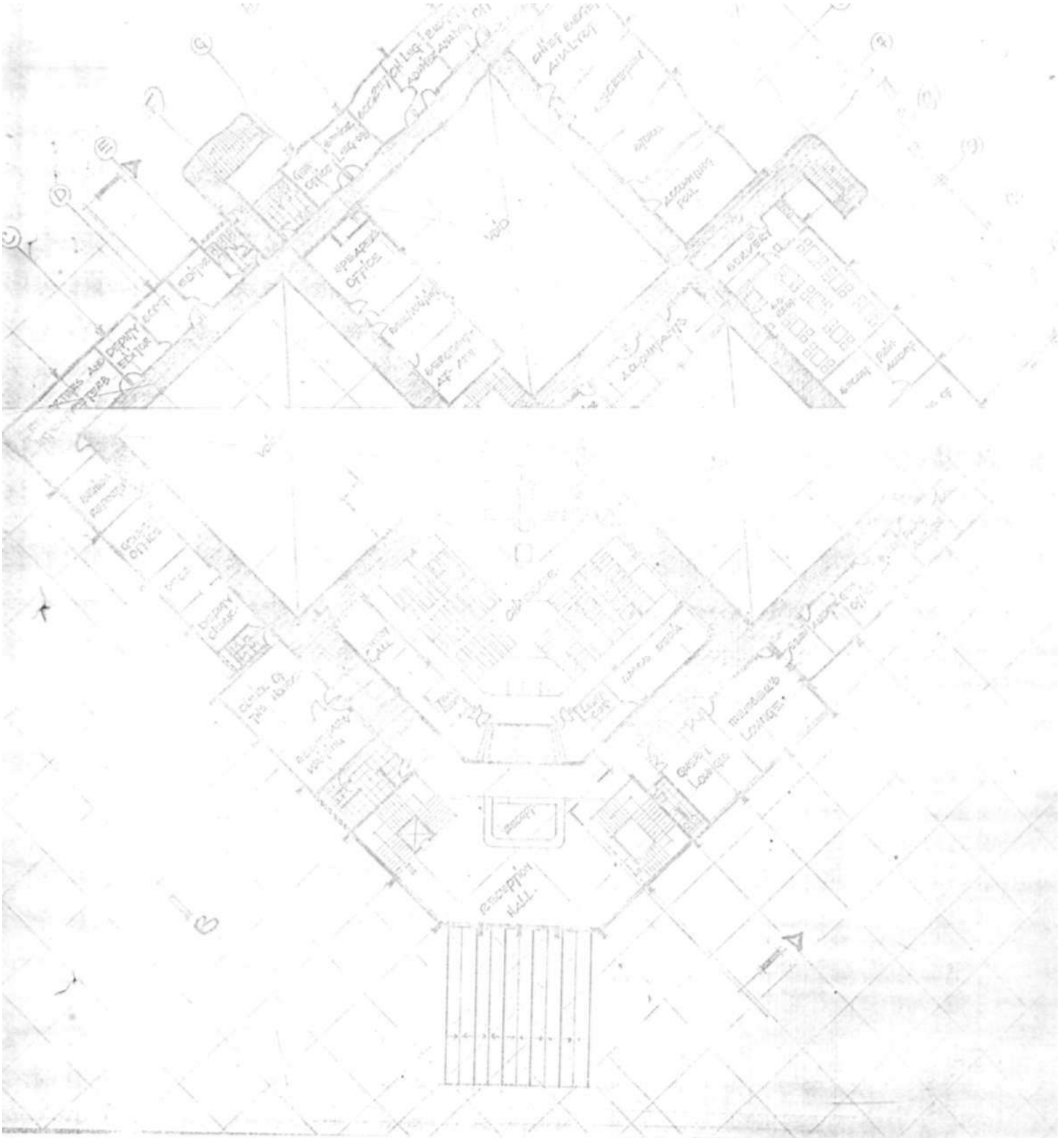
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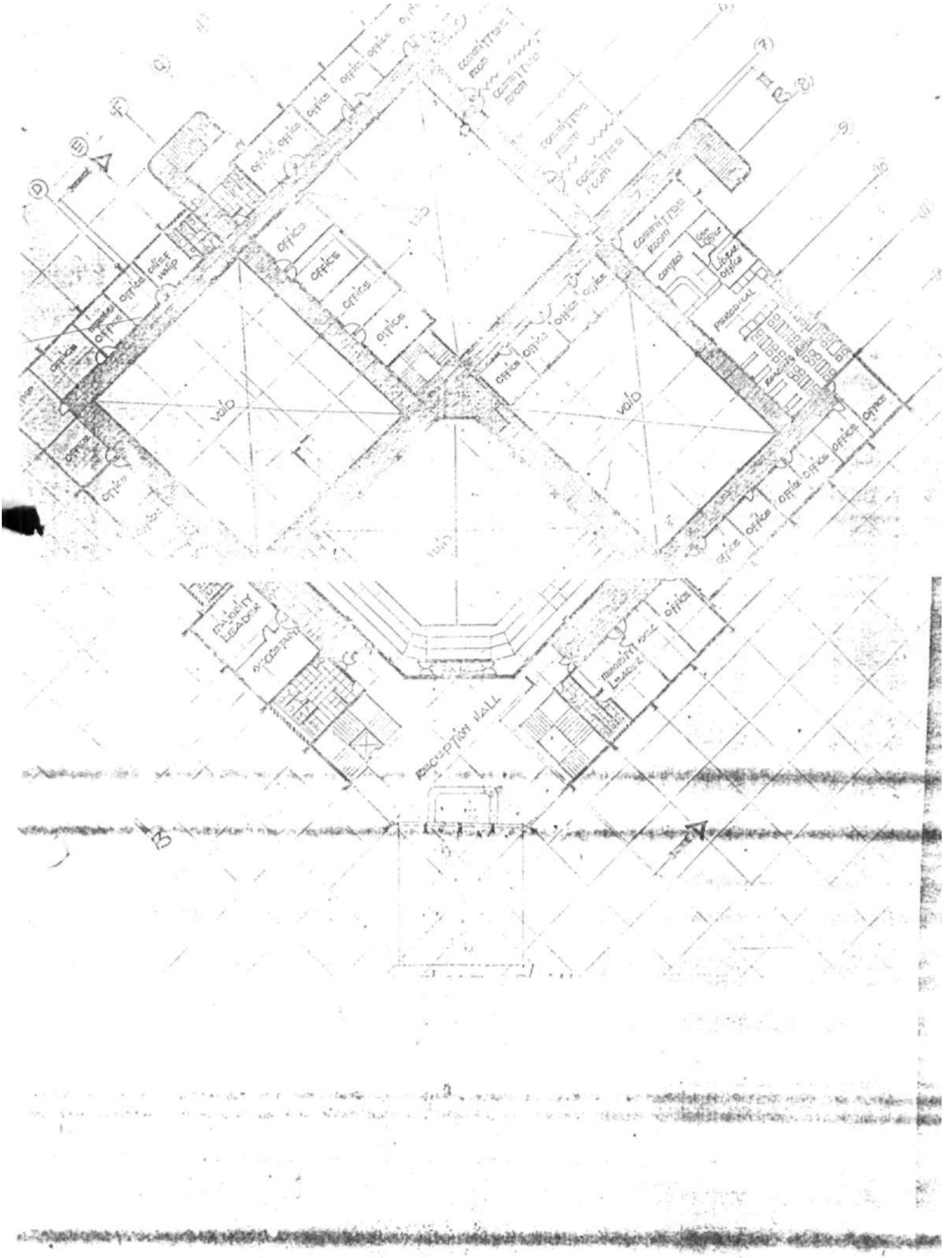
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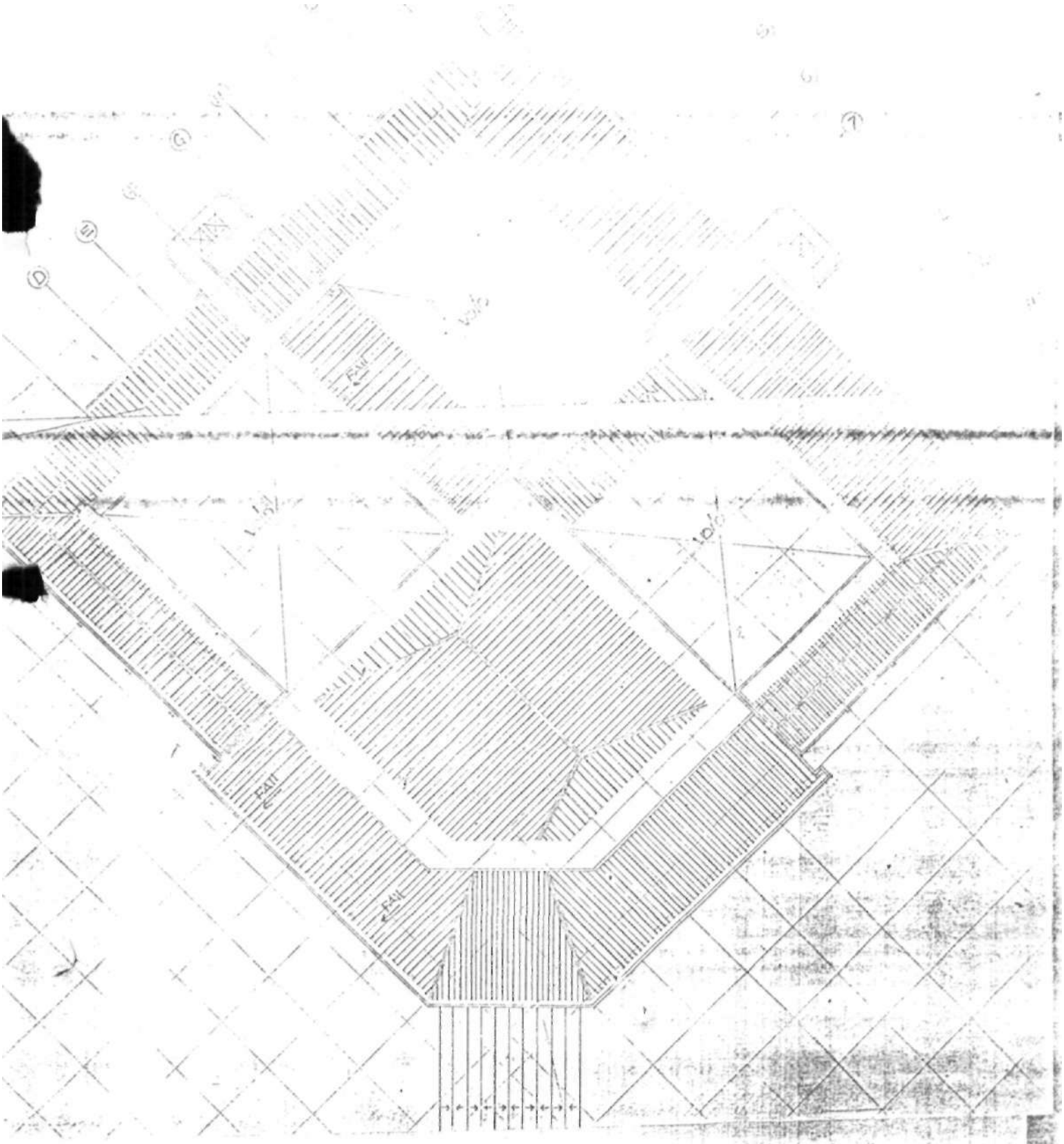
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Admin Office
Court Yard
Entrance Hall
Waiting
Court Office
Hall
Kitchen
Kitchen Yard
Dining Hall
Pantry
Cold Store
Dry Store
Office
Store

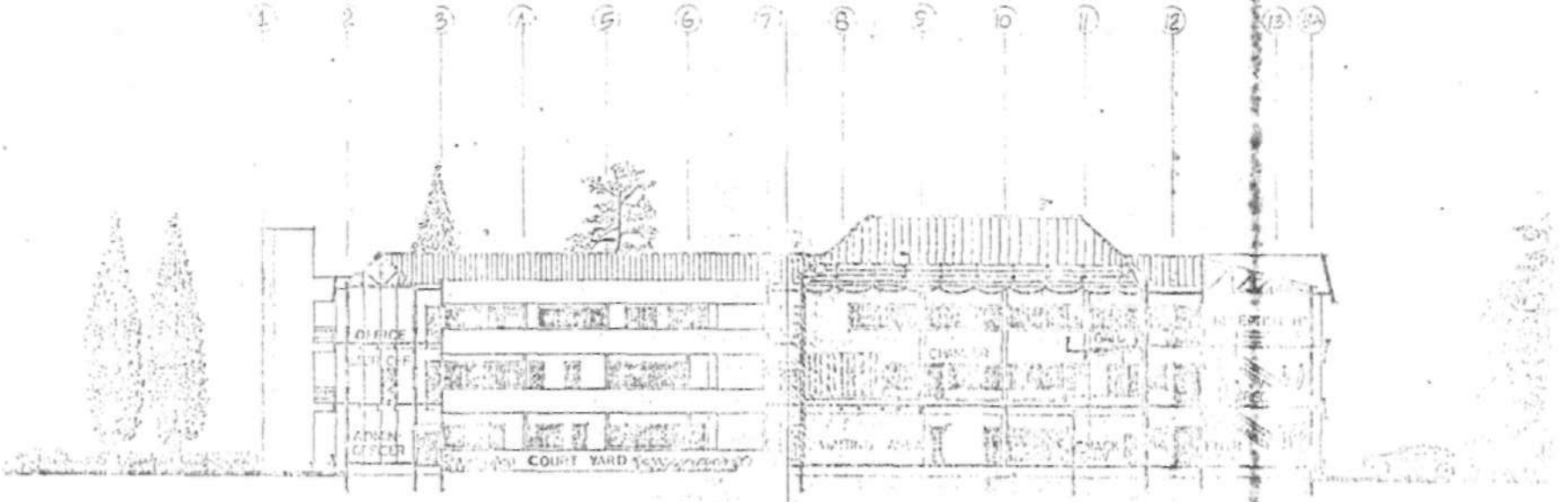

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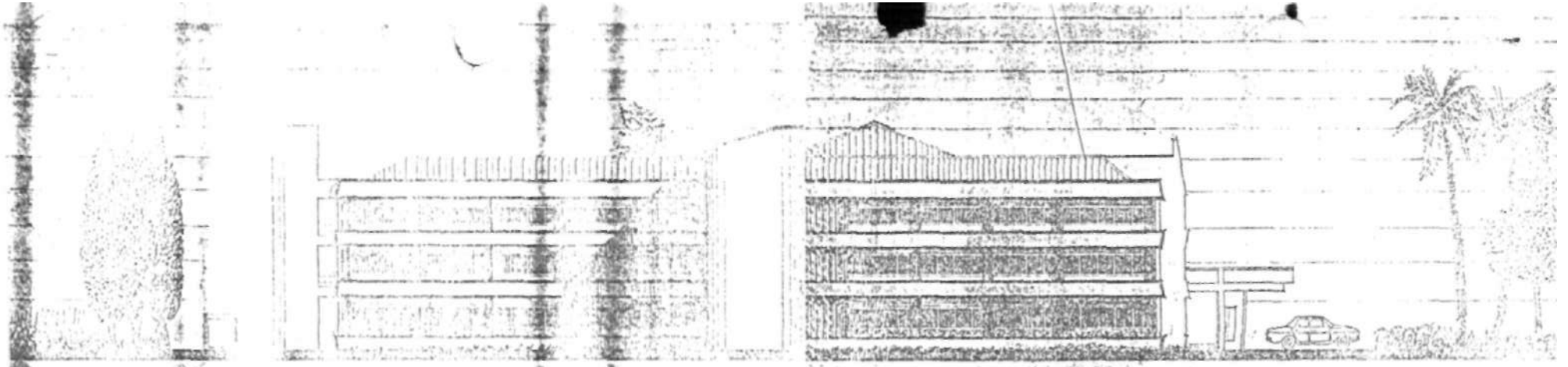

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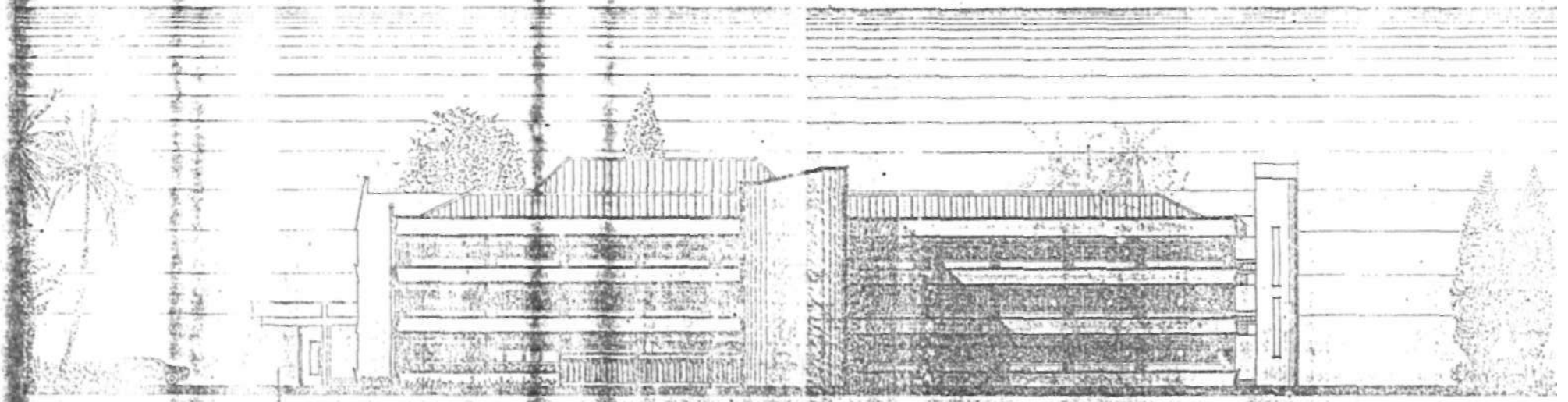
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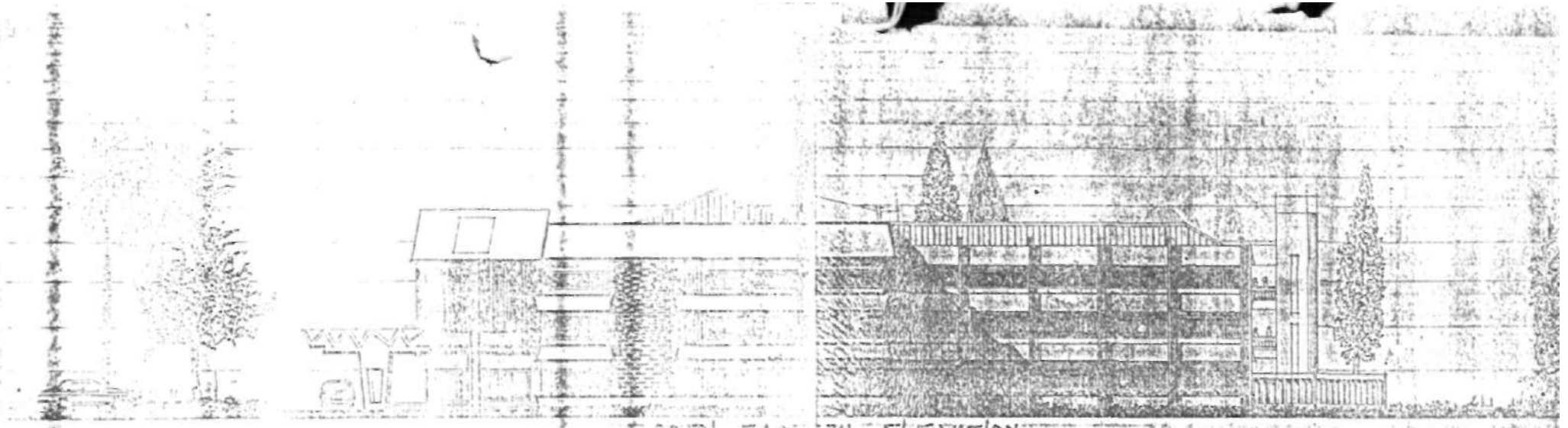
SECTION - A



NORTH WESTERN ELEVATION.



NORTH EASTERN ELEVATION



SOUTH EAST ERN ELEVATION



SOUTH EAST ELEVATION

