NATIONAL PARKS HEADQUARTERS, ABUJA:

MINIMIZING THE PROBLEMS OF CIRCULATION

IN AN OFFICE SPACE

M.sc (ARCH) THESIS

BI

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A thesis presentation to the Post-Graduate School, Ahmadu Bello University, Zaria in partial fulfilment of the requirement for the award of the degree of:

MASTERS OF SCIENCE ARCHITECTURE

APRIL, 1994

DEDICATION

This thesis is dedicated to:

AR-RAHAMAN (The Merciful). May he have mercy on:

- *My aged Parents; Alhaji D. Umar and Hafsatu Mohammed Umar*
- *My Guadians: Alhaji Aminu Saleh, Secretary to the Government of the Federation (S.C.F.) and Aminu Umar, Director National Assembly, Abuja.*

DECLARATION

I the undersigned do hereby declare that the work presented in this thesis entitled "NATIONAL PARKS HEADQUARTERS, ABUJA. MINIMIZING THE PROBLEMS OF CIRCULATION IN AN OFFICE SPACE" is entirely the product of my research and has not been presented either wholly or partially for any degree nor is it being concurrently being submitted for the degree of Master of Science.

All Sources of information and quatations are duly acknowledged

MOHAMMED, AMINU UMAR

CERTIFICATION

This thesis entitled, NATIONAL PARK HEADQUARTERS, ABUJA. MINIMIZING THE PROBLEMS OF CIRCULATION IN AN OFFICE SPACE by MOHAMMED, AMINU UMAR meets the regulations governing the award of the degree of Master of Science (ARCHITECTURE) of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation

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Dean, Post-Graduate School *Date*

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I wish to thank the almighty Allah for giving me the health and strength to climb such a tower of hope in life. May the success be here and hereafter Ameen.

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I also wish to thank all my classmates, fellow students in the Department of Architecture, and my friends all too numerous to mention from various departments and Institutes of Ahmadu Bello University, Zaria for their support and encouragement.

At this juncture I wish to thank my friends from outside the school for their support and encourgement particularlytheir support and encouragement, during the course of my study.

Thank you all and may Allah blees you accordingly - Ameen.

ABSTRACT

Nigerian National Parks was established in order to have a unified National Park system in the Country. The Organisation has its headquarters in Abuja which should be coordinating the programs of the Organisation

The headquarters building requires a good planning because it will function as a centre for collection, processing and storage of information relevant to the six (6) newly established national parks in the country and consequent issue of instruction for the organization.

The design of an office, is a challenging process involving the organization of various spatial zones consisting of intricately related functional spaces to work together in architectural unity. It should as well as responding to the special requirements like adequate circulation, and articulate services network.

One of the major problems affecting the efficient functioning of the office building is circulation. The aim of this thesis is to conduct a research on the problems of circulation in an office space and provide some architectural solutions to it. The study is limited to pedestrain circulation as it affects space requirements and spatial organization of the building structure.

The objective is to provide an efficient office building for National Park Headquarters, Abuja, for the success of recently established unified national parks system in the country.

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CHAPTER ONE

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1.0 INTRODUCTION

1.1 PREAMBLES:

Nigerian National Parks is a newly established Organization by the Federal Government. It was established in order to have a unified national park system in the country. It came into being as a result of the promulgation of Decree No. 36 of 1991 which establishes the six (6) National Parks and a Service Board in the Country. These include:

i. Yankari National Park, Yankari

ii. Kainji Lake National Park, New Bussa

iii. Cross River National Park, Calabar

iv. Gashaka-Gumti National Park, Gasheka

v. Chad Basin National Park, Maiduguri

vi. Old Oyo National Parks, Oyo

And a service board in Abuja

National Parks which is an area of natural beauty eg. Lakes, Mountains, Forest etc will now be receive attention from the Government, following the recent establishment of the Organization which is Nigeria National Parks. (See figure below)

Nigeria National Parks sets out requirement for building its headquarters office complex in Abuja. Therefore an efficient office functions is required at its headquarters, which will be administering the unified park system recently established in the Country.

However, the efficiency of an office building is a factor determined by the relationship between the communication pattern

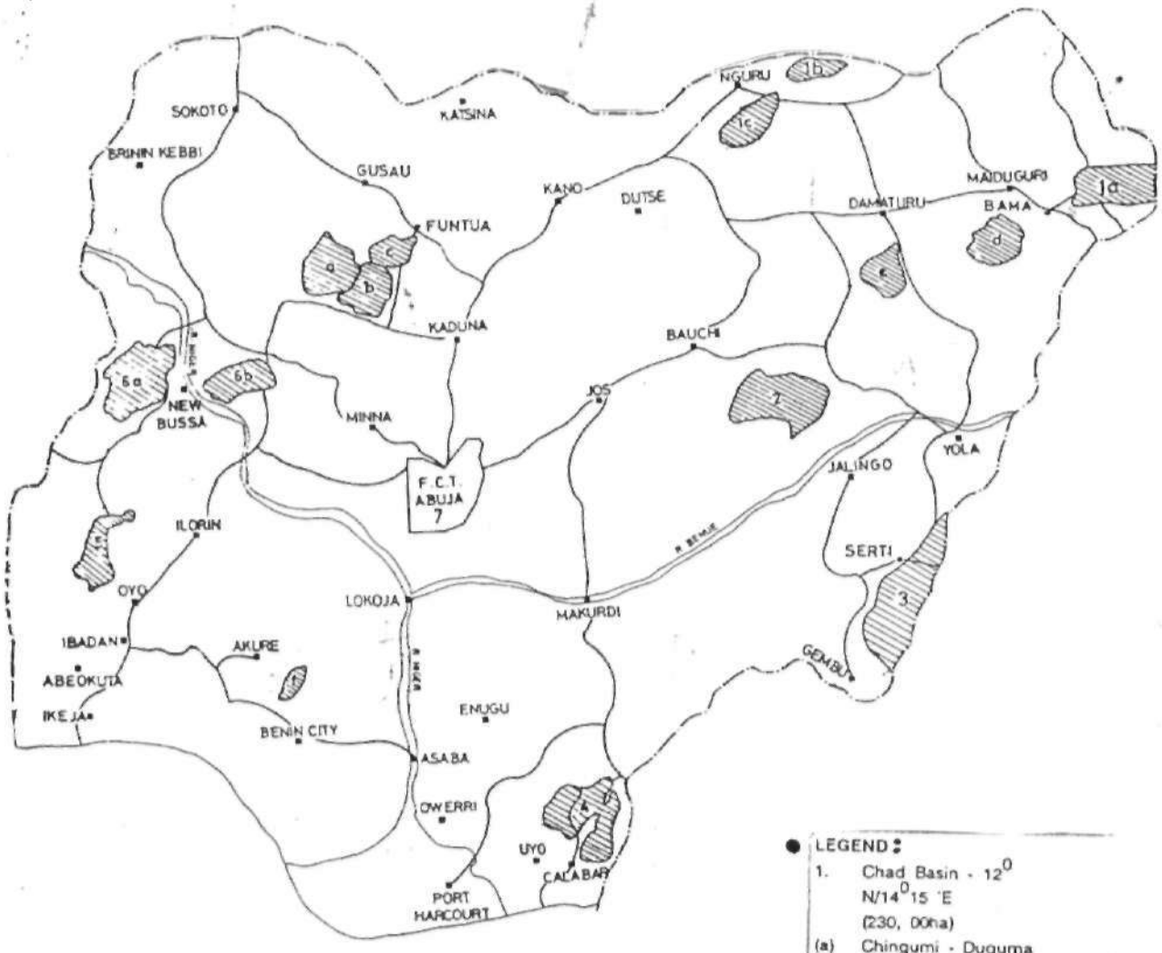


FIGURE 1·1 : MAP OF NIGERIA SHOWING THE SIX(6) NATIONAL PARKS AND SOME AREAS PROPOSED FOR NATIONAL PARK IN FUTURE.

- Proposed National Parks :
  - (a) Kuyambana
  - (b) Kamuku
  - (c) Kogo
  - (d) Sambisa
  - (g) Gujba
  - (f) Ifon

- LEGEND :
  1. Chad Basin - 12^0 N/$14^0$15 'E (230, 00ha)
     - (a) Chingumi - Duguma
     - (b) Bulatura Oasis
     - (c) Hadeja/Nguru Wet lands
  2. Yankari - 9^0 45'N/$10^0$30E (225, 400ha)
  3. Gashaka Gumti - $7^0$30'N/$11^0$4^{0}E (586,00ha)
  4. Cross River - 6^0 05'N/9^0C2'E (400,00ha)
  5. Kainji Lake - $10^0$05'N $4^0$41E (523,00ha)
     - (a) Borgu
     - (b) Zugurma
  6. Old Oyo - 8^0 44'N/$3^0$44'E (253,00ha)
  7. National Parks Headquarters Abuja.



PLATE 1.1 ENTRANCE TO NATIONAL PARK SERVICE BOARD, WUSE ZONE 4, ABUJA.

(circulation pattern) and building form (form of circulation space). Therefore for an efficient office function these relationship has to be studied throughly in order to come out with workable solutions. The findings that can then be used in the proposed building, which is the National Parks Headquarters, Abuja. The objective of this Organisation are:

i. *To conserve, preserve, and protect the remaining indigenous Nigerian Flora and Fauna in as many Ecological enclaves as possible for the benefit of present and future generations;*

ii. *To enhance the regeneration and propagation of our unique natural heritage some of which are already endangered or threatened with extinction;*

iii. *To stablize the environment and forestall the disastrous effects of adverse climatic changes, especially in ecological fragile ecosystem throughout the country;*

iv. *To cultivate a recreation cultural for Nigerians, promote the aesthetic, scenic and touristic value of our natural heritages for economic social and cultural development;*

v. *To generally fulfil the terms of our national policy on conservation and those of international convention in the conservation of natural resources to which Nigeria is a signatory.*

1.2 AIMS AND OBJECTIVES

AIM:

The aim of the study is to provide an office (Headquarters building) that can function efficiently for the success of the newly established organization.

OBJECTIVES:

- *To design a National Parks Headquarters (Office Building) that will satisfy the functional micro-climatic and administrative needs of the organization.*
- *To provide a building that will unify the National Parks Services throughout the country.*
- *To provide a building that will promote or rather enhance the services of the Nigeria National Parks.*

1.3 SCOPE AND LIMITATIONS:

The scope of this thesis is limited to Pedestrain circulation internal or communcation pattern in an office space, as it affect space requirement and spatial organization of the building structure. The study is divided into two stages, viz:-

- *ANALYTICAL STUDY: This deals with the general data collection analysis of existing situation to better understand the problems. Recommendation and general suggestion would be made on how to resolved these problems.*
- *DESIGN PROPOSAL: At the end of the first stage, findings deduced therefrom will be use in the design proposal of the new building in order to minimize these problems.*

1.4 MOTIVATION

The whole idea of this thesis came to the author while on a brief visit to Abuja the new Federal Capital Territory. In the Capital City currently, there are many office building under construction for Government Ministries and Establishments. This is what makes the author consider conducting and a research on one of the major

problems affecting the efficient functioning of an office building which is circulation.

The finding that is the general suggestions and recommendations can be use to make a proposal for Nigeria National Parks Headquarters which is one of the newly established Organisation in the country. This will serve as authors contribution to the development of the new Federal Capital Territory. Some offices under construction in the city shown below.

1.5 RESEARCH METHODOLOGY

The research for this thesis will be carried out in the following ways:

- *LITERATURE REVIEW: Collection of information from books journals, thesis works and magazines which is the secondary sources of data collection;*
- *FIELD RESEARCH: This include case studies of similar existing buildings in order to find out the adequacies and inadequacies. Under this also climatic and or environmental data will be collected for analysis. The field research is the primary source of data collection.*

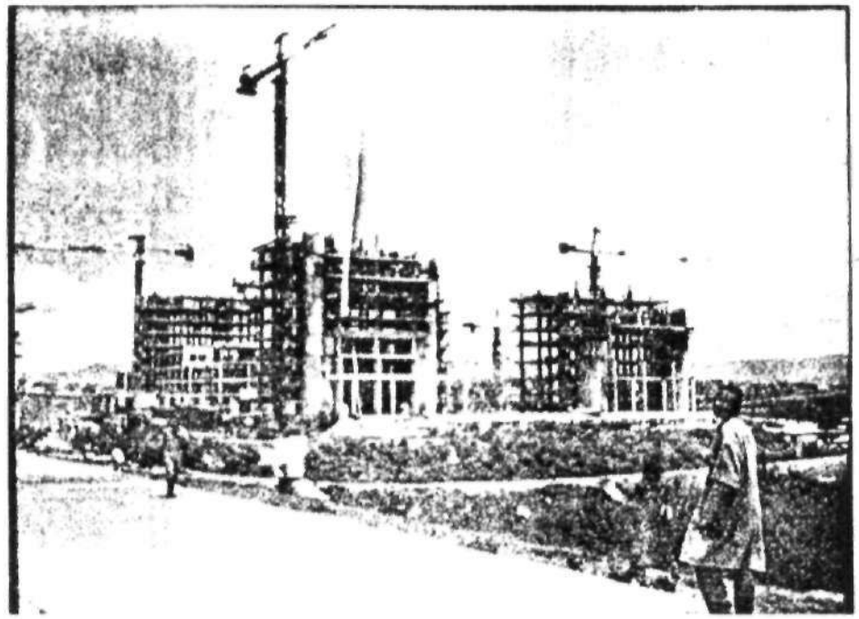


PLATE 1·2 NIGERIAN NATIONAL PETROLEUM COMPANY (N.N.P.C.) HEADQUARTER OFFICE COMPLEX, ABUJA.



PLATE 1·3 FEDERAL RADIO CORPORATION OF NIGERIA HEADQUARTERS, ABUJA.

CHAPTER TWO

CHAPTER TWO

2.0 LITERATURE REVIEW (CIRCULATION)

2.1 CIRCULATION:

Circulation could be defined as movement through space. It is simply a communication pattern for an activity of an organization. Circulation path links spaces of a building or any series of vertical or horizontal, interior or exterior spaces together.

The challenging problems in designing an office building that can have efficient functioning are as follows:-

- *Circulation, ventilation, noise and lighting Circulation has been identified as a cardinal problem as it affects the efficiency of the office function most in comparison to the rest, this is due to the fact that efficiency of an office function is a factor of relationships between circulation (communication pattern) and building form.*
- *Circulation (pedestrain movement) in an office space could be vertical or horizontal, in any case it involves the movement of people or group of people from one functional space to another.*

2.1.1 Vertical Circulation: This is the movement of people or group of people that involves a change in level. This change in level is carried out by means of stairs, lifts and ramps. And depending upon the nature and purpose of the movement, one of the three (3) circulation elements mentioned above could be used for vertical circulation.

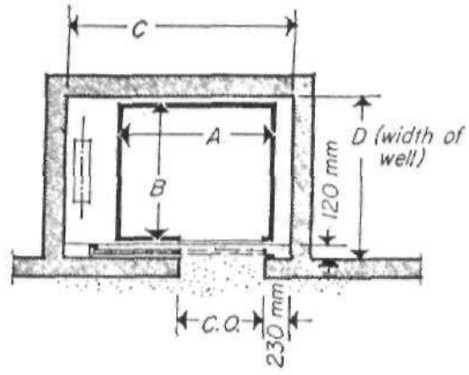
Lifts: This is a mechanical device for movement of people and goods in a building. Lifts are widely used or employed to make

vertical circulation quicker and easier and they make possible buildings - rising above four or five floors which would be a maximum for reasonable access on foot. The essential features for a lift installation are, a car to carry pessengers supported on a cable running over a pulley and balanced by a counterweight, both rise and fall between steel guides in a shaft formed in the building known as a lift well. the figure below shows an example of a car, cable and balanced weight.

Size and number of lifts: The size of a lift depends on the amount of traffic, speed and purpose to which it is meant to serve. Number of lifts required is theoritically a fraction of the total number of people by the number discharged by one lift, which can be represented as below.

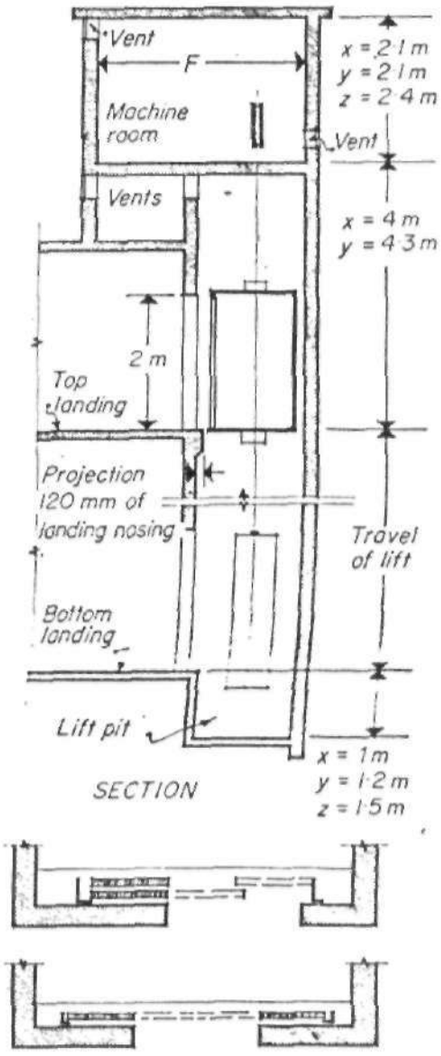
However, the number of lifts required in a building depends on the nature and function of the building. A building with high flow of traffic for vertical circulation would have more number of lifts compare with the one that have less traffic. And also nature of the building determine the number of lifts in building ie in hotels and hospitals a service lift is required to conveys goods and services, while in courts and police station a security is required to avoid public inconvenience.

<u>Stairs</u>: This is a conventional means of access between floors in buildings. It should be constructed to provide ready, easy, comfortable and safe access up and dawn with steps that are neither requiring great effort nor difficult to climb within a compact area so as not to take up excessive floor area. Stairs are employed to



PLAN OF LIFT CAR AND WELL

0·5–1 metre per second	Number of passengers			
	4	5	6	8
Load kg	270	340	400	540
Dimension A	1m	1·1m	1·2m	1·5m
B	0·8m	0·9m	0·9m	1m
C	1·7m	1·7m	1·9m	1·9m
D	1·2m	1·3m	1·3m	1·5m
E Width of machine room x	2·4m	2·4m	2·4m	2·7m
y			2·7m	2·7m
z				3m
F x	2·1m	2·7m	2·7m	3m
y	2·7m	3m	3m	3m
z				4m
C.O.	0·7m	0·7m	0·8m	0·8m



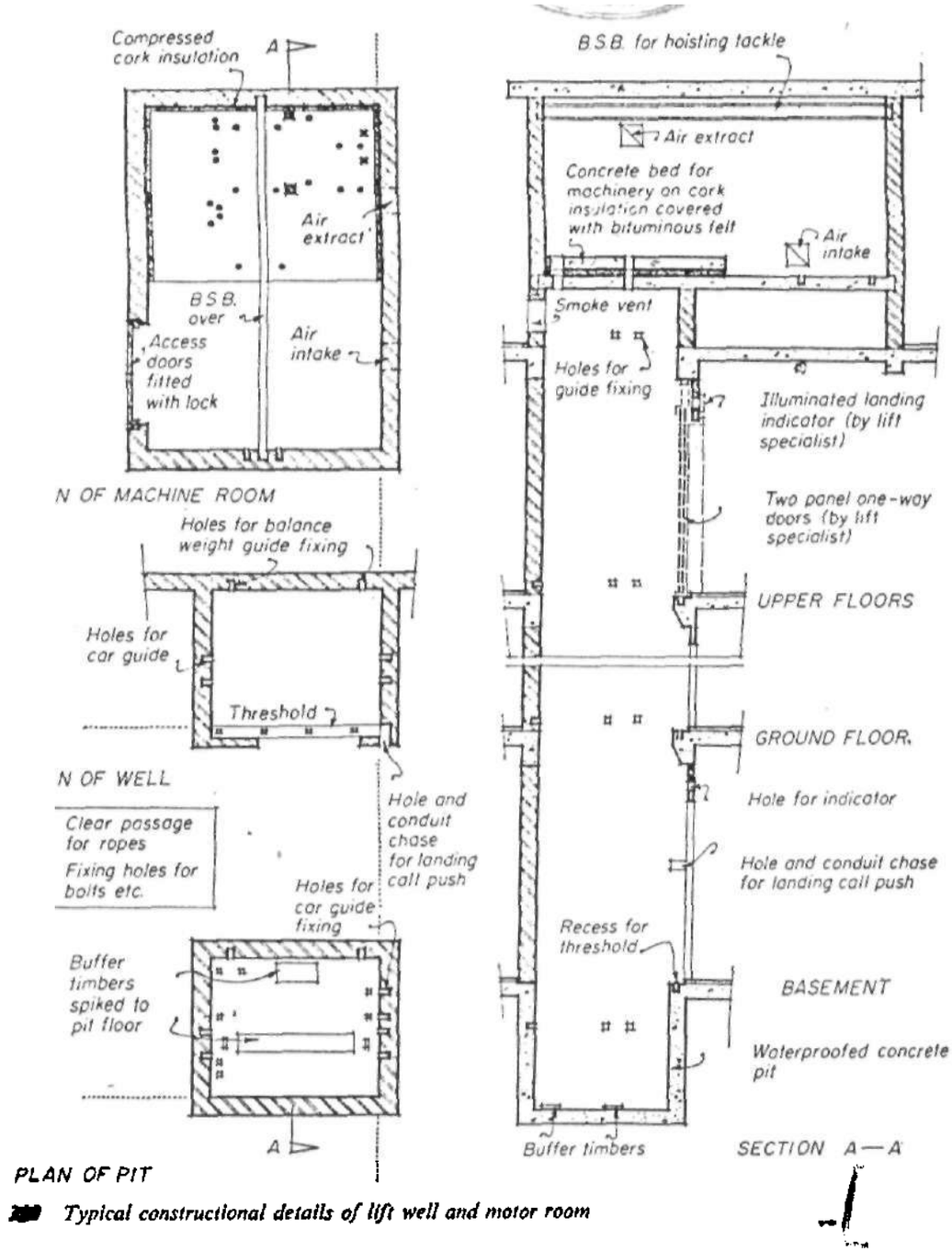
ALTERNATIVES with two-panel doors

Dimension x for speed of 0·5 metres per second
Dimension y for speed of 0·75–1 metres per second
Dimension z for speed of 1 metre per second
If doors manually operated C.O. is 50 mm less

GEARED LIFT — balance weight at side · single panel sliding door power operated

Typical sizes for lift car, well and machine room

FIGURE 2·2 THIS SHOWS PLAN OF A LIFT CAR AND WELL, TYPICAL SIZES OF LIFT CAR, WELL AND MECHINE ROOM.



Typical constructional details of lift well and motor room

FIGURE 2.3 TYPICAL CONSTRUCTIONAL DETAIL OF LIFT WELL AND MOTOR ROOM. PLANS AND SECTION.

make vertical circulation in a building not exceeding four or five floors for efficient functioning of the building. And for five and above storey building another means of access may be required for efficient vertical circulation.

Types of Stairs: There are many types of stairs depending on the nature of their flight (angle of the flight) and nature of the materials with which they are made. Stairs can be; straight flight in a single direction (up and down) per flight, the flight may be parrallel, angled at 90° at each landing or it can be circulation stairs that appears to follow a large circle. Stairs can also be vertical (Spiral stairs) having a smaller radius (1.2m to 2.4m) and may be supported by central port. It can as well be elliptical (geometrical) this type of stairs are constructed with treads that are tapered treads arranged around a centre support as a spiral (helical) stairs, an open well circular stairs or as an ellipse or part of an ellipse on plan it is illustrated in the figure below.

Spival Stairs

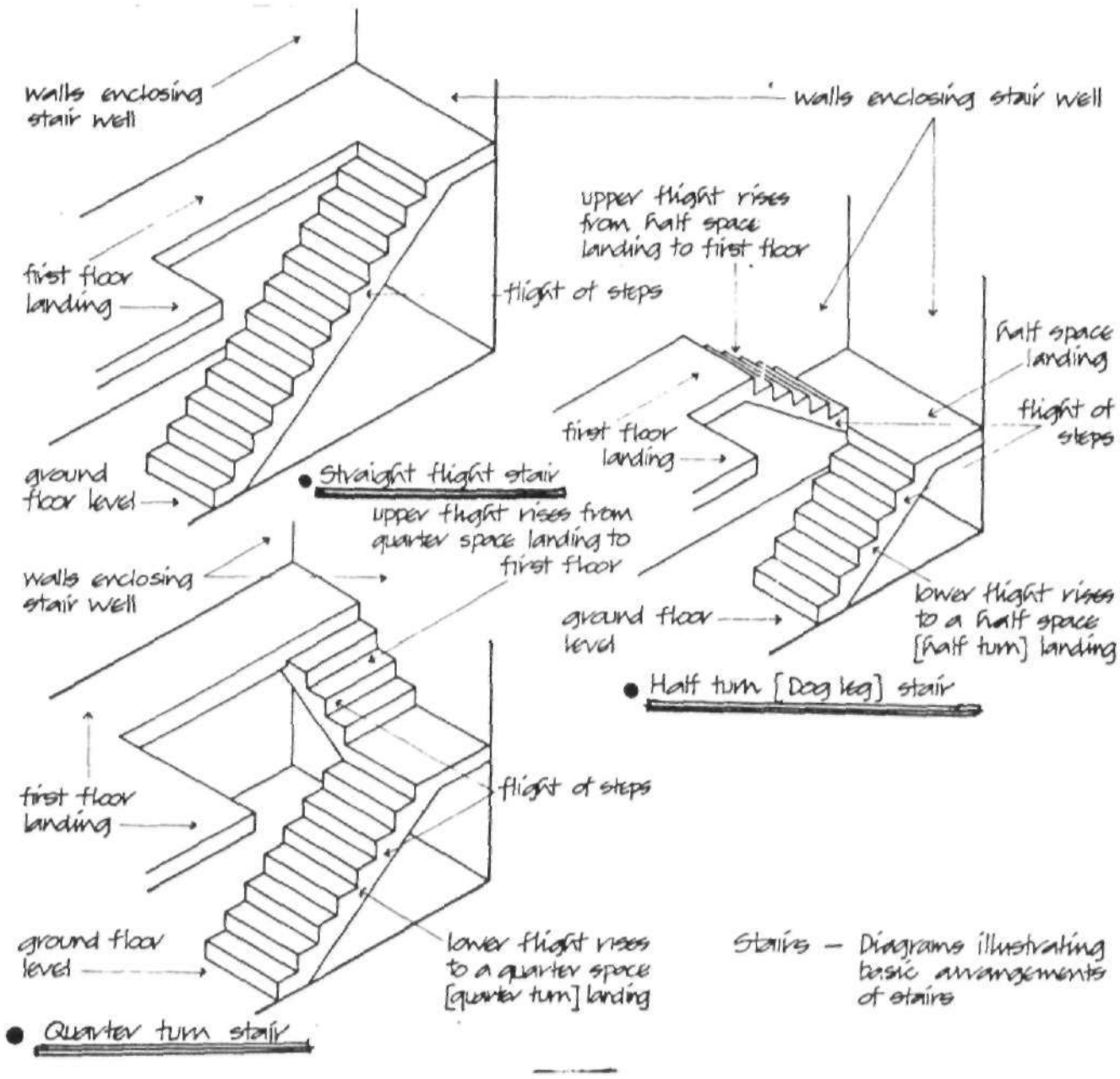
The important elements for functional stairs are:

1) *Stairs approach should be spacious enough to avoid pedestrain line up*

2) *Space of 0.3 square metres (m2) per person is required*

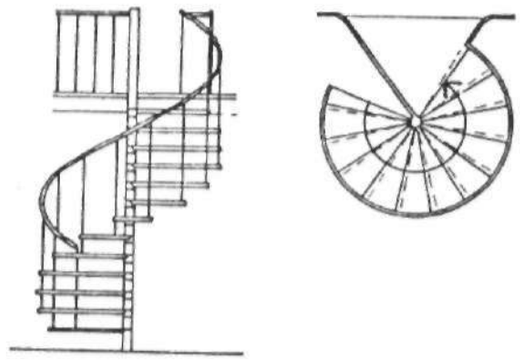
3) *Good lighting for the stairs is required*

4) *Stairs edges, tread and ralings designed to assist travels especially for handicapped persons*

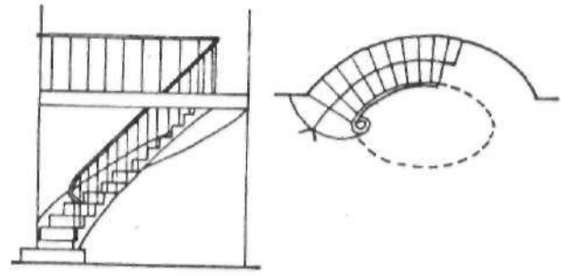


Stairs – Diagrams illustrating basic arrangements of stairs

FIGURE 2.4 SHOWS AN EXAMPLE OF STRAIGHT AND ANGLED STAIRS.



Spiral (Vertical) stair



Elliptical stair

Geometrical Stairs

FIGURE 2.5 SHOWS PLANS AND ELEVATIONS OF SPIRAL AND ELLIPTICAL STAIRS.

5) *Riser heights less than 180mm to reduce exertion and improve traffic flow*

6) *Where the traffic is high, the width of the stair is extended a minimum one pedestrain lane (760mm)*

Pedestrain Ramp: This is another means of vertical circulation. They are essentially for access and circulation by disabled person. Ramps mostly are made up concrete, unlike stairs they do not require adequate placing of foot. The safe slope of ramp (pedestrain) is limited to the risk of slipping, which is influenced by the nature of the surface and whether or not the ramp is situated internally or externally. The following maximum slopes are considered safe; for reasonable slipresistant, subject to wetting-1 in 10, usually dry 1 in 8. For highly slip-resistant surfaces - 1 in 6.

2.1.2 Horizontal Circulation: This is movement of people or group of people on the same floor, in other words is a movement that does not require a change in level. Horizontal circulation links activities on the same floor, this is carried out by means of corridors and lobbies. The capacity and form (nature) of these circulation elements mentioned above depends upon the amount of traffic and purposes to which they are made to serve.

Corridors: This is a passageway in a building usually one of some size and importance. Corridor are circulation elements that link interior spaces of a building or series of interior spaces along a single path in building. The size of the corridor depends on the amount of pedestrain traffic nature and functions of the building.

Corridors is the major horizontal circulation element that links series of activities arranged in different functional space within the same building.

Lobby: This is a room like corridor into which rooms having different activities open in to. The difference between lobby and corridor is that, rooms opens directly into lobby while in case of corridor rooms might not necessarily open into it. Lobbies are also horizontal circulation elements in a building.

2.2 CIRCULATION (MOVEMENT THROUGH SPACE)

Circulation (movement through space) links the spaces of a building together, it can be either a series of interior or exterior spaces. And since we move in time through a sequences of spaces, we experience a space in relation to where we have been and where we anticipated going.

Forms and spaces are the principle components of a circulation system that affect perception of the building. The circulation elements are:

i. *Building approach - The distant view*

ii. *The building entrance - From outside to inside*

iii. *Configuration of the path - The sequence of spaces*

iv. *Path, space relationships - Edges, nodes, termination of the path*

v. *Form of circulation space - Corridors, balconies, galleries, stairs and rooms*

CIRCULATION ELEMENTS

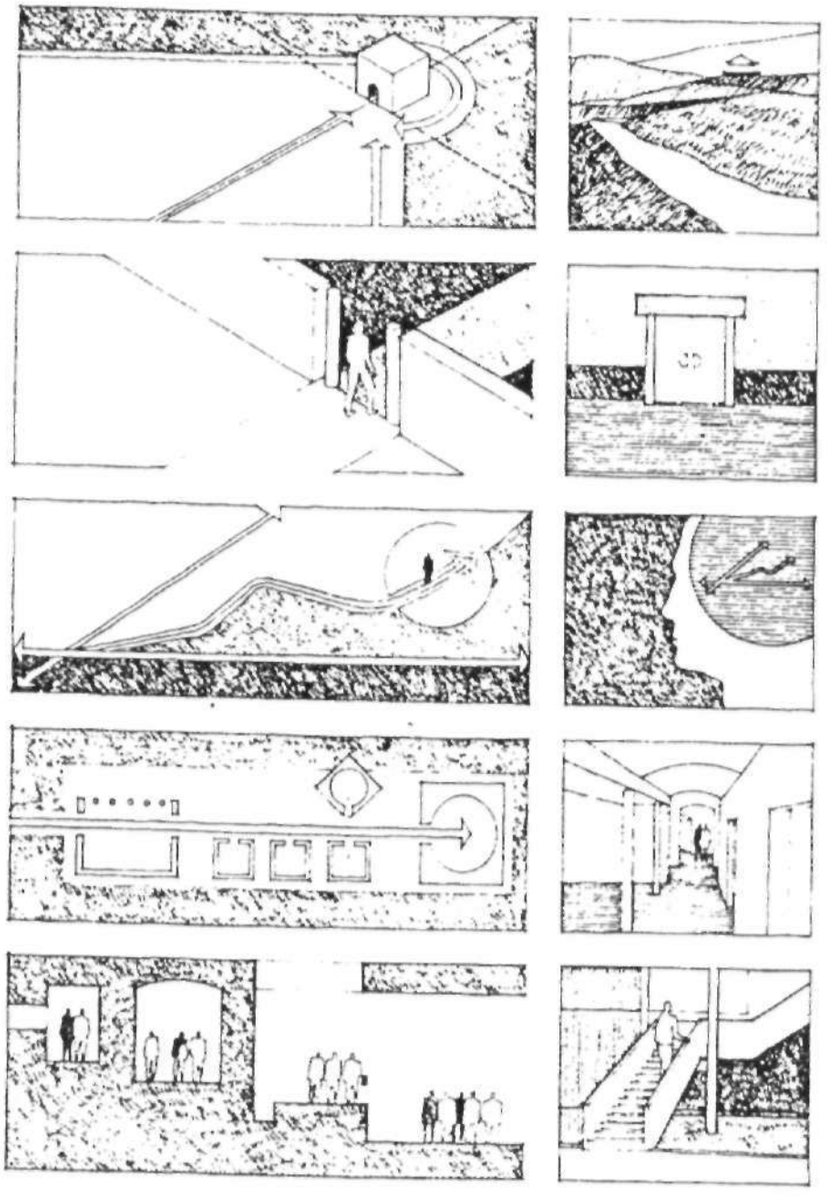


FIGURE 2.7 THIS SHOWS CIRCULATION ELEMENTS.

2.3 FORM OF A CIRCULATION SPACE

Circulation spaces form an integral part of any building organization, and occupy a significant amount of space within the building volume, the form and scale of a circulation space, however must accomodate the movement of people as the pause, rest or take in a view along its path. The form of a circulation space can vary according to how:-

- *Its boundries are defined*
- *Its forms relate to the form of the space it links*
- *Its qualities of scale, proportion, light and views are articulated*
- *Entrances open on to it*
- *It handles changes in level with stairs and ramps.*

A circulation space may be:-

- *Enclosed: Forming a corridor that relates to the links through entrances in the wall plans*
- *Open on one side: To provide visual and spatial continuity with the space it links*
- *Open on both side: To become a physical extension of the space it possess through*

The width and height of a circulation space should be proportionate with the type and amount of traffic it must handle. A narrow, enclosed path will encourage movement. A path can be widened not only to accomodate more traffic but also to creat spaces for pausing, resting or viewing. It can be enlarged by merging with the

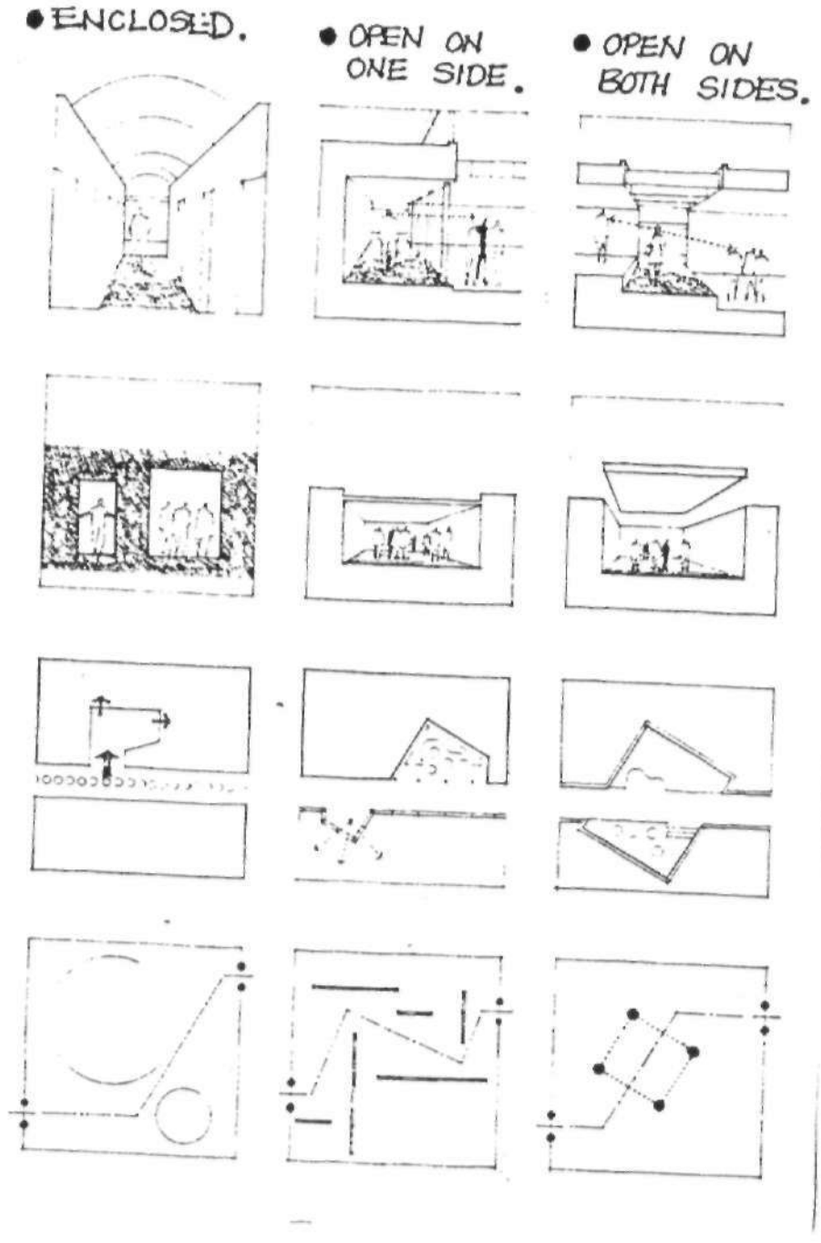


FIGURE 2.6 SHOWS FORM OF CIRCULATION SPACE.

spaces it passes through. Within a large space, a path can be random, without form or defination, and determined by the activities within the space.

Therefore it can be concluded that circulation space are the two most important elemente in any design, as the circulation elements determines the efficient functioning of the building and form of circulation space affects the perception of the building. And for a design of any of building the factors to be considered must are the function and asthetic (beauty) of the building, which in other words are the circulation elements and form of circulation space.

2.4 PEDESTRAIN CIRCULATION:

This is the movement of people between two related functional spaces of a building or rather a movement between series of interelated functional spaces of the same building. In each case it entails the need for personal contacts or passing of documents.

Pedestrain movement (circulation) is one of the parameters used for measuring the functional efficiency of a particular building. For an office which is a business oriented building the success of the business organization using it depends on how efficient the office function is performed. And pedestrain movement being a measurable element amongst the factors used in determining the efficiency of the office function, it has become increasingly important aspect of study in the design for an office building. However, from the study into the function of an office building, it was found out that the location of entrance and service activities are important in term of pedestrain movement, which indicates that in any office layout

the designer must give careful consideration to their placement, although there is also a wide range of movement among the various offices, with some very much more important than others. The results of the assessment of this element (pedestrain circulation) in a large office building, is that it has to be minimum for efficient working of the building.

The basic elements of any system of office planning are the space requirements of activities, and their necessary interaction. Space requirements may be assessed by study of the area necessary to carry out each activity efficiently, taking into account such factors as equipment needed, space for access and expansion. The necessary interaction which links two related functional spaces needed a careful study to reduce their distance apart for an efficient work flow of the office building.

2.5 *CONCLUSION: Although circulation is not the only determining factor for an efficient office functions, it could be the cardinal factor about which other factors are vibrating. Therefore the study into this important architectural design factor which could be the problematic condition of the given design project, that is the human movement (circulation) in an office space, proved to be indespensible for efficient function of an office building. However, the best design solution for any office must also be able to meet restrictions imposed by cost and by the visual, thermal and aural environments together with those restrictions originating from limitation of site dimensions, topography and ground conditions.*

The total design solution must then be a compromise but should not ignore the fact that, over its life, the returns from using the building will be several times greater than all the initial, maintenance and other running costs of the building put together.

SELECTED REFERENCES

1. *Francis D.K. Ching, Architecture: Form, space and order*

2. *D.J. Carter and B. Whitehead, A Study of pedestrain movement in a MultiStorey building. Build and Environ. Vol. II, No.4 (1976), pp*

3. *Peter Burberry, Environment and Services, New Edition B.T. Batisford Ltd London 1970*

4. *Jack, S.F. and Raymond H., Structure and Fabrics Part 2, New Edition, Rechard Day Ltd London 1988.*

CHAPTER THREE

CHAPTER THREE

3.0.0 OFFICE LAYOUT (ANATOMY)

The planning or arrangement of an office space which take into consideration such factor as, access, circulation, equipment and furniture arrangement is known as office layout.

The development of an office layout which conforms to and complements the predominant work flow requirements of an office is perhaps the most important phase of space planning. By systematic study of the operations, processes and procedures involved in individual task, the planner can assist management by providing work station pattern which ensures a smoother and straight line flow of work.

> *"Good planning I conceive to be both a science and an art. As a science it analyses human relationships, as an art it coordinates human activities into a cultural synthesis"*
>
> *- "Walter Gropius"*
>
> *"The plan is at its basis. the plan is not a pretty thing to be drawn like Maradona face, it is an austre abstract. It is nothing than algebric and dry looking thing".*
>
> *- "ie Corbusier"*

Office design can be regarded as a two stage process, viz:

a) *The strategic level of building design*

b) *Tactical level of office layout*

a) *<u>Strategic design</u>: Involves decisions as regards space requirement and pattern of access to the space. It deals*

with long term considerations such as flexibility, adaptability and maintenance

b) *Tactical design: Involves planning arrangement within a particular or given space including circulation, furniture arrangement and equipment. Under this there are two types of office layouts and these are open plan and cellular plan layouts.*

However, there are other types of office layouts depending on the functional spaces within the office building itself.

3.1.0 OFFICE LAYOUT TYPES:

Office layout types depends on certain factor such as planning or arrangement of an office space, under these we have, open plan layout and cellular plan layout types. However, other types depend on the functional spaces within the office building itself under these we have, central corridor and core location types of office layouts.

The above mentioned types of office layout are discussed below, with their advantages and disadvantages, and possible places of the usage are also mentioned. The discussion follows the order below:-

- *Open plan layout types*
- *Cellular plan layout types*
- *Central corridor types of office layout*
- *Core location types of office layout*

3.1.1 OPEN PLAN LAYOUT TYPES:

As the name implies it is open with collapsible or flexible partitions demarcating end of function, this is commonly use in most

public buildings as a lattable office space. The open plan layout has it advantages and disadvantages depending on the nature of work or function it is meant for and these are as follows:-

Advantages of Open Plan Layout

1. *Flexibility*
2. *Save space, no wasted corner*
3. *Excellent supervision*
4. *Repetitiveness tasks can be skillfully organised*
5. *Equipment in this type of office can be allocated anywhere*
6. *Ease of communication*
7. *Good work flow*
8. *Changes can be made in the layout without difficulty*
9. *This is saved in internal communication for workers because they only work across office*

Disadvantages

1. *It can be an untidy or unbusiness like if not well planned or supervised*
2. *Many distractions*
3. *Individual cannot control his environment*
4. *It encourages communal noise which is detrimental to the health of workers*
5. *Insufficient ventilation is envisaged in this type of office*

3.1.2 Cellular Plan Layout Types:

This is the traditional office layout where a series of separate rooms usually occupied by one or two people are set against the

external wall opening into a general corridor. It lack adequate supervision and contineous flow of work. The main disadvantage of this type of layout is that it is not flexible, hence future re-arrangement is going to be expensive because partitions demarcating end of function are fixed.

Advantages of Cellular Plan Layout

1. *It provides privacy as partitions prevent overlooking and over hearing*
2. *Single rooms are easily provided*
3. *It provides effective control of surroundings*

Disadvantages:

1. *Space is wasted in the corridors and corner*
2. *The shape of the building makes difficult to get large space for conference and/or workshop*
3. *Supervision is difficult*
4. *Partitions are fixed, hence expensive to repartitions the office, for future changes, often despite growing inconveniences*
5. *Not everyone who will get a single office so people have to share office*

3.1.3 *Central Corridor Types:*

The central corridor type of office layouts are office arranged in rows on both sides and connected to one another by means of corridors leading to every door for easy communications.

Advantages of Central Corridor Type of Office Layouts

1. *It facilitates effective natural cross ventillation*

2. *Availability of adequate natural lighting*

3. *Single rooms easily provided and this will enables the provision of many private officers*

4. *Privacy is ensured and this will encourage the mental concentration of individual staff*

5. *Outward signs of status are visible*

6. *Individual can control his surroundings*

7. *It facilitates effective work integration*

Disadvantages of Central Corridor Type of Office Layout

1. *Possibility of having long corridors which will necessitate many entrance and exits.*

2. *Possibility of having cross circulation due to entrance along the corridor*

3.1.4 *CORE LOCATION OF AN OFFICE BUILDING*

In the core location above we have about three different types of arrangements viz:-

i) Exterior core location

ii) Central interio core location

iii) Split (interior) core location

i. *Exterior core location: In the exterior core location we have four different arrangements viz:-*

a) Single detatched core

b) Double detatched core

c) Fixed central circulation double detatched core

d) Assymmetrical position of circulation double detatched core

The primary advantages of an exterior core arrangement is that it leaves entire floor area of the building available for tenant use. In addition, the core does not complecate the floor plan either functional or structurally with this type of arrangement, maximum flexibility is achieved with respect to distribution office depth and layout. It also enhances security control as such location.

The core creats a "dead wall" or a portion thereof, hence it may be used as a buffer between the buildings and an adjoining property, which may have objectionable characterstics. Location on the outside of building permits the core to act as a point of transition between one building and another of possibly different scale.

The main advantage is that in the case of multitenants occupancy, the core requires a long access corridor lessening flexibility of tenant distribution. In the core occupies a desirable window space so that the offices immediately adjacent to it may not receive any mutual light.

ii) *Central interior core lacation: This location window space to be utilised as rentable office space and depending upon the configuration of the building plan, this location will permit office of varying depths to receive natural light. It is also extremely convenient interms of access and in some cases may be equal distances to all sides.*

Horizontal utility runs (links) may also be relatively equidistance from the core. Combined with a square building

plan bearing exterior, and core walls this location permits a floor plan free of column and this totally flexible for office layouts.

Despite the advantages of this core location mentioned above, there are some disadvantages, the central interior location limits the depth of office in the mid zone of each floor thus affecting the element of flexibility in office layout. Another floorarea-consuming characteristic of this core of that it requires an access corridor around its perimetre.

iii) *Split (interior) core location: The principal advantage of a split core is that it virtually eliminates the need for a peripheral corridor on the core.*

Access to this core is from the area between its split elements and not from the areas around its edges. The permits area immediately adjacent to the core available for office space. Depending on the width of the access in the centre of the core, this space may be put to different uses on different floors.

At the ground, or entery level, this area can become a lobby for additional office space.

3.2.0 PLANNING OF AN OFFICE LAYOUT

Planning can be define as that conceiving faculty which must recommend ways and means of transmitting the possiblities and impossibilities of today into realities of tomorrow. The planning and architectural design of an office is a challenging process

involving the organisation of various spatial zones consisting of intricately related functional spaces to work together in architectural unity, as well as responding to special requirements like adequate circulation, or articulate services network etc.

The planning of an office layout depends on certain architectural design factors. This factors are grouped into three, and these are:-

- *Architectural design and investigations*
- *General design considerations*
- *Planning/design concepts*

3.2.1 Architectural design investigations, includes the documentation of the existing problematic condition ofk the given project, defination of its context and collection of relevant data for analysis.

3.2.2 General design considerations, this is primarily dependent on how the problematic condition of the given project is perceived, defined and articulated. Thereafter the decisions for the final solution is formulated

3.2.3 Planning/design concepts: At this final stage of recommendations from the first stage which is the architectural design investigations (study) and the second stage which is the general design considerations (analysis) are articulated to form the planning/design concept.

In general architecture owns the prerogative of evolving a design scheme that responds to the specific needs for characteristics derived from an interplay of a number of viables/factors which are carefully worked out in the process of logical analysis.

The basic elements of any system of office planning are the space requirements of activities, and their necessary interaction. Space requirements may be assessed by study of the area necessary to carry out each activity efficiently, taking into account such factors as equipment needed, space for access and expansion, and also the provisions of legislation such as the offices, shops and premises.

3.3.0 EVALUATION OF ALTERNATIVE LAYOUTS

Circulation is one of the most important factors taking into consideration in the planning of an office layout this paved way to alternative layout evaluation in order to have an efficient office function. The layout evaluation was used to assess the effects of changes of layout and organization on circulation cost.

The layout evaluation (study), computer programme is used to assess the effects of changes of layout and organization on circulation cost. The information that is going to be used in the programme will be an association matrix, a proposed diagrammatic layout, and ratios of horizontal to vertical travel by the quickest method of vertical travel for the length of journey, this includes stairs and lifts. The results from the programme out-put will be the layout cost in elemental-journeys which can be calculated from the summation of the product of distance between each pair of activities expressed as a horizontal equivalent distance, and association between the activities.

This program will be use firstly to cost the effects of changes of organization which could be implimented in the building and secondly, to cost a number of alternative layouts for a particular building project under the same problematic condition or rather the same design constraints.

The positioning of circulation elements such as lifts and stairs for vertical circulation and entrance for horizontal circulation, reduces the journey (distance travels) between a pair of activities from the reduction in the distance travel a saving - of certain percentage of the cost of a layout would be made.

SELECTED REFERENCES

1. *D. J. Carter and B. Whitehead, A study of pedestrain movement in a multi-storey office building and environment. Vol. II, No. 4 (1976), pp 245 246.*

2. *A.B.U. Zaria, solving the problems of circulation in an office space. A proposal for New African Merchant Bank Head Office, Msc (Arch) Thesis, A.B.U. (1989)*

CHAPTER FOUR

CHAPTER FOUR

4.0.0 CASE STUDIES

The study is carried out on some Headquarters office building in order to determine the factors that hindered pedestrain movement (circulation) in these office buildings. The findings are enumerated under two subheadings vertical and horizontal movement.

CASE STUDY - 1

4.1.0 NATIONAL°

Ahmed Talib House (new Nigerian Development Company) Kaduna.

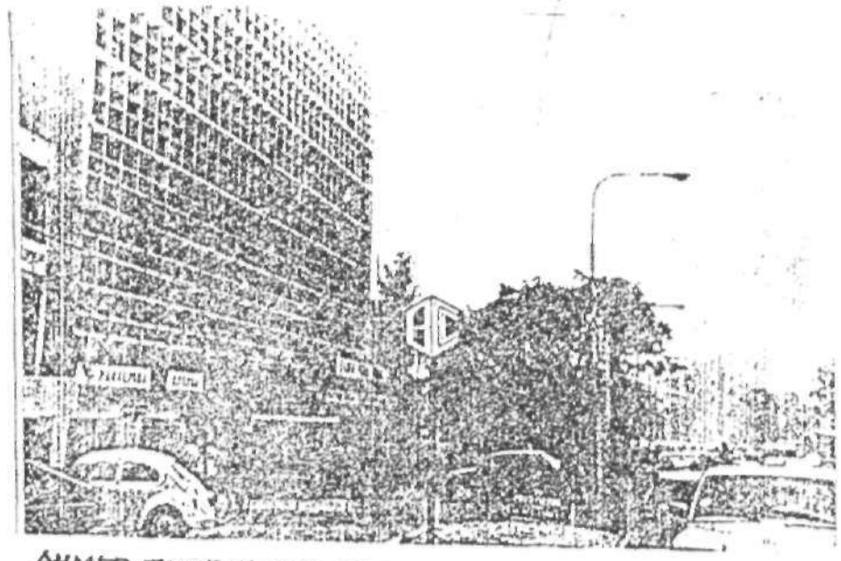
4.1.1 LOCATION

Ahmed Talib House (NNDC) building is located along Ahmadu Bello Way, Kaduna, Kaduna State. This building was first established in 1949 by the colonial masters as a regional production development board (N.R.P.D.B.) with the aim of providing Kaduna with ideal office building. And after the colonial masters the building retained its function as Northern Regional Development Corporation in 1956. Later changed to Northern Development Company and to New Nigerian Development Company (N.N.D.C.). The building was renamed in 1980 Ahmed Talib House by the Board of Directors and Shareholders of the Company.

4.1.2 THE BUILDING

The building is a ten 10 storey building with basement floor there is double banking of corridor and the lifts and main stair case are detatched from the main building.

The study conducted on this building is determine the factors that can affect pedestrain movement in this office and finding are as follows:-



AHMED TALIB HOUSE, KADUNA.

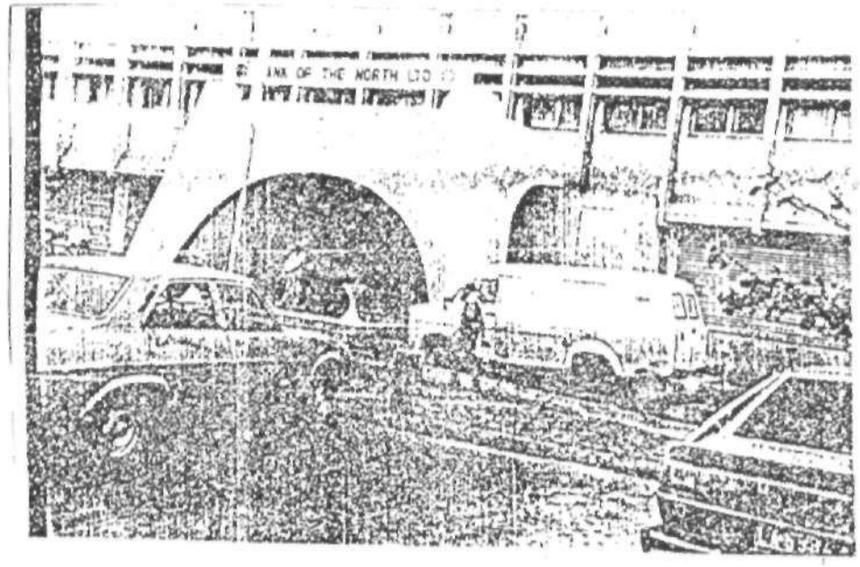


PLATE 4.1 ENTRANCE TO AHMED TALIB HOUSE (NNDC) KADUNA.

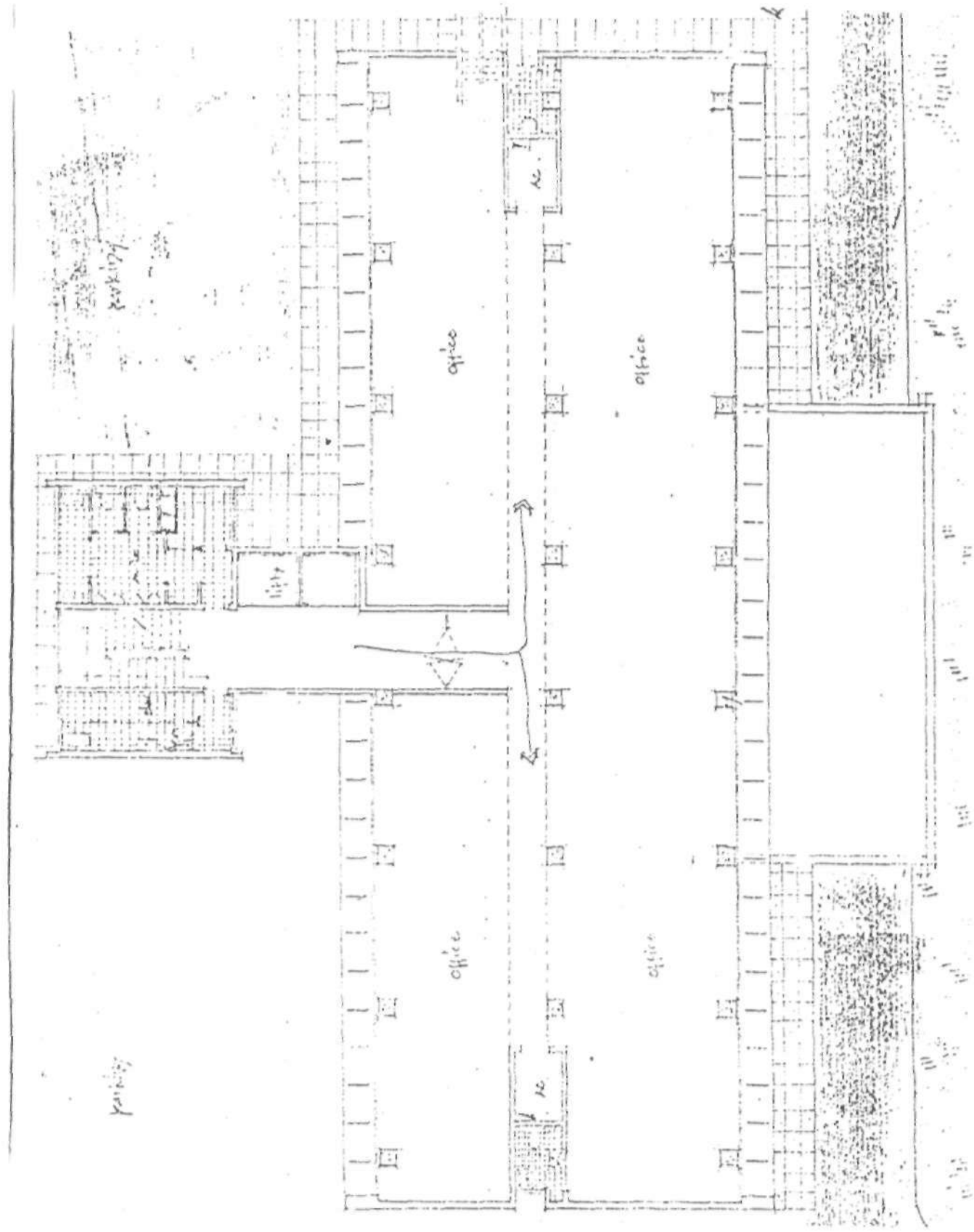


FIGURE 4.2 TYPICAL LETTABLE FLOOR. AHMED TALIB HOUSE.

a) *Vertical Circulation (Movement)*

i) *Lift* Not properly located, its position is along the corridor leading to the main stair. Capacity of the lift cannot cater for the traffic

ii) *Stair Case* Location of the main stair is at a distance from the entrance. Lack of enough escape stairs for the building

b) *Horizontal Circulation*

i) *Main Entrance* It relation with horizontal and vertical circulation will bring about traffic jam because of too many cross circulation

ii) *Relations of Functional Space* Activities having closer links are located at a distance to each other

Some activities that requires high traffic are not located close to the entrance on the ground floor.

CASE STUDY - 2

4.2.0 INTERNATIONAL

Waza National Parks Headquarters, (Republic of Cameroon)

4.2.1 LOCATION

It is located in the northern part of Cameroon, with a total land area of 170,000 hectares (1,700 km2). It is the most famous and spectacular park of Cameroon and even of french-speaking Africa. This park has been created in 1968 and is 120 km away from Marouna and 135 km away from Kousseri Waza is at the northern province of Cameroon and access is exclusively by road.

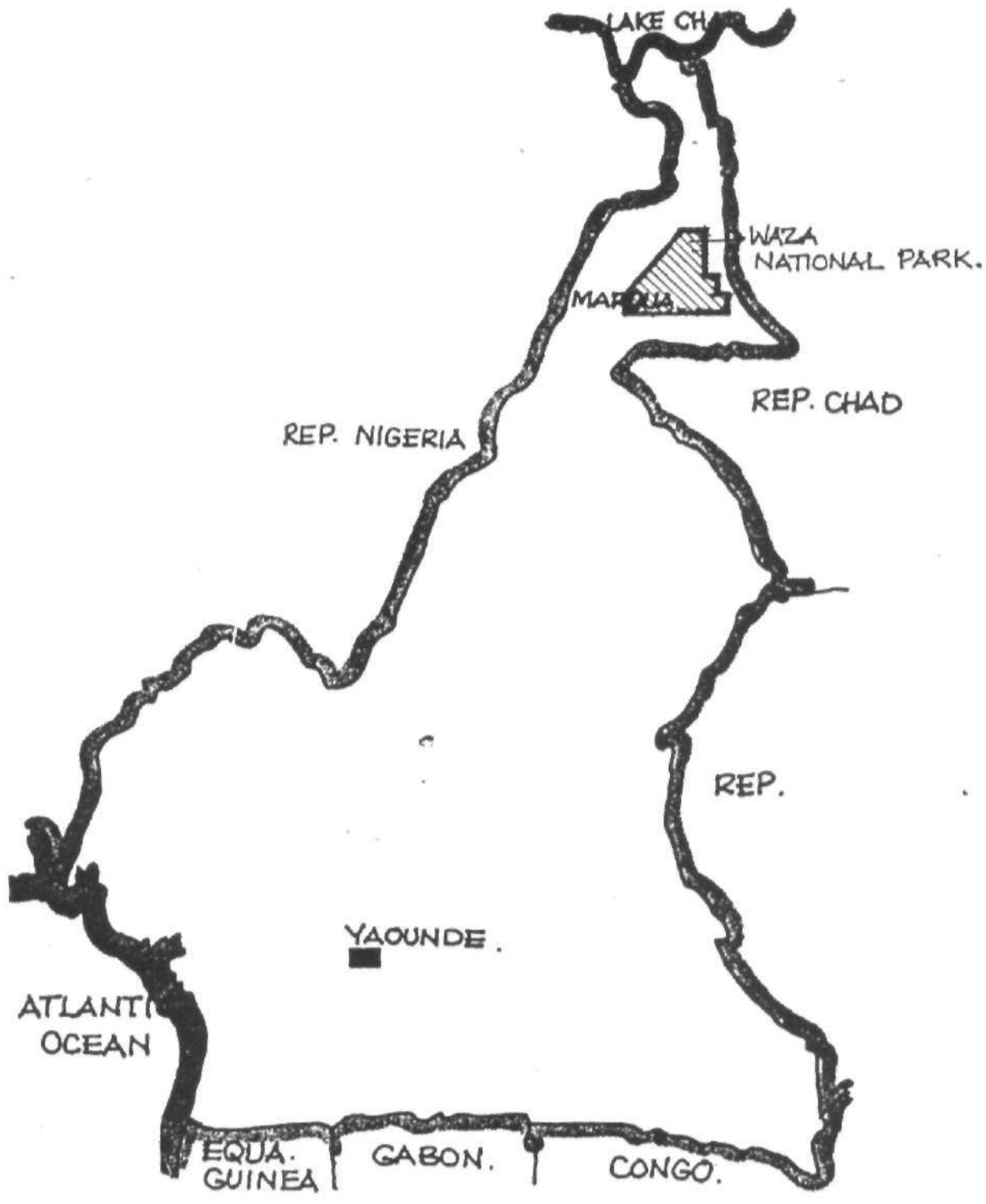
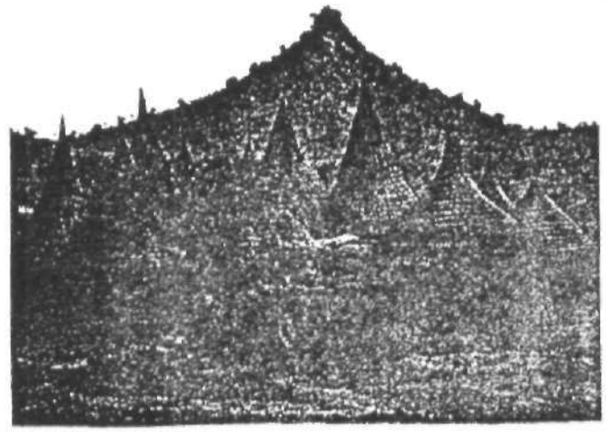


FIGURE 4.4 MAP OF REPUBLIC OF CAMEROON SHOWING THE LOCATION OF WAZA NATIONAL PARK.



Rhumsiki camp



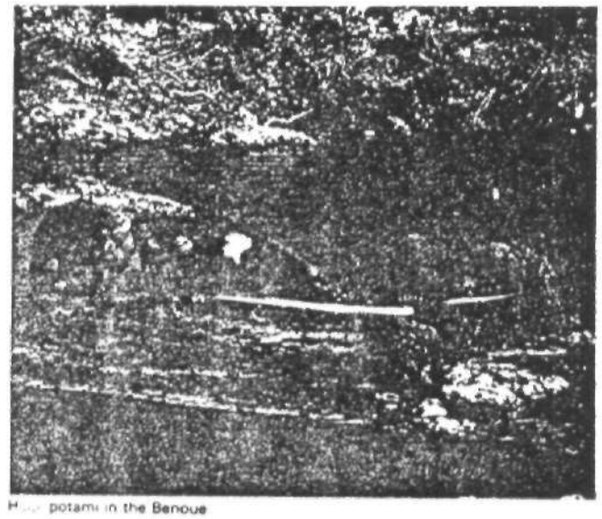
MOKOLO VILLAGE.



WATER FALLS.

PLATE 4.3 A VIEW TO CAMP, VILLAGE AND WATER FALL WAZA NATIONAL PARK. REP OF CAMEROON.

SOURCE : MAGAZINE (1990) ..



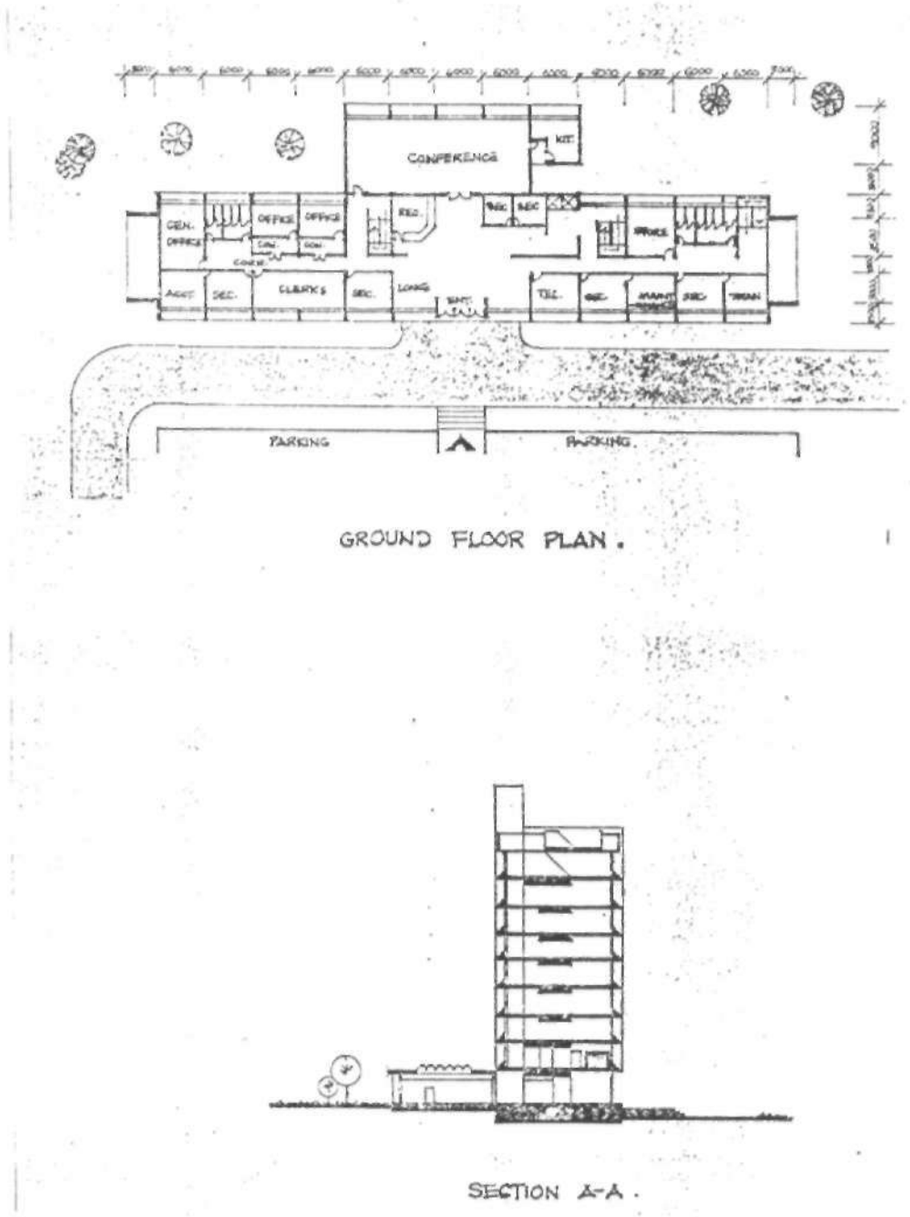
H... potami in the Benoue



Elephants at Waza

PLATE 4.2 VIEW OF ELEPHANTS AND HIPPOPOTAMI AT WAZA NATIONAL PARK. REP. OF CAMEROON.

SOURCE: MAGAZINE (1990)..



GROUND FLOOR PLAN.

SECTION A-A.

FIGURE 4.4 GROUND FLOOR PLAN AND TYPICAL SECTION HEADQUARTERS OF LOGONI AND CHARI, NATIONAL PARK OF WAZA. REP. OF CAMEROON.

SOURCE: MAGAZINE (1990). . .

The park was first created in 1934 for the purpose of protecting giraffes and antilops. This measure helped in protecting many animal species. The park is made up of two distance parts, the western part is a thick forest while the eastern part consist of large wooded plain with river flowing accross it.

Waza (National Park) is the most visited and most organized park of Cameroon. Tracks are well kept watched over and huts are built along the principal poud to look out from there without noise one can watch closely (dozens) of elephants when they come to drink or to take bath.

4.2.2 *HEADQUATERS OFFICE COMPLEX*

The headquarters for the department of logone and chari, National Park of Waza, Republic of Cameroon. The building is eight storey made of double banking of corridor. The parking spaces at the front and by the sides of building.

The findings from the study of circulation (pedestrain movement in the building are as follows:-

a) *Vertical Circulation (Movement)*

i) *Lift* Not properly located, its position is along the corridor leading to the main stair. Capacity of the lift cannot cater for the traffic

ii) *Stair Case* Location of the main stair is at a distance from the entrance. Lack of enough escape stairs for the building

b) *Horizontal Circulation*

i) *Main Entrance* It relation with horizontal and vertical circulation will bring about traffic jam because of too many cross circulation

ii) *Relations of Functional Space* Activities having closer links are located at a distance to each other

Some activities that requires high traffic are not located close to the entrance on the ground floor.

CASE STUDY 3

4.3.0 *INTERNATIONAL*

BAYERISCHER NATIONAL PARK GERMANY

GEOGRAPHICAL LOCATION

Bayerischer Nationa Park is located in the former Czechoslavakia in the State Bavaria, now in the new Czeche Republic near former Western Germany.

The Park is covering an area of 173 sqkm. Landscape is covered by a temprate forest and located at only moderately developed rural surroundings which have remained that way due to their isolation from major population centres and long winters which makes economic conventional agriculture difficult.

These attributes are also the parks main attraction its evelly landscapped with two peaks "Reched" 1453m and "Lusen" 1373m. The realization of these environmental degradation health areas which is not confined to one country alone has led people and Government, not only in Germany, but all over the world to see the need for guiding man's impact on the earth for wise use of resources. This accounted for why the Bayerischer national park was founded. That is to make use of areas that are agriculturally barrel as tourist centres so as to reclaim the bareness of the area.

Now this area is a big attraction for tourist from urban Germany and toursit now supports the once and almost dying agricultural industry in this area.

In this park, visitors concentration is noted in three main area. The first area is near the information centre where there are caged animals. this forms an attraction especially for visitors with families having small children. Visitors are busied ih a restaurant near the peak. It would discovered that access to these peak is relatively easy as both were one and a half hour from the nearest parking lot.

4.3.2 *THE OFFICE BUILDING*

Bayerischer National Parks Headquarters Office building was located in the city centre at Bavania in the Czeche state now taken over by United Germany. The office was among the earlier parks headquarter in History.

The office building is eight (8) storey with part of it terminating at the 3rd floor this part lettables, rented to the outside agencies and organizations. While the part that goes up to the eighth floor is exclusively occupied by the organization.

The Bayerischer National Parks Headquarters is the centre for coordinating the programmes of parks services throughout United Germany. The Headquarters building at Bavawa is one of the most successful in the world interms of realizing the objectives of its establishment.

A study was conducted in the office headquarters in order to determine the problems of circulation (pedestrain) and the finding are as follows:-

a) Vertical Circulation:-

i) Lifts: Are located at a distance from the main entrance.

- *The position of the lift is hidden from the receptionist*

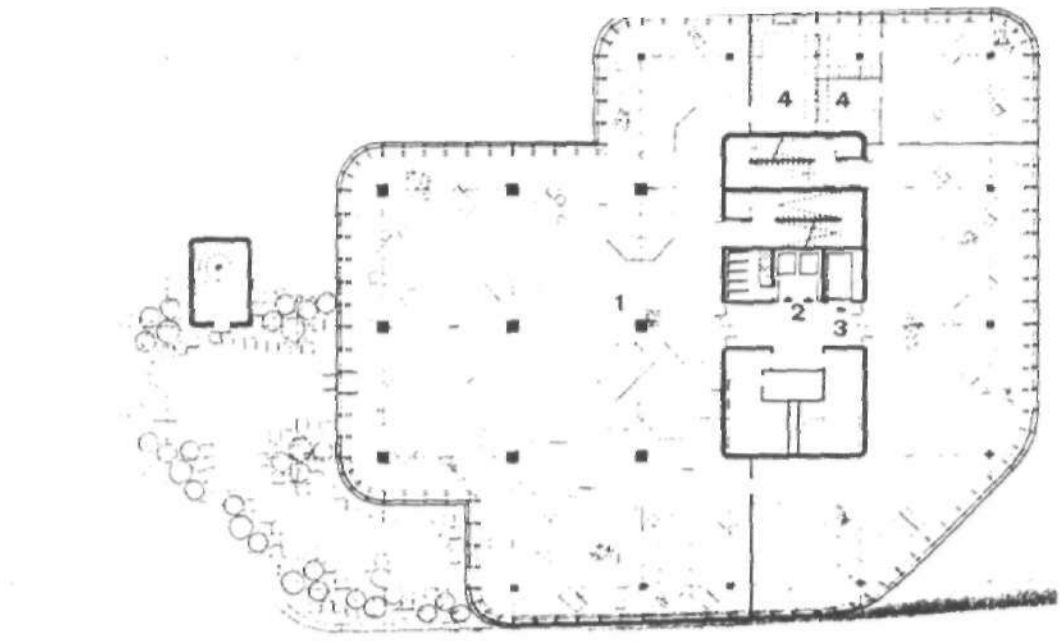


FIGURE: 4.5a TYPICAL 2nd FLOOR PLAN OF THE BAYERISCHER NATIONAL PARKS, GERMANY.

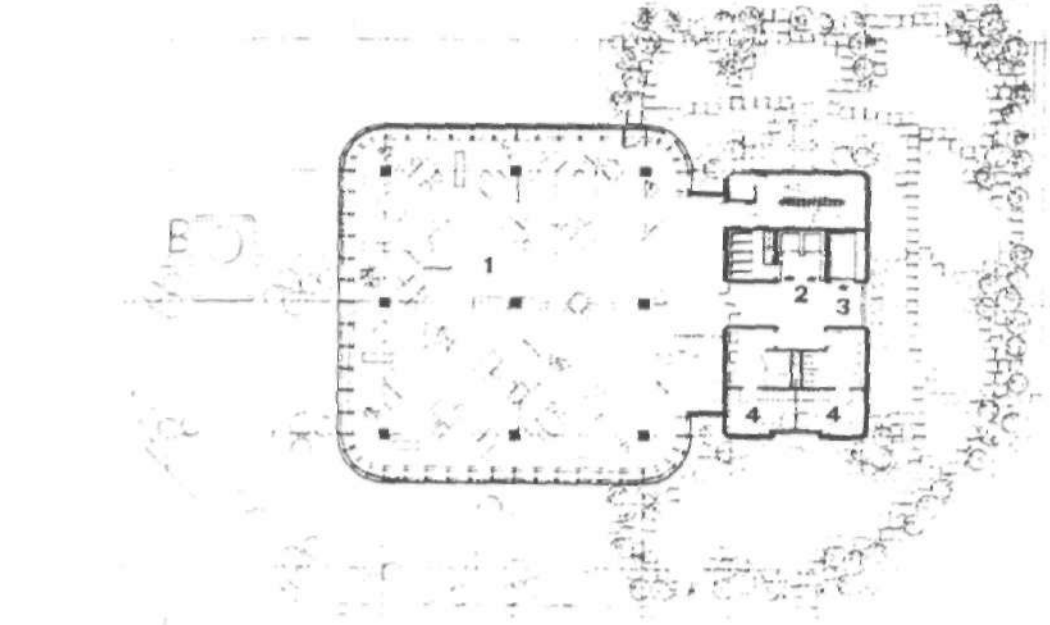


FIGURE: 4.5b TYPICAL 4th FLOOR PLAN OF THE BAYERISCHER NATIONAL PARKS, GERMANY.



VIEW OF THE MAIN ENTRANCE.

ick von Süden auf das
ebäude

iew of building from the
outh

e bâtiment vu du sud

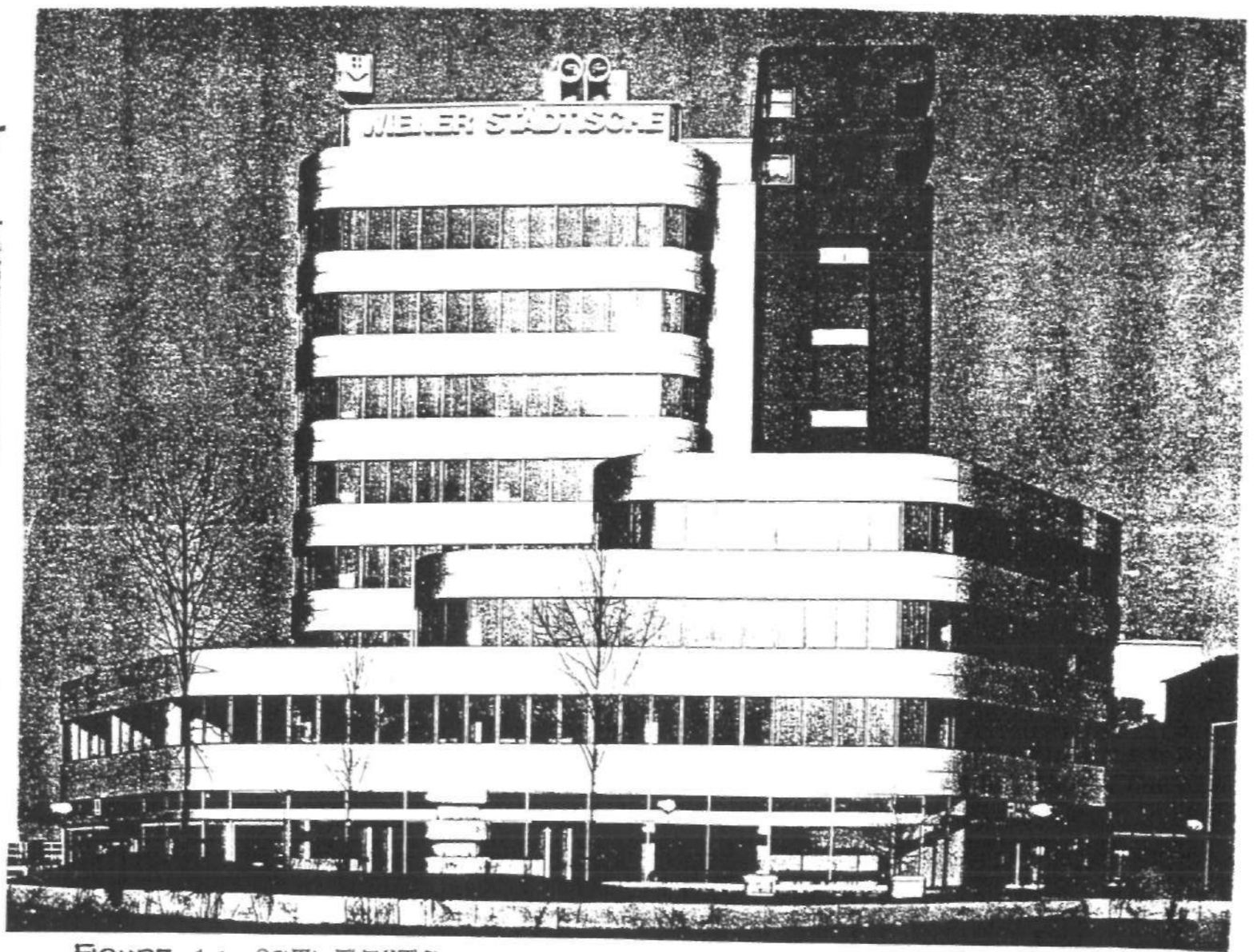


FIGURE 4.6 SOUTH ELEVATION OF BEYERISCHER NATIONAL PARK HEADQUARTER'S GERMANY

- *The lift lobby is relatively small due to trappic in the office*

ii) *Stairs case: The main stair is not located close to the main entrance*

- *No enough escape stair in building*
- *capacity of the stair needs addition due to espected traffic.*

b) *Horizontal Circulation:*

i) *Entrance: Location of the main entrance is not centralized*

- *No side entrances and exits*
- *Offices requiring high traffic are located at a distance from the entrance*

ii) *Horizontal Links: Activities having closer links are not located closed to each other.*

- *And because of the shape of the building longer corridors are inevitable.*

CASE STUDY 4

4.4.0 *NATIONAL:*

NORTHERN NIGERIA INVESTMENT LIMITED (NNIL)

PHASE II DEVELOPMENT

Project:	*Office block phase II*
Client:	*NNIL*
Commencement Date:	*1979*
Completed Date:	*1983*
Cost:	*N7 million*

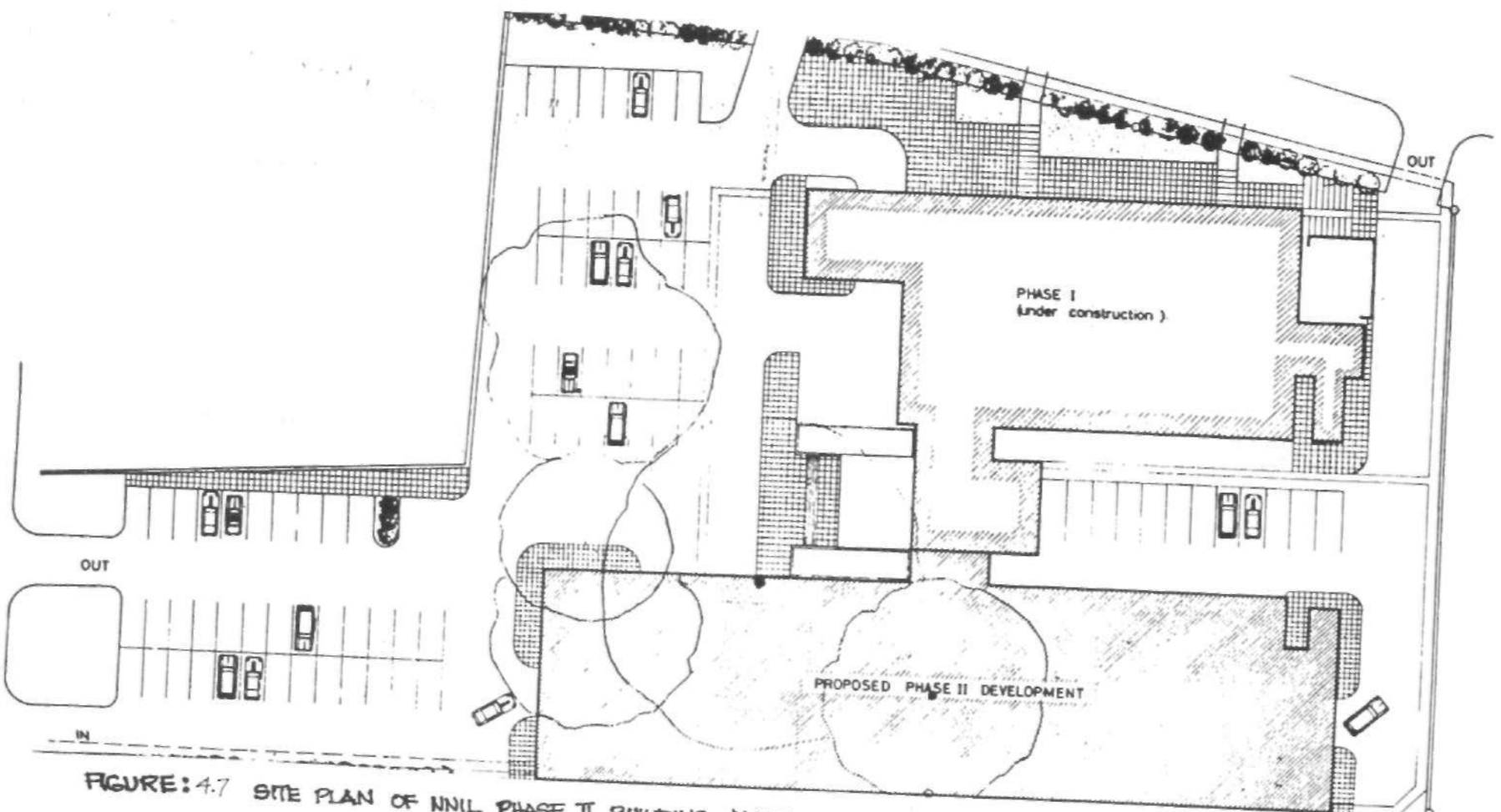
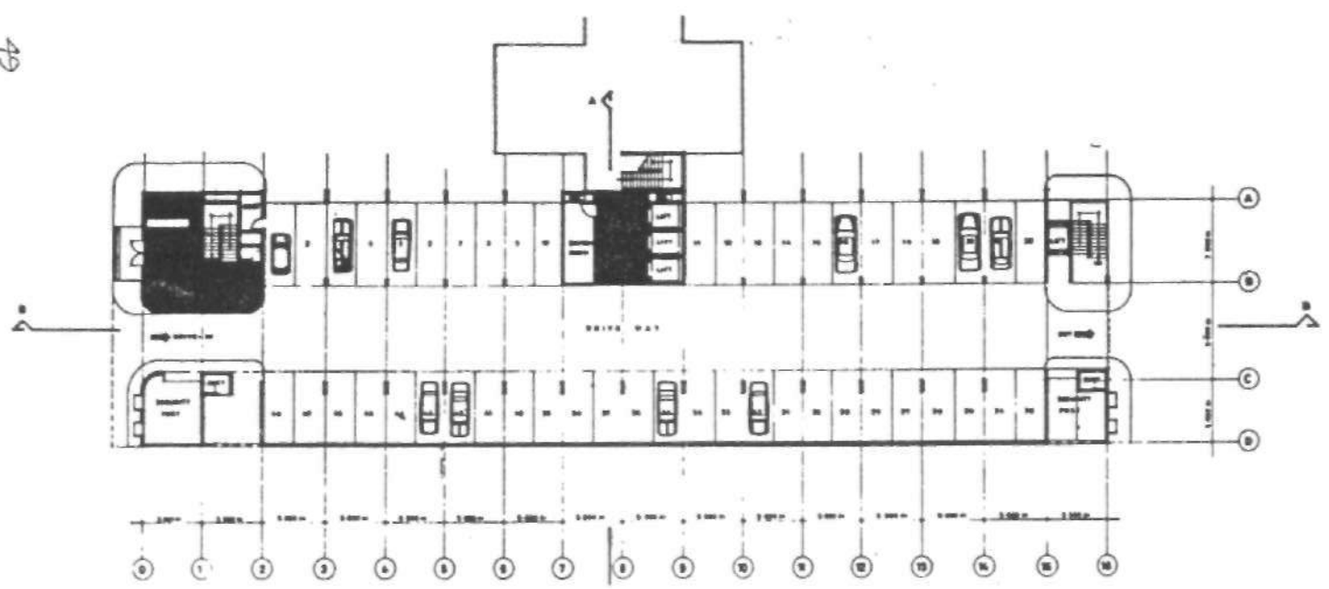


FIGURE: 4.7 SITE PLAN OF NNIL PHASE II BUILDING ALONG WAFF ROAD, KADUNA.



N.N.I.L. OFFICE B
DEVELOPMENT
PHASE II.

preliminary des

ground floor p

FIGURE 4.8 TYPICAL GROUND FLOOR PLAN OF NNIL BUILDING.



FIGURE: 4.9 APPROACH OF THE NNIL BUILDING, KADUNA.

4.4.1 LOCATION

The Northern Nigerian Investment Limited (NNIL) is located No. 4 Waff Road, Kaduna. The building has phase I and II. The phase II is the building under consideration, it is a nine (9) storey building with the ground floor let for parkings and the remaining flooors lettables for renting to agencies and organizations.

The phase II boarder with Ahmadu Bello Way, from where its entrance is located. However, the two building phase I and II are linked by circulation elements and vehicular routes.

4.4.2 THE OFFICE BUILDING

The NNIL office building phase II is a 9-storey lettables office building with ground floor let for parkings. It has three (3) lifts located at the centre of the building and the main stair adjacent to it. It has two (2) escape stairs located at the opposite extremes of the building. The entrance and exit to the parking are at two opposite extremes with the security post at each end.

The building has an open planning with lettables office spaces for renting by agencies and organizations in Kaduna.

A study conducted in this office to determine the problems of circulation and the finding are as follows:-

a) Vertical Circulation:

i) Lifts: Are well located centrally and equidistant from extreme parkings

- *lift lobby is adequate*
- *The capacity is adequate for the espected traffic.*

ii) Stairs Case: The main stair is well positioned

- *The escape stair is adequate for the building*
- *The capacity is enough for the expected traffic*

b) *Horizontal Circulation:*

i) *Entrances: Main entrance is well located and equidistance to the extremes*

- *Side entrances are for vehicular entrance and exits*

ii) *Horizontal Links: The office is an open plan layout, therefore ine the factors that hinders pedestrain movements (circulation) in these offices and use the findings are as follows:-*

1. *Ahmed Talib House, Findings*
2. *Wasa National Park Headquarters, Findings*
3. *Bayerischer Nationa Parks Germany, Findings*
4. *Northern Nigerian Investment Limited (NNIL) Kaduna, Findings*

1. *Ahmed Talib House, Findings*

a) *Position of the lift (lift lobby not adequate)*

b) *Capacity of the lift (two lifts not adequate for the traffic)*

c) *Position of the main stairs*

d) *Single escape stair not adequate for the building, because of the capacity of the building*

e) *Distance of the lifts and stairs from the main entrance*

f) *Activities having closer links are located on different floor*

2. *Wasa National Park Headquarters, Findings*

a) *Position of the lift (Hidden)*

b) *Capacity of the lift not adequate for the traffic*

c) *Position of the main stairs (Hidden)*

d) *Single escape stairs not adequate for the building*

e) *Congestion at the main entrance due to lack of side or back entrance*

f) *Activities requiring high traffic are located at the top floors.*

3. *Bayerischer National Parks, Germany, Findings*

a) *Postion of the lift (hidden)*

b) *Location of the lift at a distance from main entrance*

c) *Lift lobby not adequate*

d) *Location of the main stair from the main entrance*

e) *Escape stair not adequate*

f) *Location of the main entrance is not centralized*

g) *Activities having closer, links are not located close to each other*

4) *Northern Nigerian Investment Limited (NNIL) Kaduna, Findings*

a) *Lifts are well located and positioned*

b) *Capacity of the lift is adequate*

c) *Main stair case is well positioned*

d) *There is enough escape stair in the building*

e) *Main entrance is well located*

g) *Activities having closer links can be positioned close to each other, because of the nature of planning layout.*

SUGGESTIONS

The important points to note in planning a circulation path or communication pattern in an office space are:-

a) *Rooms with large flow of traffic should be positioned as close to the entrance as possible*

b) *Rooms that has interelated activities should be positioned as close as possible to avoid long distance*

c) *Provision of adequate circulation space for pedestrain movement, within and between the rooms*

d) *Main entrance should be defined and closer to the vertical circulation elements lifts, stairs and escalator. Also provision should be made for alternative entrance.*

Therefore for easy of and convinient pedestrain traffic within an office space the points mentioned above should be considered. And considering the fact that easy pedestrain movement enhances the efficient functioning of any built environment, therefore in an office building which is a business oriented building, the importance of these factors in designing office building can not be over emphasized.

CHAPTER FIVE

CHAPTER FIVE

5.0.0 PHYSICAL SURVEY OF THE SITE

5.1.0 SITE LOCATION

The site is located within Kukwaba recreational park phase II site of the Federal Capital City, (Abuja), and has perfect links with the adjoining central areas of phase I and phase III. The site is bounded to the North by maintenance workshop site, and to the south by the airport expressway, to the east is bounded by police station site while to the west by national memorial park, even though separated by network of circulation (pedestrain walkways system, and bicycle track system).

The site is located at a very conspicuous and advantageous location within Kukwaba recreational park in terms of access and essential services, it has a uniform slope with altitude ranging between 438m to 451m above sea level.

5.1.1 GOELOGY

Kukwaba Recreational Park site is underlain mainly by crystalline igneous and metamorphic rock of precambrain age. The main geological formations of the site are fine to medium grained biotite granite and migmatite, which makes up the main lithological characteristics of rocks making up the bedrock throughout the site.

The rock structure of the site will not pose any serious geotechnical constrain during constructions and other engineering works.

5.1.2 VEGETATION

The vegetation of the site is predominantly park and shrubs savannah with trees and shrubs of different proportions. The dominant

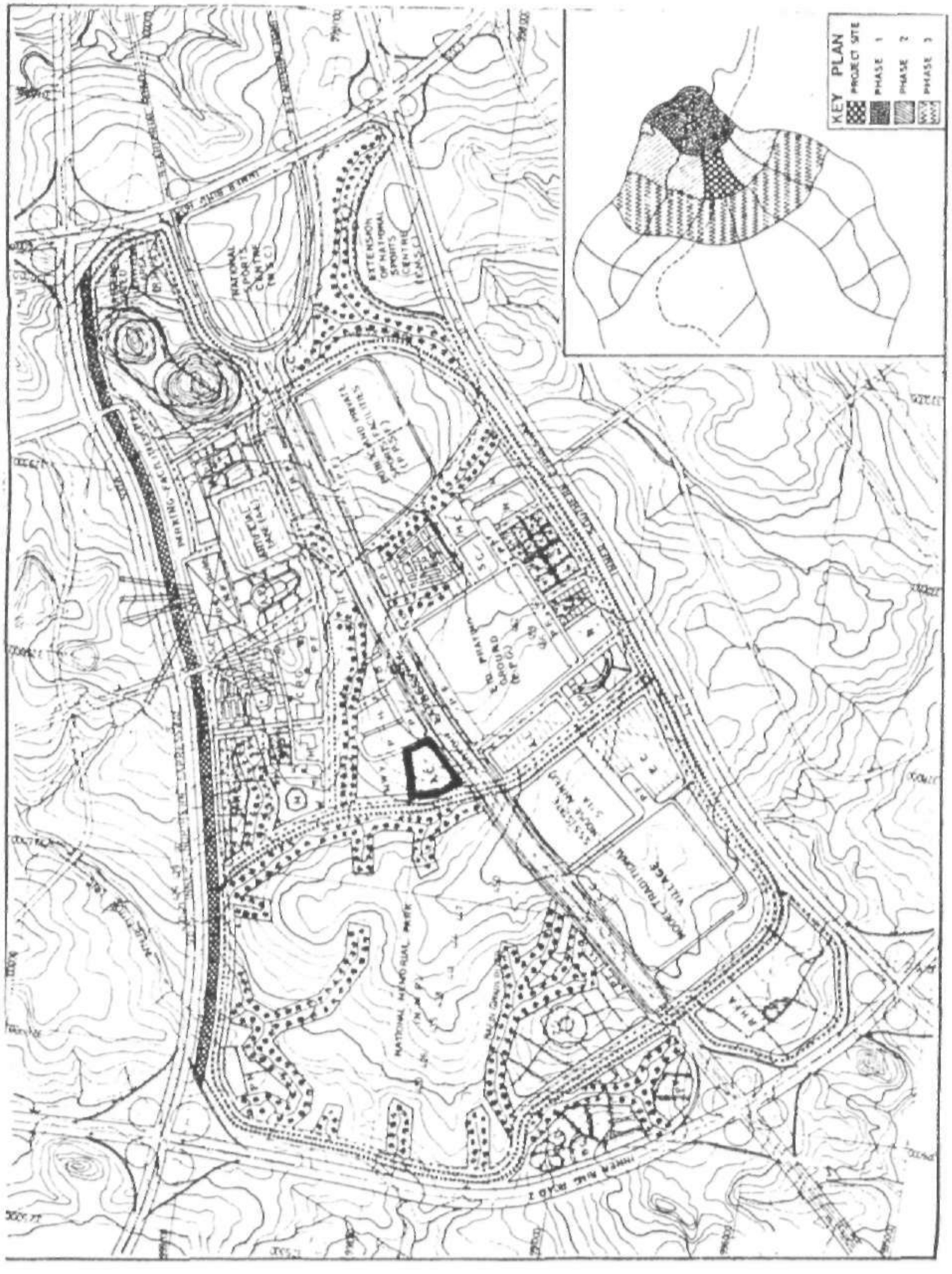


FIGURE 5.3 SITE LOCATION IN RELATION TO KUKWABA RECREATIONAL PART.

tree species are Taniella olivera found in association with Detarium microcarpum, Lophira lanceolata, Propisious Africana and Tarminalia Avicennioides Andropogon Tectorum is a common grass species found all over the site.

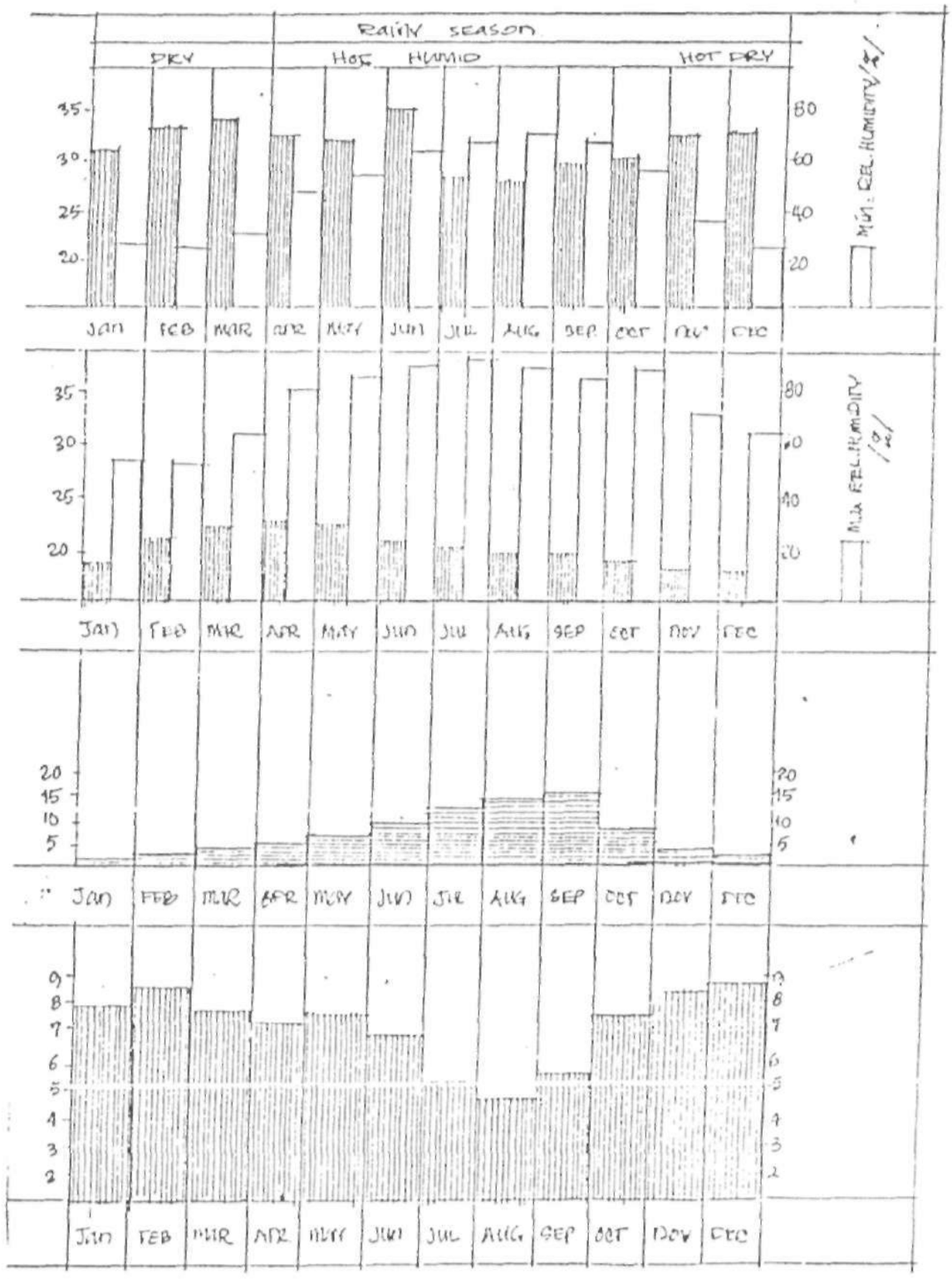
Park and shrub savannah found on the site is the combination of scattered trees, grasses and shrubs. The vegetation is mainly harbaceous, probably due to human activities such as cultivation, gracing and burning. The vegetation cover of the project site is highly adaptable for great ecological interest.

5.1.3 *TEMPERATURE AND HUMIDITY*

Temperature is the degree of hotness or coldness of a given environment, and humidity is the amount of water vapour in the air. Temperature and humidity are the two (2) determining factors for the environmental comfort. A comfortable living environment depends on maximizing the aspect of the environment that reduces the negative effects of heat and humidity and also protecting it (the environment) from other negative effects like rain and dust (Harmattan).

The air temperature of an environment is a human indication of next radiations which is influenced by humidity conditions or amount of water vapour in the air. Abuja records the highest temperatures in the dry season when there are few clouds in the sky, diurnal daily temperature ranges at this time is as wide as 17°C. However, in the rainy season due to cloud cover temperatures are much lower with diurnal temperature ranges not exceeding 7°C, in the month of July and August.

Relative humidity can be as low as 20°C in the afternoons during the dry season creating a dessicating effect and as high as 95% during



Abuja Climatic Chart

FIGURE 5.1 CLIMATIC CHART OF ABUJA.

the wet season causing discomfort. See figure below.

5.1.4 RAINFALL

Rainfall usually is between mid-April to mid-October with the rainy period not usually exceeding 190 days. Mean monthly distribution shows a tendency for concentration of rainfall in the months of July, August and September. See figure below.

5.1.5 AIR MASS

Tropical maritime and the tropical continental air masses dominate the climate of Abuja. The tropical maritime air masses is formed over the atlantic ocean and is warm and moist, moving in the south-west to northeast direction when predominant. The tropical continental air mass is formed over sahara desert in the opposite direction when predominant it is warm and sultry (hot humid) and is associated with the dry season from November to March. Se figure below

5.1.6 SUN AND CLOUD COVER

The Federal Capital Territory is exposed to roughly 2500 sunshine hours annually. During the dry season that is the months of November to April. There is a general trend of an increase for over 275 sunshine hours on the city. Increase in cloudness comes as the rainy season approaches, leading to a decline in daily sunshine hours that reaches its lowest value in August.

5.2.0 SITE ANALYSIS

A careful study of the site is taken to determining its development potentials, important factors for development of a site such as access and drainage are considered. And other factors that

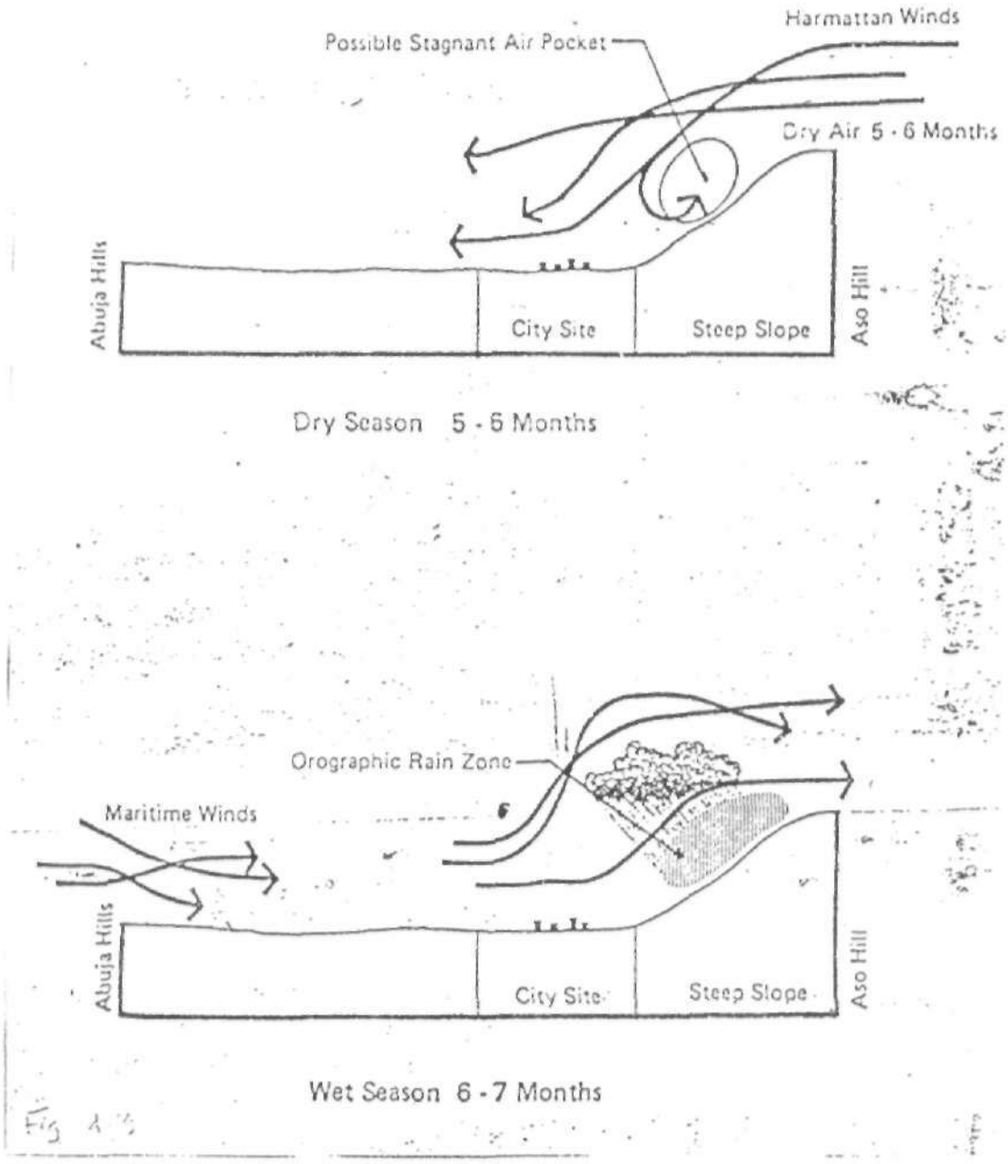
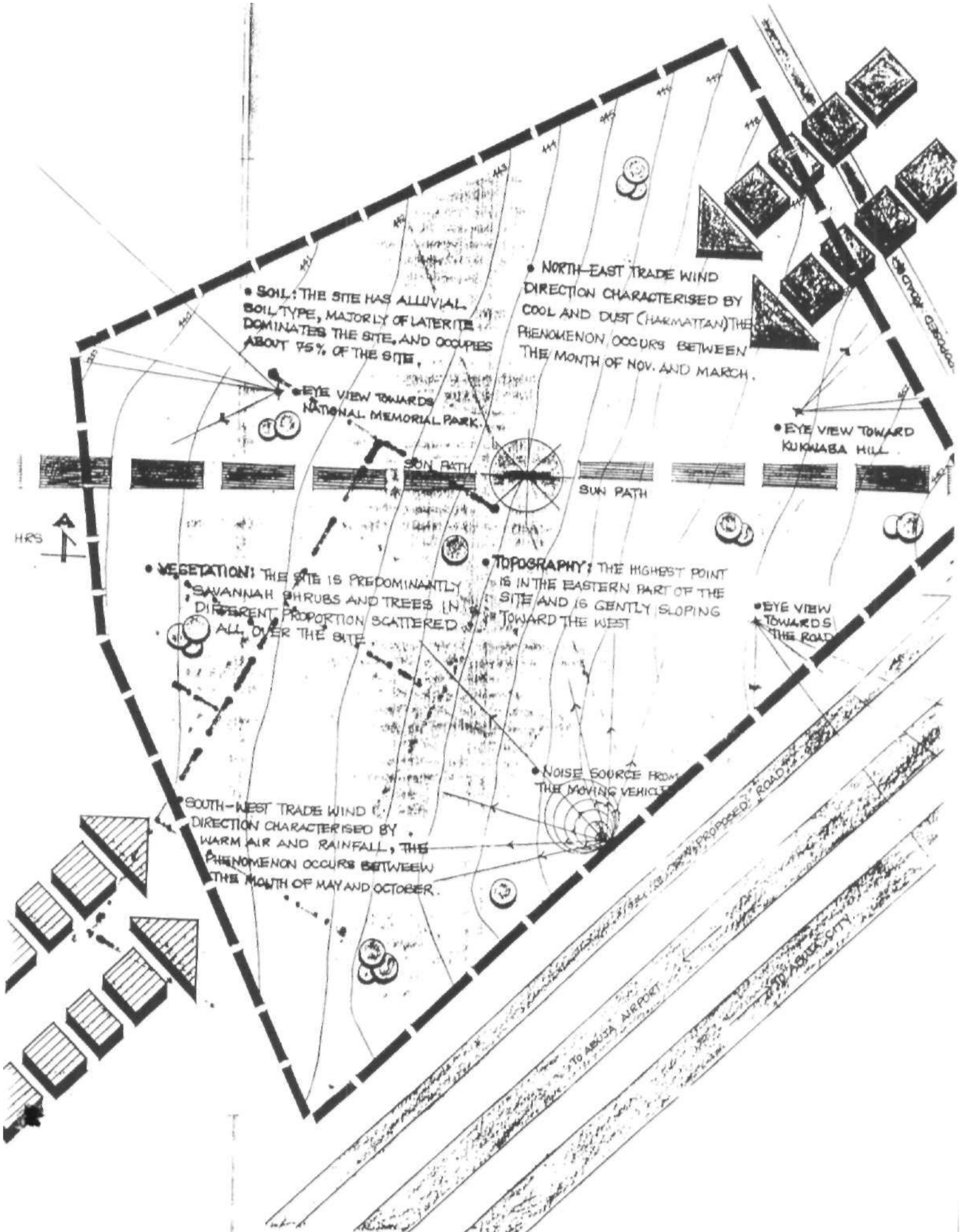


FIGURE 5.2 SEASONAL WIND PATTERNS

SOURCE : F.C.D.A. (1979). THE MASTER PLAN FOR ABUJA. F.C.D.A. ABUJA.


• SOIL: THE SITE HAS ALLUVIAL SOIL TYPE, MAJORLY OF LATERITE DOMINATES THE SITE, AND OCCUPIES ABOUT 75% OF THE SITE.
• NORTH-EAST TRADE WIND DIRECTION CHARACTERISED BY COOL AND DUST (HARMATTAN) THE PHENOMENON OCCURS BETWEEN THE MONTH OF NOV. AND MARCH.
• EYE VIEW TOWARDS NATIONAL MEMORIAL PARK.
• EYE VIEW TOWARD KUKWABA HILL.
SUN PATH
SUN PATH
HRS
• VEGETATION: THE SITE IS PREDOMINANTLY SAVANNAH SHRUBS AND TREES IN DIFFERENT PROPORTION SCATTERED ALL OVER THE SITE.
• TOPOGRAPHY: THE HIGHEST POINT IS IN THE EASTERN PART OF THE SITE AND IS GENTLY SLOPING TOWARD THE WEST
• EYE VIEW TOWARDS THE ROAD
• NOISE SOURCE FROM THE MOVING VEHICLES
• SOUTH-WEST TRADES WIND DIRECTION CHARACTERISED BY WARM AIR AND RAINFALL, THE PHENOMENON OCCURS BETWEEEW THE MOUTH OF MAY AND OCTOBER.
TO ABUJA AIRPORT
PROPOSED ROAD
ABUJA CITY

determine the suitability of the site such as wind direction, views, noise sources, electricity and water are also considered.

The site is located at the advantegeous centre of Kukwaba Recreational Park. It adjoins the airport express way, which cuts accross the centre of the recreational park joining phase I and III of the central area Abuja.

5.2.1 SITE UTILITIES

The site utilities is the development potential of the site either natural or man-made. Under this, access road, electricity, water and drainage are considered. And slope, vegetation, sun path, wind direction and nature of the soil are considered.

The above mentioned are the determining factors of suitability of any given site.

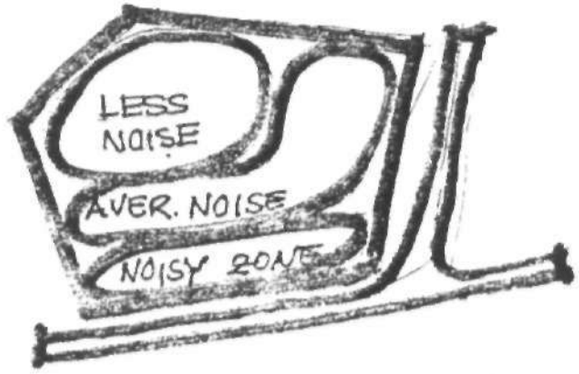
5.2.2 SITE CONCEPT

The site concept is a results of the planning the base or services. The main units of the site are three and these are the Administrative, Commercial and Recreational Units. These units are zone base on accessibility to each of the units. And due to the nature of the site which is bounded by two adjucent proposed roads, the access and exit is from the two sides.

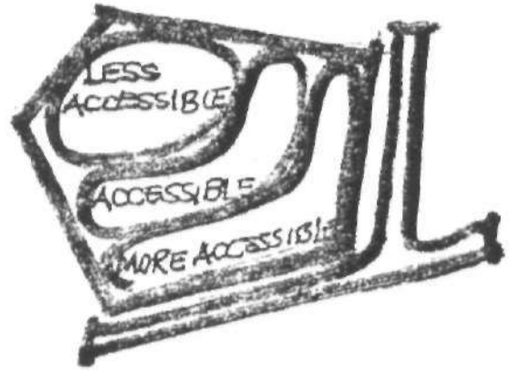
The whole idea behind this concept is to have a proper site organization interms of access and utilities.

SITE ZONING.

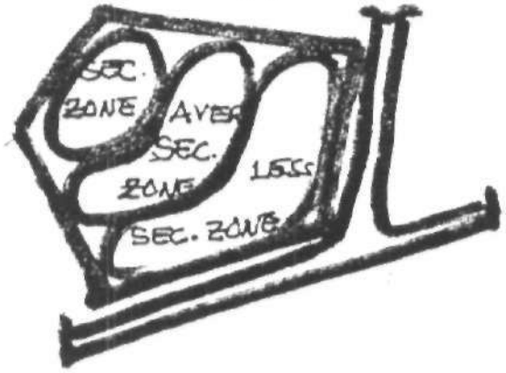
- NOISE.



- ACCESSIBILITY.

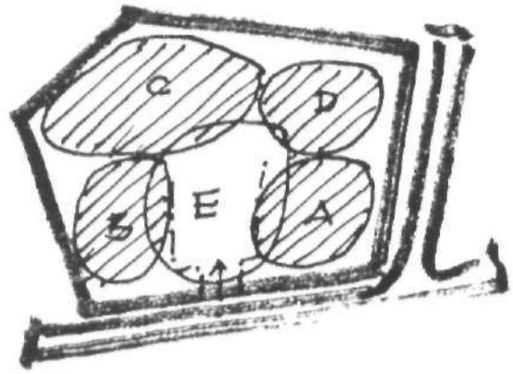


- SECURITY.

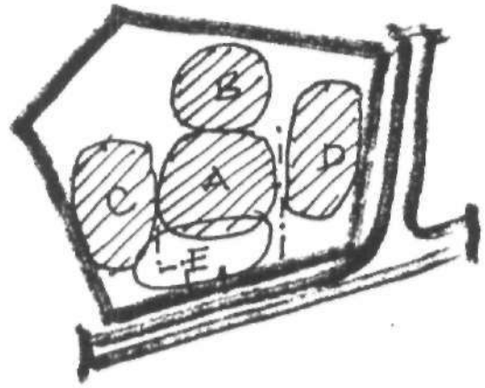


SITE CONCEPT DEV.

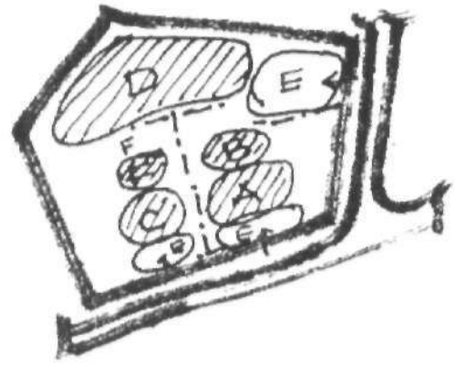
1. ×



2. ×



3. ✓



LEGEND

A – MAIN OFFICE BLDG.
B – CONFERENCE HALL
C – MINI MARKET
D – RECREATIONAL UNIT.
E – PARKING LOTS
–·– – PEDESTRAIN MAL

CHAPTER SIX

6.0.1 NATIONAL PARKS HEADQUARTERS DESIGN

The need to preserved natural resources, wildlife and to prevent environmental degradation leads to the development of national park. And because of the widespread acceptance of these idea countries/states establishes as many national parks as possible, depending on the availability of resource and government policies.

The idea of establishing two or more national parks in a country/state necessitate having a headquarters of the national parks from were parks programmes can be coordinated and monitored in order to have a unified park system in the country/state.

However, National Parks Headquarters are design taking into consideration the factors:-

i) Number of National Parks in the Country/Stae

ii) Administrative need of the national parks

iii) Spporting facilities to be provided in the Headquarters

iv) Suitability of the site, interms of proximity and accessibility

Generally, National Parks Headquarters are design to have three (3) Units. These Units are very important in realizing the objective of establishing any park headquarters. The units are Administrative, Commercial and Recreational Units. Each Unit has an important role to play in the park headquarters.

a) <u>Administrative Units:</u> In this units all Administrative needs including the office functions are coordinated and monitored. This is for the Headquarters and Head Office of the National

Parks. The Administrative Units includes the office building, conference hall and a restaurant for the staffs.

b) *The commercial Units: Under these we have shops, supermarkets commercial botanical garden etc. These are areas where parks commercial items are sold. This is one of the sources of revenue generation for the park Headquarters. The commercial unit is carefully separated from the Administrative Unit for the security and privacy of the Organization Headquarters Secretariate.*

c) *The Recreational Units: Under these we have botanical garden, sculpture garden, tennis court etc. This unit is purposely design to satisfy the recreational needs of public interms of picnic, games etc. The location of recreational unit should be such that it will serve the recreational needs of the public.*

National Parks Headquarters are design in such a way as to play a greater role in realizing the objective of establishing the organization (National Parks Service). The objectives of establishing these organization are: To preserve, conserve the remaining flora and fauna in as many ecological enclave as possible. To protect the wildlife from danger of being exterminated. And also to prevent the natural landscape from ebing distroyed due to activity of man etc. Therefore the importance of these organization cannot be overemphasized.

6.1.0 INTRODUCTION

Nigeria national parks proposed to build a headquarters office complex in Abuja. The national parks service board, Wuse Zone 4,

Abuja set out the board's objectives for the development of the headquarters office complex at its permanent site in Kukwaba recreational park site central area phase II, Abuja.

The requirements of the board conforms with the nature of the organization which a service oriented and not business oriented. And the requirements should be translated into a physical space provision.

The headquarters office complex which is the centre of administration for the Nigeria national parks, should be design in such a way that, it will help in realizing the objective of establishing the organization which is to have a unified national park system in the country.

The site location

The site is located within Kukwaba recreational park central area phase II site of the Federal Capital Territory (FCT), Abuja. It has a perfect link with the adjoining central areas of phase I and III. The site is bounded to the east by proposed police station site and to the west by national memorial park, which is seperated by network of circulation routes (pedestrain walkway system and bicycle track system). And to the north the site is bounded by a proposed maintenance workshop yard for Kukwaba recreational park, while to the south by the airport expressway.

The site is located a very conspicuous and advantages location within Kukwaba recreational park. It has a gentle uniform slope with altitude ranging from 438 to 451 metres above sea level, the highest

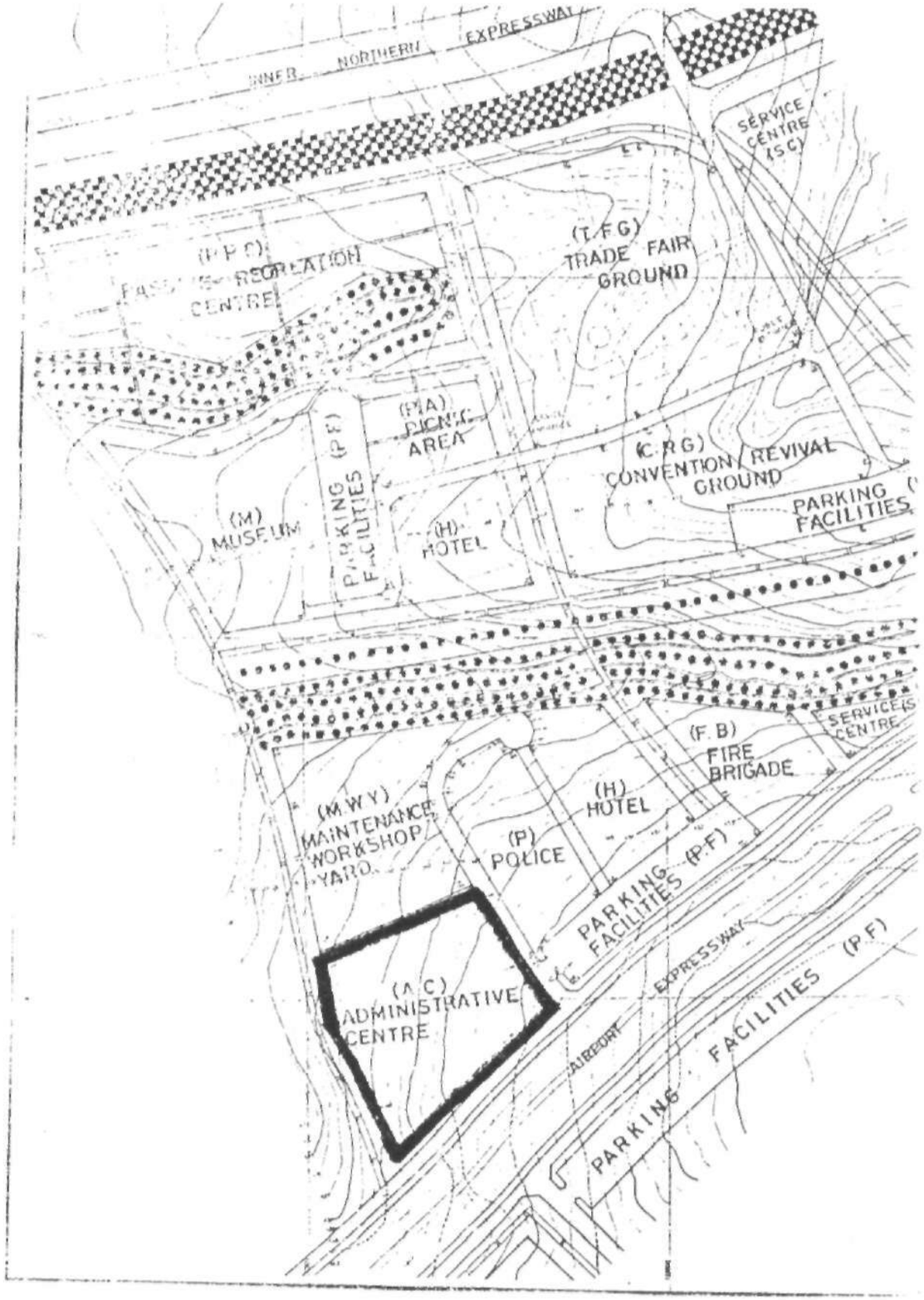


FIGURE 5.4 SITE LOCATION IN RELATION TO AIRPORT EXPRESSWAY.



PLATE 5.1 VIEW OF THE SITE FOR NATIONAL PARKS HEADQUARTERS IN KUKWABA RECREATIONAL PARK SITE, ABUJA.

points which is 451m is at the eastern part of the site, while the lowest which is 438m is at the western part of the site. The site has easy and direct access for pedestrain and vehicular circulation.

THE DEVELOPMENT OBJECTIVE: The development objective of the National Park Headquarters is to serve as a centre for administration of the six (6) National Parks recently established in the country. The development will help in realizing the objective of establishing the organization (Nigeria National Parks), which is to have a unified national park system in the country.

And due to the nature of the organization which is a service oriented, these development should includes supporting facilities in which revenue can be generated so as to maintain the office complex. The supporting facilities include a rentable conference hall, restaurant, a mini market and recreational facilities like sculpture and botanical garden for picnic and relaxation. The location of the facilities should be such that, it will not distrupt the office work and easily accessible to both pedestrain and vehicular traffic.

6.2.0 SCHEDULE OF ACCOMODATION

The board requirements are as follows; the office building (board secretariate), conference hall, restaurant, mini market, recreational facilities and parking facilities.

The main office building: The office should serve as a board secretariate from where the programmes of the Nigeria National Parks should be coordinated, the board consist of six (6) administrative units for efficient functioning of its service, five (5) of the units

are headed by Directors answerable to the Executive Director and (6th) unit is the executive staffs units. The break down of the units are as follows:-

i. *Executive Staff Unit:*

- *A suite of offices for Executive Director*
- *Offices of the Deputy Directors*
- *Offices of the Board of Directors*
- *Kitchenette*
- *Store*
- *Toilets*

ii. *Finance Staff Unit:*

- *A suite of offices for Director Finance (Business Manager)*
- *Offices of the Deputy Directors*
- *A suite of offices for Chief Accountant*
- *A suite of offices for Chief Auditor*
- *A committee Room*
- *A store*
- *Toilets*

iii. *Management staff unit:*

- *A suite of offices for Director Personnel Management*
- *Offices for Director Staff Welfares*
- *Offices for Director Park Security*
- *Management office*
- *Committee Room*
- *Store*
- *Toilets*

iv. *Information and coordination unit:*

- *A suite of offices for Director Information and Coordination*
- *Offices for Director's Public Relations, Programmes and Research and documentation*
- *Committee Room*
- *Office for Assistant Directors, Public Relations, Programmes and Research and Documentation*
- *Store*
- *Toilets*

v. *Computer Unit*

- *Computer Room*
- *A.C. Room*
- *Offices for computer analyst*
- *Offices for computer programmer*
- *General office*
- *Library*
- *Store*
- *Toilets*

vi. *Mechanical floor (Mezzanine floor)*

- *All mechanical services*
- *All electrical services*

vii. *Estate Management Unit*

- *Offices for estate manager*
- *Offices for Director Physical Planning Unit*
- *Offices for Director Maintenance and Transportation*

- *General office*
- *Store*
- *Exhibition*
- *Security*
- *Reception*
- *Toilets*
- *Waiting lounge*

THE CONFERENCE HALL:

The conference hall should accomodate participants at a time and it should be flexible for arrangements of workshops and seminars. The total floor area should be M2. The following facilities should be provided; Toilets for male and female, kitchenette for snacks and food worm-up to the participants of the conference, audio-visual room, secreterial pool, pre-function, store and ancillary.

The conference hall should be detached from the main office building but with a partial link in between this is for security of the organization and to avoid interuptions of office works by the conference participants. And the conference hall can be rented to the outside agencies as a sources of revenue generation for the organization.

The layout should be such that it minimized interuptions of vehicular and pedestrain movement and it should as well have a direct and convinient route from the main entrance. The layout should be landscape to improve the microclimate and beauty of the environment.

THE RESTAURANT

The restaurant should be strategically located in such a way that it will be convinient and accessible for workers from the office,

the public from kthe minimarket and recreational facilities areas. The restaurant should have an indoor and outdoor eating kitchen with store, survey, office for an attendant toilets facilities and anciliary.

The restaurant should have the capacity of 50 to 60 persons. This should also is another source of revenue generation for the Organization. The restaurant should be located in such a way that it should have clear and uninterupted pedestrain access from all the units in the complex if possible it should be equidistant from the units and fully landscaped to improve the micro-climate of the environment.

THE MINI MARKET AND RECREATIONAL FACILITIES

The site has an area reserved for mini market and recreational facilities, but due to the scope of the thesis detailed design of these areas is not taken into consideration.

However, provision for them are given in the site plan. It was indicated interms of geometric shapes and abstract form.

6.3.0 *SCHEDULE OF FUNCTIONAL SPACES*

The main office building

i. Executive staff unit

- *A suite of offices for Executive Director 93.6m2*
- *Executive Directors, Conference Room 27.0m*
- *Offices of the Deputy Directors 48.0m*
- *Special Assistant to Executive Director 10.8m2*

- *Special Assistant ot Board of Directors 51m2*
- *General Office 36m2*
- *Kitchenette 15m2*
- *Store 38m2*
- *Toilets 58.8M2*
- *Ancilliary .....(15% of the total)*

ii. *Finace staff unit*

- *A suite of office for Director Finance 36m2*
- *Offices of the Deputy Director 72m2*
- *A suite of offices for chief Accountant 84.6m2*
- *A suite of office for chief Auditor 81.0m2*
- *A committee Room 36m2*
- *A store 29.4m2*
- *Toilets 69.6m2*
- *Anciliary .....(15% of the total area)*

iii. *Management staff units*

- *A suite of office for Director personnel Management 36m2*
- *Offices for Director Staff Welfare Services 51m2*
- *Office for Director Park Security 48m2*
- *Management (General) office 36m2*
- *Committee Room 36m2*
- *Store 47.4m2*
- *Toilets 69.6m2*
- *Anciliary (15% of total floor area)*

iv. *Information and Coordination Unit:*

- *A suite of offices for Director Information and Coordination 36m2*
- *A suite of offices for Deputy Director 27m2*
- *Offices for Directors, Public Relations 51m, Programmes 55.6m, Research and Documentations 72m2*
- *Committee Rooms 36m2*
- *Radio Room 18m2*
- *Store.....36m2*
- *Toilet 69.6m2*
- *Anciliary (15% of total area)*

v. *Computer Unit*

- *Computer Room 72m2*
- *A.C. Room 18m2*
- *Offices for computer analysts 93.6m2*
- *Office for computer programmers 25.2m2*
- *Library 102.6m2*
- *Store.....18m2*
- *Toilets m2*
- *Anciliary (15% of the total)*

vi. *Mechanical Floor (Mezzamine Floor)*

- *Mechanical services.....187.2m2*
- *Electrical services..... "*
- *Anciliary (15% of the total floor area)*

vii. Estate Management Unit

- *Office for estate manager 24m2*
- *Office for Director Physical Planning Unit 16.8m2*
- *Offices for Director Maintenances 36m2*
- *Office for Director Transportation 24m2*
- *General Office 24m2*
- *Workshop (Maintenance) 72m2*
- *Drawing Room (Studio) 72m2*
- *Exhibition 115.2m2*
- *Security 24m2*
- *Reception 24m2*
- *Waiting Lounge 18m2*
- *Toilets 36m2*

The conference hall

The functional spaces withing the conference hall are:-

- *Main conference hall 120m2*
- *Pre-function (warm-up) 31.5m2*
- *Secretarial Pool 31.5m2*
- *Audio-Visual unit 31.5m2*
- *Main lobby 90.0m2*
- *Stage 30.0m2*
- *Kitchenette 9.0m2*
- *Toilets 45m2*
- *Anciliary (15% of total floor area) M2*

The Restaurant

The restaurant should have the following functional spaces:-

- *Kitchen Indoor eating area ....200....m2*
- *Out door eating area ....112...m2*
- *Kitchen (including seveny) ..106..m2*
- *Drinks and fomits seveny) ..25..m2*
- *Anciliary (15% of the total floor area) m2*

The Mini-Market: The mini market and extension has been allocated the following area 3000m2.

Tshe Recreational Facilities: The recreational facilities is divided into two units the botanical and sculpture garden. The total area allocated to the two units plus the parking facilities is 40% of 10.49 hectres.

6.4.0 FUNCTIONAL RELATIONSHIPS DIAGRAM

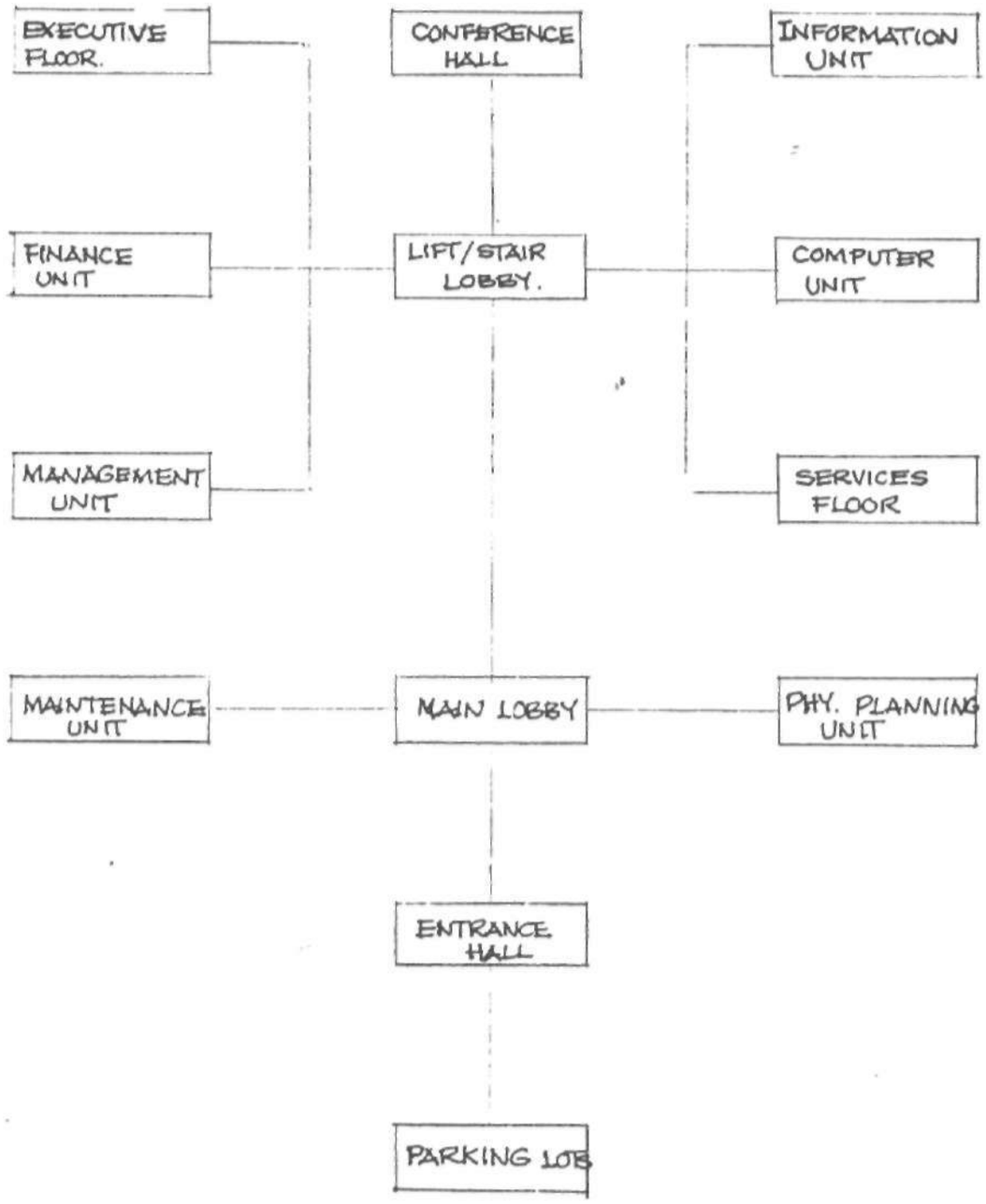
A functional relationship is required to show the relationship between various functional spaces. The functional diagram for National Parks Headquarters is shown below.

6.5.0 DESIGN CONCEPT

The design concept explained the form and meaning or rather the philosophy of the design. Therefore the concept of the design proposal for National Parks Headquarters explain the philosophy of the design.

The design proposal for this organization takes into consideration its nature which is offering service to the general public. Therefore requires efficient and flexible design.

FUNCTIONAL RELATIONSHIP DIAGRAM



However the site for the headquarters complex is divided into three (3) units as discussed in the site concept. viz:-

Administrative area

Commercial area

Recreational area

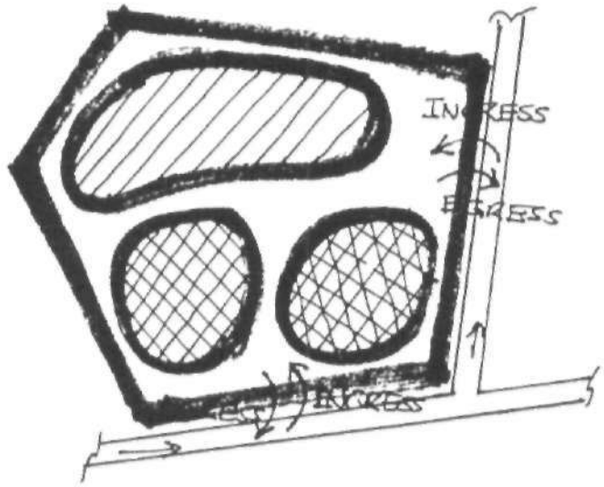
The three areas mentioned above are placed in their righful position interms of accessibility. The order of preference interms of access is administrative, commercial and recreational areas. The design concept for the proposed national park headquarters is form as a results of trying to minimized pedestrain circulation within the complex.

The complex have basically six units of which there are all related to one another and by splitting the unit the circulation (pedestrain) within the complex is increased. However, about the best way of solving the problem is by going up, that is having a storey building.

The concept is illustrated as below

GEN. SITE CONCEPT.

SHOWING THE UNIT AREAS WITHING THE SITE.

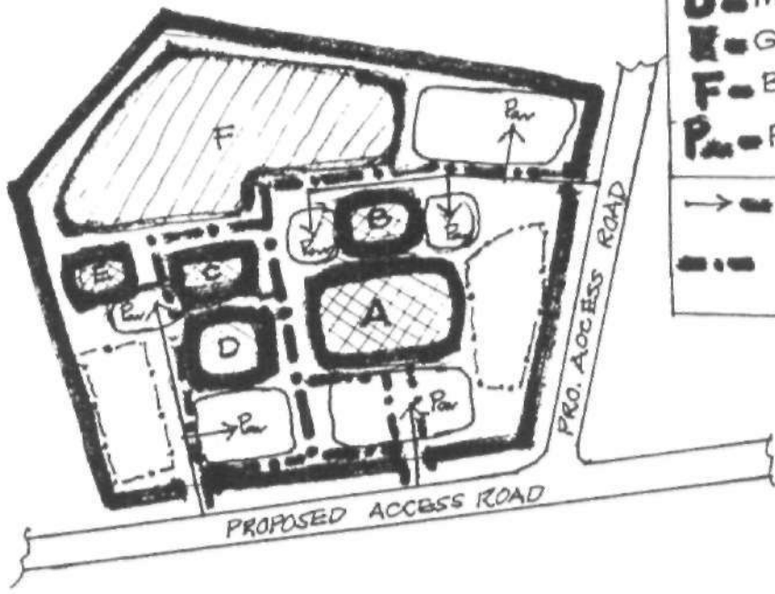


LEGEND

- ADMINISTRATION UNIT.
- COMMERCIAL UNIT.
- RECREATIONAL UNIT

GENERAL SITE CONCEPT.

SHOWING THE ABSTRACT FORMS OF UNIT AREAS, THEIR RELATIONSHIPS WITH ON ANOTHER AND TO THE PARKING, VEHICULAR ROUTE AND PEDESTRIAN MALL.



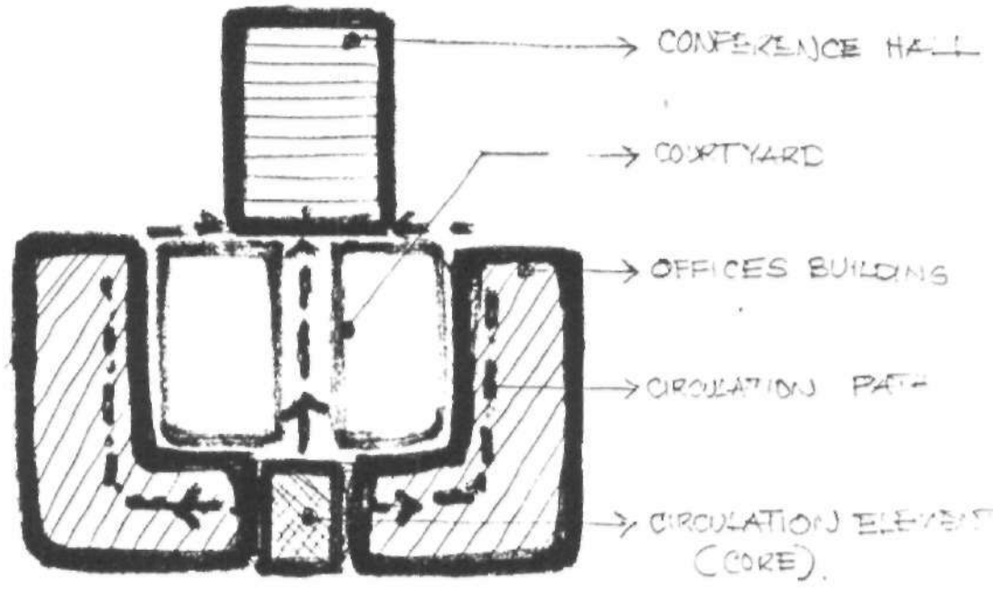
LEGEND

- A — MAIN OFFICE BUILDING.
- B — CONFERENCE HALL.
- C — RESTAURANT.
- D — MINI MARKET.
- E — GENERATOR PLANT.
- F — BOTANICAL GARDEN.
- Pkg — PARKING LOTS.

→ — VEHICULAR ROUTE

PEDESTRAIN MALL

DESIGN CONCEPT.
ADMIN. UNIT.



CONCEPT OF THE PROPOSED NATIONAL PARKS HEADQUARTERS, ABUJA.

CHAPTER SEVEN

CHAPTER SEVEN

7.0.0. DESIGN REPORT

7.1.0 GENERAL APPRAISAL

7.1.1. INTRODUCTION

The ultimate aim of this design was to creat a building that is efficient interms of pedestrain circulation and it should be able to link the six (6) units of the organization by means of vertical circulation elements, which is the only means by which can be linked effectively, this is because all the units have stronger and closer linked to one another.

However, the building should be attractive functional and structurally stayable. In other words it should take into consideration the technical requirements of the design and configuration of the site.

7.1.2. PLANNING

The building can be approach from the main access road closed to the airport expressway, in Kukwaba recreational park site central area phase II site.

The building form is roughly U-shaped and is symmetrical about the main core that contain the vertical circulation elements. The form and nature of this plan has been dictated by two important factors:-

a) The need to have building interms of pedestrain circulation

b) The need to have natural and effective ventilation for the building

There are three entrance to the site, one is to the main office complex, one is the service entrance and the third is entrance to the conference hall and the recreational area. The main entrance to the office complex is accessible from the south east. From the canopy which is made up of glass fbie material. the entrance leads to a main lobby where the reception is on the right side and the security on the left. a main visitors waiting lounge are located on the ground floor. And these lobby leads directly to the lift lobby where the vertical circulation elements the lifts and stairs are located. Therefore from the entrance hall to the lift lobby is the core of pedestrain circulation of the office complex because this is where all the pedestrain movement within the complex are initiated. Hence the entrance hall is wide enough and higher than normal three metre floor to floor height the building, complex this increase the volume for convinience due to high traffic which is more than any other place within the complex. This are is high ornamented with decorated screens of wildlife pictures by the sides. This hal is covered with long span aluminium roofing sheet and a suspended ceiling fully decorated.

The lift lobby is directly under the main office tower of six (6) floors. It covers with concrete the height is about 3.6m and fully highted and ventilated by the wide opening of doors and windows from the rear side and unpartitioned link from the entrance hall.

The vertical circulation elements lifts and stairs linked all the units of the complex and serve as a core from where circulation path radiats out in each floor. And in order to reduced the long distance or journey within a floor, each unit is divided into two, offices with stronger links and those with less. Offices that have hight degree (stronger) links are located on one side and those with less on the other to reduce the distance travel by the pedestrain.

The whole idea of reducing the distance travel leads to the formation of this configuration which is a U-shaped with the vertical circulation elements at the centre. Toilet facilities are located at the two edges of the building and at the two extreme end of the building for easy maintenance and convinience. This is the same in all the floors of tower for easy servicing.

The arrangement of the unit floors for the tower is in accending order of the hierachy of administration. The order increases from ground to the sixth floor.

This implies that the top executive were on top while the technical staff were on the ground floor.

7.1.3 VISUAL IMPACT

As the building is approached the impact of wildlife is felt. For one a shapes of elephant head is imagine in a form of a building with finished material in the form of vertical and horizontal elements. From kthe approach mostly is glass finishinThe construction materials used here have to be of high quality and durability, not only because the building will be the headquarters of the Nigeria Nationa Parks, but also because materials that will last for a very long time have

to be used in order to indicates the whole idea behind this organization which is conservation of resources.

The materials used here can be categorised into according to their location in the building and this are:-

a) Roof

b) Structural system

c) Floor

d) Surfaces

a) <u>Roofs</u> The roofing materials are:-

- *Long span aluminium roofing sheet*
- *Concrete roofing tiles*

Aluminium is choosing because of its light weight to cover the front part of the tower while the main tower is cover partly with concrete and partly with Aluminium.

b) <u>Structural system</u> The structural system are being and colums made of concrete the dept and reinforcement in to be determine by the structural engineer. the span is six metrees apart which make a network of six metre guides of column.

c) <u>Floor:</u> The floor finishes of this complex will be hardwearing resilient surfaces in order to prevent excessive wear due to the high concentration and movement of traffic. The surface will be of high quality and very well polished.

d) <u>Surfaces:</u> The exterior surfaces can of the bbuilding will be made up of weather resistance material to prevent the impact of weather on the outer suraces.

The interior surfaces are made in various media to enhance the beauty of the interior.

7.2.0 CONCLUSION

The design of the National Parks Headquarters office complex proved to be a challenging experience. This is because it is the first of its kind in the country and the Organization is newly established. This makes the information about the organization hard to come by.

However, it is because of the author's interest in conservation of wildlife and natural resources, took this challenge. And with the little information available from the organization's office in Abuja, the following conclusions are reached.

Firstly, the need to have an office headquarters in Abuja. The design should be flexible to cater for the Organization functional requirements.

Secondly, the need to have an attractive and functional design for the organization so as to enhance its publicity to the general public. Considering the fact that the organization is newly established, the need to have an efficient office function is required, so as to realised the objectives of its establishement.

Finally, one of the most important factor of determining the efficiency which is pedestrain circulation is studied and the findings and recommendations are to some extend use in making a proposal for the headquarters building of the organization.

BIBLIOGRAPHY

1. *AKU, Y.A. (1991)* ***NATIONAL ASSEMBLY COMPLEX, ABUJA.*** *Being an unpublished Msc. Thesis submitted to the Department of Architecture, Ahmadu Bello University, Zaria*

2. *B. WHITEHEAD AND D.J. CARTER.* ***A STUDY OF PEDESTRAIN MOVEMENT IN A MULTI-STOREY OFFICE BUILDING.*** *Being an architectural journal Build and Environ. Vol. II, pp. 239-247. Pergamon Press Great Britain*

3. *PETER BURBERRY (ed) 1970.* ***ENVIRONMEN AND SERVICES.*** *B.T. Batsford Limited London*

4. *JACK S.F. AND RAYMOND H. (ed) 1976.* ***STRUCTURE AND FABRIC PART 2.*** *Rechard Clay Limited Great Britain*

5. *JONES VINCENT (ed) 1980.* ***ERNST NEUFERT'S ARCHITECT DATA.*** *Halsted Press New York*

6. *RODNEY, L.S. (ed) 1964.* ***ADMINISTRATION OF RECREATION, PARKS, AND LEISURE SERVICES.*** *Printed in the United States of America*

7. *ABU, Z.A. (1990) .* ***SOLVING THE PROBLEMS OF CIRCULATION IN AN OFFICE SPACE.*** *Being unpublished Msc. Thesis submitted to the Department of Architecture, Ahmadu Bello University, Zaria*

8. *FRANCIS D.K. CHING (ed) 1965* ***ARCHITECTURE: FORM, SPACE AND ORDER***

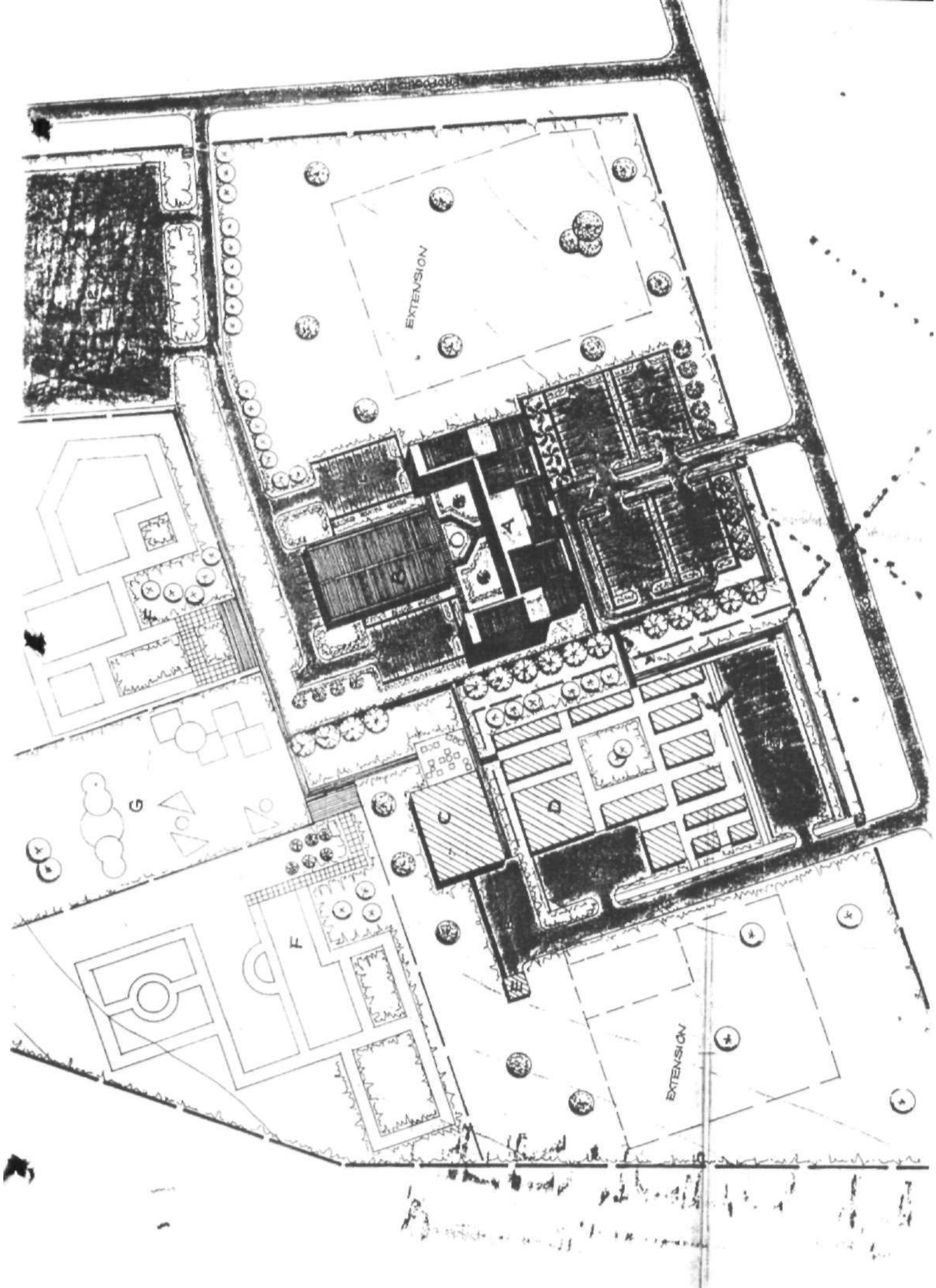
9. *PARK NEWS 1993* ***NEWSLETTER OF KAINJI LAKE NATIONAL PARK:*** *AN INTERVIEW WITH THE EXECUTIVE DIRECTOR NIGERIA NATIONAL PARKS. On the objective of the Organization, and the journey so far.*

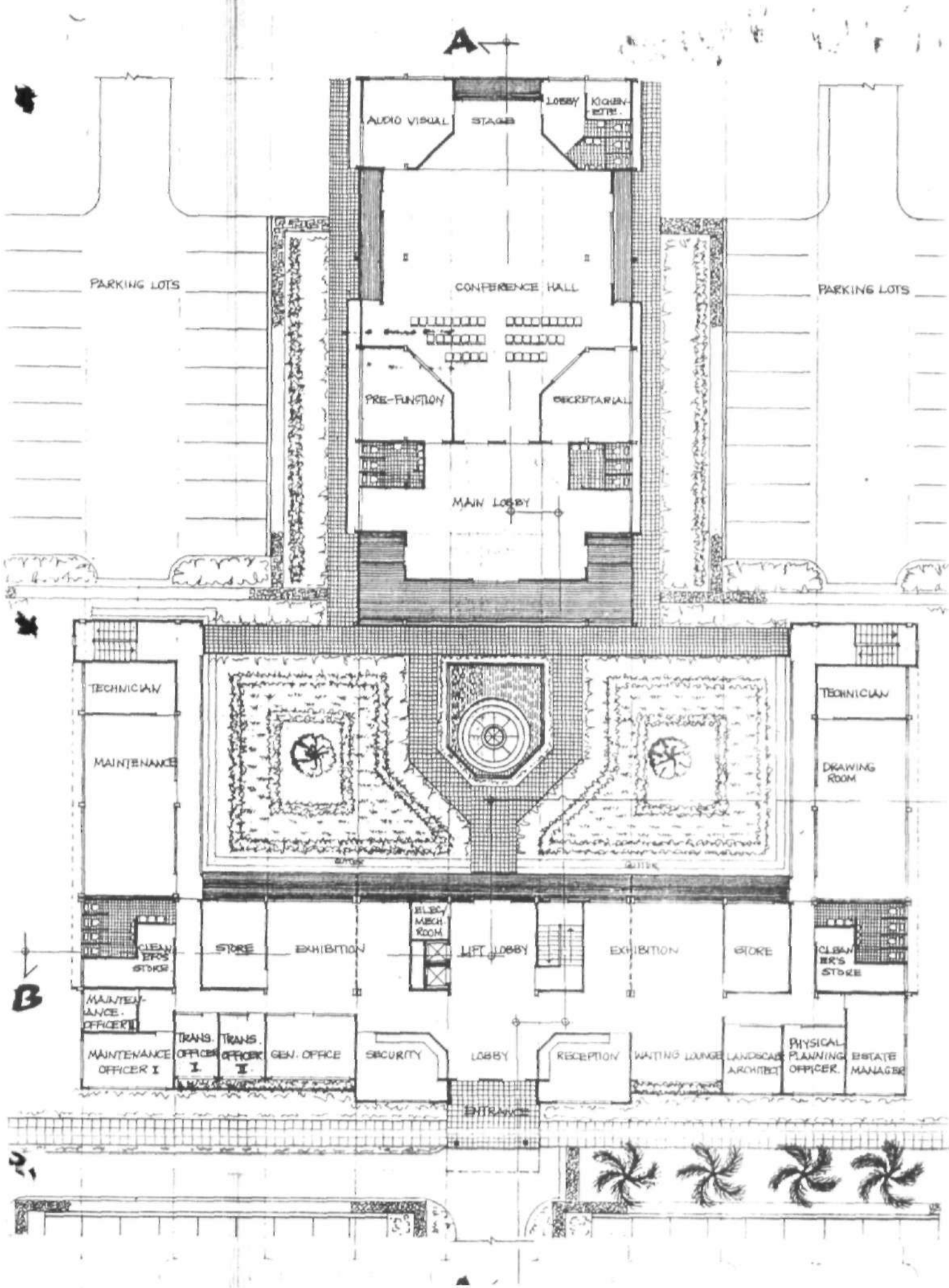
10. *FEDERAL CAPITAL DEVELOPMENT AUTHORITY 1989.* ***THE MASTER PLAN FOR ABUJA.*** *THE NEW FEDERAL CAPITAL OF NIGERIA FCDA ABUJA*

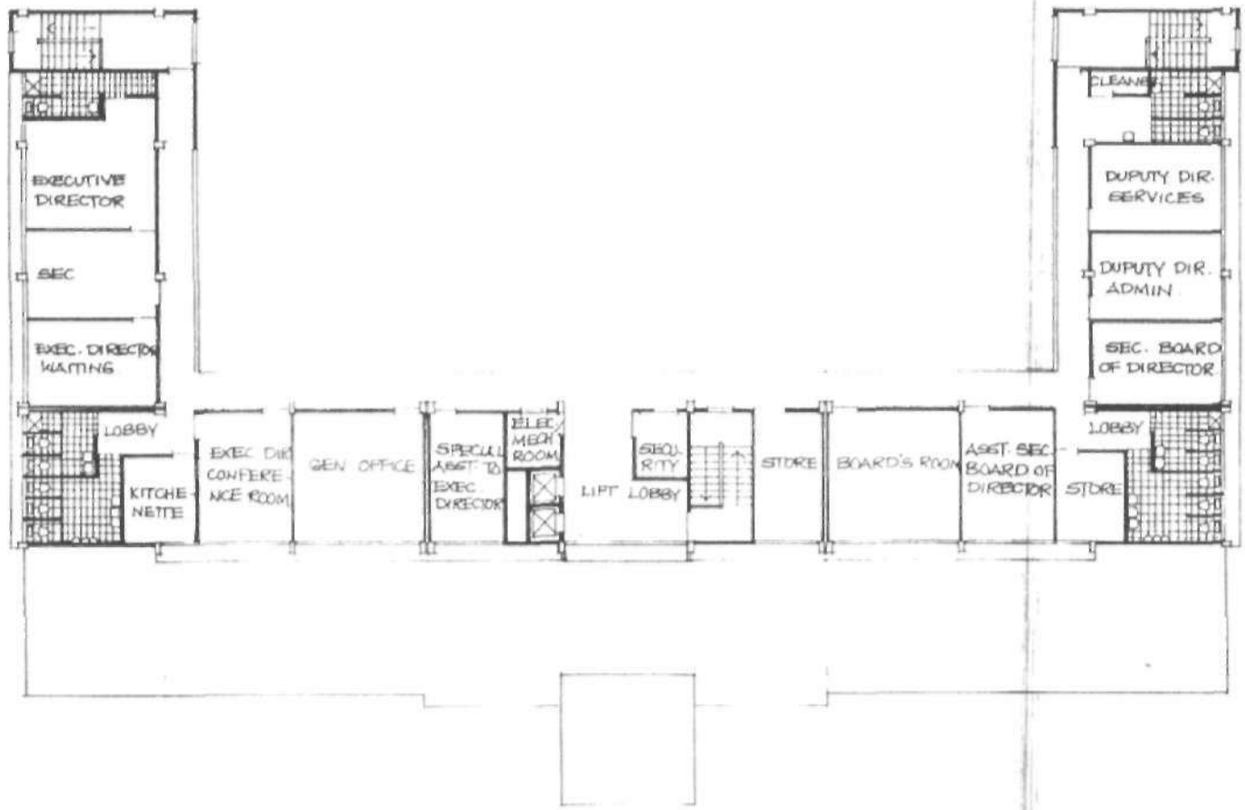
11. *FEDERAL CAPITAL DEVELOPMENT AUTHORITY: 1990* ***THE MASTER PLAN FOR KUKWABA RECREATIONAL PARK SITE.*** *PHASE II CENTRAL AREA ABUJA FCDA ABUJA*

12. *FEDERAL REPUBLIC OF CAMEROON. 1990 A MAGAZINE ON CAMEROON A COUNTRY OF TOURIST CONTRASTS.*

SOURCE: NATIONAL PARKS SERVICE BOARD, ABUJA


EXTENSION
G
H
EXTENSION


A
AUDIO VISUAL
STAGE
LOBBY
KITCHEN ETTE
PARKING LOTS
CONFERENCE HALL
PARKING LOTS
PRE-FUNCTION
SECRETARIAL
MAIN LOBBY
TECHNICIAN
MAINTENANCE
TECHNICIAN
DRAWING ROOM
CLEANER'S STORE
STORE
EXHIBITION
ELECT. MECH. ROOM
LIFT LOBBY
EXHIBITION
STORE
CLEANER'S STORE
B
MAINTENANCE OFFICER II
MAINTENANCE OFFICER I
TRANS. OFFICER I
TRANS. OFFICER II
GEN. OFFICE
SECURITY
LOBBY
RECEPTION
WAITING LOUNGE
LANDSCAPE ARCHITECT
PHYSICAL PLANNING OFFICER
ESTATE MANAGER
ENTRANCE



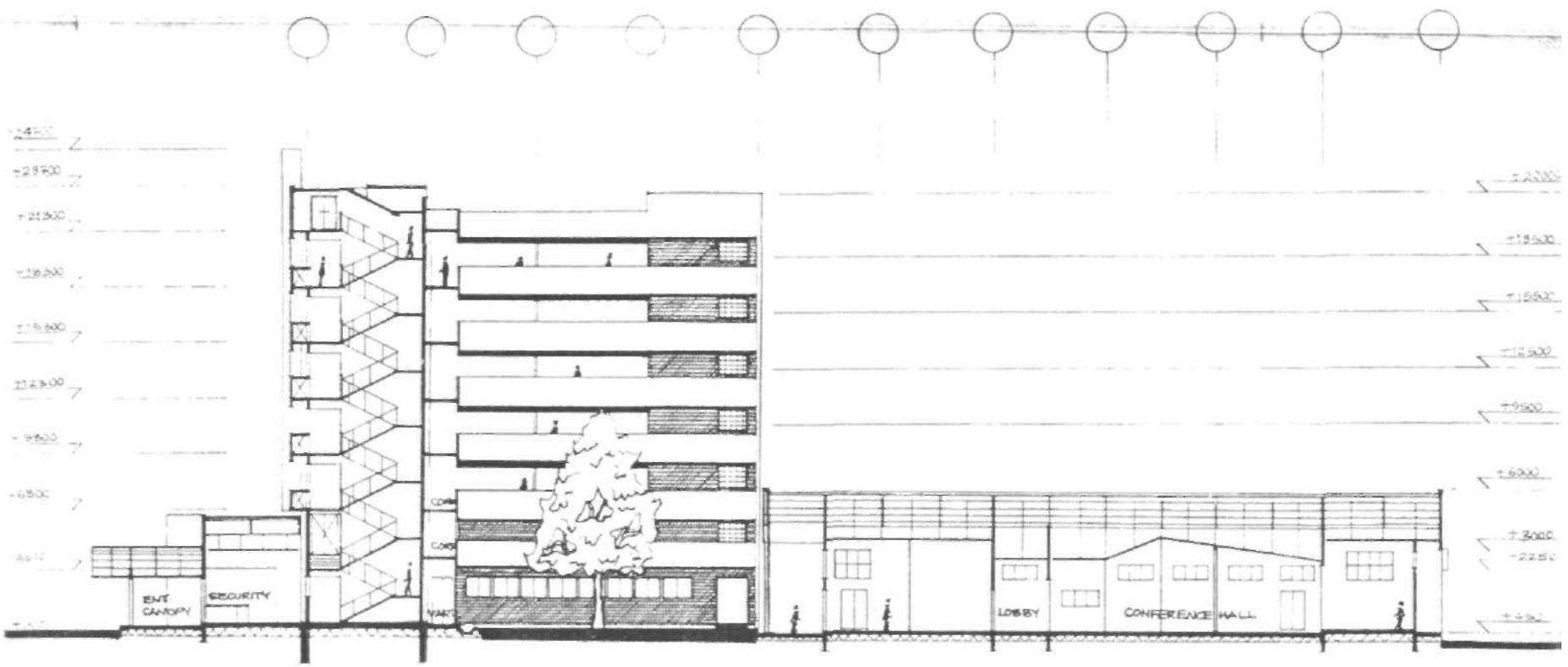
6th Floor 1/200

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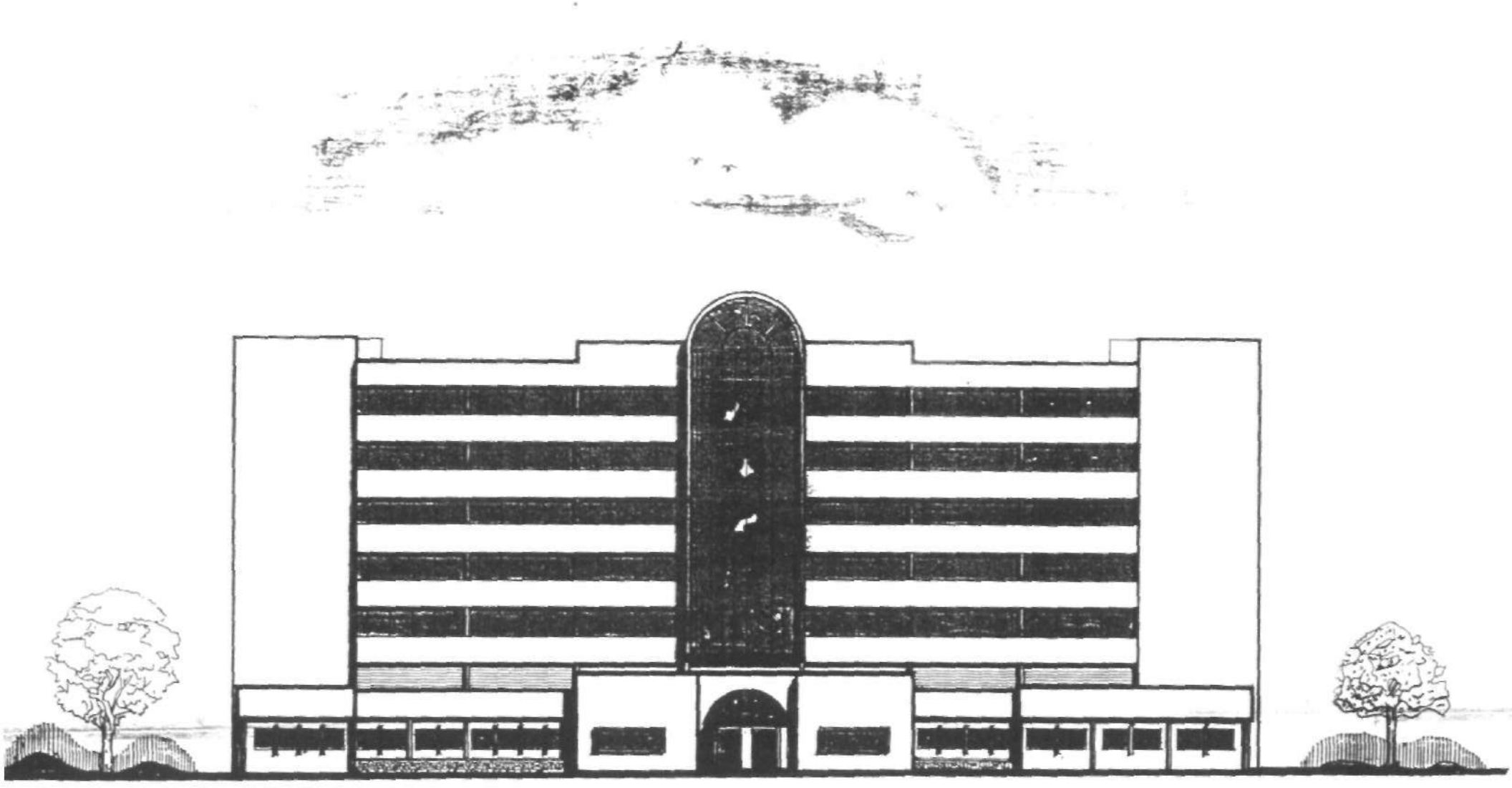
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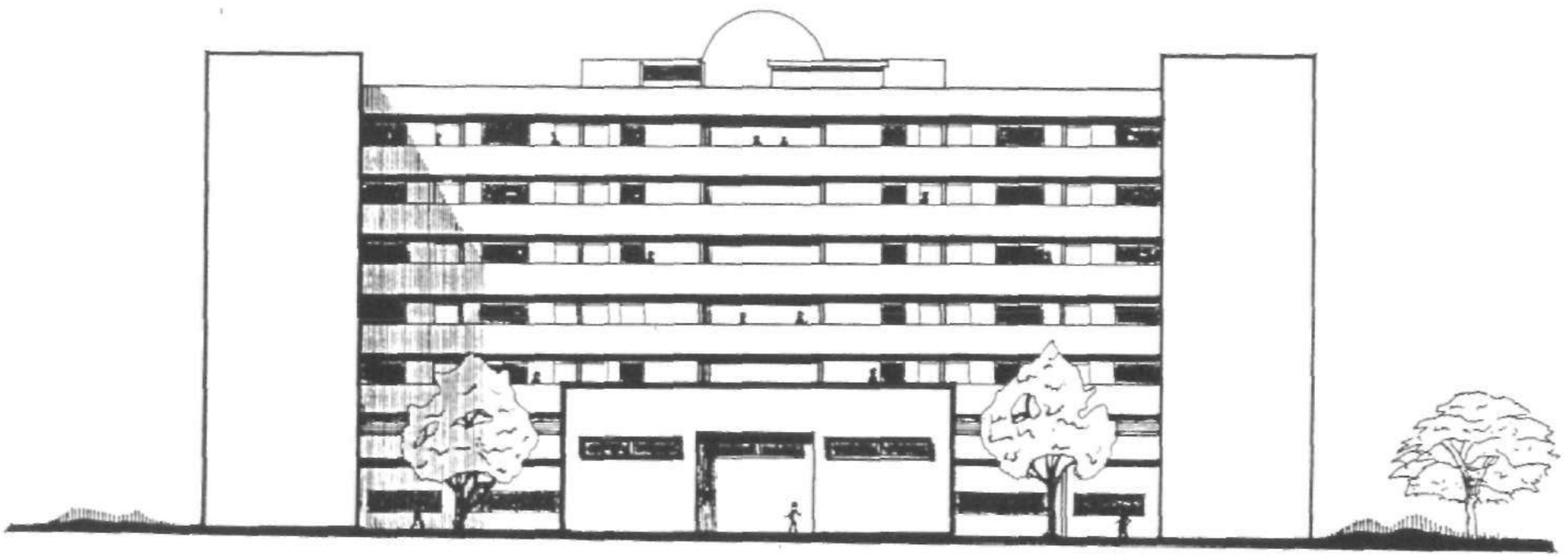
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DATE: April '94



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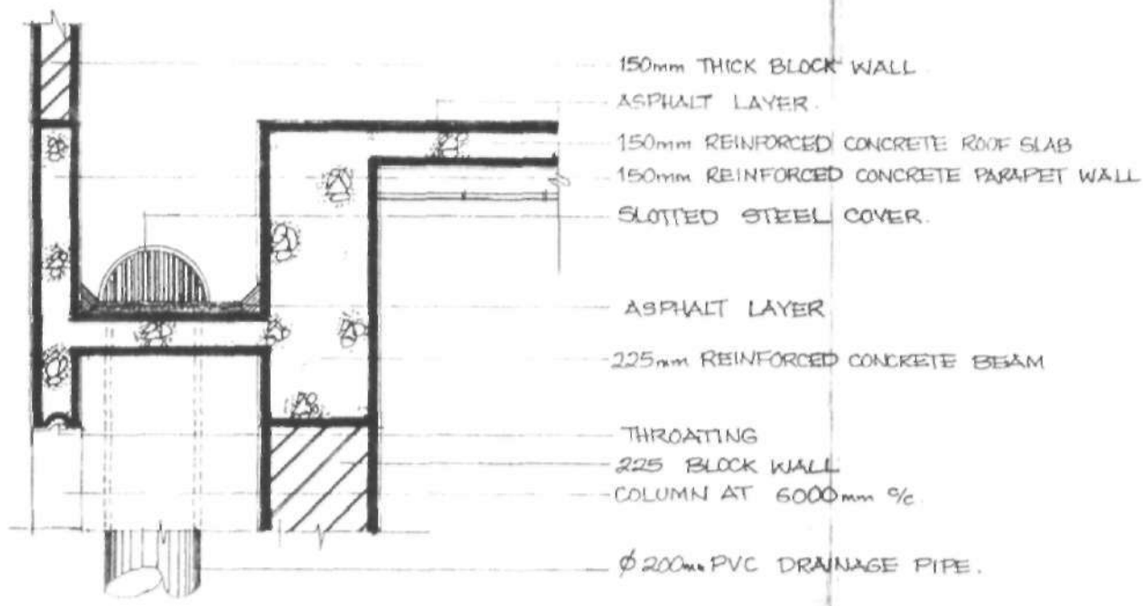


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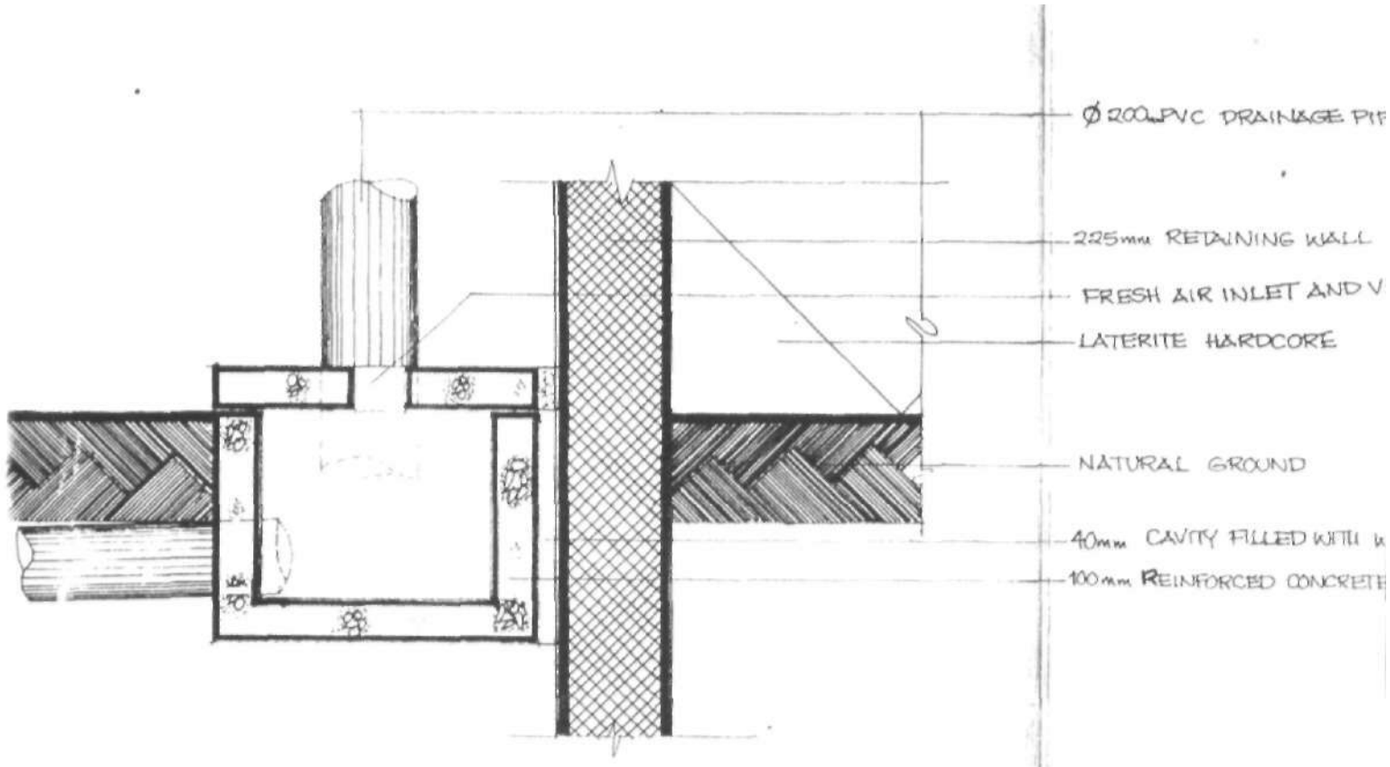


Rear Elevation 1/200

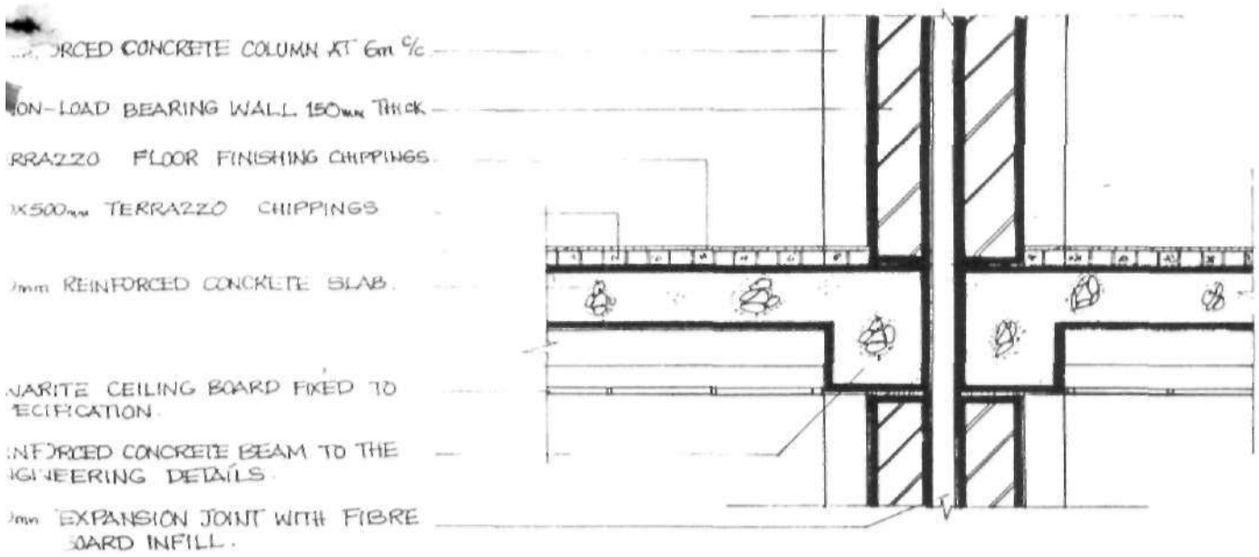
PARKS HEADQUARTERS, ABUJA



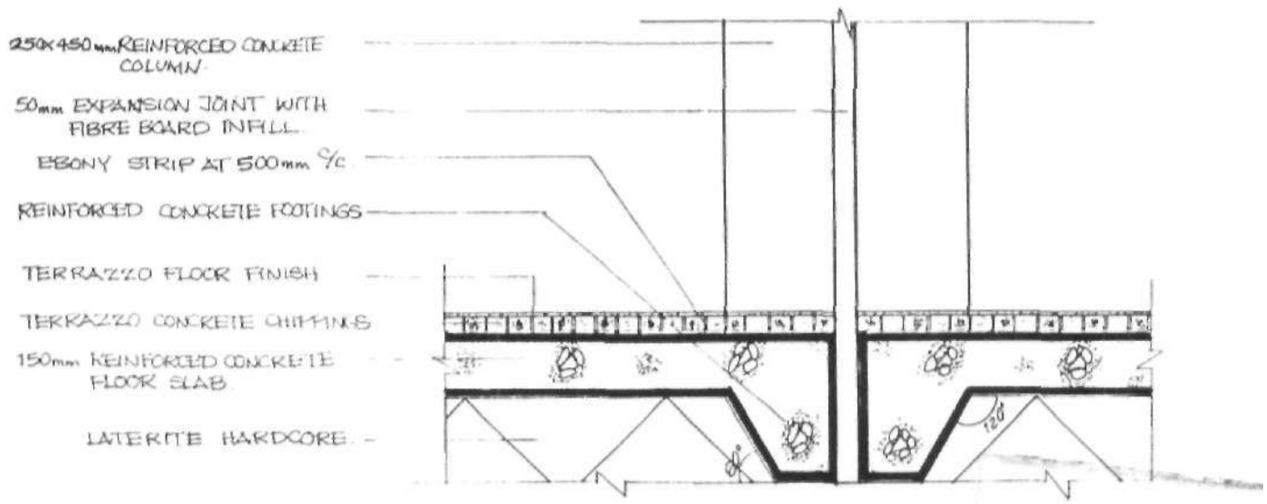
DETAIL 'A'. 1/10



DETAIL 'B'. 1/



DETAIL 'C'. 1/10



DETAIL 'D'. 1/10