CIVIC CENTRE FOR ABUJA

BY

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M.Sc. (ARCH.)

A THESIS SUBMITTED TO THE POST-GREADUATE SCHOOL, AHMADU BELLO UNIVERSITY, ZARIA, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF AWARD OF MASTER OF SCIENCE IN ARCHITECTURE

DEPARTMENT OF ARCHITECTURE
FACULTY OF ENVIRONMENTAL DESIGN
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DECLARATION

I hereby declare that this thesis has been written by me and that it is a record of my own research work. It has not been presented in any previous application for a higher degree. All quotations are indicated and the sources of information are specifically acknowledged by means of references.

.....
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CERTIFICATION

This thesis entitled CIVIC CENTRE for ABUJA by ADEAGBO ADEBOWALE ADENOLA meets the regulations governing the award of the degree of Master of Science in Architecture of Ahmadu Bello University and is approved for its contrubution to knowledge and literary presentation.

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DEDICATION

To my wonderful parents for providing physical, mental, spiritual, moral and financial support for venturing into the field of Architecture and to the creator of mankind, God Almighty.

ACKNOWLEDGEMENTS

In carrying out this thesis, I am most sincerely grateful to the following people without whose support and contribution this work would not have been.

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To the members of the Supervisory Committee for their contribution to the success of this thesis, particularly Arc O.O. Ogunsote, my supervisor, for his valuable advise, suggestions and patience throughout the duration of the project. To Arc Fred Addo, Arc Tupule, Arc M.M. Mutfwang and Arc L. Onoba, for their numerous contribution and for showing personal and a great deal of interest in the overall progress of the thesis.

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ABSTRACT

Architecture can foster enjoyable experience and consequent appreciation if its commitment is total. Architecture can be regards as that field of human endeavour that concerns itself with man's essence of being in a comfortable environment by recognising human and social needs, and by application of suitable strategies and techniques of design of which the complex requirement of architecture can be reconciled and integrated into structures which are both human and efficient.

Attempt to record historical past to our presence technological age today has always reminded us of the many forms of government which all claims to be a government for the people. However, it does not matter what form of government, one thing always remain the same - the prestige of the premise they occupy for the purpose of government. They however reminded the people of their subordination through the use of Abnormal scales and details.

However, in realisation through architecture, new trends have been attempted to reflect new relationships between government and their people.

To record this relationship, it is the aim of this thesis to provide a civic centre by not making the people feel lost because of architectural brief, scale and detail, but my providing a means and atmosphere to enhance

public to government and public to public interaction on a large, informal and unofficial scale so that out joint aspiration for unity as reflected in the creation of Abuja may be brought closer to fruition.

This thesis contains both the background study needed for the project, its analysis, deduction made from this and the design proper.

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CHAPTER ONE

1.0. The Thesis Problem

1.1. INTRODUCTION

The Local Government reform of 1976 can be regarded as an attempt to humanize government, by bringing it to the gass-root level. The main objectives as they have been clearly defined, are:

- To achieve the participation of the general public in their local development.
- To serve as a medium of communication between the local communities and the government.
- To bring the idea of a democratic self government to the local levels of our society and encourage initiative and leadership potential.

The main difference between the local government and the central government, (state and federal) is that, the local government are created by the central government and as such, they derive their powers from them. They are however regarded as the third tier system of government. However, the local government are nearer to the common people than any other government.

The strongest goal of the local government is based on the principle of respresentation and participation of the people for the government. To achieve this goal, it must imprint its

our numerous large urban centre which spots a purpose, a designed city hall of modern definition.

With due consideration given to such factor stated above, it would be the ambition of this thesis to provide a complex structure in the form of a civic centre within adaptable, conducive architectural environment to promote a government to public relationship and a public to public interaction and to act as a regenerative force in municipal life.

1.2. Goals and Objectives

The ultimate goals of this thesis project is to:-

- Evolve the planning and design of the civic centre complex which will comprise of inter-related functions for the eventual users within adaptable and conducive environment.
- Evolve a stimulating architectural form and to design flexible spaces for various activities hence creating an opportunity to meeting informally.

The main objectives of the project are:

- To achieve flexibility, openess and Accessibility to design.
- To achieve high level of enivornmental and aesthetic quality for maximum utilization, functionality, efficiency and pleasantness.

- To create a place the offers conducive environment for work and social interaction.
- To achieve effective segregation of pedestrian from vehicular traffic to eliminate risk of accidents.
- To accommodate changing needs and future growths.
- To give the people a sense of belonging and serve as a civic pride.
- To achieve good zoning based on effective coordination and differentiating noisy areas.

Scope of the Project

The scope of this thesis focuses on functional environmental morphosynthesis, i.e. spatial integration of functions with (site) environment. From analysis of the various functional needs, a detailed architectural design shall be made through a design process from which the final concept evolves. The brief of the functions consist mainly of municipal administration offices, elected council members suites, court and other public used facilities such as library, exhibition hall and multipurpose hall and landscaping with parking including all manners of circulation within the site.

1.3. Location of Project

The proposed civic centre is to be located in the New Federal Capital City, Abuja. The choice came as a result of the personal search for

providing a building facility of this nature in the new capital which would be capable of creating a better environment in the city.

The New Federal Capital City by virtue of its geographical location is centrally located which provides easy access to all the state capitals and their great diversity of cultural groups.

The New Capital City mild climate provides a comfortable and healthful environment within which government business can be effectively carried out.

The New Capital provides sufficient land space for organised and controlled development and possesses adequate natural resources to provide a good base for urban development.

The New Capital is strategically secure and ethnically neutral which will serve as a symbol of Nigeria's aspiration for unity and greatness as the city will belong to all Nigerians.

Therefore, a civic centre here would have suitable scope for trying out design solutions for the environment which would be ultimately aimed at developing and unifying the people of the capital city.

The actual site of the project is within the Wuse district of the Federal Capital City. One of districts in the Phase I development. The district which would be bounded by Kabushi, Utako and Wuye districts when the Phase II development takes off

there by increasing the centrality she enjoys today. The choice of site came as a result of the Federal Capital Development Authority (F.C.D.A) to zone such a centre within the district.

1.4. Architectural Significance

The major architectural significance of the thesis is to enhance easy flow of activities from one function to the other, provision of maximum utilization of natural lighting and ventilation, and display of aesthetic values. The design is also directed towards positively responding to the unique environmental conditions of the climatic region in which the site is located.

1.5. Research Methodology

A research is an exercise taken to find out what is known from what is unknown. The research material once known and plotted can shape principles by which we can shape future happenings. The findings of such research should have a ready application in the problems existing and in seeking these problems, have the purpose of solving problems.

In the context of architecture, research should be directed towards analysing the forces that create it and establishing principles which relate the forces to the needs of man. Thus, architectural research can be simply defined as the process of

seeking principles of architecture through the methods of research. The area of investigation in a research should help in achieving the goals of an architectural design, without introducing bias.

In this project, the task is that of providing public building, a civic centre for municipal government, which is functionally related to an administrative building. To this effect, the first area of investigation is the basic functions of the civic centre building and the facilities such a building requires. The next is synthesizing the functions and facilities. Other areas of investigation include.

1. Functioning of a civic centre building.
2. Examining extent of functional flow on planning, space relationships, structure and the language of its architecture.
3. Examining the rigidity or otherwise of these functions as they affect the flexibility of the design of a civic centre.
4. To establish the effect of the civic buildings and to evolve a design solution that accommodate the new directions with one objective of correcting the mistakes made in previous designs. For this project, the chosen methodology is based on analysis and synthesis of the following:

(i) Literature review:- Books, papers and design solutions which are related to the chosen project, are analysed with the aim of understanding the ideas and views towards designing such a civic building.

(ii) Case Studies:- Designs of a similar building facility, are to be studied with the aim of understanding the design approach chosen by the architects of these buildings, and noting the salient points about their resulting designs.

(iii) Personal Observations:- Deduction from and personal active participation are to be analysed and synthesized with the objective of correcting the aspects perceived from the observations as being not thoroughly solved and implementing in the project solutions which adequately solve these problems with respect to the environment in which it is being designed for.

(iv) Examining Documents and Environmental Data: To be used in analysing the prevailing environmental conditions of climate and also for studying the society's needs and aspirations in the areas of educational objectives.

The above are the basic areas to be investigated and results utilised in executing the proposed

project. Where data was insufficient, intuitive decisions were implemented which hope to achieve the intended objectives of the project.

CHAPTER TWO

2.0. HISTORICAL DEVELOPMENT OF CIVIC/COMMUNITY SPACES

General Appraisal:-

For one thing, the history of city building is never completed without the story of one civic facility or another. The subject of planning and organisation of public open spaces as the chief meeting place for the community has preoccupied the fancy of city planners right from earliest time. The Greek Agora, the Roman forum, the Italian piazzas up to our modern town squares and plazars are symbolic expressions of similar ideals on varie d scales and concepts. Civic spaces as the focal points of planned cities became the constant resort of most citizens - a daily scene of positive social, political and business interactions.

2.1. The Greek Agora

The first organised civic spaces can be traced far back to the fifth century B.C. i.e. to the Greek city states. Urban form was clearly defined, high social interaction among the people, due to the fact that most of the land was used for civic buildings, with little or no regard for housing areas. The Agora, an indispensable amenity of every Greek City, was a focal point of the communal life. It was not just a public place, but the

central zone of the city - its living heart and as such the constant resort of all citizens. It was not just an occasionally used place but a daily scene for social life, business and political activities.

Principally, it is an open space loosely surrounded in an irregular fasion by buildings intended for public use. The main buildings associated with the space include temples, municipal offices and later on, a range of buildings for commerce. The layout of these monumental buildings give rise to the freest interplay between their volumes. The spatial harmony is achieved through successful articulation of well defined surrounding spaces. The early Agora was amorphous and irregular in form. Its sizes varies from a spacious open square to a little more than the widening of the main street.

Although, favoured by climate, the every day life of the Greeks was open air communally oriented. The Agora continued to remain an open-air meeting place until later in history when construction techniques were sufficiently advanced; then the Agora meant more and better buildings. Within this buildings were the Bouleuterion (council chamber), offices for individual magistrates and boards, record offices, ekklesiasterion (council house), stoa, prytaneien, committee-rooms, special temples,

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cluttered by statues, fountains and stirines, an indoor meeting hall and also part of the area was usei for theatrical performances.

This was the nature of the Greek Agora, that as the political system changed from monarchy to aristocracy and finally to democracy, public interest concentrated itself on the Agora as the centre of government. The Agora was the centre of the Greek civic life, and indeed the pulsating heart of the city. The Agora at Athens and miletus illustrate the major characteristics of the early Greek Agora (See Fig. 2.1. and Fig. 2.2)

2.2. The Roman Forum

The Roman forum like the Greek Agora, originally served as a symbol of union between the Romans and various foreign tribes of the neighbouring hills. Like the Agora, it functioned as a central communal space for recreation, commerce and political affairs.

It is physically more distorted than the Agora for the Romans were more concerned with the mastery of interior spaces and were unable to carry through their perfection in the handling of internal spaces to their conception of external volumes.

The forum complex by virture of its monumental scale gives expression to the political power, organisation and grandeur of the old roman empire.

In contrast to the Agora, the various elements

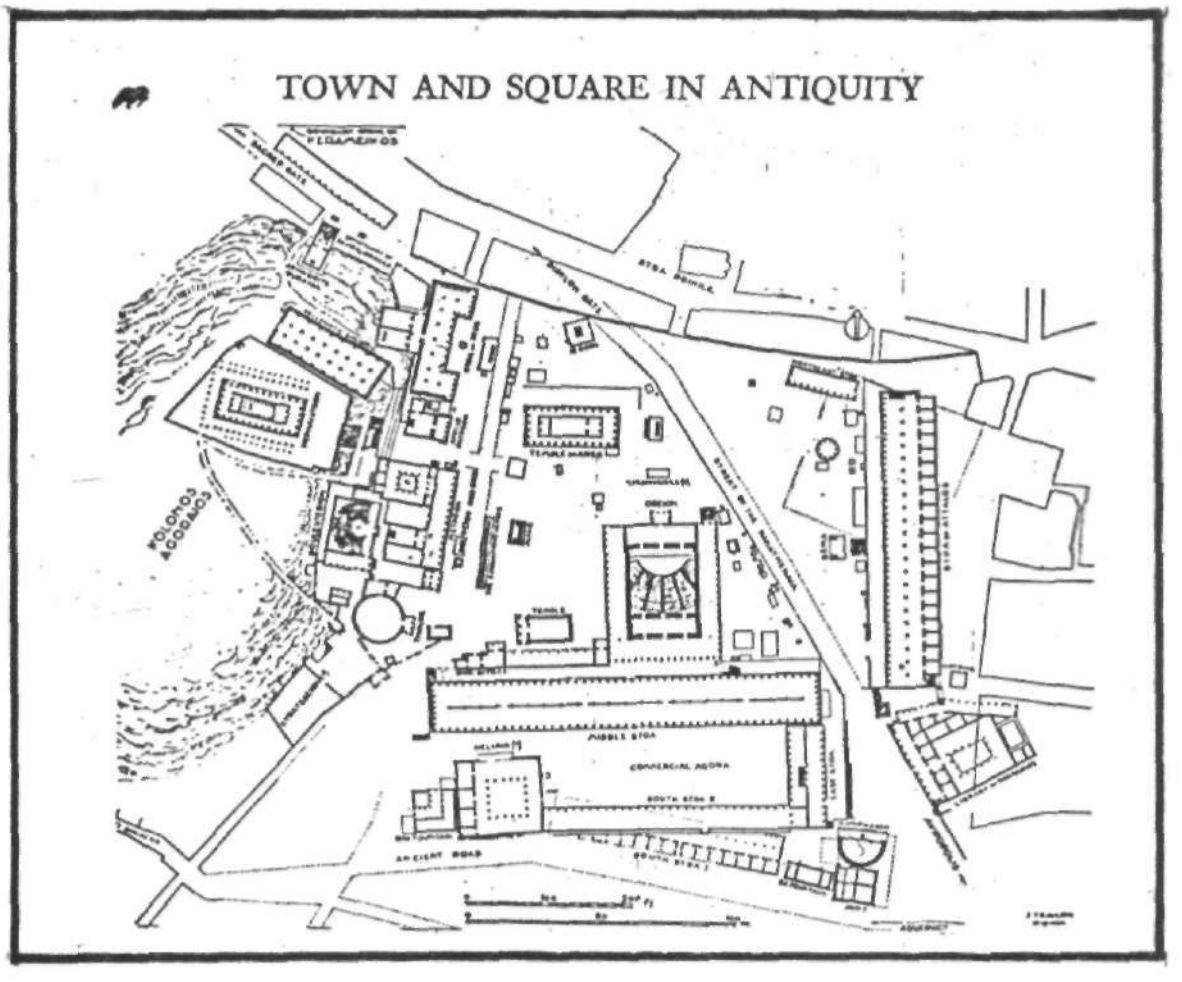


Fig. 2.1 Ancient Agora Athen

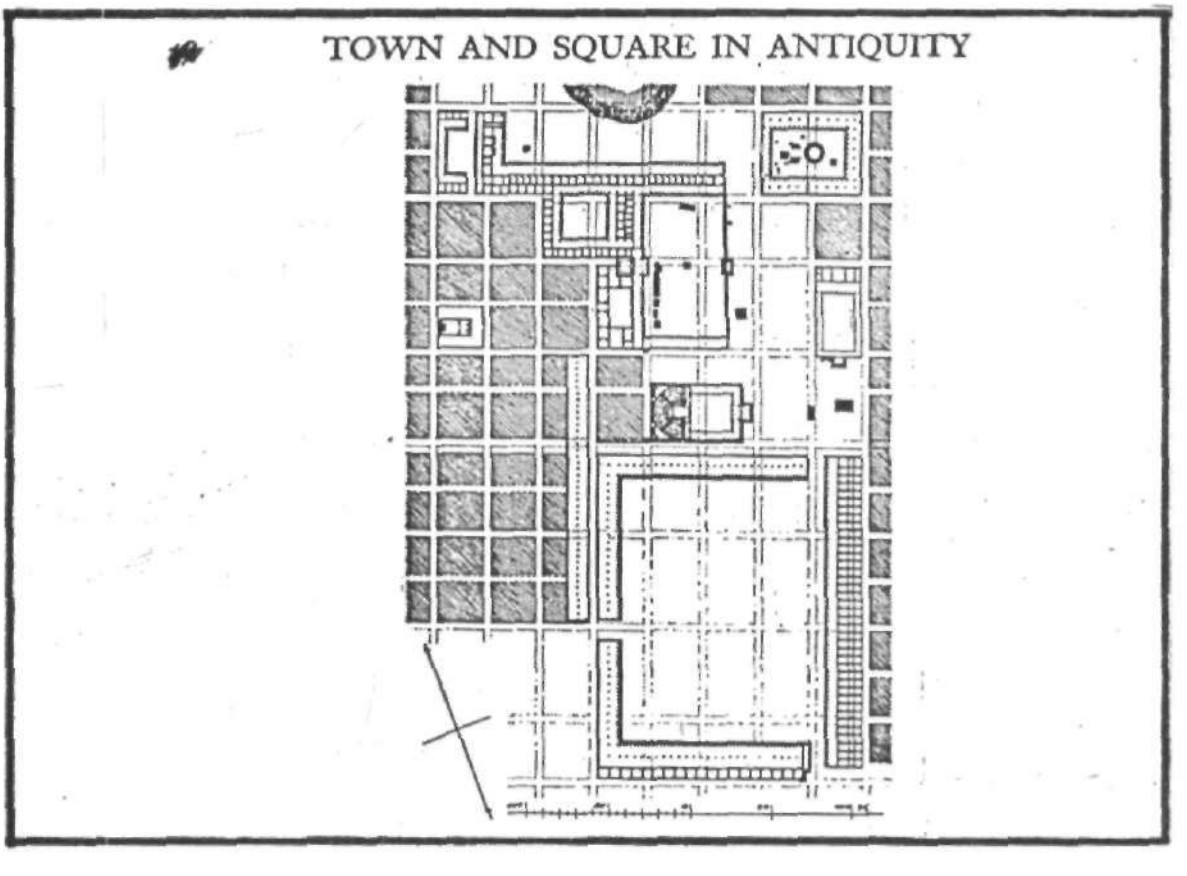


Fig. 2.2 Ancient Miletus Market Square

of the forum are related to one another and to the enclosing space by an abstract system of proportion with no relation to human scale.

The Forum Romanum, Rome (Fig.2.3) which was the oldest and most important of all, was laid out in the valley and surrounded by other principal monumental buildings. It served as a meeting place, market, social and political rendezvous, and in the early times as a hippodrome and for contests which later took place in amphitheatre. The chief public buildings are grouped around it, and its appearance in the heydays of ancient Rome, adorned pillar of victory and statues, collonades, temples and shop have been a sight of great beauty, indeed.

Some other forums such as forum Banium, serve as a market for special purposes, but in general context, the typical Roman forum is the centre of civic life of the town.

Give a broad perception, the Greek Agora and the Roman forum show identical functions. The super-ficial difference in physical form merely reflects the varying conception of planning ideals based on the different political and cultural orientations of the two communities.

2.3. Open Spaces of Mediaeval Cities

Most mediaeval cities developed as compact within rigidly defined borders. The desire for adequate security was paramount. The irregular winding

street, the open market place, and the church square are the main characteristic features of mediaeval urban spaces. The winding streets preclude long vista, emphasizing limited views. Sometimes the large market squares, poised at corner positions of narrow streets. The market place was indeed, the counterpart of the Agora or forum as a focal point for a wide range of social, political and cultural activities. The typical market place was an irregular figure, with an arbitrary shape determined by the needs, by the surrounding building. Streets usually terminates at the boundary of a large market square, thus creating a pattern of interrelated spaces. The church square was another independent open space usually closely associated with the market square.

Religions buildings are the usual dominant architectural feature of the most important public spaces. They are strategically located amongst buildings of similar facade surrounding the church square and assume prominence by virtue of their contrasting forms and elevations. Initially the church and the market formed a two part nucleus characteristic of most mediaeval towns (planned and unplanned). Later commercial functions became so critical that virtually all forms of urban spaces (religious or secular) ended up as commercial space of one type or the other. For the first time,

the term town hall or market hall came to be associated with civic centres. The town hall happened to be the centre of administrative and commercial activities. (See Fig.2.3)

2.4. Renaissance

The renaissance period, often refered to as the revival of antique forms borne outof desire for order as an essential basis of arts - not merely order but demonstrable order. The centrally planned renaissance plaza as a focus from all sections was a clearest expression of this demonstrable order which the renaissance valued so highly.

The dicotomy between major pedestrian and vehicle traffic movements are reflected in the planning of spaces which act as forecourt or public assembly areas in front of major civic and religious buildings. A common solution is to divert all vehicular traffic ways away from the space or to alternatively limit it to a part of the space. Traffic functions within urban spaces during the renaissance era were significantly well defined.

The renaissance plaza were remarkably characterized by as an element of urban design per excellence by:

(i) symmetry about one or more axis,

(ii) Enriched with fountains, sculptures and a variety of architectural landscape

TOWN AND SQUARE IN ANTIQUITY

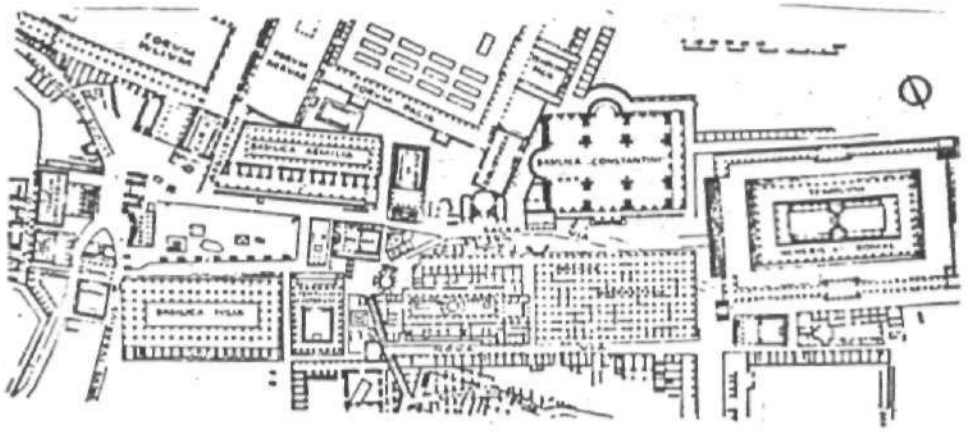


Fig. 2.3 Forum Romanum

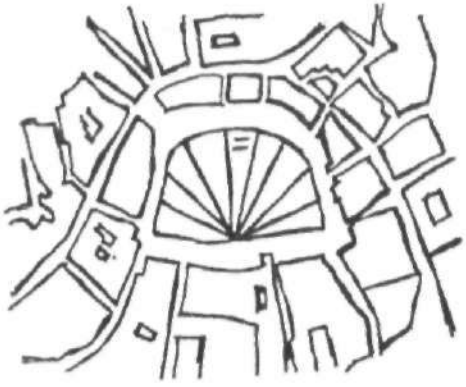


Fig. 2.4 Plazza del Campo, Siena

elements, trees and flowers.

(iii) Vast use of limited vista achieved by selective placement of imposing statues, obelisks and monumental buildings,

(iv) Important public buildings usually surrounded the space and are unified by means of repetition of basic elevation design and articulation of details usually in conjuction with unbroken rows of collonades.

The evolution in the history of urban design, art and architecture was described during the renaissance period. A new trend of thought identifies man as the centre of the universe - the scale of all measurements. This is consistent with the shift of emphasis from the sacred to the secular as palaces gradually replaced cathedrals as focal points of vista. (See Plate I).

2.5. Baroque

The Baroque era was significant for its emphasis on the organisation of outer spaces as evident from the public squares. Openness replaced compactness in the spatial composition of free spaces. Its aim was to lead to the important focus and as such the space concept of the Baroque did not tend to enclose an object.

The never ending variety of the Baroque city life was best observed within isolated

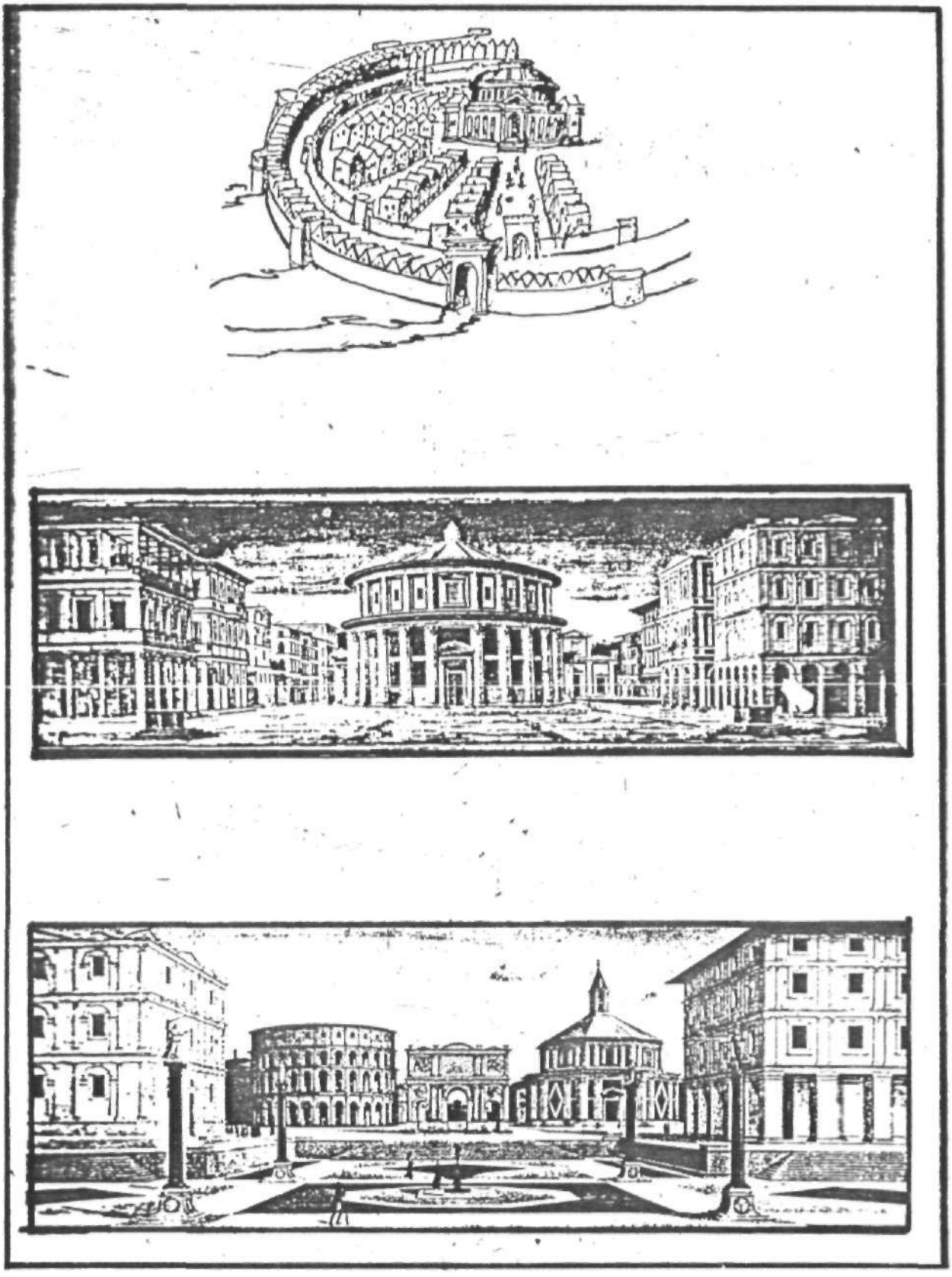


PLATE I

Renaissance Open Space

individual spaces, such as public squares and plazas which gave way to a more resolutionary spatial interlock of spaces.

'Baroque designers organised spaces and made it continous, they reduced the space to measure and ordered it with motion and time'. To this effect, important urban space connectors were highways and bowlevards. Unity and articulation in urban spatial composition was consequently achieved.

While at intersections along lines of movement are important landscaped public spaceswith obelisks, fountains and statues remaining characteristic features. In particular, obelisks and important buildings strategically located along the space, are used to form lines of tension that regularized the movement system.

2.6. Urban Spaces in Modern Cities

The Greeks have created an urban form made for people, the Romans built upon their theories but not without discarding some of Greece's most important urban ideals. In Mediaeval times, ideas paralled to those of ancient Greece found a new expression. Again these humane concept were discarded by the renaissance whose aims were loftier and of considerable artistic quality.

The place of civic life and architecture has been so established in history that even our

contemporary city planners continue to acknowledge the efficiency of well articulated open spaces in the social, cultural and political life of the city. In more recent urban planning projects, the virtues of extended open spaces were harnessed to give character and quality to city life.

The Baroque openness was augumented and furtherdeveloped. Belts of open green flow from the surrounding greens deep into the heart of the city. Proximity to nature, and a relationship to growing things were hall marks of the new trend.

Through the principles of mixed planning, a sustained and continuous use of open space in city centre were achieved. Commercial plazas are surrounded by multi-level concourses animated with activity which accentuate their three dimensional qualities. Typical examples include Back Bay Centre Boston and Rockefeller Centre, New York.

Its the urban spaces which give a character and quality to city life, establishing its tempo and pattern within these urban spaces city dwellers find for themselves some variety of experience which make life in a city creative and stimulating. Urban spaces occupy a position of central importance within the city network and provide for the much needed constant contact with the elements of the natural environment.

2.7. Community Spaces in Nigeria

2.7.1 Yoruba Towns

The typical Yoruba towns were basically administrative centres and over the centuries, they had evolved an elaborate power structure, and a hierachical system of administration at both city and kingdom levels.

The typical Yoruba towns had major factors governing there planning arrangement which were:-

- Administrative
- Trading
- Defence functions of the town.

The most dominant feature of the Yoruba towns was the Oba's Palace, which was centrally placed. The Obas was not only regarded as a symbol of the urban status but also the head of the town administration. In spite of the symbolic importance of the crowned head and his major role as the spiritual leader, the administration of the towns were generally hierarchical and democratic. The Yoruba Oba, ruled with his chiefs as adviser who represented the different wards in the township.

In Yoruba towns, the first organised civic space was the palace ground. The palace apart from accommodating the Oba, also provided extensive open space for recreation, religious and social gathering. Indeed, it was a gathering place for the citizens within the community.

In modern times, most of the palace grounds has been used for important buildings like those related to local or regional administration, council offices etc.

Usually, opposite the palace was the most important market in the city and either within the market ground or within its own space wars the fetish temple/shrine or the central mosque of the town (in some cases both are present).

From the city centre, roads radiates to other parts of the town forming the residential areas and links to neighbouring towns.

2.7.2 Hausa Towns

Most Hausa towns have a typical structural characteristics as follows:

- Presence of a fortified city wall.
- The city centre, which include the palace
- The different clans based on social stratification in terms of occupation.

The whole town, fortified by city walls with gates placed at strate ic points along their lengths. From these gates were broad roads which usually converge to the city centre.

City Centre:

This was the principal civic and community gathering space. The surrounding rural areas regarded it as the seat of administrative, social

and economic activities.

The Emirs palaces were usually centrally located within the city centre with central mosques and central market close-by.

In the city, the palaces, was the focus of everything - the roads, the culture and life style of the people, and also of the handicrafts.

2.8. Conclusion

- From this historical background, it is apparent that the earlier organised civic/ community spaces, either in planned and unplanned cities all over the world, no matter the culture or religion of the people, all developed to serve the same purpose - seats for administrative and socio-economic functions among citizens within the community. As such they were usually centrally located for easy accessibility.

- In most places particularly in the middle east and Europe (Ancient Greece and Rome) the activities at the centre lead to the creation of a distinctive architecture. This is seen in the Agora (ancient greece), the Forum (ancient Rome), the Town Halls (mediaeval Europe) and palaces (Africa).

- In places, the existence of the town centres lead to the evolution of theatres, some of which have attributes like good sight line and acoustic qualities. Our age has just continued to modify this attributes.

- A design of city hall or a town centre or a civic centre now must take into full account the societal lives of the people and not just concentrate on the provision of administrative spaces.

- The African town centre qualities can be influential in decisions to create a civic centre now in any part of architecture i.e. the centre must symbolise the bonding between the people involved and their government.

This way, we believe that such schemes will be of huge success most especially if the people can relate to it, than just visiting an administrative centre.

CHAPTER THREE

3.0. ROLE AND SIGNIFICANCE OF LOCAL GOVERNMENT INSTITUTION IN THE DEVELOPMENT OF THE COUNTRY

3.1. What is Local Government

Many definitions have been given to local government by many scholars, but each time the definitions are made to suit the country in which that system is operating. According to the guidelines on the local government Reform of 1976, local government in Nigeria has been defined as "a government at local level exercised through representative councils established by law to exercise specific powers within defined areas. These powers should give the council substantial control over local affairs as well as the staff and institutional powers to initiate and direct the provision of services and to determine and implement projects so as to complement the activities of the state and federal governments in their areas, and to ensure through devolution of functions to these councils and through the active participation of the people and their traditional institutions that local initiative and response to local needs and conditions are maximisd"[1] From the above definition, it can be seen that local government are specifically created in Nigeria to govern at the grassroots. It should have powers to

make bye-laws for efficient and effective provision of service. Also, going by the premise of the definition of the local government, it is obvious and incontrovertible that one of the basic criteria for creation of any local government must be compactness.

3.2. Causes of Local Government Reforms

The major causes of the 1976 local reforms in Nigeria was the realization, by the then federal military government, that a uniform system of local government was desirable in Nigeria. This was in view of the defects the old system had. To be able to administer the country well, the military government created the states and for the states to function well, a co-ordinated system of local government was not only desirable but inevitable. But how was this possible? By nature, the traditional rulers would resist any change that would tamper their inherited domains. And the state governments had not been able to effect changes in the local governments that would make them representative and devoid of traditional rulers. So the federal military government had to come in and said the reforming of the local government system in Nigeria would be an important exercise in the process of building a sound foundation for the return of the country's administration to civil rule.

The major cause of the 1976 reforms can therefore

be summarized as the demand for the removal of the traditional rulers from the policy-making body of the local government i.e. the council; lack of sufficient finances; lack of adequate, qualified and efficient staff and excessive politiking which had all made the modest progress of the local government practically impossible. This demand coupled with the political programme of the federal military government gave birth to the local government reform of 1976 (section 7 of the federal constitution of Nigeria - 1978).

From the reform, local government authority councils should consist of the kingmakers, the District officer in charge of the emirate ⅔ elected and ⅓ nominated members. The structure of the existing local government reform has been initiated, formulated and implemented based on this background.

The recent reform however, differs fundamentally from all proceeding reforms, the term itself has been clearly defined as the third tier of government based on the principles, representation, participation and autonomy.

3.3. Objectives

It is to achieve a humane government by transforming it at the local level into the personal property of the community. To provide social services and public facilities and utilities for the people within the local government area, in such a

manner that every member of the community will have access to whatever is provided.

3.4. Functions of The Local Government

Every local government has legislative powers to perform certain functions to the people under its jurisdiction as enacted in the local government edict of 1976. Some of the functions enumerated below are the roles the local government is expected to perform, the responsibilities for and power to make by-laws in respect of all of the matters, that is:-

- The consideration and the making of recommendations to the state economic planning board on the economic development of its area of authority.

- Implementing the economic development programme of its area of authority as approved by state economic planning board.

- Collection of rates in the form of community tax, property and other rates and designated revenue.

- Establishment and maintenance of cemetaries, burial grounds and home for destitute or infirm.

- Licensing of bicycles, trucks, canoes, wheel-barrows and carts and other types of vehicles (other than vehicles which are mechanically propelled).

- Establishment, maintenance and regulation of

markets, motor parks and public conveniences.

- Construction and maintenance of roads, streets, drains and other public highways, parks, open spaces or such public facilities.

- Naming of roads, streets and numbering of houses and plots.

- Refuse disposal

- Registration of all births, marriages and deaths.

- Control of vermin

- Slaughter houses, slaughter slabs and meat inspection.

- Fuel plantations.

- Assessment of houses or tenementfor the purpose of levying rates as may from time to time be prescribed.

- Control and keeping of animals.

- Control of boardings, advertisements, use of loud speakers in or near public places and drumming.

- Control and collection of revenue from private forest estates.

- Provision and maintenance of nursery, primary and adult education.

- Information and public enlightment.

- The provision and maintenance of health centres, maternity centres, dispensaries and health clinics, ambulance services, leprosy clinics and preventive health services.

- The development of agriculture and natural resources other than the exploitation of minerals.

- Sanitary inspections, sewage and night-soil disposal.

- Licensing, supervision and regulation of eating house.

- Provision of public libraries and reading rooms.

- Agricultural and animal health extension services and veterinary clinics.

- Rural and semi-urban water supply.

- Fire services.

- Support of art and culture.

- Control of pollution.

- Provision of roads (other than trunk roads) their lighting and drainage.

- Control of beggars, or prostitution and repatriation of destitutes.

- Public housing programmes.

- Prevention of crime within its area of authority.

- Engagement in any form of trade, commerce or industry.

From these therefore, it may not be totally out of place if one organises the function of the civic centre around these general functions, leaving room for the peculiarity of the Abuja

municipality seeing that Abuja is Federal Capital.

Because the local government/municipal authorities are instrumental to the execution of centrally established policies, and to the provision of good government at the grass-root where the local communities can partake in their own local affairs, it may be seen that the council (local or municipal) will be the hall mark of all democratic decisions. Hence, as a symbol of the powers of the people, the council chamber will be an aspect of design in the civic centre programme.

3.5. Local Government Sources of Revenue

The revenue and other funds of the local government consist of:

- Revenue derived from community tax and any rate imposed by the authority by virtue of the provision of the new local government edict.

- Revenue payable to a local government under the provisions of any other enactment

- Revenue derived from licenses, permits, dues, charges, or fees specified by any bye-laws or rules made by the local government.

- Receipts derived from any public utility concern, or any service or undertaking belonging to or maintained by a local government.

- Rents derived from the letting or leasing of any building or land belonging to a local government.

- - Statutory allocations or grants-in-aid out of the general revenue of the country or state, or other public revenue.

- Any sums of money which may lawfully be assigned to the local government by any public corporation.

- Interest on the investment funds of the local government.

3.6. Excerpts From The Local Government Edict

3.6.1 Composition of The Council

The municipal council is composed of elected members:- on the assumption that a neighbourhood constitutes an electoral ward for the selection of councillors the projected maximum number of elected members for the new capital's municipal council is 60.

Nominated Members:- presently such members are nominated by the state executive council. The total number of nominated members prescribed should never exceed one quarter of the councils' population. This gives a maximum of 20 nominated members.

On computation from the above projections the total maximum population of council is 80. Allowance should also be made for a limited number of invitees who on the invitation of the chairman or governor can attend a meeting but have no voting rights.

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3.6.2 Council Proceedings:

- For each council, there shall be a chairman, who shall be approved in that behalf by the governor of the state.
The election of the chairman is the first business to be transacted at the inaugural meeting of a council.

- Every council shall nominate not more than six of their members as supervisory councillors to the commissioner, who shall recommend three of them to the governor for appointment.

- A supervisory councillor shall, exercise general political but not executive direction over such departments or group of department of the council as may be assigned to him by the council.

- A council shall in every year hold an annual meeting and such other meetings as may be necessary for the due fulfilment of its functions so however that the council shall hold at least one meeting in every month.

- Every meeting of a council shall be open to the public. Except the meetings of committees appointed by a council or the committee of the whole council.

3.7. Committees

3.7.1 Finance and General Purpose Committees

Every local government shall establish a finance and general purpose committee which shall comprise of:-

- The chairman of the council as chairman
- The supervisory councillor
- Not more than two other members.

Responsibilities

- Regulation and control of the finances of the local government or municipal council.
- The consideration and awards of contracts.
- The implementation of the decisions of the local government, with which no other body is charged for, and the general running of the local government.

3.7.2 Education Committee

The education committee shall consist of:-

- The supervisory councillor for educational matters.
- Not more than four other members of the council.
- Other nominated persons/member prescribed by the educational edict.

3.7.3 Other Committee

A local government may appoint such other standing committees according to the specific needs of the council.

- The number of the members of a committee appointed, under this section the chairman of the committee and term of office shall be specified byqthe local government.

- A committee appointed under this section may include persons who are not members of the local

government council provided that at least two third ($\frac{2}{3}$) shall be members of the council.

- A committee is empowered to appoint a sub-committee for any special purpose.

- A local government may occur with one or more other local government in appointing from amongst their respective members of joint committee for any purpose in which they are jointly interested.

3.8. Local Government Service Board

- The board consists of a chairman and not more than five other members, all of whom are appointed by the governor of state.

- For every local government, there is a secretary to the local government who is the chief executive officer of the local government, and he is responsible for the execution of the policy of the local government, and the day to day running of the affairs of the local government and in particular

--The supervision and control of all employees of the local government,

--The co-ordination of all activities of departments of the local government.

- Local government may establish departments as the executive council may deem fit to perform the functions of the local government.

- For every department there is an officer designated as the head of department provided that

two or more departments may be placed under the supervision of one head of department.

- the head of department shall in matters of policy, be subject to the general political direction of a supervisory councillor and
- in matters relating to the employees and the internal control of the departments, be under the general direction and control of the secretary to the local government.

3.9. Case for a Single Local Authority

It may be said, that in 1984, the minister for the Federal Capital Territory splitted the terfitory into nine local government areas. And one of these is the Abuja municipal. As a local government area, it must function under the local government laws of Nigeria (also decreed in 1976) with modifications depending on its peculiarity.

For the purpose of this academic exercise it is assumed that the whole municipal area of the city falls under the jurisdiction of a single municipal authority. Such a premise is advantageous for a good many reasons. It ensures:-

(i) Efficient co-ordination of planning goals and objectives.

(ii) Maximal use of council resources.

(iii) A strengthened image of the authority as a dominant source of influence in city affairs.

(iv) A better platform of broad based policy decision devoid of unhealthy local rivalries.

CHAPTER FOUR

4.0. CASE STUDIES

Undoubtedly, this will not be the first civic centre complex in the world. Hence it will not be out of place to carry out case studies on similar facilities both within the country and also abroad. The intention here is to see the part it plays in the lives of people all over the world and how the people on their own part relate to it. We will also study the concept adopted world wide and learn from their achievements and failures, and while creating ours, we avoid the failures and try to enhance or improve on the achievement.

For this purpose we will undertake to study just five of such administration centres:

- The Lagos city hall, the Toronto city hall, Hillingdon civic centre, Boston city hall and Kurashiki civic centre. These examples of study have been carefully chosen to reflect the regions of the world - Africa, America, Asia and Europe.

4.1. City Hall Lagos - Nigeria

Location:

The building is located centrally within the island commercial, administrative and business area of Lagos. It is bounded on the North by Igbosere street and on the south by the Mission street, while on the east and west by prison and Glover streets

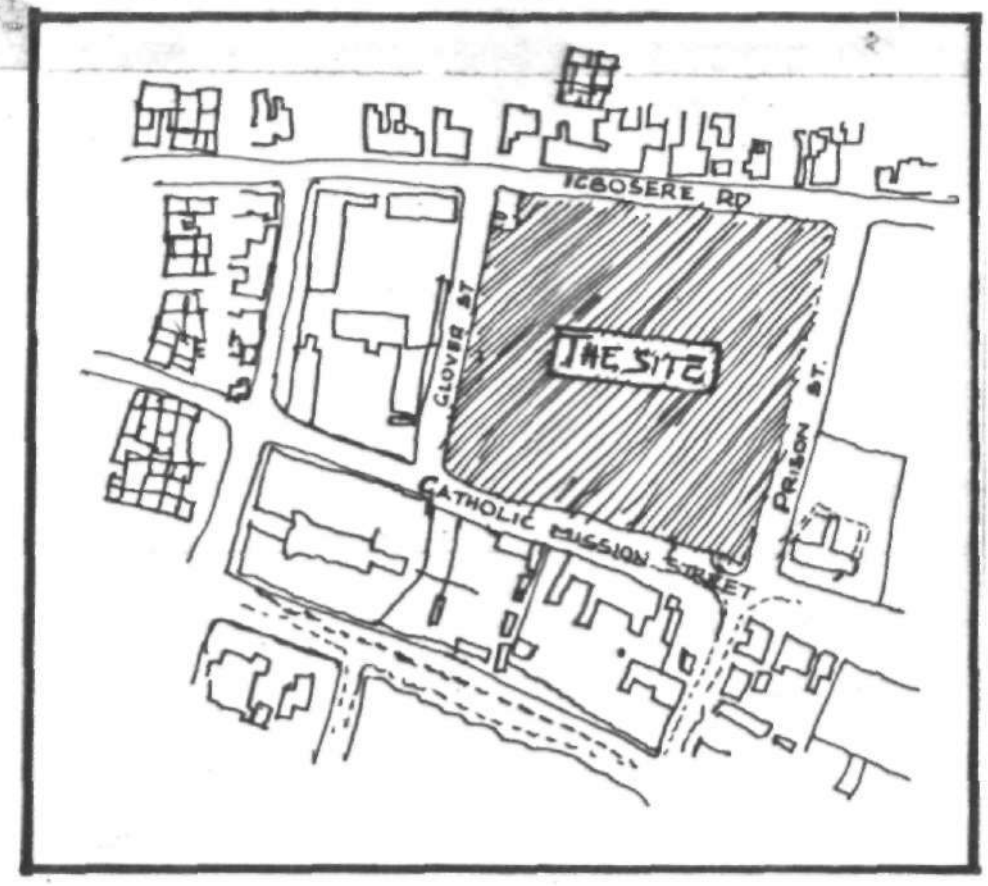
respectively. Its main entrance is to the south via the Catholic Mission street over a paved forecourt through a massive ceremonial ramp which terminates at an entrance balcony on the first floor level. (See Fig.4.1.)

4.1.1 Architectural Content

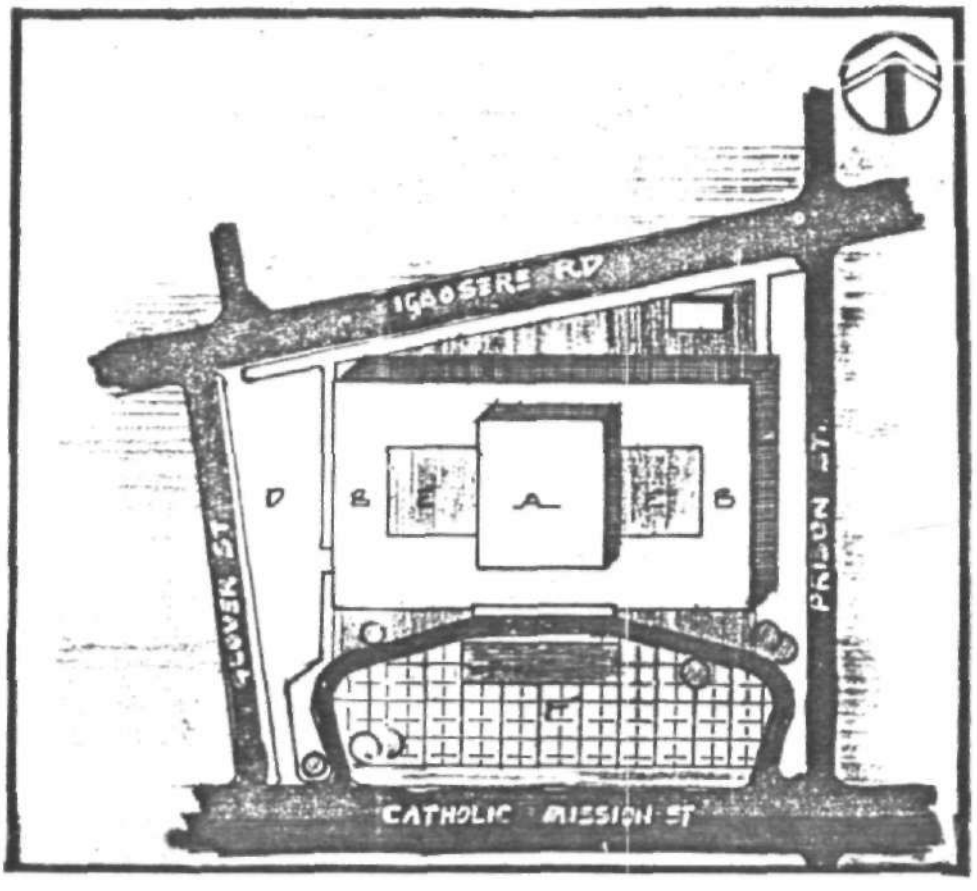
The complex was conceived as a single compact designed block with no external emphasis given to any of its functions (plates II) The complex is accessible through two entrances - the main from the south through Catholic Mission Street and placed on the first floor level. The entrance Foyer is well decorated with art murals and contains two stair cases at its extreme sides. Each of these stair cases leads to the various sections of the complex. The second entrance also contains two stair cases located on the north through Igbosere street.

Ground Floor - Accommodates the licensing offices, traffic division departments, the costs and pay hall, air conditioning plant rooms, maintenance workshop and parking spaces for the council members and other various offices of the council which the public have day to day direct dealings. It has access through Igbosere street (see Figure 4.2.)

First Floor - Accommodates part of treasury department, common facilities - staff canteen and



Site Location



Site Plan

Fig. 4.1



View of Lagos City Hall



View of Lagos City Hall

the banquet hall (the only multi-purpose hall or public oriented facility) which can accommodate about eight hundred people. At the entrance to the Banquet hall are two wooden carvings each 5.0m x 2.80m of Nigerian motives. (See Figure 4.3)

Second Floor:- This floor houses the engineering department, and some common facilities - staff canteen and staff clinic.

Third Floor:- Accommodates the administrative department (Secretarys) council management department, the school management committee, the council chamber with one-hundred seats for the councillors and two-hundred and fifty seats for members of the public. Also provided is an entrance to the public gallery on the fourth floor and entrance to the council lounge through the third floor also located on the fouth floor.

Fourth Floor:- Accommodates the medical/health, and education department of the city council. The lift services are placed on the roof, also the self contained water tank and reservoir of 20,000 gallons.

Internally, there are two basic layout of the functional zones - a rectangular arrangement of the departmental offices together with the common and ancillary facilities, and a central spine block bridging the northern and southern ends of the rectangular form. This created the two small paved internal patio. The building is centrally air

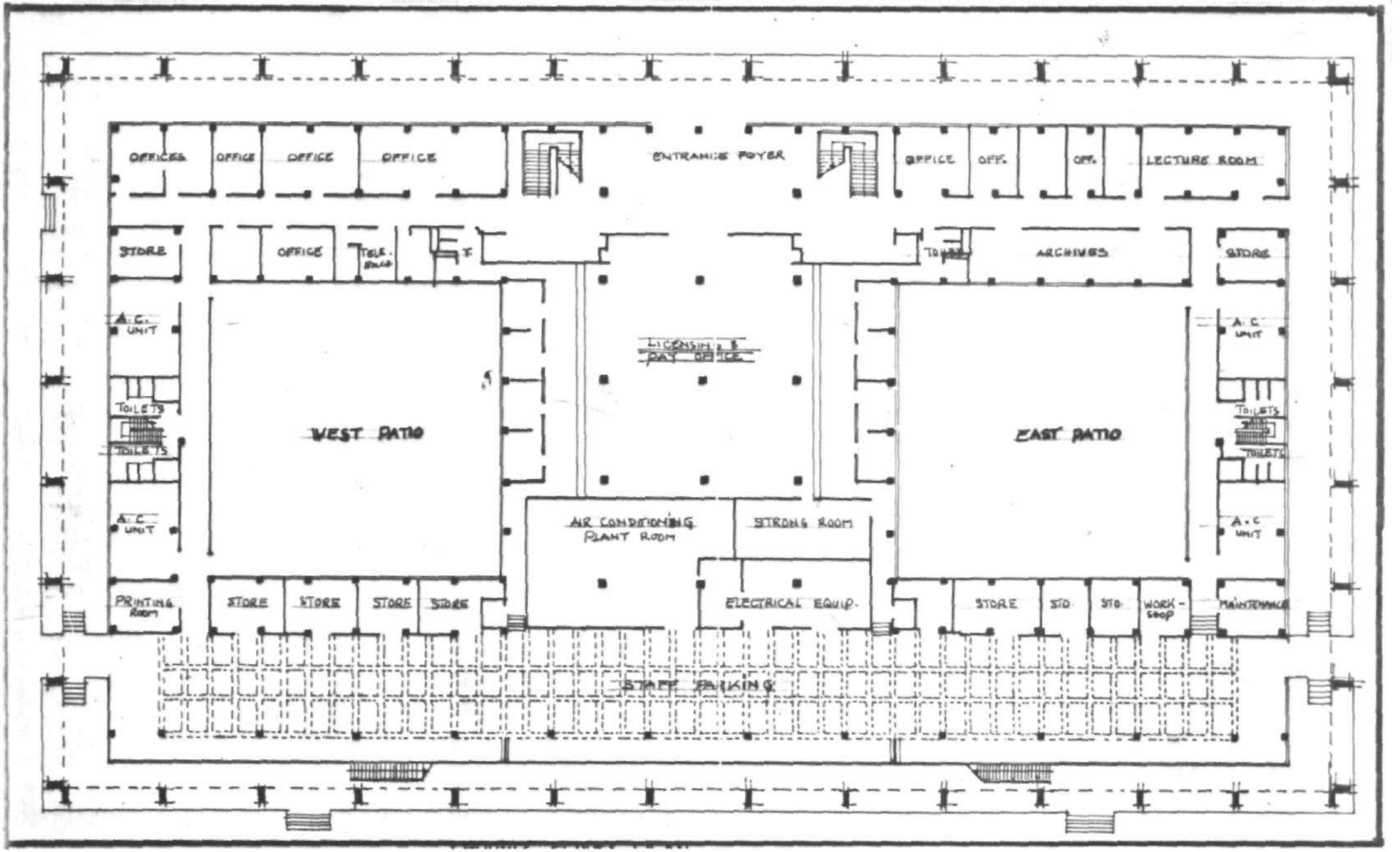


Fig. 4.2. Lagos City Hall Ground Level

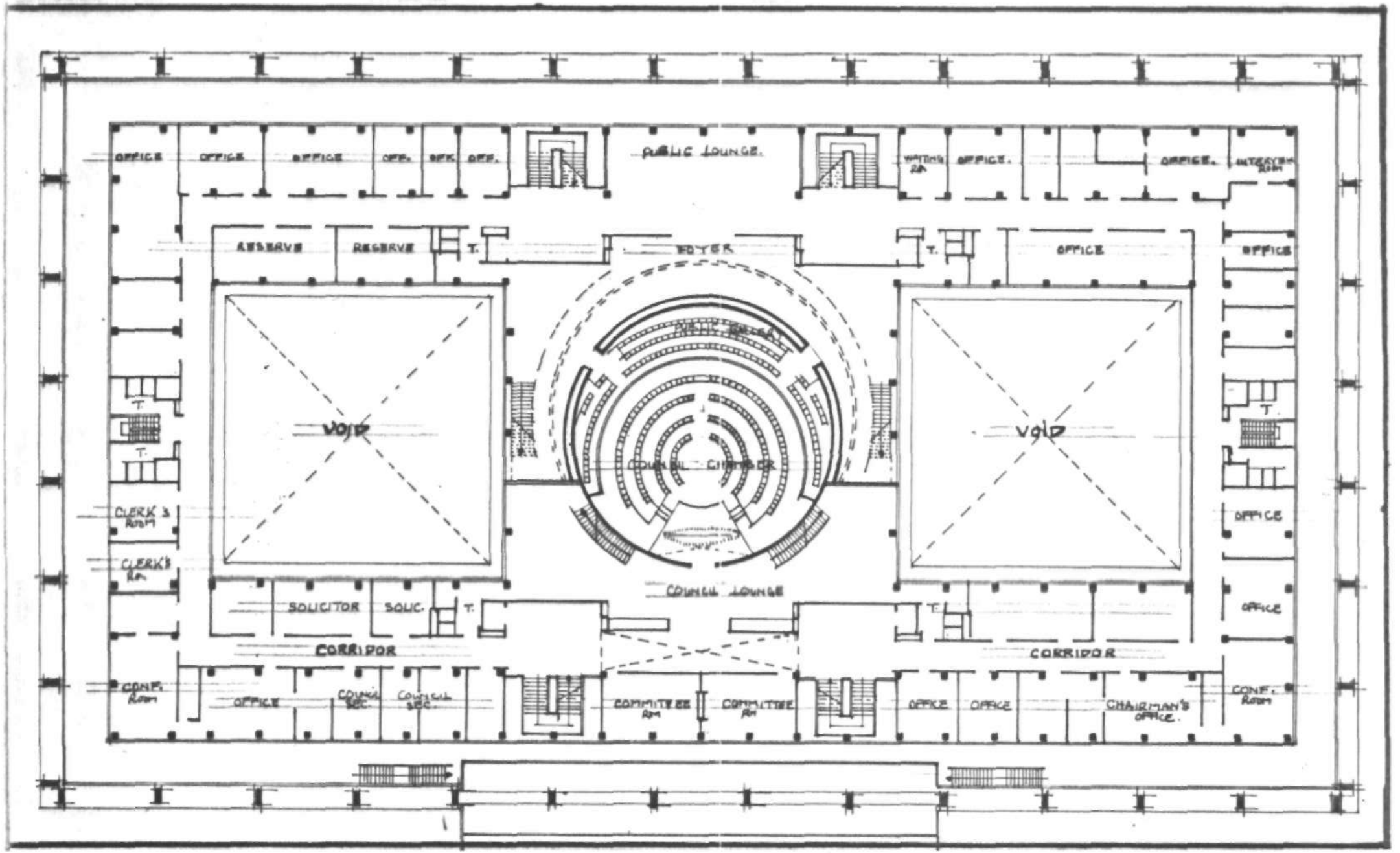


Fig. 4.2. Lagos City Hall Third Level

conditioned and it has its own electrical sub-station and plant room on the ground floor.

4.1.2 Structural Principles

The complex is based on beam and column grid network. This arrangement is slightly upset in the central spine block where bigger columns have been provided at every other bay. This is probably due to the need for large space clearance within the cash and pay hall on the ground floor, the banquet hall on the first floor and the support provided for the council chamber on top. The external columns stand clear of the wall to provide shade to the elevations and give full expression to their strength. The whole structure is reinforced concrete roof with a prismatic slab over the council chamber. The overall impression is that of structural rigid order that complement monumental image of an important and powerful institution.

4.1.3 Finishes

For special features of this complex, they are mainly art works. Within the public areas are well decorated with murals and motifs. At the entrance to the Banquet hall, there are two wooden carvings each 5.0m x 2.80m of Nigerian motives. At the public entrance to the council chamber, a mosaic mural 15.0m x 2.80m showing typical Lagos festivals. The 4.80m x 2.80m main doors of the

cash and pay office are carved with local motives. Another mural 4.80m x 3.30m at the entrance to the post office service showing local celebrations. The coats of arms made out of bronze are 6.0m in diameter installed at the main elevation and supported between two columns in the centre. Other smaller bronze coats of arms are located at the main public areas. Besides these works, a number of decorative ceramic walls were designed for the various public lobbies and foyers.

In choosing building materials, emphasis was placed on the use of local materials where possible. The whole exterior faria columns and walls are clad in grey crystal-like Nigerian marble. The Banquet hall has an acoustic ceiling made out of 140,000 wooden blocks as well as the wooden facing to the walls. The circular shaped council chamber is faced with special acoustic wood battens and a large wooden canopy is hung over the rostrum which emphasizes the centre and serves as a sound reflector. The facades to the exteriors and the two courts have glass and lasal curtain walling.

Flooring in public areas is terrazzo while the offices are tiled with P.V.C or wall to wall carpets. Walls are mainly tiled in public areas and painted in other areas. Ceiling are plastered or made of various acoustic materials according to the use of the areas.

4.1.4 Constraints and Conclusions

The general provision for car parking is tight as the provide car parks is inadequate to accommodate visitors to the city hall. This has led to the occasion use of the paved forecourt to provide temporary relief. This has not solved the problem as it is occasionally done whenever the city hall is hosting a conference or marriage ceremony etc, and coupled with the limited size of the court.

The use of glass curtain walling was probably meant to achieve openess, but this effect is not quite convincing.

Another constraint of the Lagos city hall is its bare surroundings. No attempt has been made at landscaping outside and within the building, the inner court are used for dumping damaged goods of the council.

It is impossible to have horizontal expansion due to its location and the closed form of plan layout. Presently this situation has led to intense use of internal space - with re-partitioning of office spaces in places. This situation is bound to deteriorate in future except proposals for vertical expansion is explored or part of its services transfered to other areas of the municipality as the library has already been.

The problem of the site and the inability to

make adequate consideration during the design and construction stage of some certain functions such as the security office, the law court has now aggravated the need to erect temporary structures for the security booth and block of law court on the city hall plot.

In conclusion, the building reflects a bold, concious attempt towards uplifting the general image of our civic buildings in the country, and improving the quality design of our important public buildings in general. The bold structural elements of the city hall and its predominant horizontal emphasis has given it a prominent place among its neighbouring high-rise buildings.

4.2. Toronto City Hall Ontario - Canada

The Toronto city hall, designed by Viljo Revell, Helsinki to meet the needs of a rapidly expanding visual focus for the whole city. Conceived as the 'eye' of the city, the city hall complex shows the circular council chamber rested as an 'eye' between the two "eye lids", the office towers which symbolize the administration of the city. It is a composition of great strength and expresses monumental qualities of a very high order. It is a sculpture in anurban scale as well as a symbolic expression of the two tie power structure that runs the city - the city council and the metropolitan council.

The city hall, located at the north-west corner

of Bay and Queen street in down town Toronto and west of the old city hall (See figure 4.4)

The complex is composed of various main elements.

4.2.1 The Nathan Phillips Square: This is the Civic Square and is located on the southern part of the site, in the form of large open and well landscaped fore court to the main structure. Functionally, it acts as a venue for a wide range of civic and political activities for the entire community.

The square is surrounded by an elevated walkway above, giving the enclosure a spatial sense of space in three dimensions and at the same time contributing to the subtle articulation of the surrounding elevations.

As the principal meeting space for the entire community it is an ideal setting for open air concert shows, informal and ceremonial displays, and passive recreation activities - it is above all a retreat from the hustle and bustle of business and traffic characteristic of the town centre.

The large rectangular pool with its fountain spont along with other sculptural elements and plantings together conjure an image ofeloquent beauty in summer, and in winter, the artificial frozen surface of the pool attracts many skaters. This way a year round intensity of activity is sustained.

From the square there are two main entrances to the hall, one entrance is through the ground level into the large hall where majority of public business transaction takes place, the other, a ceremonial ramp to the council chamber which provides a way to the reception of visiting dignitaries.

Good detailing and construction of paving slabs provides efficient drainage network to the roof surface of the three level parking which accommodates 2,400 cars beneath the square.

4.2.2 City Hall - The Podium: A three storey Podium structure which forms the base from which the council chamber and the two office towers rise. Beneath is a sub-basement floor which accommodates the mechanical equipments and basement floors for car parking.

Entrances at the first floor level of the Podium provides a smooth pedestrian access to the building from the street and the square. This floor contains public oriented functions such as library, registry offices, tax payment offices and land titles offices which are well placed on the entry level while the elected council members accommodation, the offices of the Toronto city clerk and metropolitan Toronto clerks together with a set of committee rooms are arranged on the second floor level.

The third floor is essentially an entrance gallery for the council chamber from the roof of the Podium and as a vantage point from which to view the Rotunda. The Podium roof forms an upper plaza which over looks the square and is connected at its northern end to an adjacent new hotel. The Plaza is used as an outdoor lunching area during summer.

The construction of the Podium floors for most parts a system of reinforced concrete joists, supported by reinforced concrete beams and columns. The columns rests on concrete caissons based foundation which are carried down to solid shale.

4.2.3 The Council Chamber:

The domed council chamber, a structure whose lower surface is an inverted reflection of the mush room like, low, broad domed upper surfaces, rises on a single stem from the centre of the project and the Podium.

The council chamber occupies two-thirds of this unit, the remaining third being used as members lounge and Ante rooms. Within the council chamber in section, it consists of a sunken area in the centre of which the mayor and his fellow councillors occupy. This is partly surrounded by a semi circular rake seating area for spectators.

The public seating gallery is also located on

the second floor level, also on this level is the members lounge and ante room.

A curved dividing wall separates the council room from the lounge which is approximately one third the area of the whole structure. Within the lounge area is an elevator which transports the members to and from the parking area at the basement of the Podium to the main council floor.

The structure of the council chamber is basically three fold. First, is the base rotunda, which is a cylinderically reinforced concrete shaft solidly grounded in a shale foundation beneath the Podium. The rotunda suspends the main body of the chamber which is in the form of an inverted concrete cone reinforced in places by two prestressed ring beams. A system of inclined precast concrete shaft projects above the top ringed beam of the circular cone to support a reinforced concrete dome roof with an outer prestressed ringed beam. The area between the concrete shaft is glazed, exposing a panoramic view of the plaza from the members lounge.

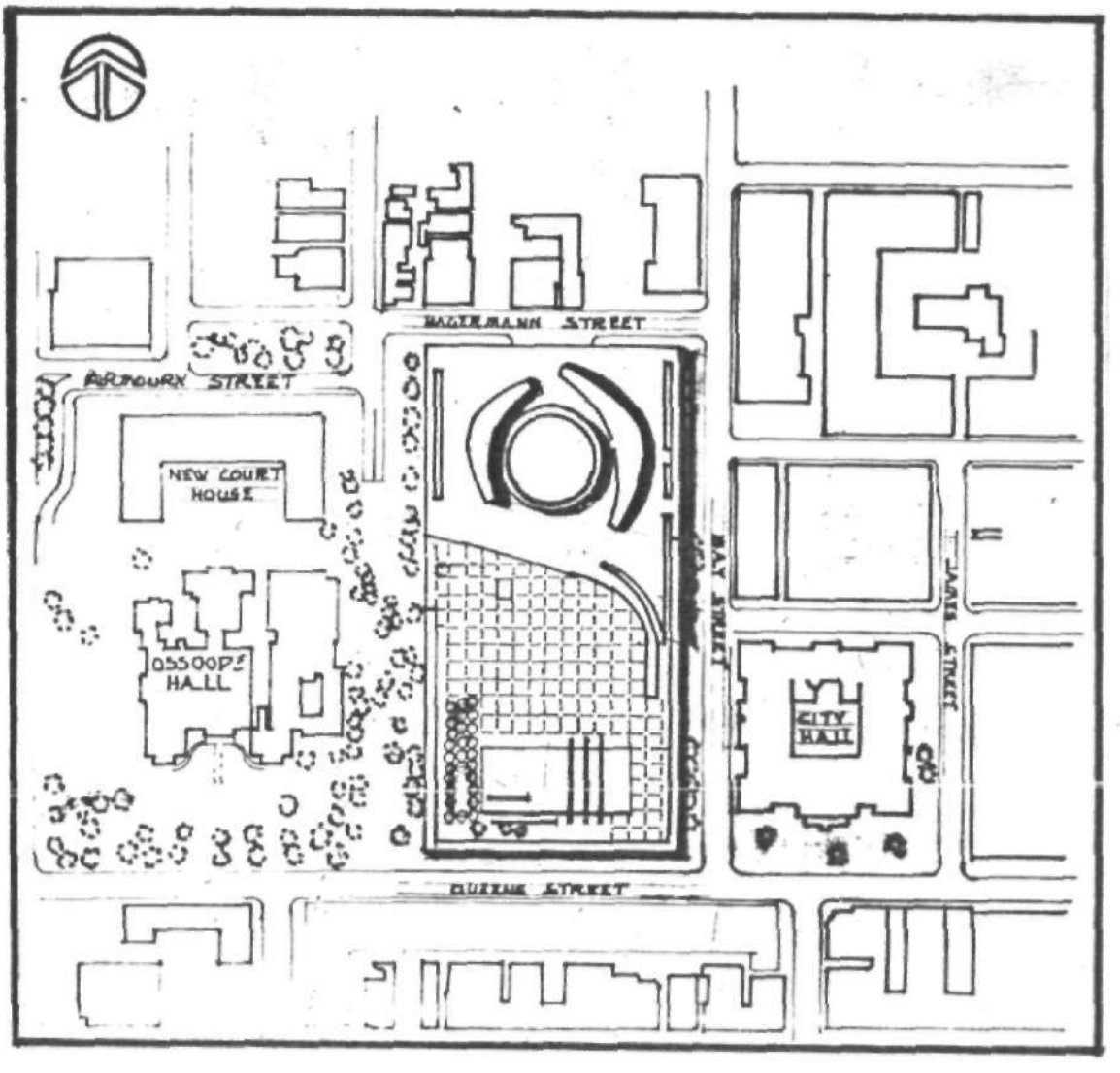
A detailed study of the structure reveals how the forces of the structural members act simultaneously together by means of cables struts, radial beams and calculated angular dispoition of the members to produce a practically sound structural solution to an architecturally complex design.

4.2.4 Office Towers: The various city and metropolitan departments are accommodated in the two crescent shaped buildings which rise from the Podium, enclosing the council chamber. Carefully sited and curved so ,that they focus upon the domed council chamber structure, these office towers unequal is size, constitute a feature of the Toronto highrise which is clearly different from all other buildings.

The west and east towers contain twenty and twenty seven floors respectively and interposed between the floors of offices in each tower are two mechanical equipment floors that provides services to the complex as a whole.

The outer curves of the office towers present solid masses of well finished concrete and marble clad walls, reinforcing the outsides impression of strength of character of the design. The walls support the cantilevered, reinforced concrete office floors which are faced on the inner curves with glass and encased in nickel stainless steel frames. The twenty seventh floor of the east tower office is open to ,the public and offers a spectacular view of the city and its environs.

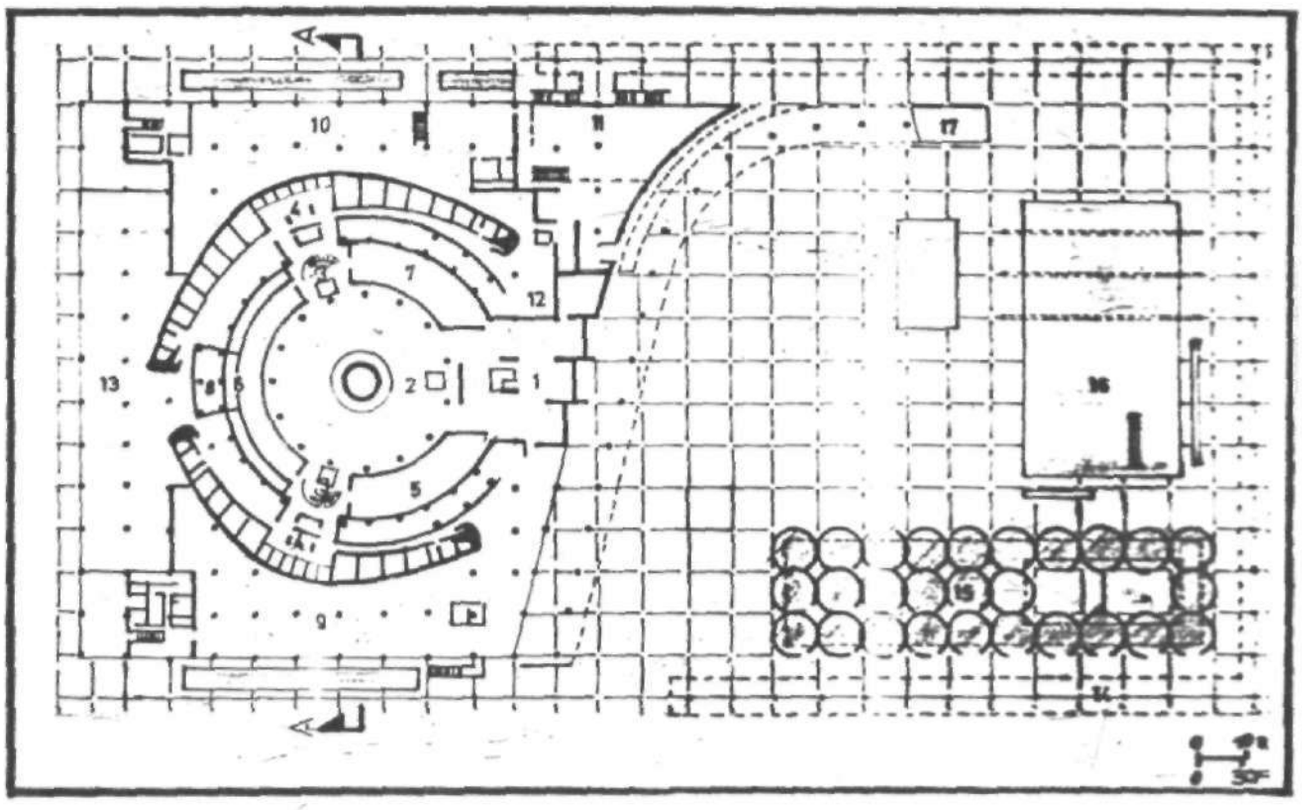
The towers were designed as vertical cylinderical shells reinforced by a series of transverse diaphragm in conjunction with longitudinal columns. The presence of these reinforcing elements transforms the classical cylinderical shell into an



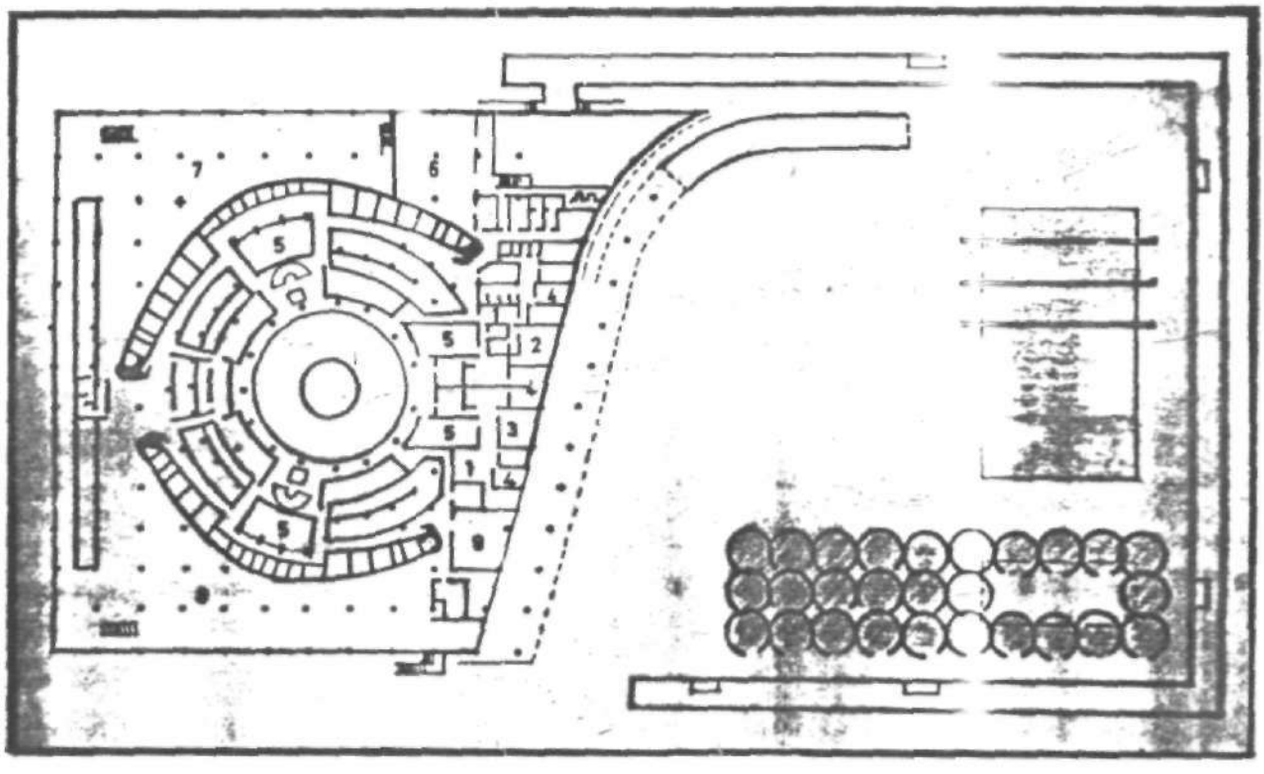
Toronto City Hall Site Location

Fig. 4.4(a)

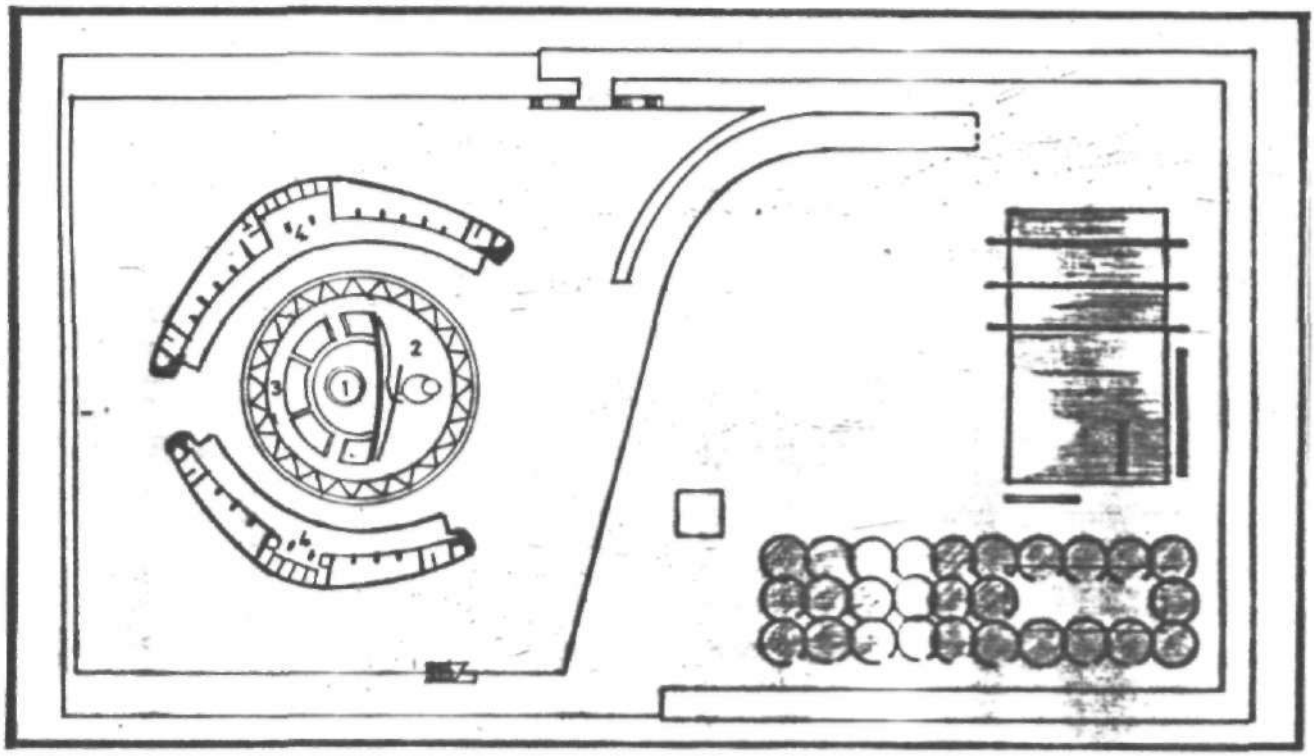
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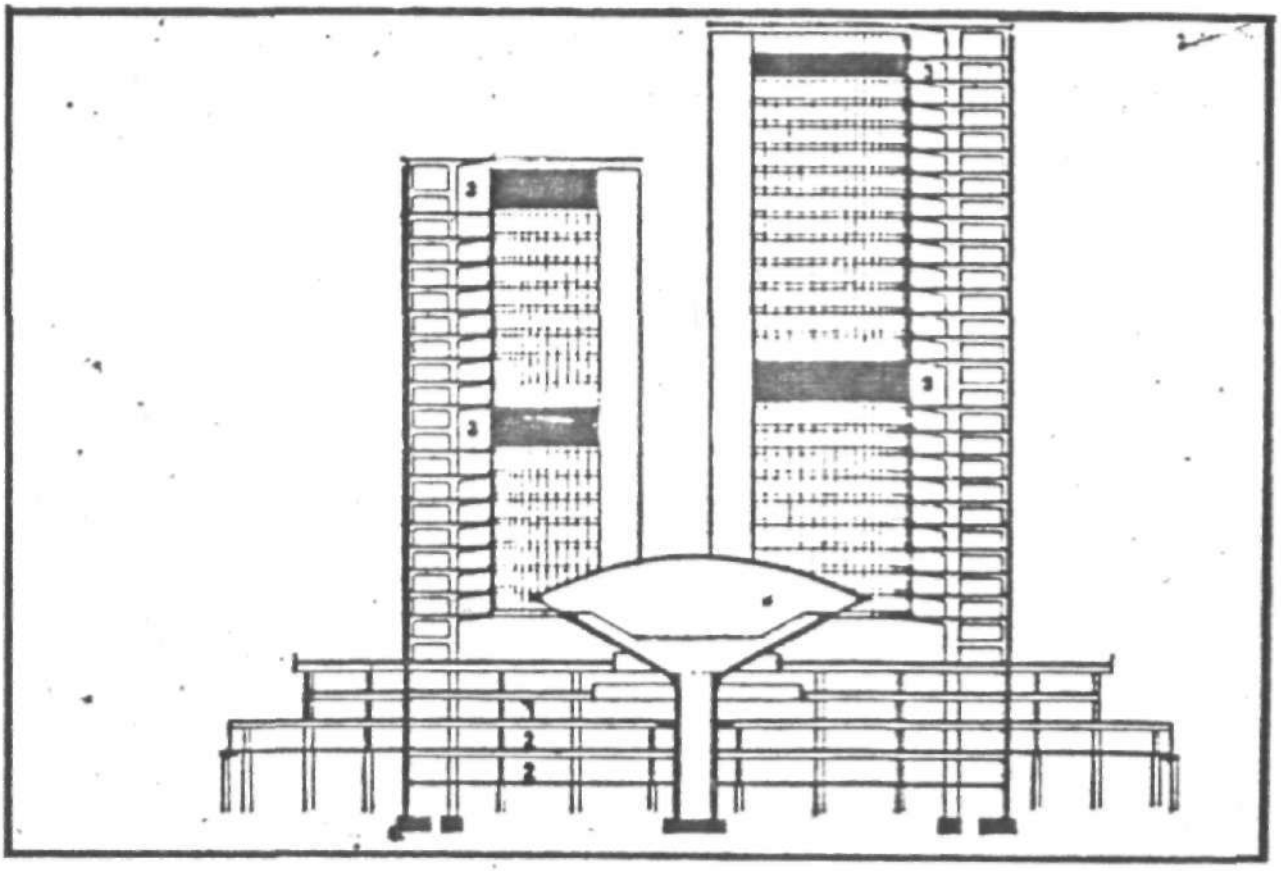
Ground Floor Plan



First Floor Plan
Fig. 4.4(b)



Typical Floor Plan



Section A-A

structure subjected to the action of vertical (gravity) forces and horizontal (wind) forces.

4.2.5 Conclusion

The new Toronto city hall is undisputedly a modern breek-through in the design of monumental urban structures. Attempts were made to make the premises accessible to the citizens through the provision of the civic square and the reflecting pool which serves as the city's ice skating activities during winter. Also, the use of art murals and sculptures at strategic places is commendable. The traffic solution around site particularly with regards to parking is highly innovative.

The rigid Frame into which the functions of the municipality has been fixed and in view may be inimical to future expansion.

Worthy of note are some of the guidelines that produced the current Toronto city hall: that a civic building must proudly express its functions as the centre of civic government both internally and externally. Also that, it bears a significant conscious relationship to the environment.

4.3. Hillingdon Civic Centee - London

Location:

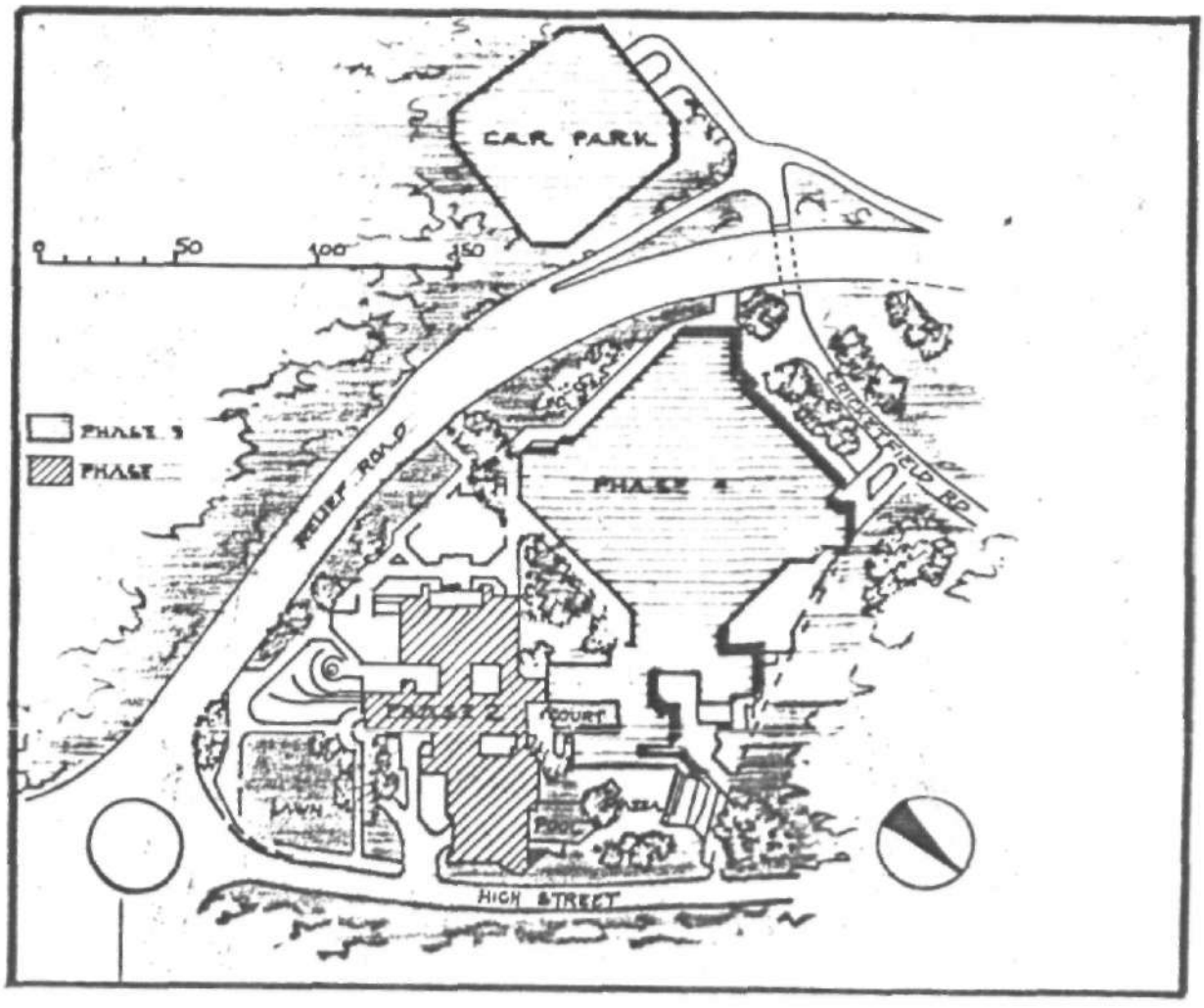
The Civic Centre is situated in Hillingdon, middlesex. Bonded on the sides by Relief road, cricket field road and high street.

The Hillingdon civic centre design by Robert Matthew, Johnson-Marshall and Partners contains three floors of open office planning and each has four quadrants which are separated by a change in level of half a storey height. The change in level and open offices idea is to creat a complete sense of belonging within the office community. Also to permit views through to the higher and lower storey was a result of the change in level of half storey. Fig 4.5.)

Design

Series of covered walkways link the various entrances at the ground level, this provides a complete public route through the whole complex. The circulation system within the building links the members accommodation by a route passing all conference and committee room with the offices. This allows a convenient access for meetings between the public officers and elected members. The public access from the plazza level through the main entrance leads to the public reception, from here there is direct access to office floors by lifts and staircases to a group of committee rooms.

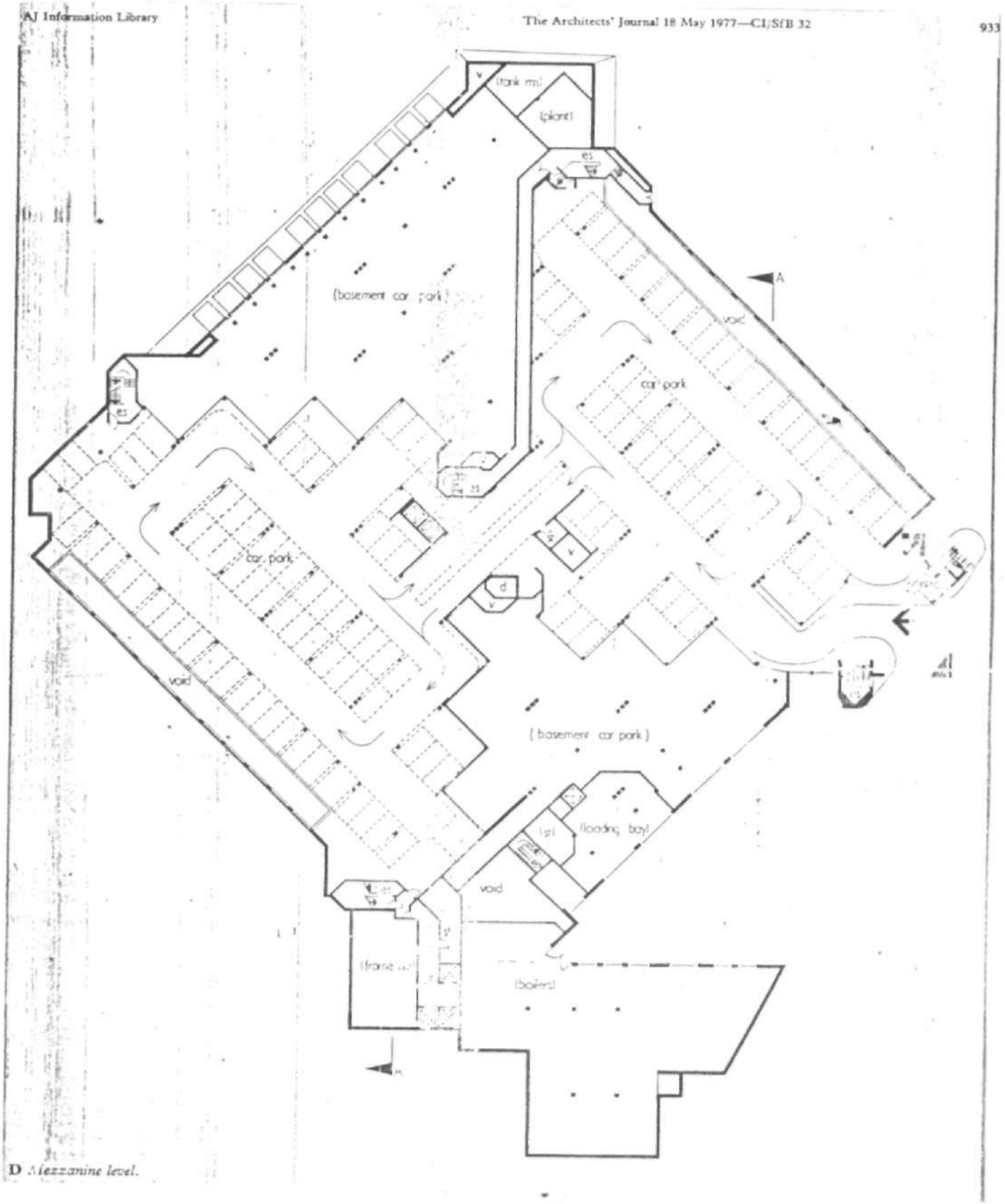
A separate entrance is provided also at the plazza level to admit members of the public to the civic suite, which accommodates the council chamber, conference rooms, mayor's suite and members offices. By utilizing the sloping site further entrances



Hillingdon Civic Centre Site Location

Fig. 4.5(a)

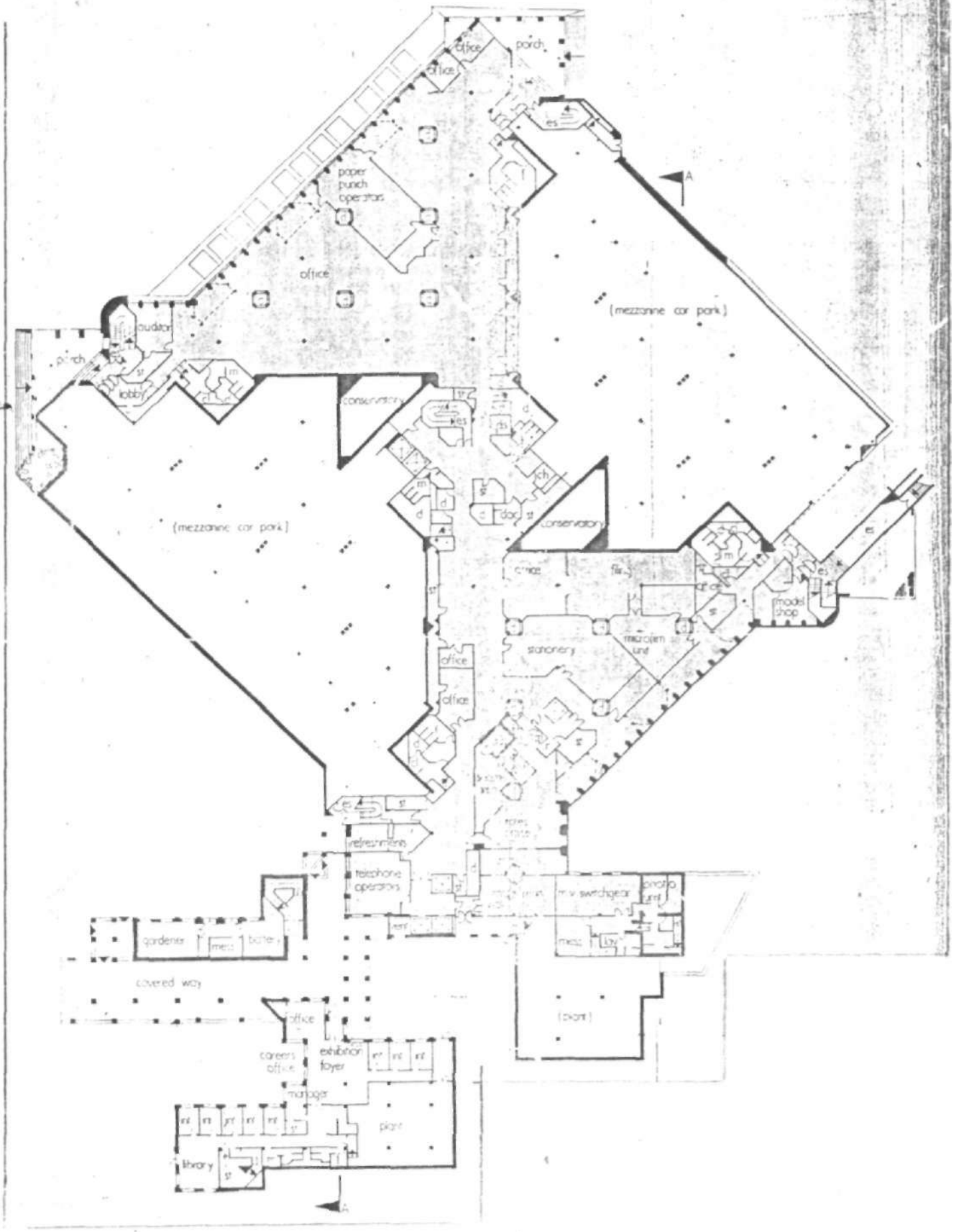
AJ Information Library



D *Mezzanine level.*

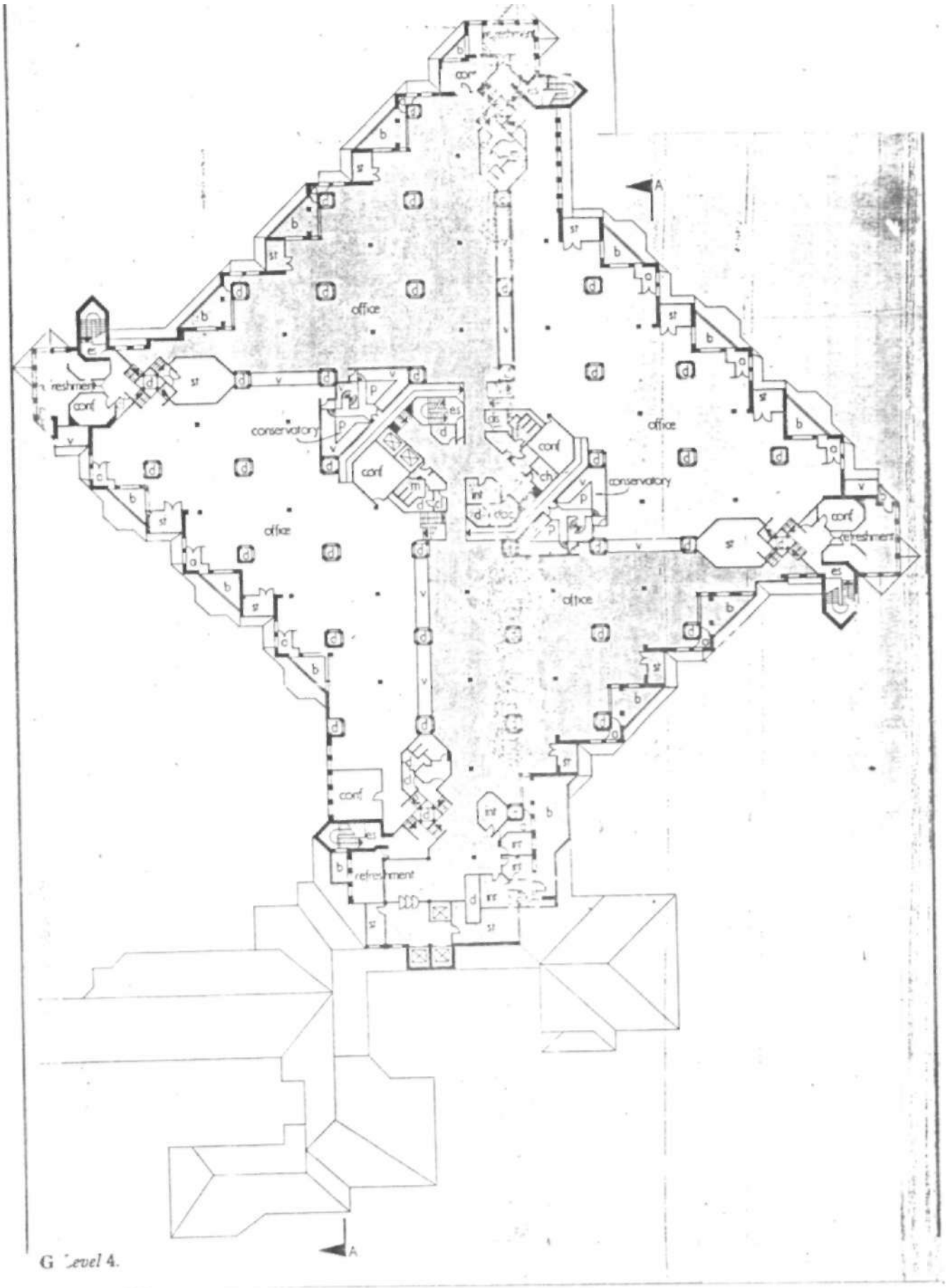
Mezzanine Level

Fig. 4.5(b)



First Level

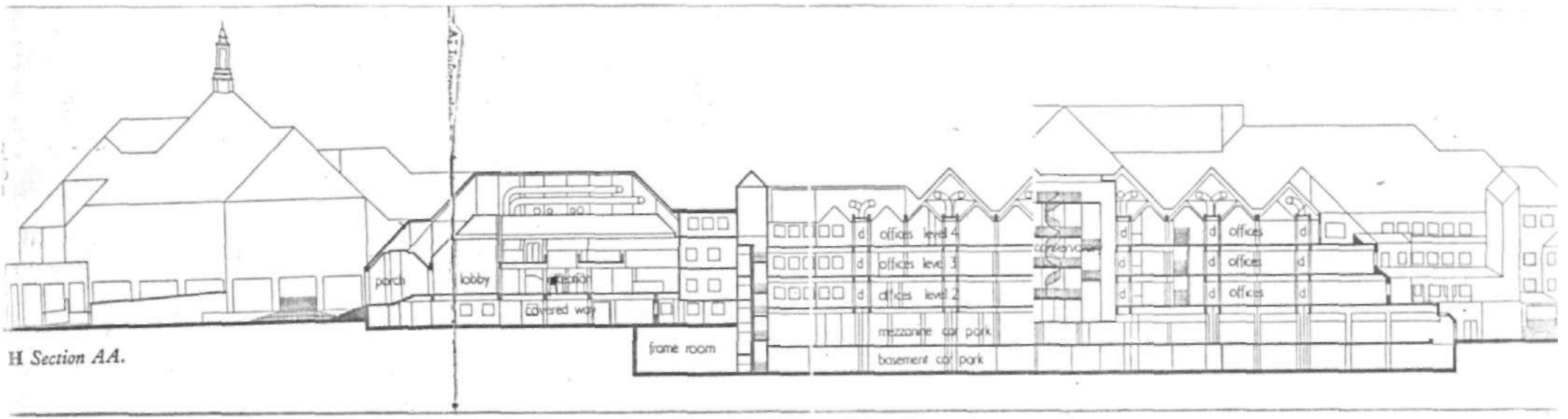
Fig. [illegible]



G Level 4.

Fourth Level

Fig. 4.5(d)



H *Section AA.*

Section A-A

Fig.4.5(e)

leads from the plazza to give public entrance to the multipurpose hall, registrar's department and rents and rates hall and the youth employment/ careers department.

Design Appraisal

- The use of brick and pitched tile roof - the brick work itself is too monotonous and indeed no mean achievement.

- The building broadcast stability and self confidence, the precise image of heirarchical and departmental local government they were built to contain.

- The exterior may be post-modern, the interior is commendable for its open office planning for not only providing views between floors but also creating sense of belonging.

- The civic centre is just a half hearted sham, a public relations exercise designed to give beaurcracy a humane face, a domestically scaled building of traditional forms of architecture which houses many interfering offices as can be found in any glass tower.

- The columns and heavy dusts which punctuate the floors disintegrate rather than create spaces. Only at the edge of the building in certain angles are spaces formed which have any sense of locality and skillness.

- Spatial effects are atroplied. The slipping of

floor levels turn out to be a visual flop since instead of seeing vistas of spaces, one sees with complete clarity the balustrades of the next door.

4.4. City Hall - Boston - U.S.A.

General Appraisal

The city hall and its plaza occupy about 514,000 sq. ft. of land. Within the building, it accommodates thirty municipal departments including the mayor's suite and the city council.

The city hall shows a traditional line of decent in both its hollow squared configuration and monumentally ceremonial forms.

Generally, like all seats of political power, the Boston city hall has an ideological task - that of imprinting its presence upon the municipal consciousness. Actually, citizens visit the city hall for either routine business or ceremonial occassions, hundreds, merely appreciate its external visage while passing by hence; the face it turns to the outside world is the architect's main concern and it is obvious, the architects have concerned themselves most seriously.

The building not only celebrates its power and importance but also accommodates the processes of government.

Design:

The building is clearly zoned into three functional parts:

-- First, is the brick sheathed basement, it accommodates those departments with frequent public contact and it opens on to a public concourse.

-- Second is above the basement and supported on columns is a rectangular crown of four office blocks for the departments having least contact with the public.

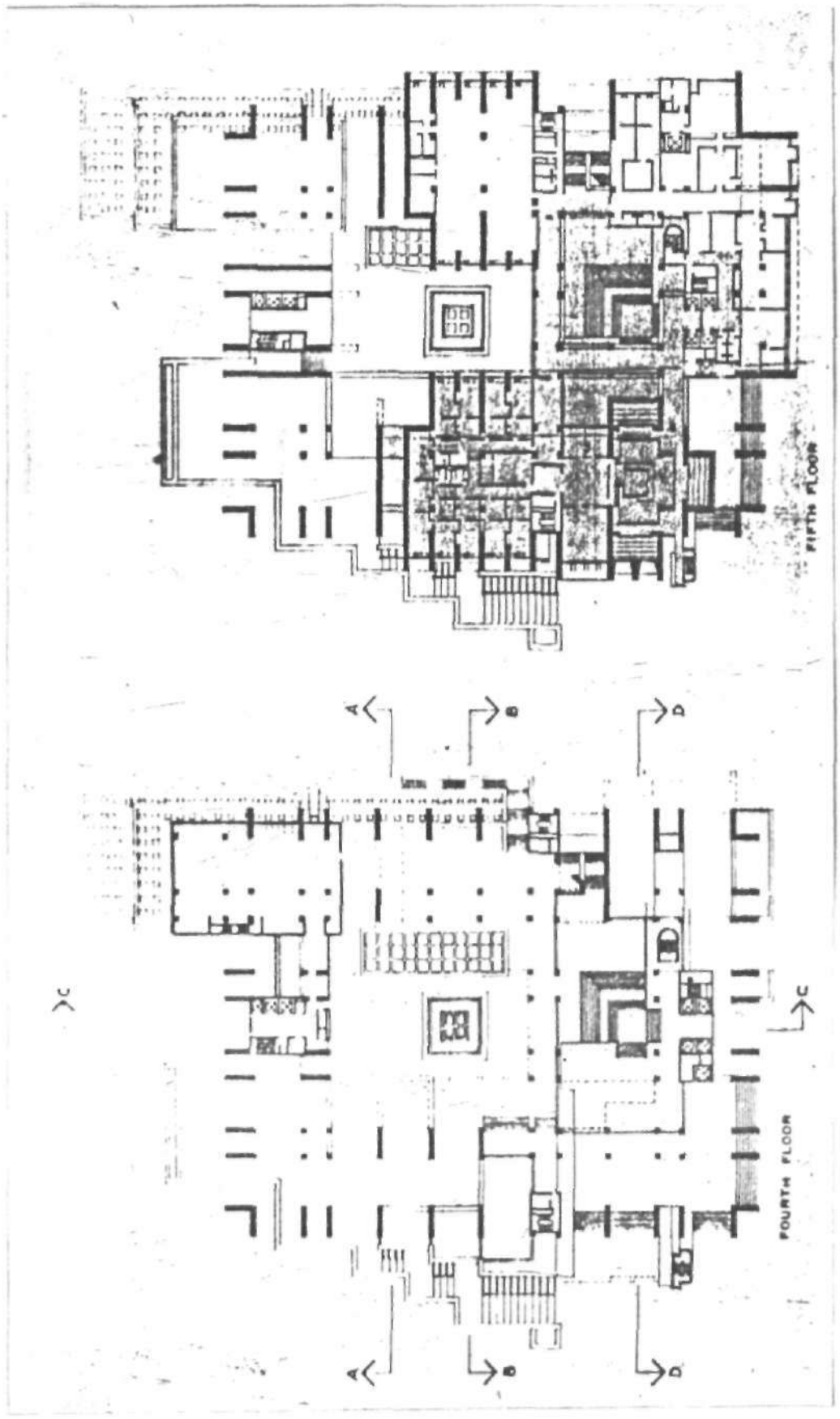
-- The third zone is between the crown and the basement of its southern end.

-- Two storeys above plaza level, galleries and a bridge give access to the mayor's suite at the south- east corner of the building and to the city councils on the west. The council suite is composed of the council room, council conference room and individual offices for council members. Apart from the general office space, the mayor's suite includes a conference room and an office for the mayor, a kitchen area, a dressing room, a lonnge and a news conference room. (See Fig 4.6).

Design Appraisal

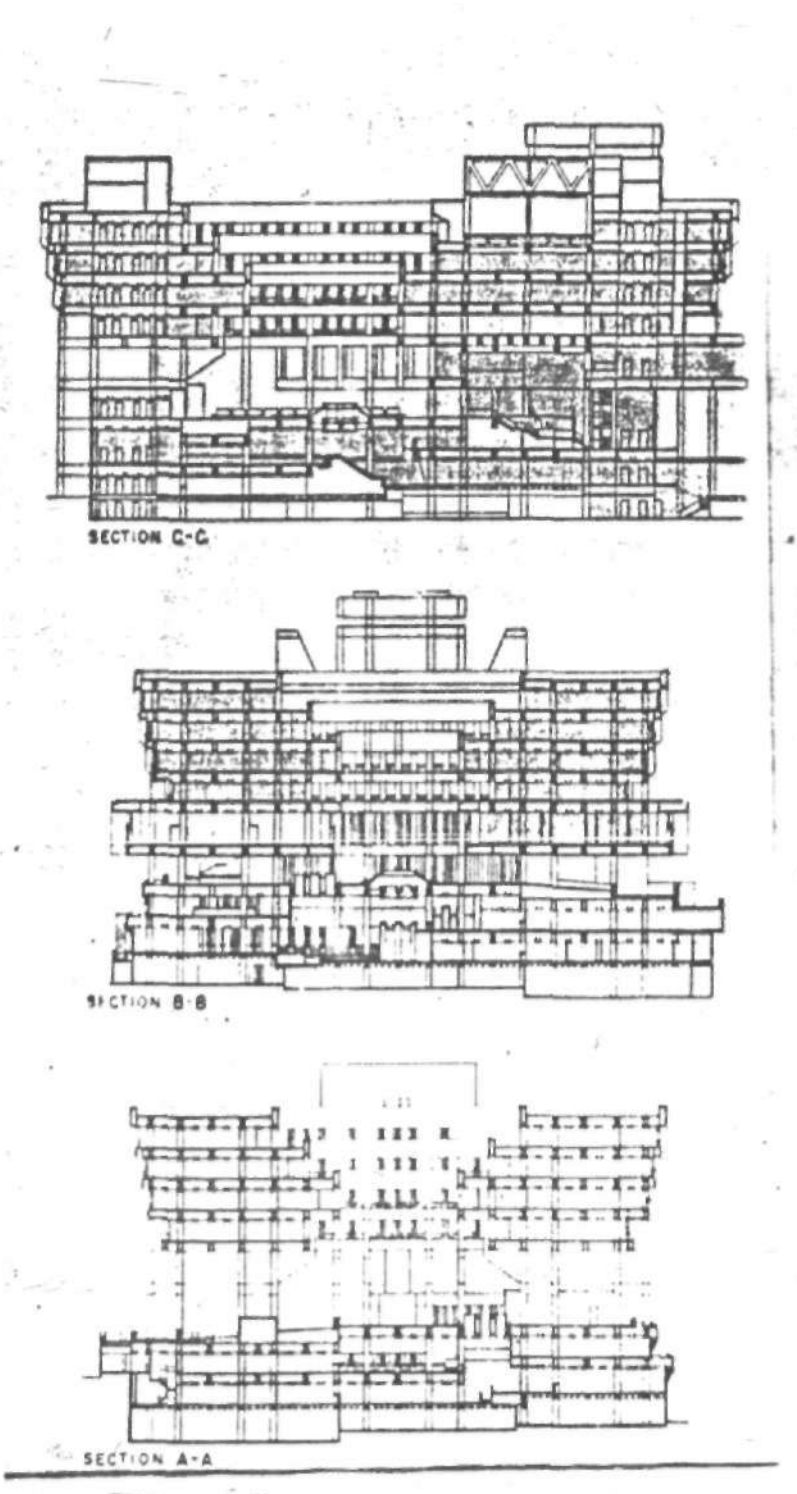
The city hall Boston, is a complete "closed" design, physically in the sense that it could not be expanded or altered and aesthically - in the sense that no feature can be added or removed without disturbing the aesthetic equilibrium of the whole building.

It has an urban space of unprecedented



Plans

Fig. 4.6(a)



Sections

Fig. 4.6(b)

spaciousness and one must add that unfortunately it does not offer the citizens the pleasure commensurated to its size.

The square also lacks environmental life-support system which would bring people to the square (lacking environmental amenities for protection against the climate. A climate of hot humid summer, cold winter and year round precipitation.

The structure is that of simple and regular modular structural grid with all spaces within the building well linked and carefully partitioned.

4.5. Kurashiki Civic Centre - Japan

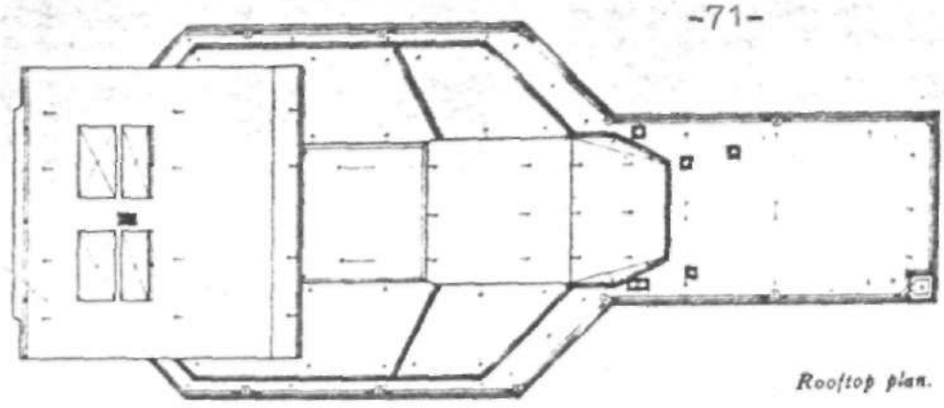
Location: The civic centre designed by Kenzo Tange in 1958, is situated on the edge of the old town centre and connects the latter with the new district.

Design:

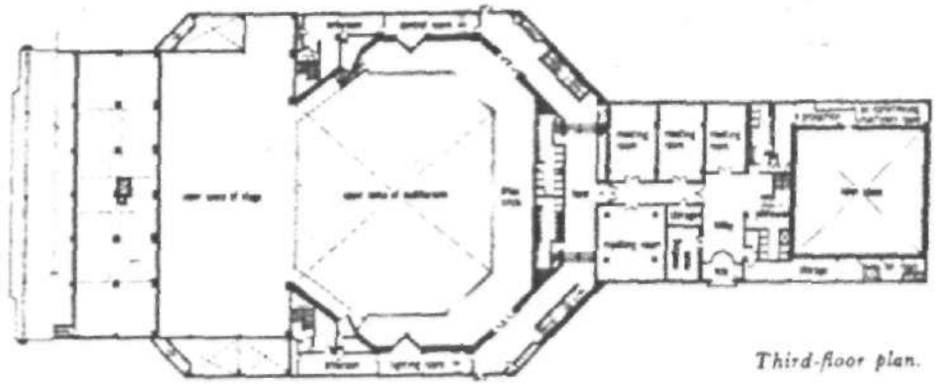
The centre is a three floor designed building in which the first floor is reached via a monumental open staircase, contains one single large-scale office tract which is undivided and which occupies all the available floor space. The terrace like roof can be used for all sorts of occassions. The slanting roof superstructures serve as backdrops for open air dramatic performances. The archives are accommodated on the mezzanine level. (See Fig 4.7).

Design Appraisal:

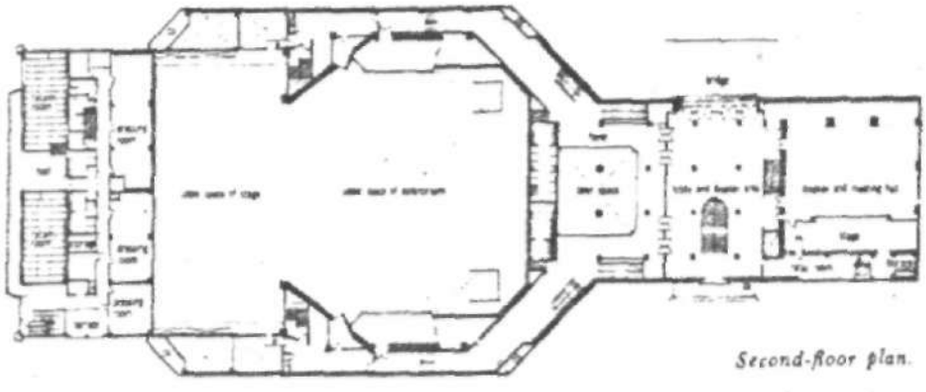
- The design is closed in fashion
- Its fortress - like character is reinforced by



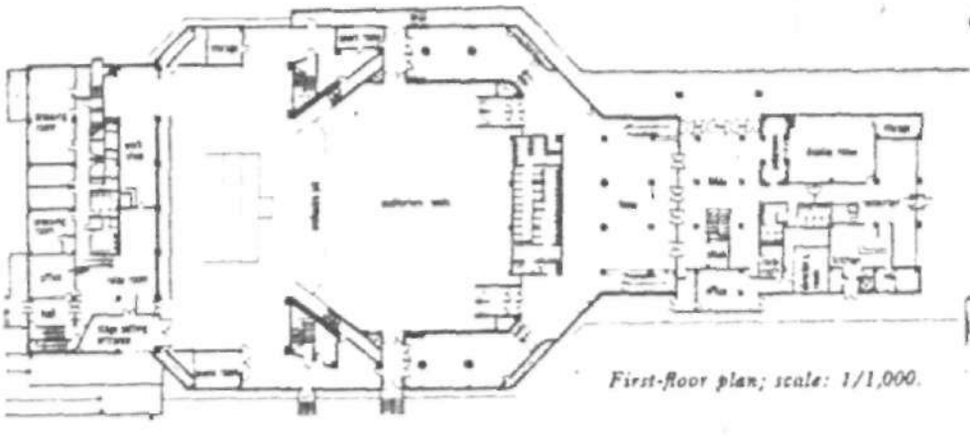
Rooftop plan.



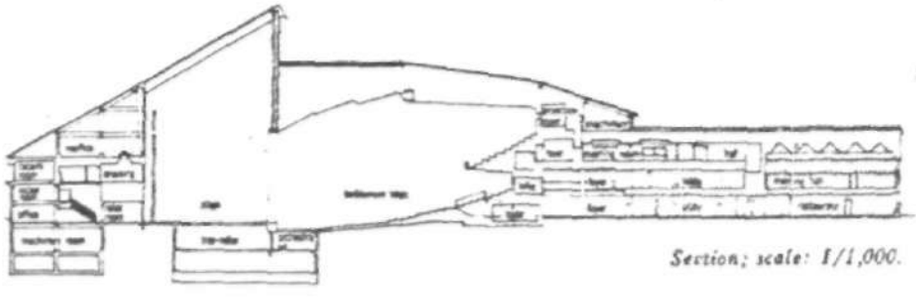
Third-floor plan.



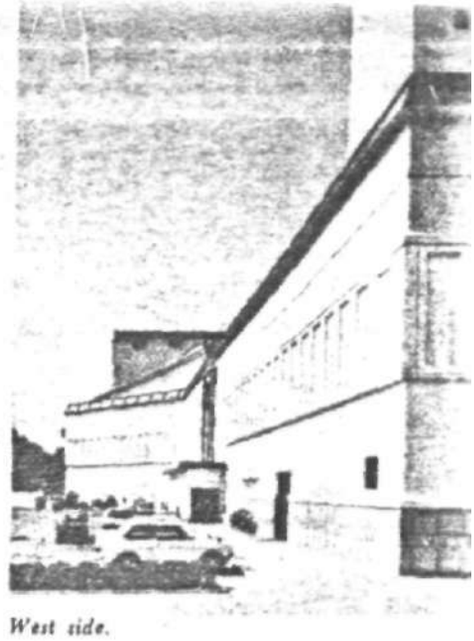
Second-floor plan.



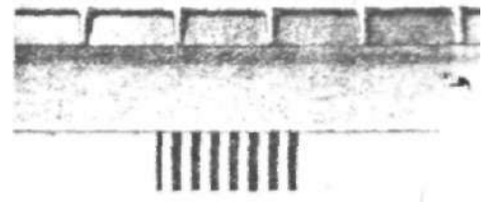
First-floor plan; scale: 1/1,000.



Section; scale: 1/1,000.



West side.



Composition of an exterior wall.

the articulating elements that stress the horizontal; the windows and horizontal slots. In this way, adequate sun protection is provided, thus creating shady intermediate zones that are partly developed in the form of balconies.

- It reposes monumentally and heavily in the midst of the small structures of the old town.

- The entrance, at grade level, covered with a heavy protecting concrete beam leads into a monumental public hall which is thoroughly in keeping with the imposing character of the outside.

- The hall owing to its monumental dimensions is also suited for large social events. At grade level it takes up so much room that only little space is left for utility rooms like offices, garages and a dining room.

CHAPTER FIVE

5.0. THE SITE

In this Chapter, attempts will be made to introduce the readers of this thesis to Abuja - the new federal capital city and the territory. Then, attempts will be made to further introduce them to the sector of the city where the site has been located. Thereafter, the geography of the site will be analysed in both micro and macro scale. Also, deductions will be made which will have far reaching effect on the design.

5.1. The New Federal Capital City - Abuja

In October 1975, the Federal Capital Development Authority (F.C.D.A) was established by the Federal Government of Nigeria. It was charged with the responsibility of developing a new capital for Nigeria as the present capital of Lagos was incapable of functioning both as a Federal Capital and a state capital, besides, being beset by inadequate land space for development.

5.1.1 Geographical Location:

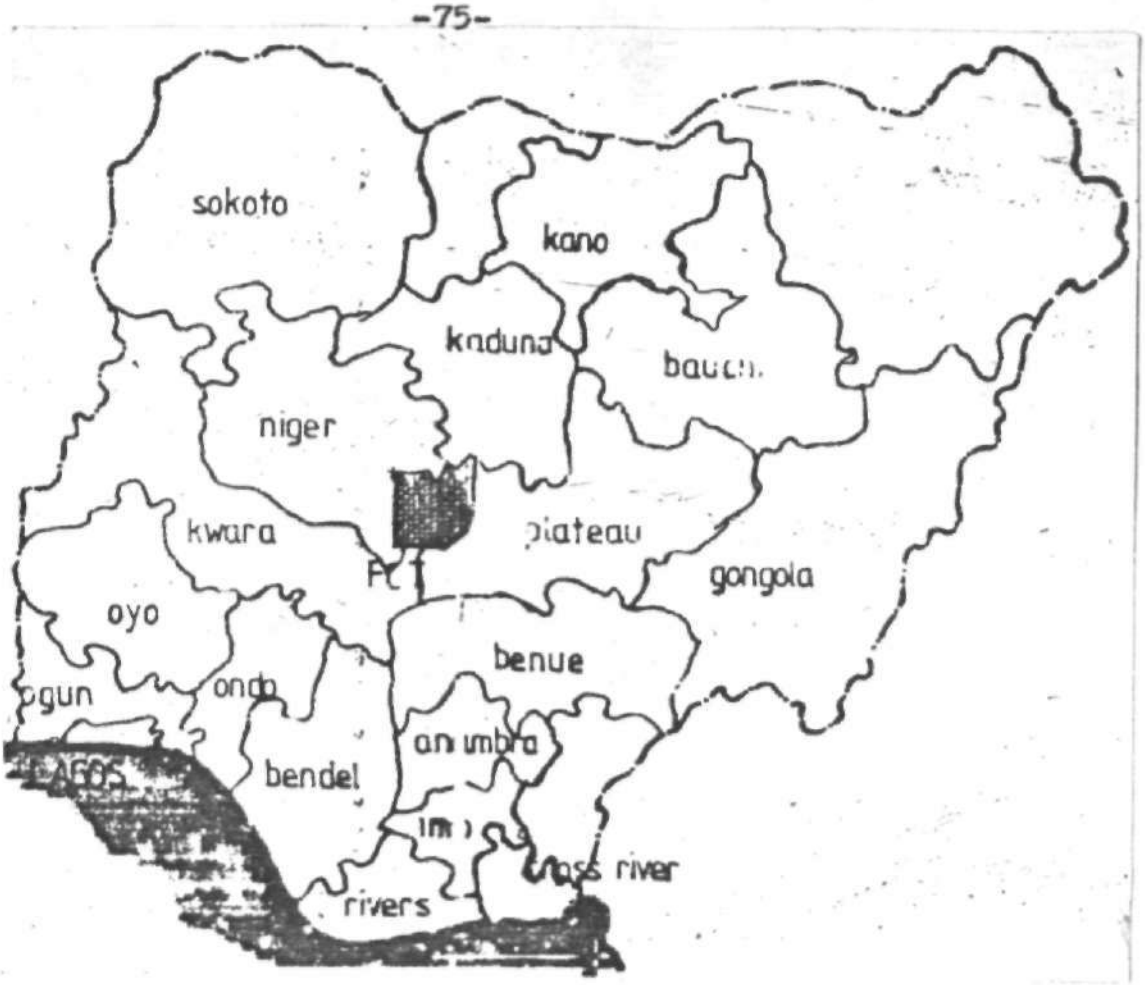
The new Federal Capital - Abuja lies between latitude 8^{o} and 10^{o} North of the equator and between 6^{o} and 8^{o} East of the Greenwich meridian. The Territory is bounded by 4 of the present 21 states of the Federation. It shares boundary with Niger, Plateau, Kwara and Kaduna States. It is about 505km from Lagos the city from where the capital has been

transfered. The location of the new capital is geographically more central to all parts of Nigeria. (See Fig 5.1.) The geographical location and proposed accessibility of Abuja to most African capital cities will be within five hours of travel by air.

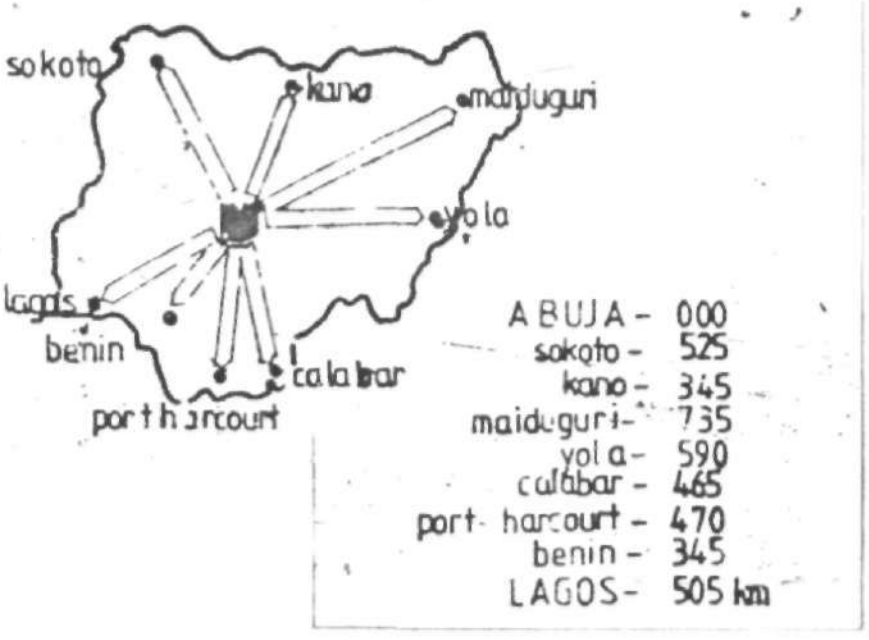
The centrality of Abuja, will have important implications on the role, functions and compositions of the new capital. It will be a city befitting its important role in African and world affairs. As it will be the centre of which respresentatives of other nations will come and meet, it will symbolize Nigeria to the world, reaching beyond natural concerns alone. As the continent of Africa has been the corner stone of Nigeria's foreign policy. The combination of a modern city and an international air access will make the new - capital city a natural magnet.

Economically and geographically, the location of the new capital city - Abuja and the planned infrastructural improvements will create a context which is the physical embodiment of the nation's goal for unity. It signifies a commitment to equalize physical accessibility to government and provide a balance developmental focus for the nation.

The New Federal Capital of Nigeria occupies an area of roughly 8,000 sq km. It lies to the Northeast quadrant of the Federal Capital territory



FCT - a National Context



Centrality of FCT

Fig. 5.1

in what is now called the Abuja municipal local government area (See Figure 5.2.). The city has its overall land use pattern confined to a cresent shaped site defined by the developable land above 1,200 ft in the Gwagwa plain below the escarpment surrounding the outer arc of the site including the promontory of the Aso hills. It is bounded by the Abuja hills to the west, the Zuma - Bwari - Aso hills to the north, the Kanu - Agwai hills to the east and the Zango - Kuku hills to the south. From Aesthetic point of view the site has exciting visual potential. For purposes of development, the city has been divided into three phases.

5.1.2 Population And Employment Projection

The process of forecasting the size and economic characteristics of the new capital begin with consideration of the development guidelines provided by the Federal Capital Development Authority (F.C.D.A.).

(i) The master plan target is the year 2,000

(ii) The New Capital is to have a permanent population of 230,000 persons in residence upon inauguration as at 1986.

(iii) The New Capital will be permitted to grow to a maximum population of approximately three million, after which population growth will be accommodated in satellite

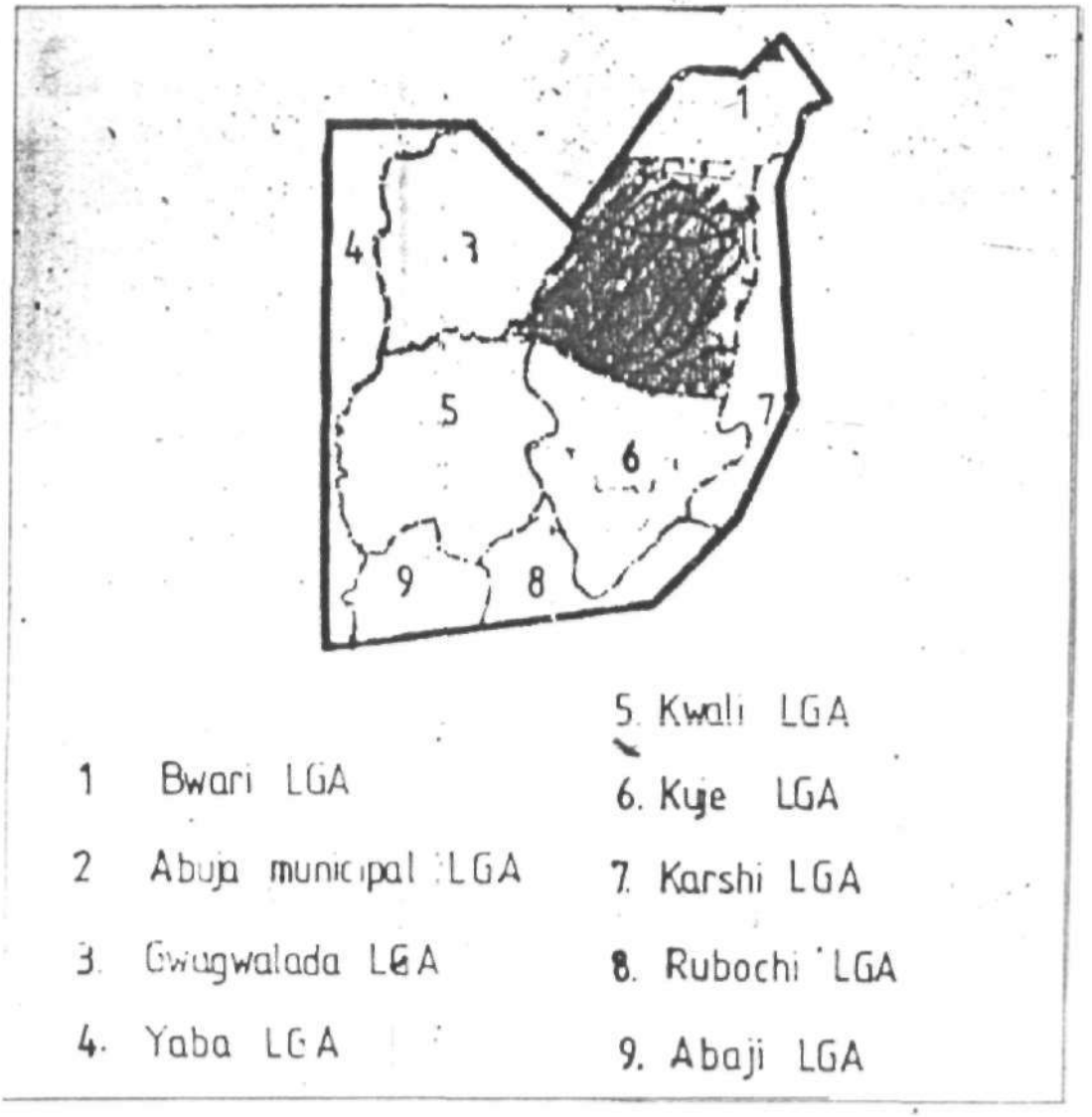


Fig. 5.2. FCT - Administrative Map

towns.

(iv) The New Federal Capital will be an administrative city and will not be oriented to developing broad economic base characteristics of the other large cities of Nigeria.

(v) The New Capital and Federal capital Territory will have a limited quantity of light industrial agricultural research and development, and housing activities to provide a city building industry, to foster social diversity, and to provide support service facilities related to unique capital city needs. Such non-administrative, institutional, or industrial activities that take place to build and serve the city will be compatible with the environment. The phasing strategy of the Federal Capital city follows a pattern of lineer development outwards from the core permitting stage growth in two directions. As at 1986, the projected population of 230,000 people was to occupy the area within the Ring Road No 1 with the public sector employment and construction labour force forming the majority of the population.

Similarly, by the year 2000, the projected 1.6 million population will occupy the areas within Ring

Road No. 3 with the different economic sectors fairly distributed.

The four Ring Roads therefore serve the additional purpose of identifying the incremental growth limited of the different development phases as shown below.

Phase 1	-	Population	50,000
Phase 2	-	Population	92,000
Phase 3	-	Population	230,000
Phase 4	-	Population	610,000
Phase 5	-	Population	1,050,000
Phase 6	-	Population	1,600,000

5.1.3 Traffic Studies And Access:

Within the new capital city, I considered this study of utmost importance by discussing briefly the traffic circulation pattern of how the people in various parts of the city may have access to the central area in general and to our site in particular.

The access from the residential sectors to the central area falls into five categories (See Fig. 5.3)

(a) Through the interchanges on to expressways which run along both sides of the central area and link the inner expressway and the outer expressway.

(b) From parkways which run through the centre of the residential sectors. These are

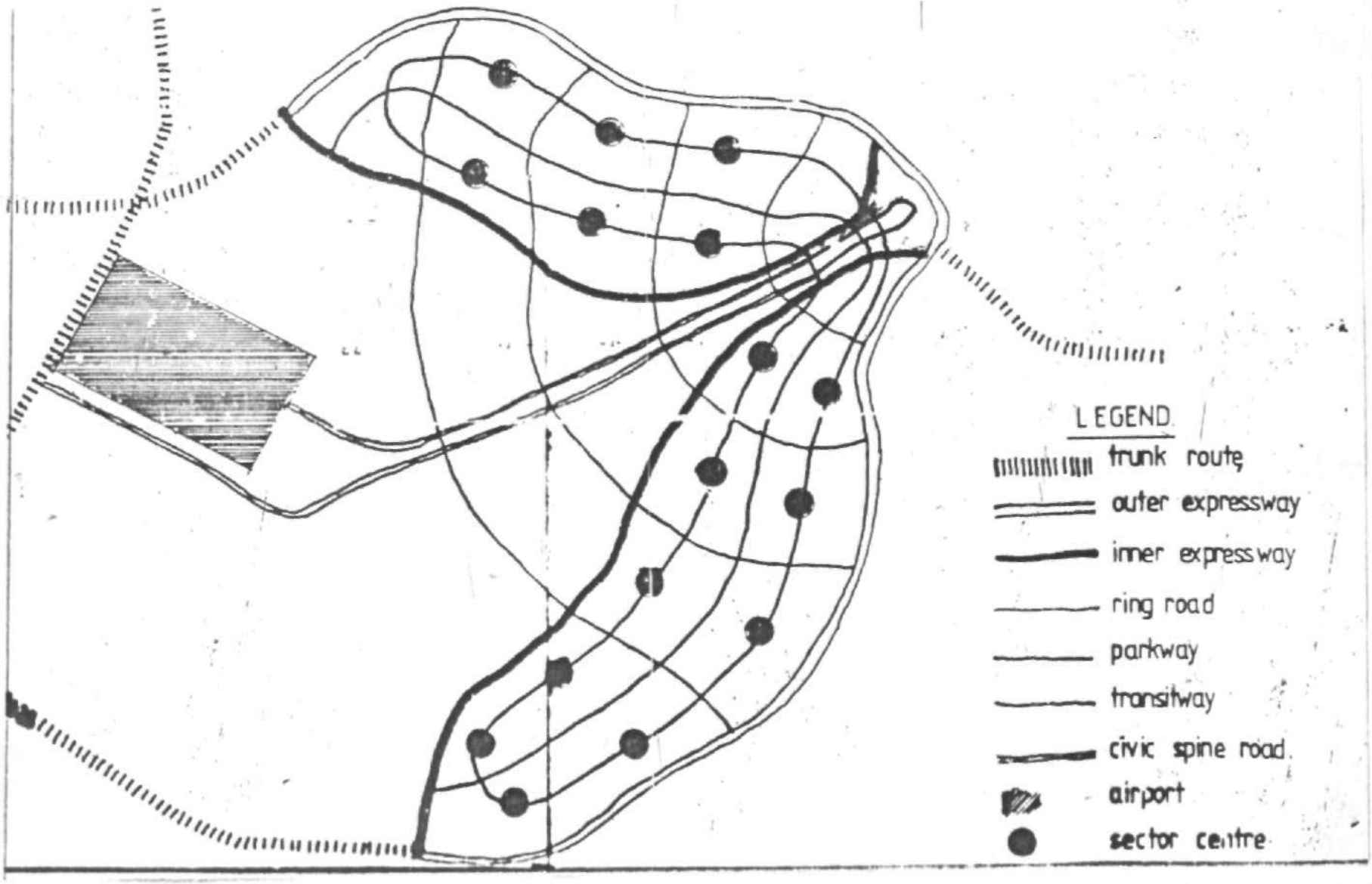


Fig. 5.3. City- Traffic Network

the main auto-approach from the city.

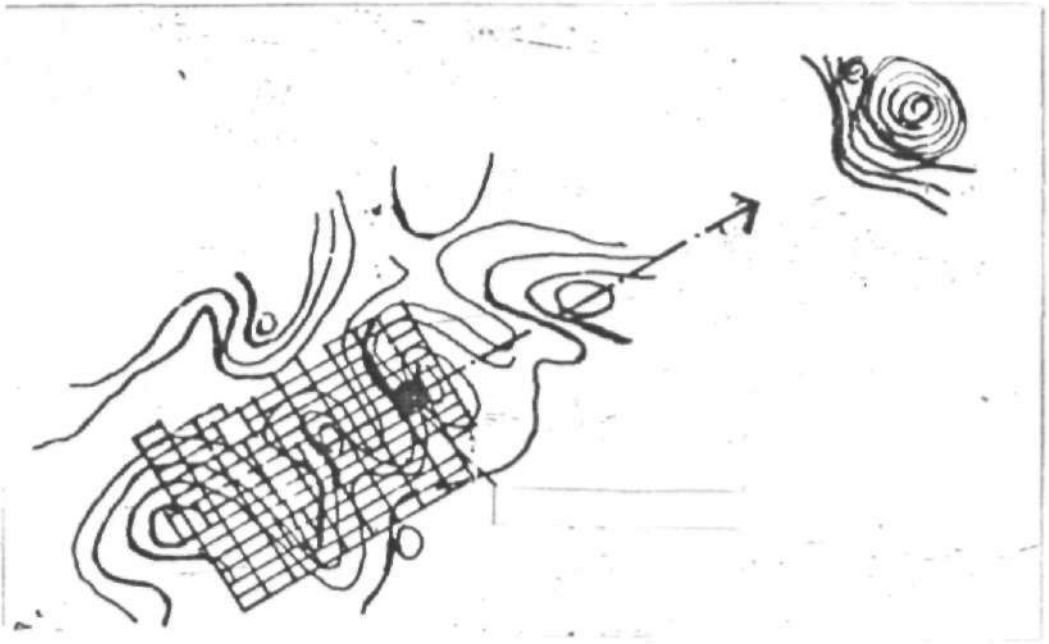
(c) From residential sectors by the ring road which leads to the airport.

(d) From the outer expressway to the roads which run along both sides of the Botanical garden and into the circular road that surrounds the Three arms Buildings; and

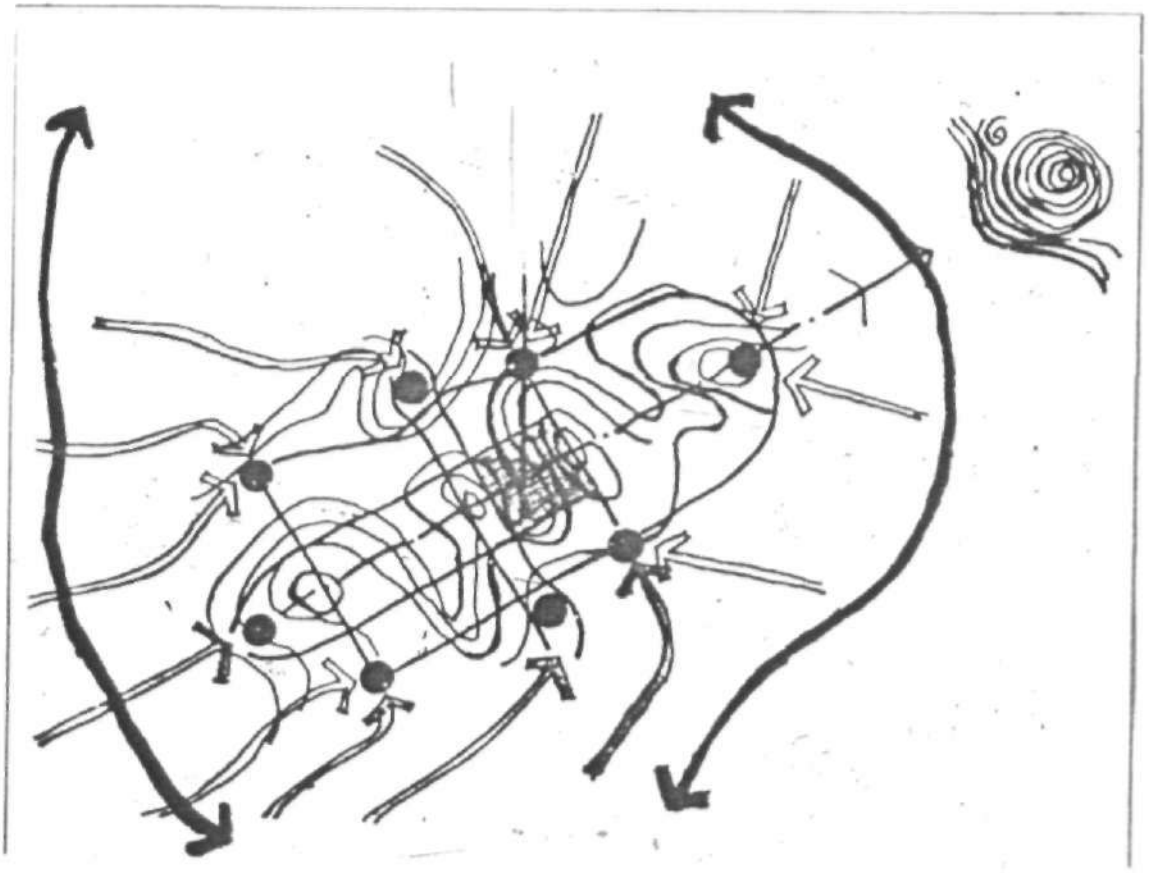
(e) From residential sectors by Transitway buses and subway in the future.

This way, the central area of the city is envisaged to be the most accessible place in Abuja. Possible additions to and changes in routing of public transit lines has been considered a matter of greatest importance in maintaining maximum accessibility to the area. Hence the application of grid iron pattern of street layout in the central area (See Fig. 5.4). This allows for one way streets, the easy re-routing of traffic, the elimination of peculiar intersections and of course allowing for great flexibility in the location and aggregation of building sites.

Upon arrival at the central area, there is an expected change in character with the routes mentioned above, particularly the parkways changing into Boulevards, and the point of change, becoming the gateways to the central area; each of these are marked by important building or an appropriate



Grid Street Pattern



Gateway of Centre Area
Fig. 5.4

symbolic structure echoing the traditional gateways to historic Nigerian cities.

5.2. Design Concept of the Central Area of Abuja

Before discussing the location of the site in the Federal capital city, it would be pertinent to discuss the concept of the design of the central Area of the Federal capital city.

The central area has been designed around two important and perpendicular ones, the axis focusing on Aso Hill and the cultural axis. (See Figure 5.5. Aso Hill is the most dominant natural element of the city site and this property has been acknowledge by making axis towards this hill, the most important factor in the urban design of the central area.

The entire central area has been designed to be symmetrical about this axis. The National assembly, the National Hall, the National square, municipal buildings and the central stropping Hall have all been designed with this axis in mind. At same points along this axis vertical monuments are proposed in order to strengthen its visual aspect.

The second axis is the cultural axis along the cultura zone. This axis is perpendicular to the main axis of Aso Hill and intersects it at the National square. Buildings of cultural significance which are located along this axis include the National theatre, the central mosque,

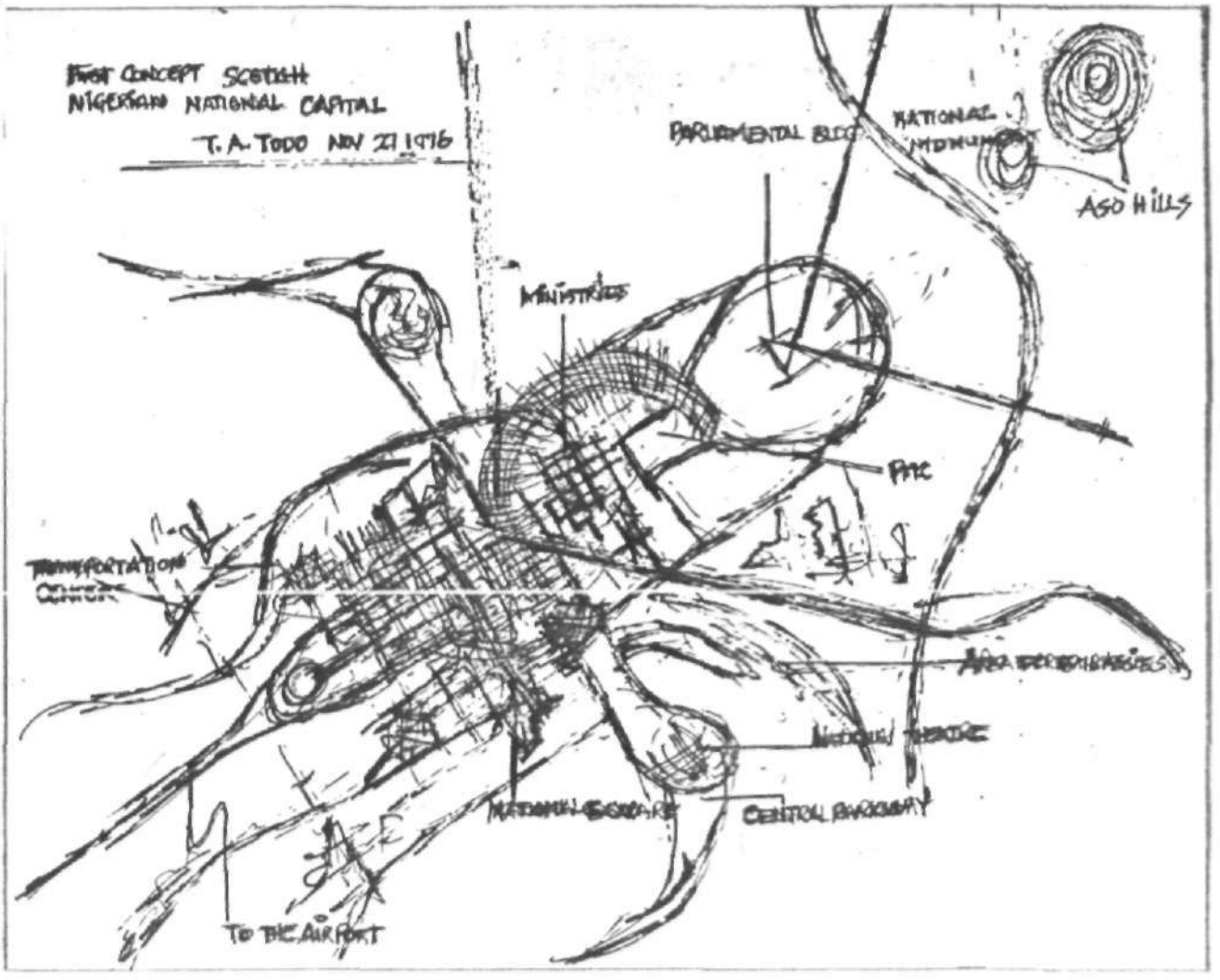


Fig. 5.5. Concept of Central Area

the municipal buildings, the National museium, the National library, the main Cathedral, Nigerian Television Authority and the International Conference Centre.

5.3. Justification for Site Location

Justification for site location is mainly based on the federal capital development Authority (F.C.D.A) proposal to have a civic centre of such within the Wuse district, which happens to be one of the districts (Garki, Wuse, Maitama and Asokoro) for the Phase I development of the capital city. A district which shares the longest boundary with the city centre. This makes it easily and almost equally accessible from the other parts of the city.

5.4. Site Location

The site is located very close to the inner Northern expressway N15, within Wuse district. The site which is large and irregular in shape according to the master plan is bounded on three sides by roads. On the Northern side by a minor road dividing the civic centre site and the district centre, while on the Western side, it is bounded by Arterial road N17, a dual carriage-way which divides the centre site and the Residential neighbourhood together with a temporary accommodated building in which the Abuja municipal authority occupy. On the Southern end, is a major Arterial road N1 which is also dual carriage, brings

in heavy traffic into Wuse district and Wuye district. To the Eastern side, it share a common boundary with a proposed secondary school. The site is about 6.5 hectares. See Fig. 5.6.

5.5. Site Characteristics and Analysis

The site characteristics and analysis of the design scheme proposed examines all the environmental factors of the site which will have an effect on the design. Major environmental factors of the site such as climate, topography, orientation, wind direction, noise directions, altitude, geology and nature of the site, are examined and conclusions drawn. The conclusions drawn are then used as the guides in generating the site concepts, site zoning and the site structure. The factors of pedestrian and vehicular circulation routes in and around the site are then synthesize to modulate the original concept and structure diagrams.

The site analysis is directed towards exhaustively examining all factors and their effects on siting a design scheme on the site. The results of this analysis are the guides to the synthesis of the design goals and objectives. (See figure 5.7.)

5.5.1 Topography and Drainage

The bulk of the city would be concentrated in lands with elevations from 360m to 510m above sea level. This, it has been said, is so as to

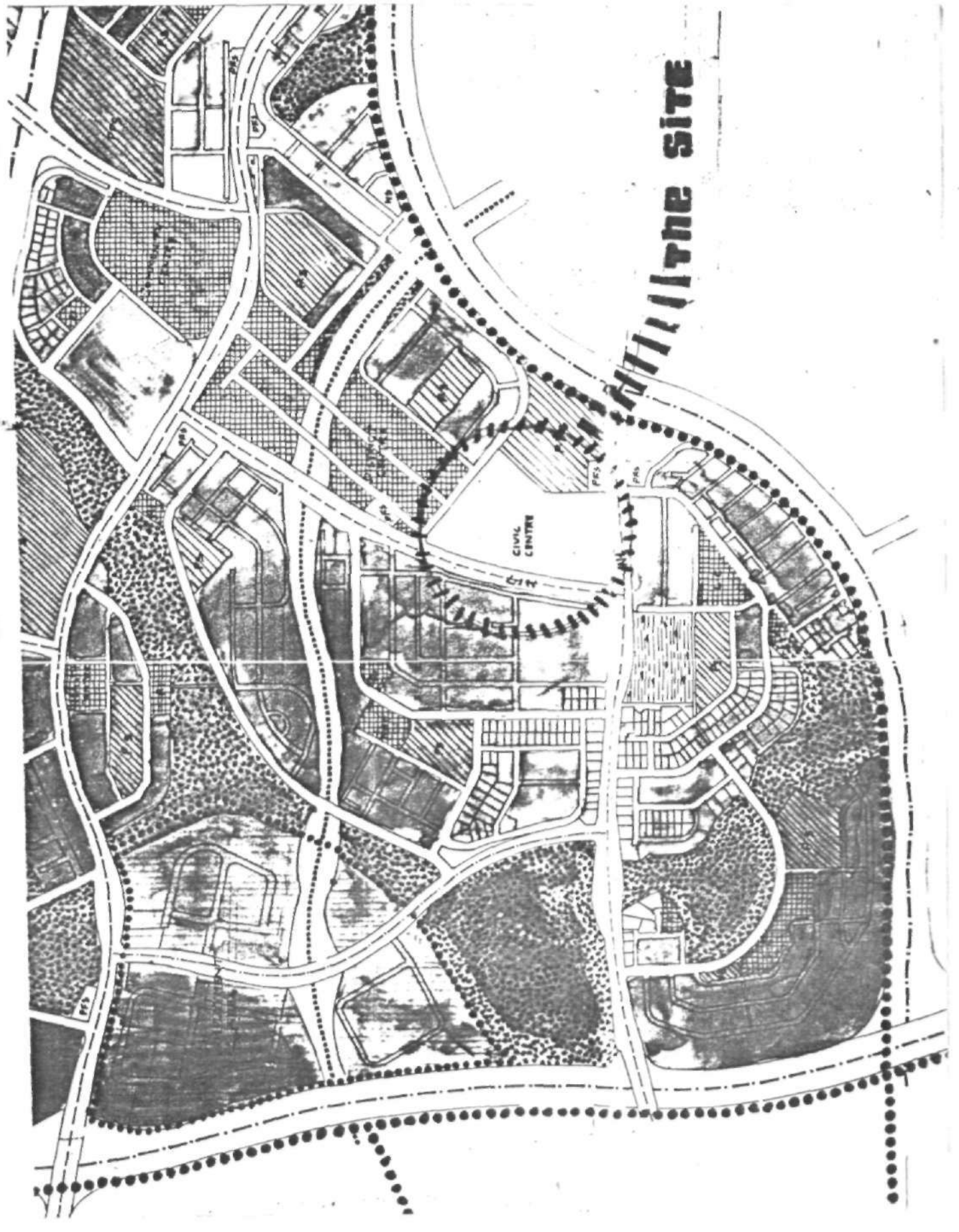
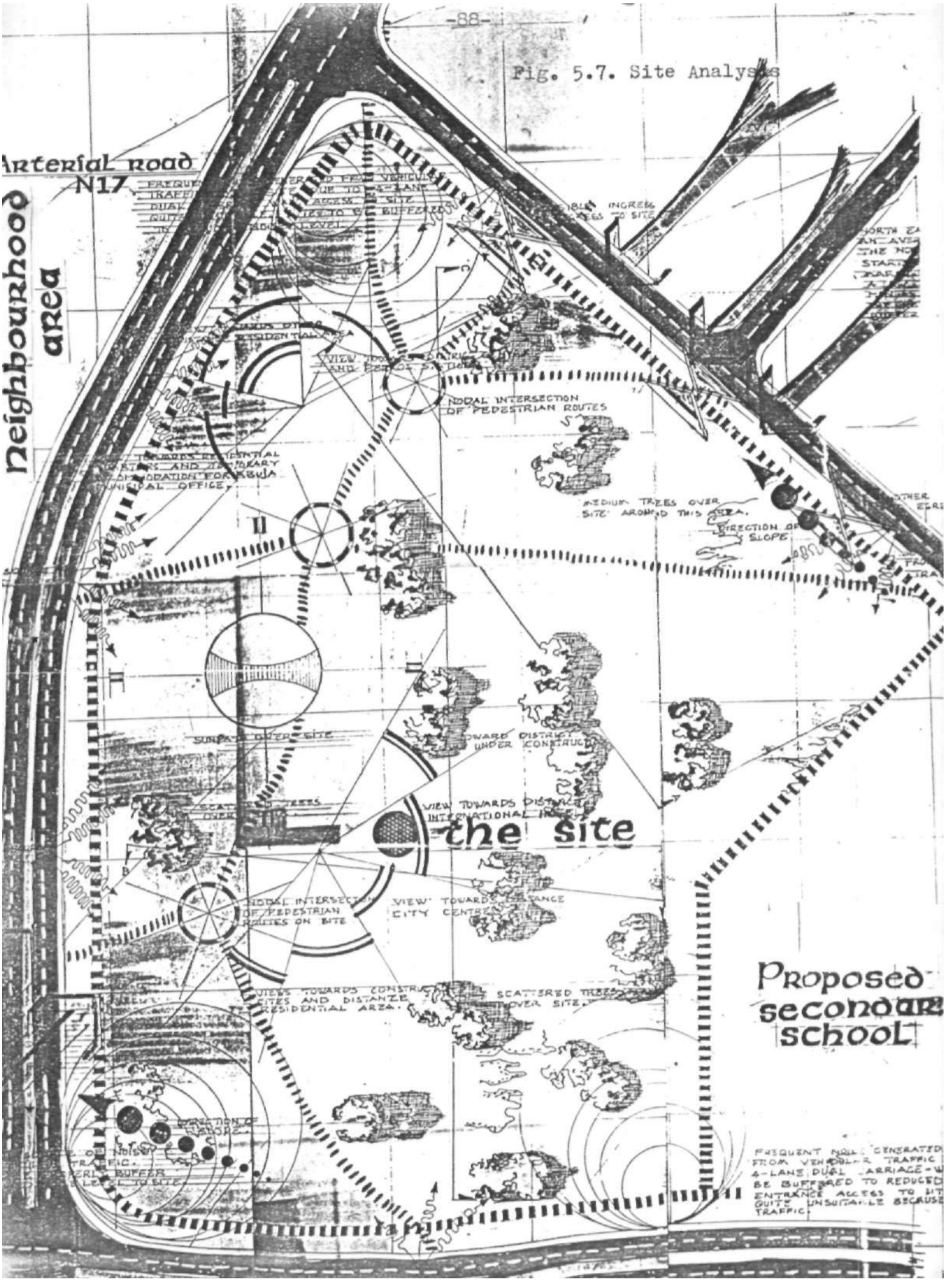

the site
CIVIC CENTRE

Fig. 5.7. Site Analysis



capitalise on the climatic advantages of higher altitude. Topographically speaking, the city site is typified by greatly undulating terrain, inter laced by riverine depressions. This produces short views which are made even shorter by the typical park Savanna vegetation of the site. Our site topography can be described as consisting of uplands and plains sloping gently. The site is on the 488.0m mark above sea level and slopes to the 482.0 mark. The direction of the slope of the site is from south-east to North-west and thus the site has a natural drainage pattern.

5.5.2 Geology

The major rock units underlying the Federal Capital city site can be broadly classified into three categories:

Metamorphic Rock:- Including Biotite - muscovite schist limited to four narrow outcrop bands along ridge tops at the eastern edge of the site. Majority of the city site is underlaid by migmatite.

Igneous Rock Including Biotite Granite:-

Coarse porphyritic, large intrusive masses commonly elliptical in shape formed the dissected zone of the Zuma - Bwari - Aso hills and outcrops of the Gwagwa plain. Fine to medium grained biotite granite forms the ridgelines trending northeast to southwest through the city site.

Sedimentary Rock Including Alluvium

Located in stream-beds throughout the territory.

It has been found that non of the above rocks have presented any major geotechnical constraints to the type of structures proposed for the city. Hence, our site with its underlying biotite granite (both fine and medium grained) will be suitable and capable of supporting the structure of the facility.

5.5.3 Soil

The soil underlying the capital city are generally, as a type, deep and well drained. They are generally the deepest and least stone of the soils derived from granitic gneiss and migmatite that underly the site. They have low to moderate erodibility and run off potential. Textures of the soils are typically loamy sand to sandy clay. On the site for the civic centre, the dominant type of soils are the residual laterite. They are deep, well drained and believed to be fertile - a great potiential for intense land scaping.

5.5.4 Vegetation

The vegetation of the city site is generally characterized by park savanna - a major component of the guinea savanna zone into which the territory falls. (See Fig.5.8.) Riverine depressions within



View of Site



View of Site
PLATE III

city site and most of the FCT are typically skirted by fringes of thickets and high trees. There are also, occassional patches of forest or heavy wooded areas. On our site the main vegetation type is the dense park savanna. This is typically a stratified community with a discontinuous canopy, shrub and grass layer.

5.5.5 Utilities

Within the new capital city and around the site, some basic support infrastructural systems have been developed. This utilities are electricity, water supply, telephone, waste disposal water, and drainage pattern have all been planned in response to demands of the future population. Thus, the site is adequately served with services necessary for establishing a new building complex without incurring too much cost.

5.5.6 Noise:

The major source of noise generated to the site comes from the vehicular circulation around the site. All other sources of noise are too far to have impressionable effect on the site,

5.6. Climate

Man's comfort is the measure of the extent to which his physical environment should be controlled. Architecture has therefore to serve man and his living comfort. For a comfortable living environment will most often depend on maximising

the aspects of the environment which reduce heat and the effect of humidity, and protection from rain and dust. Thus for a successful exercise, one has to plan with climate at all scales, while detailed climatic information is not yet available, extrapolations from existing air - port meteorological station have been used to develop the basic description of climate parameters presented in the site selection report.

5.6.1 Temperature - Humidity

In human terms, the net radiation is felt as air temperature, the response to which is greatly influenced by the humidity condition of the air.

The F.C.T, records its highest temperatures during the dry seasons when there are few clouds. During this season it is not uncommon to record a temperature difference of as much as 17°C between the highest and lowest (day and night) temperatures in a single day.

Maximum temperature is lower during the rainy season due to dense cloud cover. At this time too, the diurnal annual range is also much lower, sometimes not more than 7°C in the months of July and August.

Human sensibility to temperature is greatly influenced by relative humidity. During the dry season, the relative humidity falls in the afternoons to as low as 20 percent and this low

relative humidity coupled with high afternoon temperatures account for the drying effects of the dry season.

See Fig. 5.9. for temperature and humidity variations for the F.C.T.

Design Implication

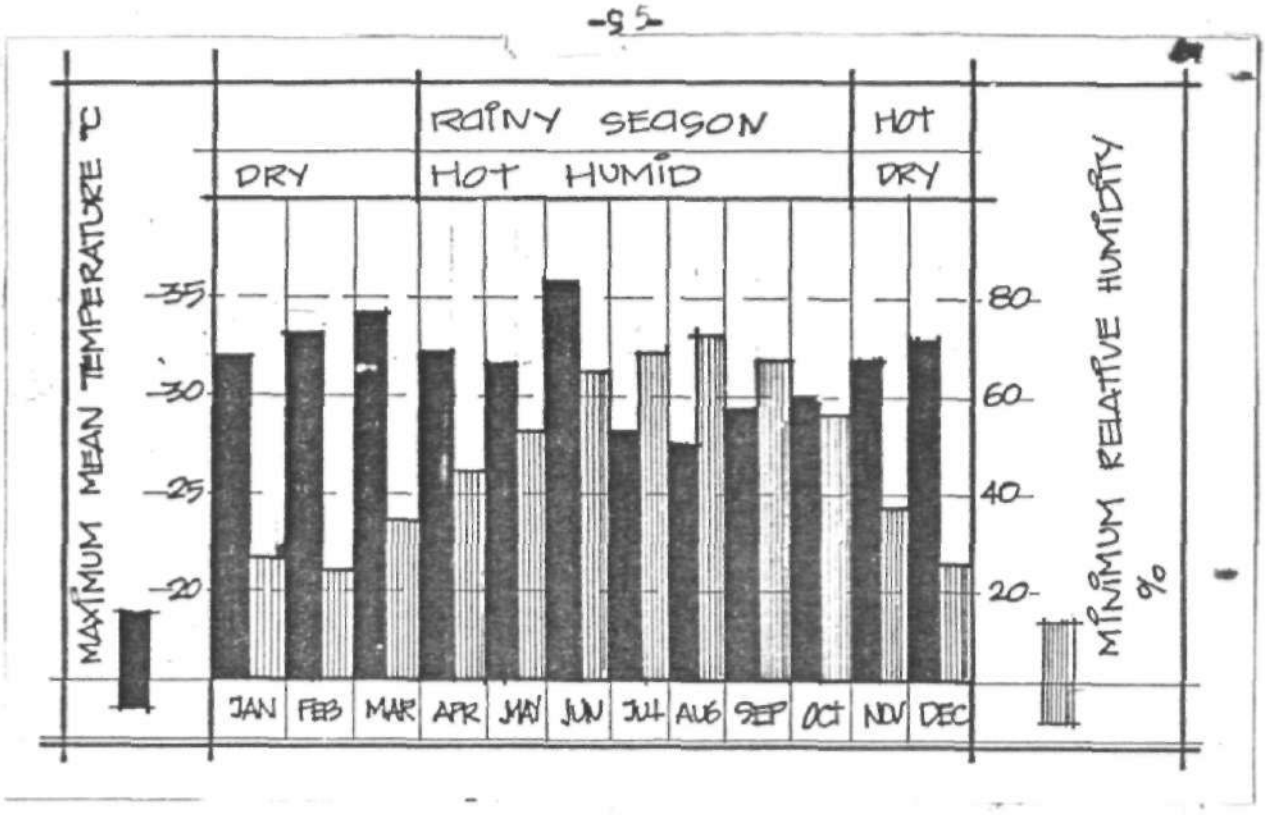
- Building facade should be adequately fenestrated and well oriented to take advantage of local wind directions.

- Design for effective cross ventilation through all spaces provide suitable/appropriate mechanical means to remove the trapped heat in occupied spaces.

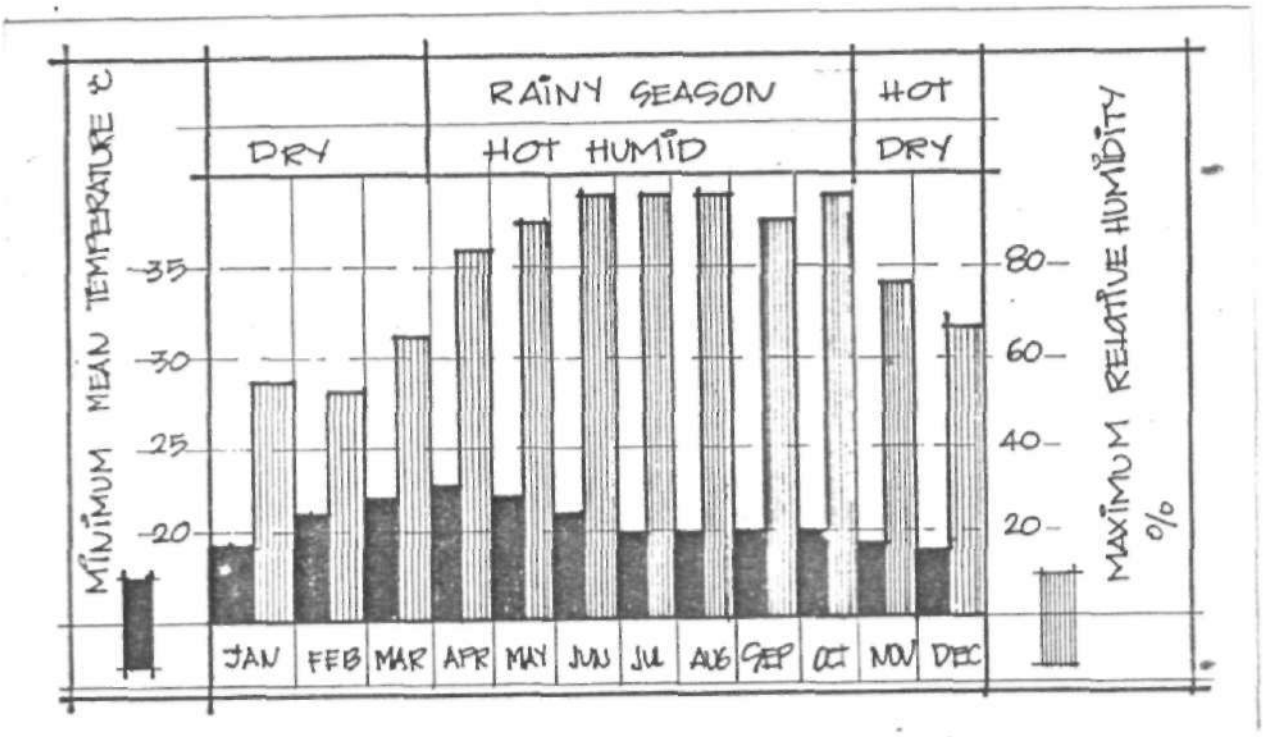
- Use water fountain and other landscape elements to moderate the local climate around facility.

5.6.2 Rainfall

The rainy season starts at about the middle of April and tapers off very rapidly towards the ending of October. This the variation of the rainy season lies between 180 to 190 days. The mean monthly distribution of rainfall shows a tendency for concentration in 3 or 4 months with about 60 percent of the annual rainfall being in the months of July, August and September. This concentration of rainfall shows the need for drainage systems that can handle large volumes of water very quickly. (See Fig.5.10 on the mean monthly



Highest Temperature and Low - Relative Humidity



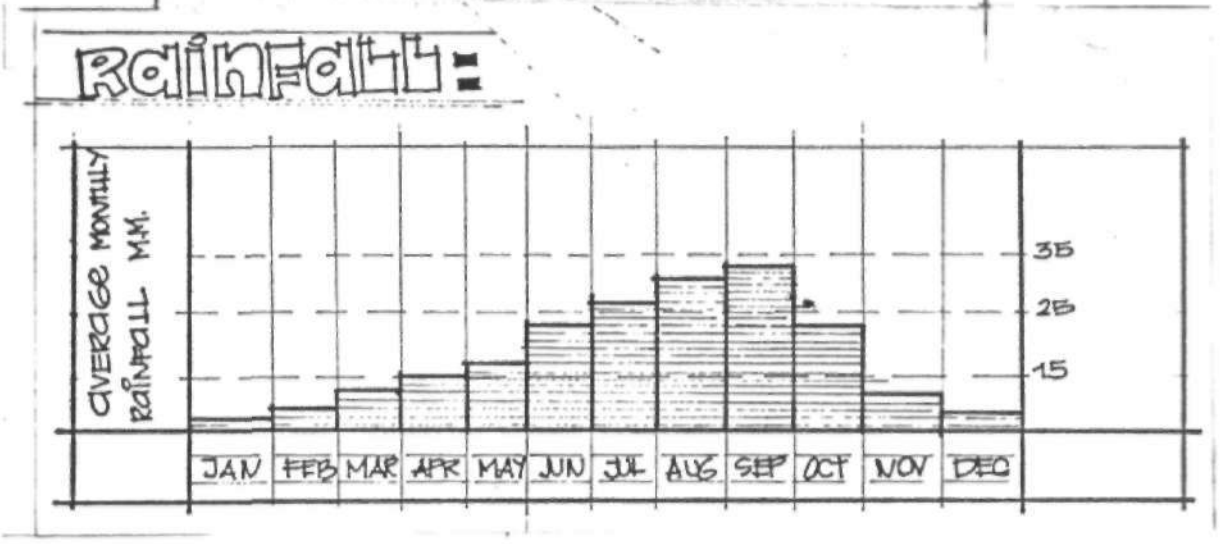
Lowest Temperature and High Relative Humidity

MEAN MONTHLY TEMPERATURE AND HUMIDITY

Fig. 5.9

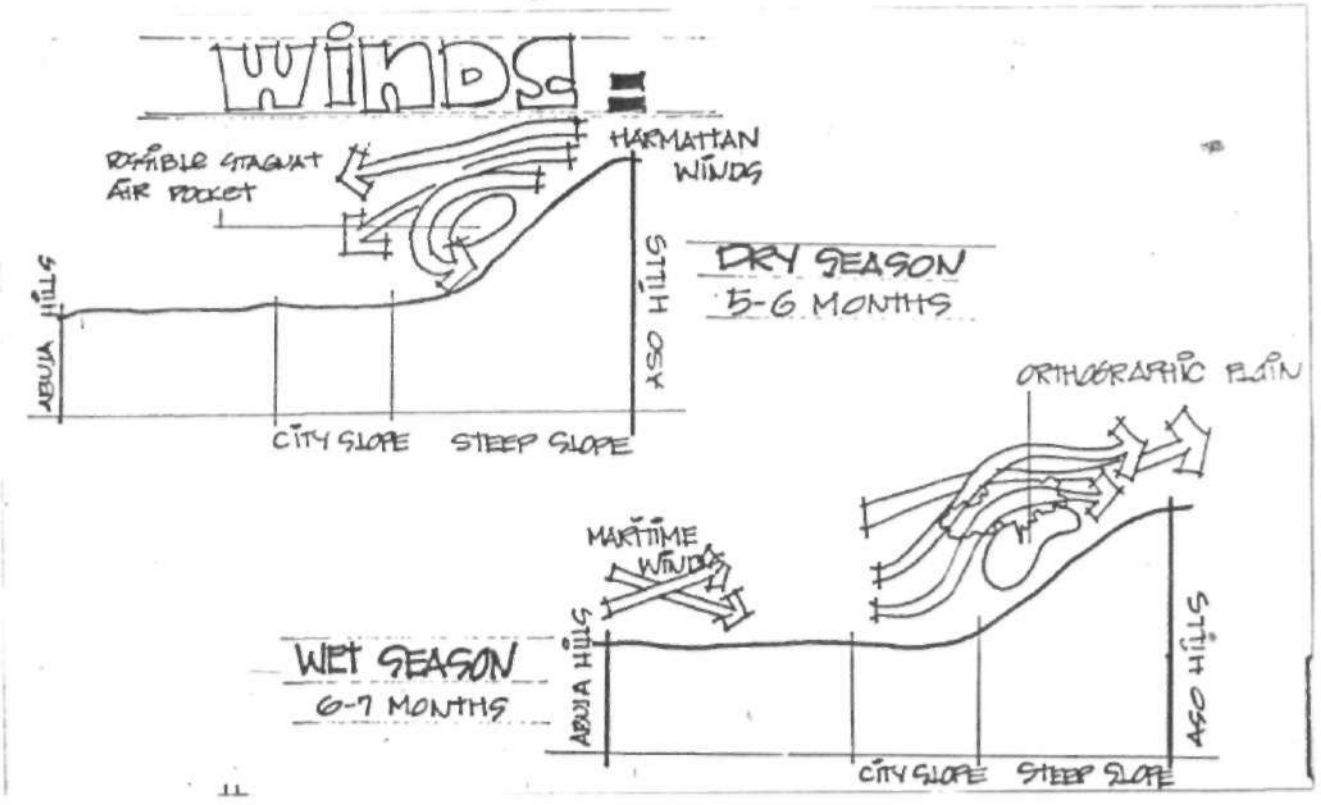
A COMFORTABLE LIVING ENVIRONMENT WILL DEPEND ON MAXIMIZING THE ASPECTS OF THE ENVIRONMENT WHICH REDUCE HEAT AND THE EFFECT OF HUMIDITY, AND PROTECT FROM RAIN AND DUST.

PLANNING WITH CLIMATE SHOULD TAKE PLACE AT ALL SCALES. WHILE DETAILED CLIMATE INFORMATION IS NOT YET AVAILABLE, EXTRAPOLATIONS FROM EXISTING AIRPORT METEROLOGICAL STATIONS HAVE BEEN USED TO DEVELOP THE BASIC DESCRIPTION OF CLIMATIC PARAMETERS PRESENTED IN THE SITE SELECTION.



MEAN MONTHLY RAINFALL

Fig 5.10



Seasonal Wind Pattern

Fig. 5.11

rainfall for the Abuja area).

Design Implication

- Provide sufficient drainage system to take care of the large volumes of rain water. (Both roof and site drainage).

- Provide proper and strong anchorage to roofs to avoid damage during furious storms of the early rains and also ensure rapid discharge of water to avoid collection of pools of water at building tops and consequent problems of water leakages into interior.

5.6.3 Wind - Dust

Two major air masses dominate the climate of the F.C.T. These are the tropical maritime air mass and the tropical continental air mass. The tropical maritime is formed over the Atlantic ocean to the south of the country and is warm and moist. It moves inland generally in a sout-westernly direction. On the other hand, ,the tropical continental air mass is developed over the Sahara desert and is warm, dry and dusty. It blows over the site in a north - easterly direction.

The oscillation between these two air masses produces the highly seasonal characteristics of weather conditions in the country. The tropical continental air mass is associated with the dry season and the tropical maritime mass creates the wet season. See Fig.5.11 of prevailing winds.

In June the northerly flow of air component weakens and only the southerly flow predominates. Being moisture laden, it brings a lot of rain. In September the tropical continental begins to intensify over the territory and the North-east trades becomes the dominant wind from October to March, bringing with it, dry, cloudless but dust-laden conditions associated with the harmattan.

The days are very hot but the cloudlessness means that at night htere is a considerable loss of heat by radiation from the earth. The temperature drops sharply often to dew points. This gives rises to early morning temperature inversion and to early moist or fog. This is further complicated by settling dust partides which have the effect of reducing visibility to a few hundred metres.

Design Implication

- Provide tall trees and hard landscape at the periphery of site particularly the North-east end to sieve through the dusty winds, so that only relatively fresh air gets to building.

- Limit the amount of opening to the general direction of the harmatan winds.

- Provide well fitting shutters for all vents.

5.6.4 Sun And Cloud Cover

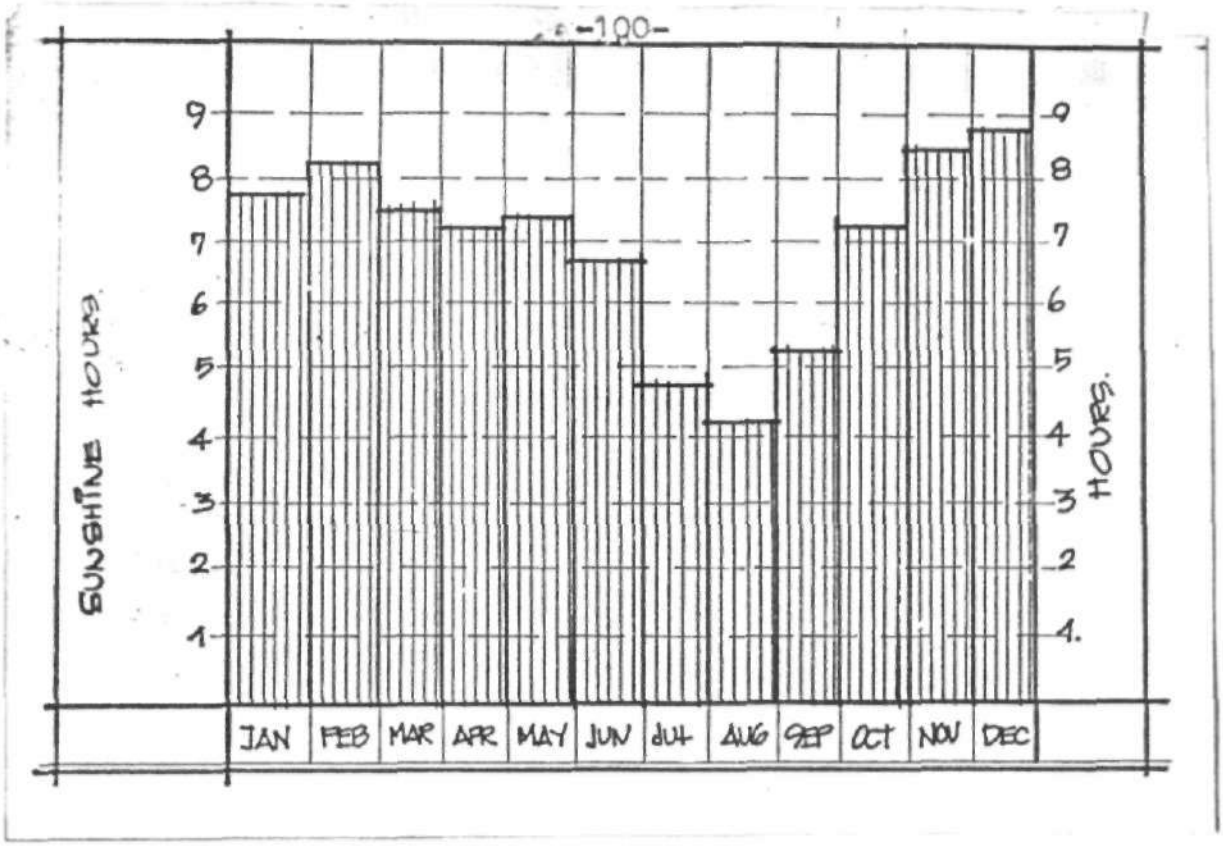
The New Federal Capital City is exposed to 2,500 sunshine hours annually (Mabogunje 1977). During the dry months (November - April) the monthly

variation in amount of sunshine follows the general trend of an increase from over 275 hours on the city site.

With the approach of the rainy season, there is a trend towards increased cloudiness. The decline being more intense as the rainy season progresses. The sunshine hours is lowest in value in the month of August. See Fig.5.12as shown on the monthly sunshine variation.

Design Implication

- Building facade to be adequately fenestrated.
- Shield openings using limited protective overhangs.
- Detail external walls in insulating materials to delay heat transmission during the hours of use.
- Use materials of high reflective factors and little absorption capacities for the roofs to reduce the impact of radiated energy.
- Provide intense and interesting landscape to provide shade for the facades and also to reduce glare from surrounding surfaces.
- Interior space should be finished with light absorbing materials to reduce uncomfortable glare.
- In general the facility should be designed to take advantage of natural possibilities for environmental control.



Mean Monthly Sunshine Duration

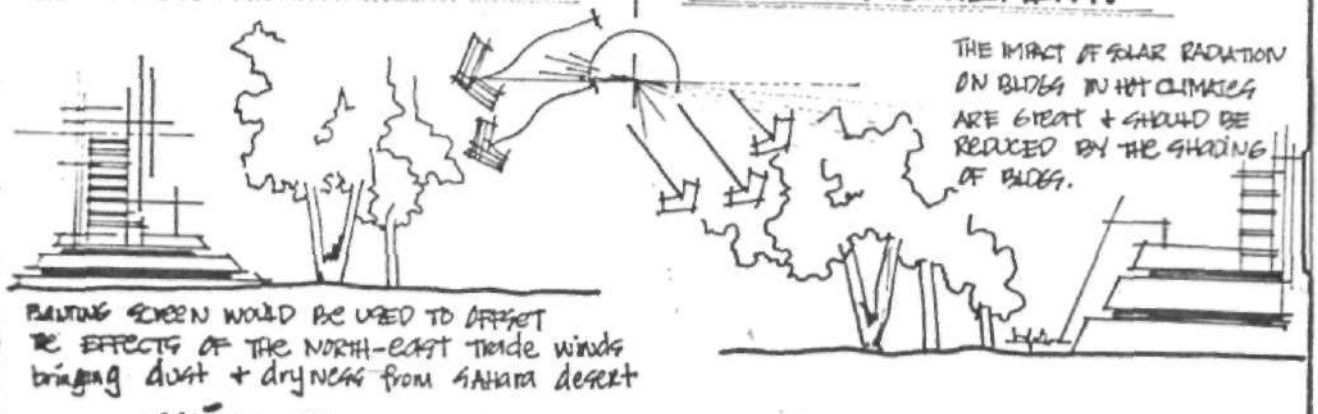
RADIATION =

IN HUMAN TERMS. NET RADIATION IS FELT AS AIR TEMPERATURE. THE RESPONSE TO WHICH IS GREATLY INFLUENCED BY HUMIDITY CONDITIONS IN THE AIR. F.C.T. RECORDS TEMPS AS HIGH AS 17°C AS DIFFERENCE BETWEEN HIGHEST AND LOWEST TEMP DURING DRY SEASON AND FEW CLOUDS.

SITE CONDITIONS

WIND ABATEMENT.

SOLAR ABATEMENT.



THE IMPACT OF SOLAR RADIATION ON BLDGS IN HOT CLIMATES ARE GREAT & SHOULD BE REDUCED BY THE SHADING OF BLDGS.

PLANTING SCREEN WOULD BE USED TO OFFSET THE EFFECTS OF THE NORTH-EAST TRADE WINDS bringing dust & dryness from SAHARA desert

NOISE ABATEMENT. — Effect of Treaties & Proper landscape.

Fig 5.12

Conclusion:

As can be seen in the body of the write-up in this chapter, conclusions are already made after each major topic discussed except for those which are so self explanatory through perhaps diagrams. Perhaps design basis be sought for each of the conclusions thus made and this must be seen to have been applied or utilised through this study.

CHAPTER SIX

6.0. DESIGN SYNTHESIS

6.1. The Brief

Today, unlike in most recent past, civic centre complexes are looked upon as a strictly administrative building. A building which serves the citizens in the collection of taxes and rates in order to improve the infrastructure and social amenities of its citizens.

In this chapter, attempts will be made to define the scope for the civic centre complex. This brief is of course a culimination of the studies in all previous chapters viz: History, The law, The city and the case studies. From all these, programme for the design is expected to be worked out. From the historical study, the brief will tend to be functional in content while from the law point of view, the centre is view as strictly administrative - a solution that has been adopted in most modern day city halls. The complex is to house functionaires that are charged with seeing the welfare, health development, provision of social amenities, provision of regulations, construction and maintenance of the city for its citizens.

The civic centre complex should not be seen as such in complete isolation of the entire city

the municipal government projects.

Public Health and Social Welfare Department

This department implements both the sanitation policy and the medical programmes of the municipal government. It also uplifts the well being of people within its jurisdiction through the implementation of its social programmes. It comprises Environmental Health service section, medical and vital statistics, marriage - Registry, Market and Parks, Cemetry sections.

Education Department

This department administers and plans all schools - primary, secondary and vocational and also maintain the municipal library, archives and the adult education unit. It recruits primary school tutors and their salaries is part of the sole responsibility.

Works Department

This department is charged with the responsibility of construction, maintenance and supervision of all physical projects of the local (municipal) government. It also carries out the implementation of all technical programmes.

Legal Department

Headed by a municipal solicitor, this department is responsible for the provision of all legal services to the city administration. This

department also gives advice and opinions with regard to the statutory powers of the council, prepares all byelaws for presentation to council. Its duties include the conduct of litigation brought by or against the city administration or its agencies; prepares all contract agreements entered into by the city administration and its agencies. It also comprise of the court section.

Administration and Management Service Department

This is the central administration, co-ordinating the activities of all the other departments. It is responsible for the overall performance of the staff departments. This comes directly under the city chief executive who is charged with the final responsibility regarding the development of broad corporate policy matters, management systems and general administrative and financial programme.

In office design however, it is essential to consider flexibility and communication.

Flexibility:- The design is meant to be flexible is such a way that working positions can be regrouped as needed; departments can be reduced or just re-arranged. This encourages closer contact between workers and their clients - the public and gives equal working conditions to all employees.

Communication:- Easy communication can be achieved through flexibility in design of offices, easy contact is essential between and within departments. Openess is achieved in the design by the absence of physical divisions within departments, but is should be borne in mind that contact with public is the most significant factor of the design, and also the basic work types vary between departments, where some are technical and others are purely administrative each of these requires different degrees of privacy and of course the question of hierachy and reflection of status arises.

The departments are laid out based on their frequency of contact with the public. They can grouped into:

.. Direct functional services:
Those that are more frequently visited by members of the public e.g. Treasury department, Education, public health, Registry and court room etc.

.. Indirect functional services like those departments that are less frequently visited by public. These include works department.

The organizational service oriented department are those that deal with administration and not public. These department see to the effective and efficient implementation of the authority functions at all levels. e.g. Clerk

department, Administration and management services.

6.2.2 Elected Council Suite

The function of an elected councillor demands considerable time spent formally and informally within the complex. The accommodation should be comfortably furnished.

The council suite are made up of the following parts:

Council Chamber

This is the central theme in the entire design. It is a place for debates and policy decision making. It therefore requires a quiet but prominent location in the complex. The standard of its space and the quality attached to its finishes should tell at once the story of the prestige attached to its functions. Provision is also made for public access to council proceeding, where a public gallery is located on the upper level of the council chamber.

Members' Lounge:

The members lounge is regarded as their resting room and provides internal interaction space for the members and possibly visitors to the civic centre. Its provisions includes a service bar, sanitary facilities and a telephone room. Ideally, it should be located next to the chambers and in close proximity to the clerk department, committee rooms and

committee study room (library).

Interview and Committee Rooms

These rooms are required for both formal and informal meetings with individuals or group of individuals within the council. Discussion in these rooms are regarded highly confidential in nature. As such it is necessary to locate it in a quiet area to avoid distractions from noisy areas. Ideally, they should be located in close proximity to both the council chamber and the administrative block. A total of two committee rooms are proposed, considering the fact that committees are not likely to meet at the same time.

Press, Lecture and Conference Room

This room is design for meetings between the council members and the press, to meet on a lecture or discussion basis. The room also serve far conference between the departmental offices and the council chairman and could equally be used as a public lecture and seminar room. Its location is in close proximity to the council lounge and chamber.

Members Library

It is expected that members would like to improve their knowledge of certain technical and specialised issues from time to time. For this purpose a small study/reference room have been provided. It requires a librarian whose duty,

will be to guide the members in the use of the library.

Clerk Department

This is the department that records the resolutions, decisions and proceedings of the council and keeps originals of all the bye laws and minute of the council and its committees. It is the duty of this department to preserve and file all accounts acted upon by council. It is also responsible for all secretarial services to the council and arranges, conducts all official functions of the city administration including dedicating and opening of municipal works and institutions. By the nature of its duties, this department, though under the central administration, is best suited to the council chamber.

The Chairman's Suite

The chairman is regarded as the head of the administrative wing of the municipal government. He is usually elected on the same terms with the councilmen. His office is in close proximity with the council chamber and the members suite and consists of the chairman's office, a separate toilet, lounge and interview/meeting space, reading room and a separate space for the secretary.

6.2.3 Public Facilities

Multipurpose Civic Hall

The multipurpose hall, being a civic hall, is

primarily a venue for political assembly connected with functions of the local (municipal) government authority. However, since the main functions are intermittent, economy dictates that such a "hall" must be capable of dual use, i.e. letting out to non-authority functions which permits additional revenue to the authority. In this sense, the hall can provide a focal point for the social and cultural life. Its design must be based on a multi-purpose orientation of activity spaces. The hall should allow for the following activity functions:

(i) Public lecture and symposium
(ii) Dancing
(iii) Social gathering e.g. wedding reception
(iv) Banquet

The hall can however accommodate to a capacity of 300 people at a time.

Exhibition Space

The exhibition space is also leased-out to non-authority which permits additional revenue to the authority.

6.2.4 Ancillary Facilities

The ancillary facilities provided are the staff canteen and kitchen, staff lounge and reading room, audio-visual and computer room, telephone equipment and operation room, printing and publication room, archives, maintenance workshop, supply and

acquisition room, treatment room, plant room, security rooms and postal service office.

The Plaza

The greatest major plaza or civic squares in the world become civic symbols not only because of their beauty of design but because of the variegated and important civic events which takes place in them. The paved and landscaped civic square can be used for social or political gatherings or assemblies.

Schedule of Accommodation

The design programme looks into a breakdown of the accommodation requirements for the various space required by the design scheme. These spaces are derived from space standards, in reference book. However, considering the different environmental situation in Nigeria, certain increases were required to cope with them. These space projections are guides and did not in some case turn out to be sufficient in value during the design process, for final design scheme. However as a guide, *zhey* provided a basic idea of the spatial requirements. The partitions in ieach department is based on the different units within the department, depending on type of work, use of equipment or machinery, degree of privacy or openess and storage need.

Assume *AOyl* for storage, toilets and main circulation, staircases & lifts within the complex.

6.3.1 Municipal Administration Department

DEPARTMENTS	UNIT	COMPONENT	SPACE REQUIREMENT (m^2)
Treasury Department	Treasury section	Chief treasurer Secretary deputy treasurer, general treasury office	101 m^2
	Valuation section	Valuation officer, Secretary Valuation assistant general valuation office	101 m^2
	Account & statistics section	Account & statistics officer Secretary Accounts & statistic assistant general office	
	Auditing section	Auditing officer Secretary Auditing Assistant. Auditing office	101 m^2
	Rates & Licensing Section.	Rates and licensing Hall - Officer - General Office	120 m^2
	Departmental Administration	General Office Computer room, Photocopy/ Printing Conference room	130 m^2

DEPARTMENTS	UNITS	COMPONENT	SPACE REQUIREMENT m2
	Treasury Pay & Cash Hall	Treasury Hall General Office Strong room Book room/ store.	390 m^2
EDUCATION DEPARTMENT	Chief Education officers.	Chief Education officer, Deputy education officer Secretaries Interview/ meeting room	147.m^2
	School Management Board section	Primary & secondary coordinating office	35.m^2
	Adult Education section	Chief officer Secretary vocational & adult coordinating office lecture hall officers	180.m^2
	School supplies	School supplies, school services Education statistics inspector.	
	Library service section	Library service officer secretary library services coordination office	90.0
	Department Administration section	General office	48.m^2

Education department	Municipal library section.	Reading/ lounge. Audio visual/ computer officers/ staff room Storage reserved section Archieves	300.m^2
Public Health & Social Welfare Department	Health executive section.	Chief health officer deputy health officer, Secretaries Interview room/meeting room	140.m^2
	Social Welfare executive section	chief social welfare officer Deputy social welfare officer secretaries interview/ meeting room	140.m^2
	Health Adminis-tration section	General office, Health education & statistic unit.	60.m^2
	Welfare, Adminis-tration section	General office Envornmental & Market Unit	60.m^2
Public Health & social welfare department	Child/ social welfare section	-	35.m^2
	Child maternal helath section	-	35.m^2

	Environ-mental section	Open partks unit, Cemetries unit Market unit Refuse unit	90.m^2
Works Department	Departmental Executives section	Chief Engineer Chief Architect Chief town planning & Building Officer, Chief Estate officer Deputy officer Secretaries Interview/ meeting room	340.m^2
	Design Studios	Draughtsmen Architects, Town planners Surveyors Engineers	140.m^2
Works Department	Department Adminis-tration section	General office Printing & Photocopying unit Store	60.m^2
Legal Department	Executive section	Chief legal officer, Deputy legal officer, Secretaries meeting/inter view room	130.m^2
	Department Admini-stration section	General soliciting office Solicitors office. Reference room	100.m^2
Legal Department	Court magistrate section	Magistrate inner chamber Magistrate outer chamber Store Toilet Secretary	60.m^2

Clerks Department	Court section	General office, Waiting area Court room Document stores, Traffic officers Prosecuting officer	280.m^2
	Executive Section	Committee chief clerk Secretary Meeting/ Interview room	110.m^2
	Department Adminis-tration section	General office, Documents store, Secretaries	60.m^2
Adminis-tration & Management Department	Department Executives Section	Chief Administration officer. Chief estab-lishment officer, chief labour officer, Chief staff relation officer, Deputies confidential Secretaries meeting/ interview room	360.m2
	Central Adminis-tration section	General office,staff relation unit, labour unit establish unit, Statistic unit	120.m^2

6.3.2. Council Suite

Allow 1.2m^2 per seat for member and 0.6m^2 per seat for public gallery

UNIT	COMPONENTS	SPACE REQUIREMENTS (m2)
Chairman suite	Chairman's office lounge/meeting room study room. Confidential Secretary	130.m^2
Member suite	Members lounge, Telephone room.	250.m^2
Committee rooms	Committee rooms Study room.	156.m^2
Council Chamber	Member's seating and circulation. Public Gallery	350.m^2
Registry	Principal Registrar. Marriage counsellor/ registrar. Registry office Documents store Registry Hall	180.0

6.3.3. Public Facilities

UNIT	COMPONENTS	SPACE REQUIREMENT
Multipurpose Hall.	Banquet, Social gathering Assembling Lectures Symposium Furniture store Toilets	500.m2
Exhibition Hall	Exhibition Storage	320.m^2
Conference Hall	Press conference Debates Lectures & Symposium Furniture store	120.m^2
Postal Service	Postal Hall Officer Mailing & Sorting room Delivery room Store.	160.m^2

6.3.4. Ancillary Facilities

Staff Canteen	Canteen hall Kitchen	260.m^2
Central Supplies Store	-	48.0m^2
Maintenance	Maintenance office Maintenance workshop Store Technician Electrical equip/ Installation store	180.m^2
Information/ Security Office	Information unit Security Unit	36
Telephone Exchange	-	40.m^2
Printing & Publication	Officer Secretary Printing & Publication room Store	90.m^2
Treatment Unit	Treatment room Janitor Offices	30.m^2

PARKING

Area per car equal 15.0m^2 (250) = 3750m^2

6.4. Functional Analysis

A functional analysis is mainly directed towards the thorough understanding of all the requirements which pertain to a particular activity, process or need. Thus in analysing the functional requirements of the design scheme we are actually refering to the design analysis, but looking at it from a different point of view. The functional analysis is therefore the all-embracing analysis of all the

analyses carried out on the design scheme. However, in this context, it is mainly direct towards the analysis of the functional relationship between spaces and the various factors which govern these relationship such as proximity, need for adjacency, total separation and so on. The conclusion drawn from this analysis will be some of the major factors used in determining the spatial organisation of the design scheme.

6.5. Site Concept

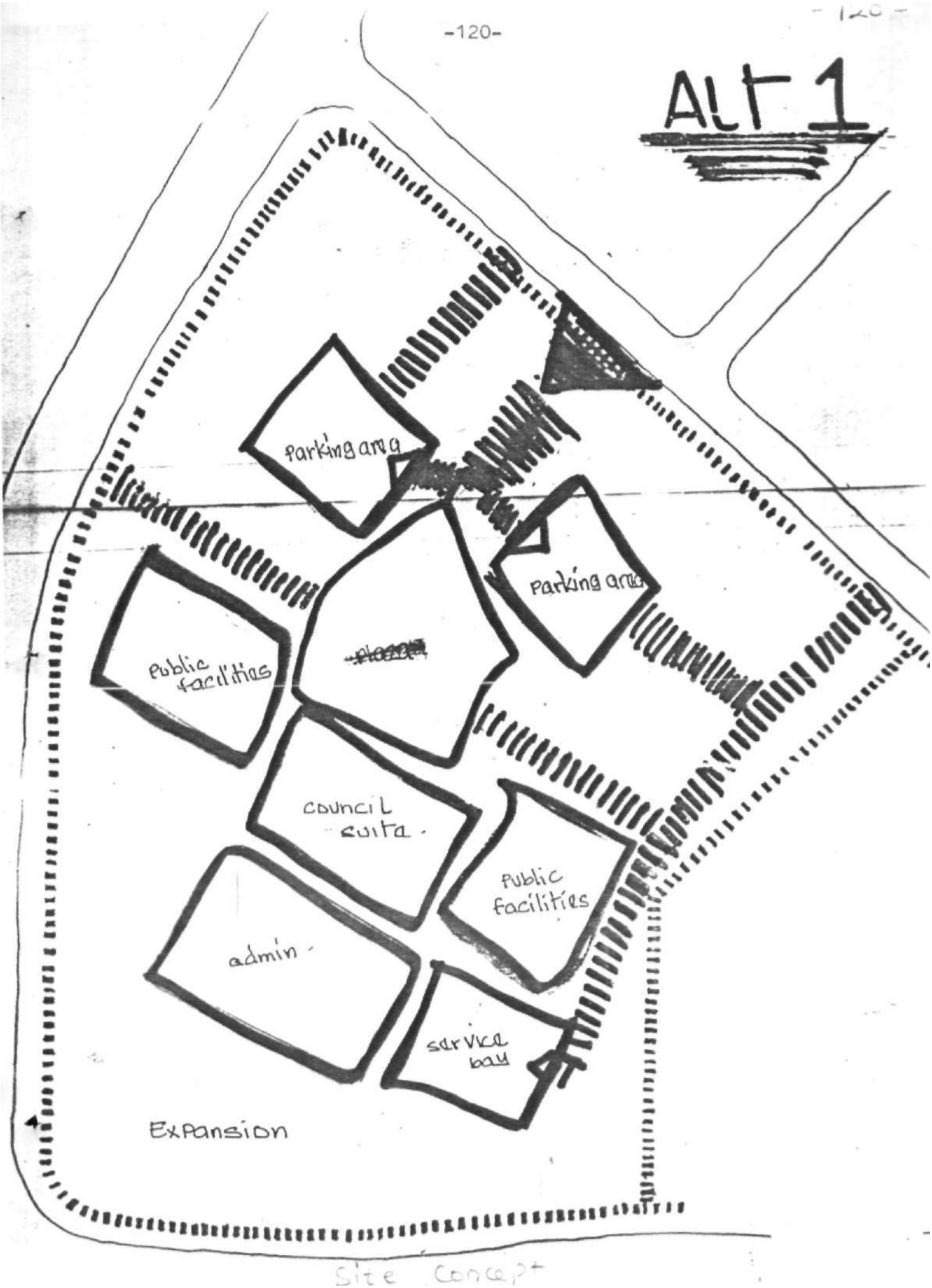
In large public oriented facility buildings, the site concept is most as a result of circulation and noise zoning. Other factor includes such climatic variables as orientation as regards to sun movement, wind and views. See Figure 6.2.)

The main circulation route both existing and future around site includes:

1. North approach to the proposed complex from existing vehicular route separating the district centre from the site.
2. From the west approach, is the existing major Arterial route N17, taking traffic into the district with a branch off linking the North route.
3. To the South is yet another major Arterial route N1 take taking traffic to the neighbourhood district and branch off also linking the N17 Aterial route.

- 120 -

Alt 1



Site Concept

All these routes were given due consideration in conceptual formulation. This is also analysed below.

- Main approach to the complex is via the route located on the North side of the site.
- Pedestrian path linking the district centre from the neighbourhood is proposed to route traffic to the site.
- Service access is proposed towards the North-Eastern end of our site boundary into the complex.

Noise zoning necessitate the complex to be located within the core of the site, while the vehicle route terminate in front of the complex but with a clear plaza area separation.

Orientation as regards sun necessitates the larger axis of the complex to line along the North-South direction.

Control of undesirable North-East trade winds is made possible by the provision of tree belts acting as buffers on the road running along the north eastern boundary of the site.

Views towards distance city centre and hills also necessitated the need to have high-rise office building

CHAPTER SEVEN

7.0. DESIGN CONSIDERATIONS:

For a design scheme to be proper, some design consideration have to be thoroughly analysed and the most suitable, choosen. An analysis of these elements gives one a clear idea on how to go about synthesizing the design. The elements under study include:

7.1. Office layout types

7.2. Planning the offices

7.3. Types of Air-conditioning

7.4. Fire service equipment

7.5. Acoustic in buildings

7.6. Structural systems

7.7. Curtain walls

7.1. Office Layout Types:

Generally, office layout types are based on either of the two principles:

- accessibility to various rooms through corridors, in which case single, double and triple zone layouts may be distinguished.

- alternatively, access to the various parts of the layout is gained directly from the service core (utility core) and corridors are dispensed with.

The single, double and triple zone layouts are based on the provision of corridors, giving access to the various parts of the layout. The economy

of such system is determined not only by the ratio of office space to circulation space, but also by the ratio of utilised space to the available space within the office itself. The "flexibility" of an individual - room system based on a grid - layout makes it possible to provide rooms of varying length, hence privacy and comfort is afforded by this systems as compared to open layouts. This systems however have a disadvantage of relatively high cost of construction and due to the continuous corridor, the room depth cannot be varied.

7.1.1 The Open Layout Type

The layout type without corridors, this system permits rational utilisation of the entire floor space available for offices. The absence of partitions makes for a substantially cheaper form of construction than the individual - room system. This system also cuts out the considerable cost of installing and rearranging movable partitions, facilitates supervision and interaction of the entire staff. Noise and lack of privacy is a possible disadvantage of the open layout. The scheme provides large open-layout office area and for this reason the vertical circulation elements are been centrally located. In open layout type, an efficient air-conditioning system is highly required and must rely on artificial lighting as a permanent adjunct to natural lighting. (See Figures 7.1

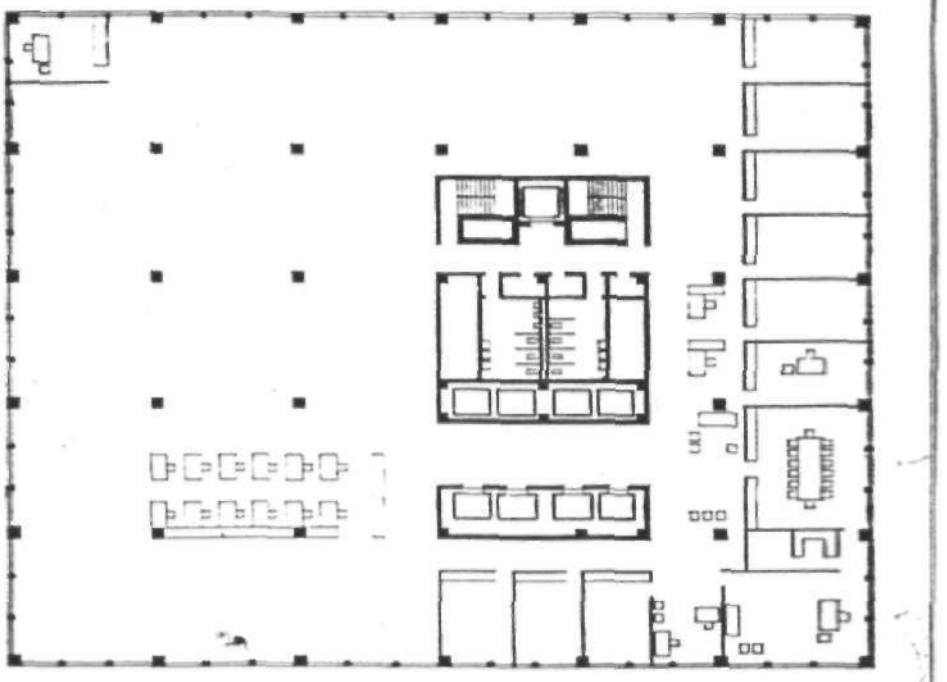
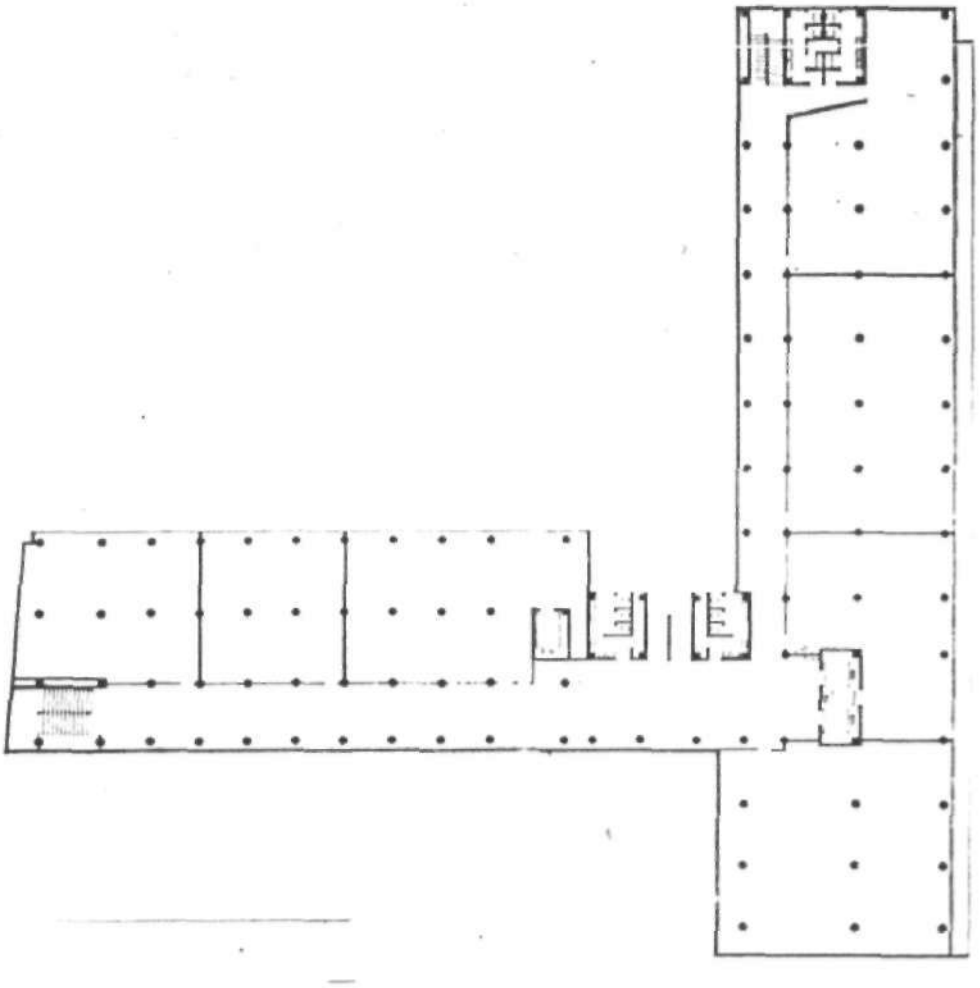


Fig 7.1 Typical Open Office Layout Plan



7.1.2 Single Zone Layout

In single zone layouts, effective natural lighting and cross ventilation is highly achieved. Flexibility of individual room is his possible hence privacy and comfort is enhanced as compared to open layout. In layout of such, corridors are located on one side with the offices on the other. Layouts of this kind are primarily suitable for school buildings than offices where requirements of hygiene rather than economy are the determining factors, (see figure 7.2) A typical example of single zone seven-storey office building layout shows the location of the main staircase at the junction of the two slab blocks. In as much as the depth of the staircase is less than that of the adjacent office zone, the building presents a sort of waist or construction while the secondary staircases are at the ends of the two corridors. Generally speaking, the single-zone layout is uneconomical, as in a case such as this, it is most essential that an air conditioning system be installed due to the considerable depth of the offices.

7.1.3 Double Zone Layout

The double zone layout on the other hand, may be regarded as the typical solution for a medium-sized office building. It is extremely economical and satisfactory only that it has a deficiency of

proper ventilation and lighting. Flexibility of plan is possible based on modular grid division. Both double and triple layout should be oriented so that the longer sides of the offices have northern and southern exposure while the office facing east and west are protected by shading or sun blinds. In the design of higher buildings, a layout of this type very soon reaches certain limits because, with the increasing in number of floors, the lifts begin to take up too much space hence it becomes unsuitable (see figure 7.3) In the particular case under consideration, however, an interesting solution has been obtained by carefully contrived arrangement of stairs, lavatories and lifts.

7.1.4 Triple Zone Layout

In high storey and multi-storey buildings, the space requirements for service core increase so considerably that this vertical circulation facilities take up valuable office space, and their location within the office zone complicates both the structure and the internal planning of the building. For these reason, the triple zone layout has been evolved and may be regarded as the typical solution for high office buildings. All circulation facilities and sanitary accommodation are placed in the third or central zone, in the interior of the building. Here the offices are

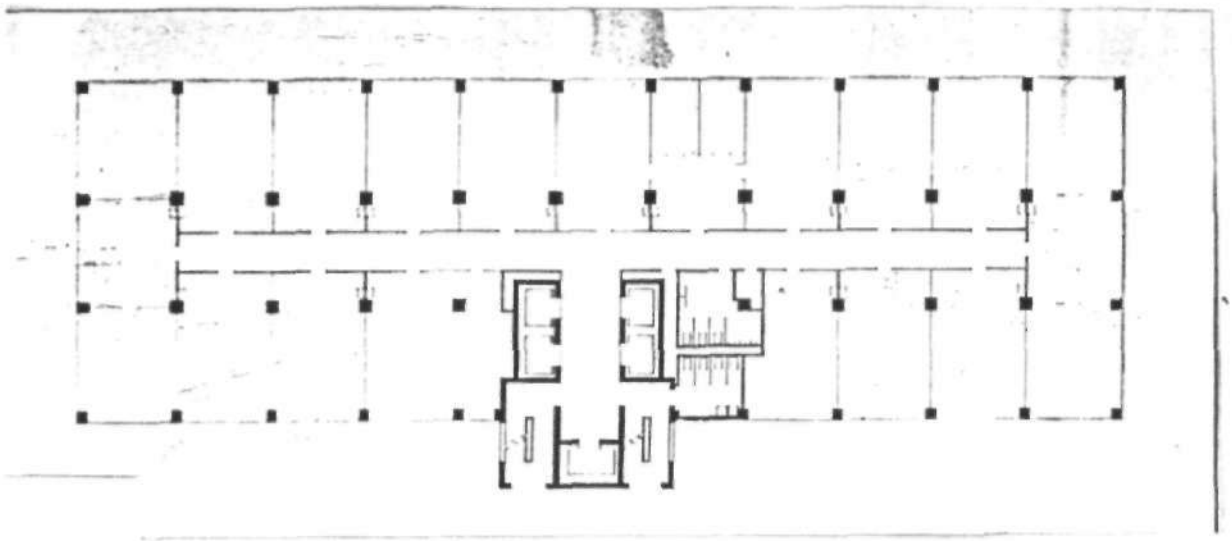


Fig 7.3 - Typical Double Zone Layout Plan

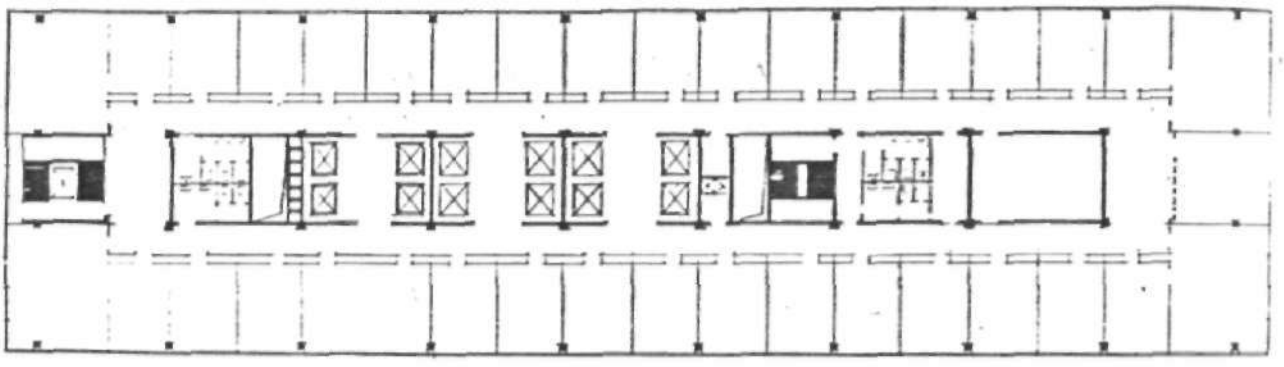
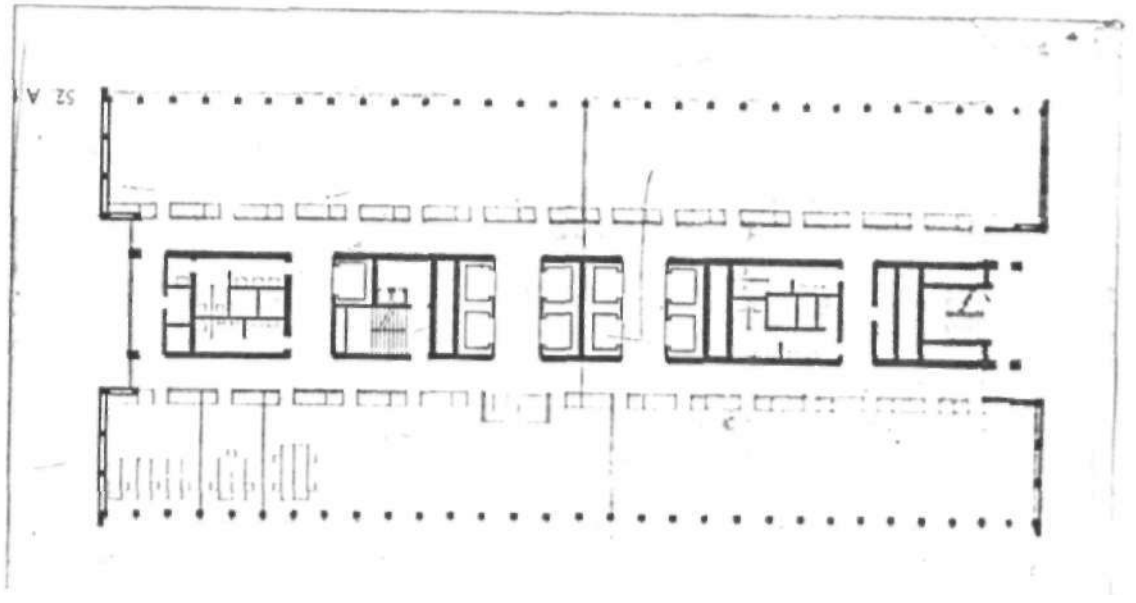


Fig 7.4 (a) Typical Triple Zone Layout Plan



arranged without interruption along the external walls while it is possible to illuminate and ventilate corridors from the end wallsbut it will be necessary to provide additional artificial lighting and ventilation for the interior zone of the building.

The triple zone is not only extremely economical, but also offers many advantages such as aesthetics and structural design. (See figures 7.4) which shows the triple zone layout with all the internal circulation elements concentrated at the centre and form - together with the lavatories, service rooms and spaces containing mechanical installations - the care of the building.

7.2. Planning the Offices:

The planning of offices deals with the provision of spaces conducive to the operations of an organisation. This may be to meet specific working requirement or as a speculative building to be let out to different organisation.

In design terms, the office consists of the SHELL (the physical disposition of the building which may last 50 year and above), the SCENERY (which relates to tenancy and changes quite often due either to changes in tenancy or the requirements of the organisation), and the SET (refering to the users adjustment of the scenery. See figure 7.5 The success of an office design does not therefore

depend on the shell alone but how the shell thus created can be adapted for the changing scenery.

However, two factors of office revolution have tend to make architectural solution of office design unreliable and unpredictable are:

Office furniture and Electronics. These two factors pose a continuous challenge to architecture - a challenge which may utimately be met using the Grids (See figure 7.6).

In design, grids may be consider under four categories.

7.2.1 Structural Grid: A dimensional discipline that relates the biggest and the most permanent parts of the building shell to one another. It is to be considered in three - dimensions.

7.2.2 Constructional Grid: Takes into consideration, apparently insignificant elements as e.g. flourescent tube which may have a profound effect on planning. This is necessitated by the fact that building products and materials are made in a limited range of sizes.

7.2.3 Service Grid: Deal with services to the building e.g. power, telephone, air condition e.t.c. and incidentally computer outlets.

7.2.4 Planning Grid: This is based on space standards until everyone has been accommodated. It is a device which imposes an overfall order and maintain an iddividual/group space standard.

Office buildings

OFFICE CONSTRUCTION

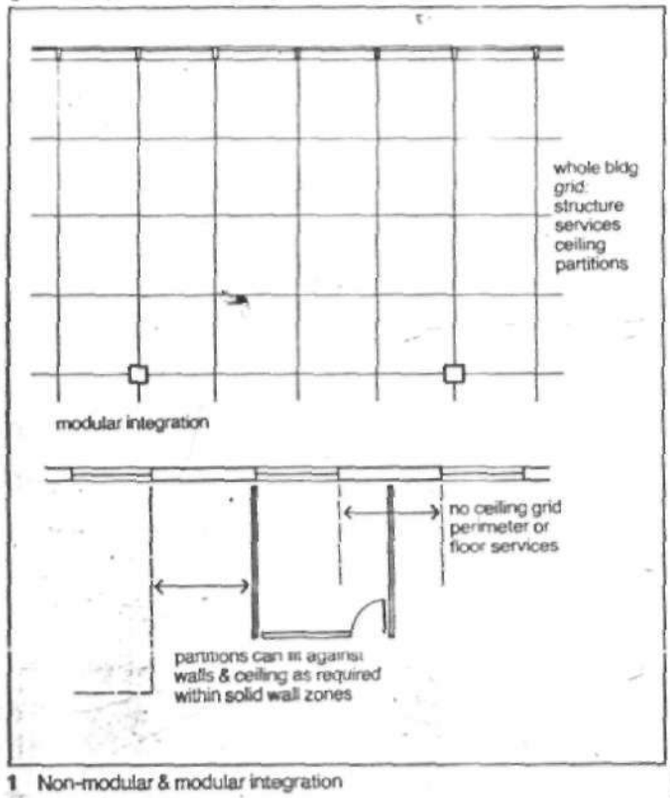
3 critical constructional elements affect office layout: partitions, ceiling, window module. 2 basic choices: complete modular integration and its opposite, avoiding precise modules →(1).

Test of any office planning: how well range of small rm sizes can be accommodated. Small rm usually found in following approx sizes: 15 m², 20 m², 25 m², 30 m² (smallest size USA: 7.4 m²). Single rm depth should not exceed 6000 otherwise unusable space created towards back of each rm. Acceptable rm proportions should not exceed ratio of 1:1.5. Thus if strict modular grid thought necessary, 1500 min feasible grid →(2) (USA 1220–1524).

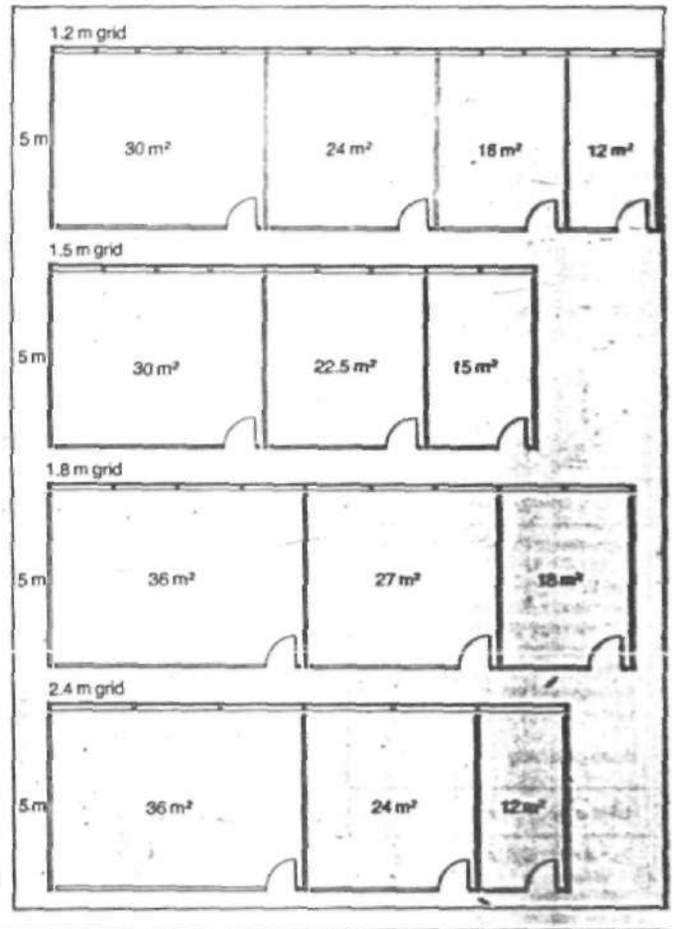
Ceiling grid can affect single rm design in similar way. Single most critical dimension: standard size of fluorescent tubes (1200, 1800, 2400; USA 1220, 1830, 2440).

Wide variety of possible types of ceiling light fittings set in ceiling:
diagonal patterns
movable fittings
waffle grids
large coffers

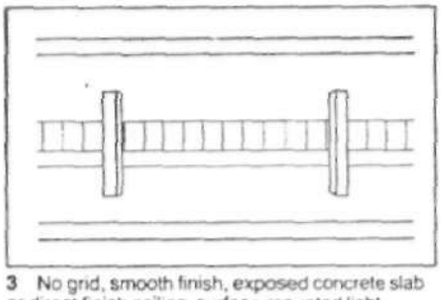
All can be made compatible with planning small rm. Discipline of ceiling grid relaxed when task lighting used because fewer lights needed in ceiling.



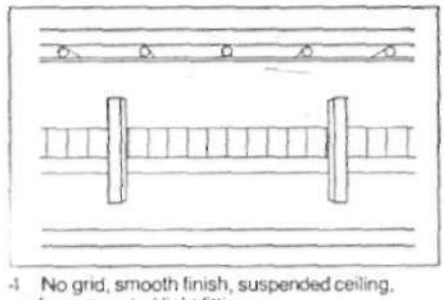
1 Non-modular & modular integration



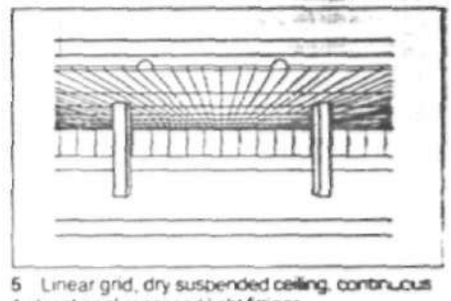
2 Range of rm sizes at constant 5000 depth with various window grid modules



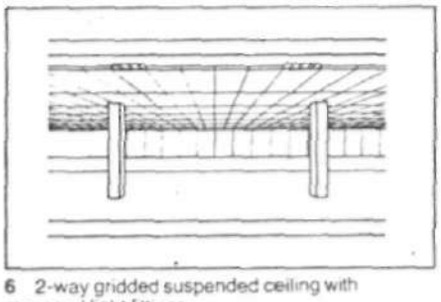
3 No grid, smooth finish, exposed concrete slab or direct finish ceiling, surface mounted light fittings



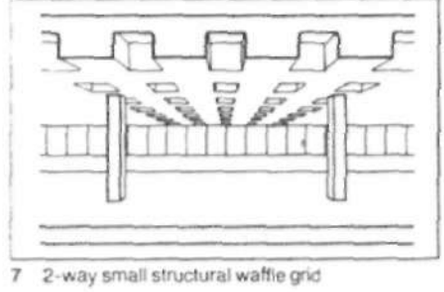
4 No grid, smooth finish, suspended ceiling, surface mounted light fittings



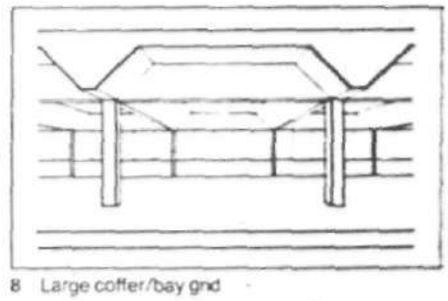
5 Linear grid, dry suspended ceiling, continuous 1-directional recessed light fittings



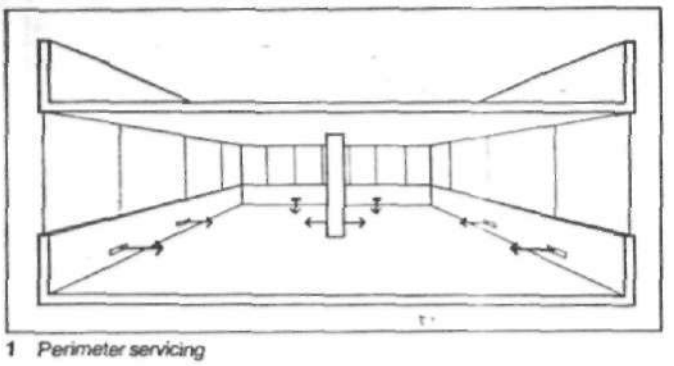
6 2-way gridded suspended ceiling with recessed light fittings



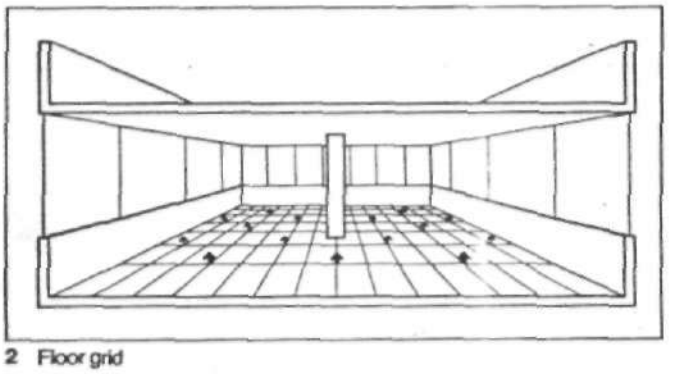
7 2-way small structural waffle grid



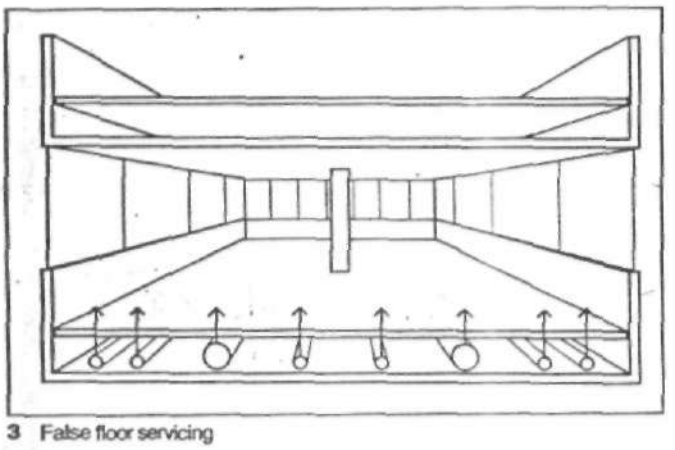
8 Large coffer/bay grid



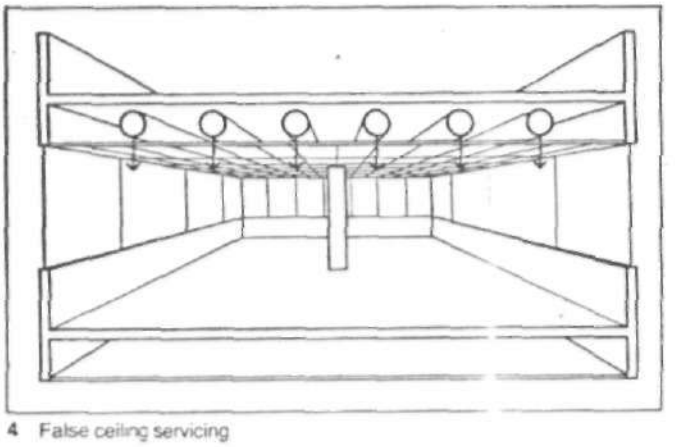
1 *Perimeter servicing*



2 Floor grid



3 False floor servicing

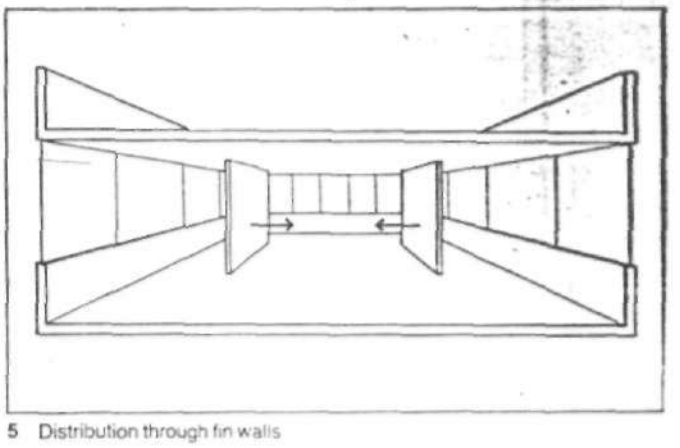


4 False ceiling servicing

OFFICE SERVICES

Demand for services in offices increasing. Each work place must be next to outlets for power and telephone. Coaxial cable access for terminals frequently required: with increasing automation and telecommunications will become common see work stations with 6 or even 8 wires of various kinds. Already some organisations provide 1 terminal for every 2 work stations. Precise need for connexions cannot be predicted: essential provide grid to which each work station can have easy access without dangerous, trailing wires. Such grid can be provided in following ways:

distribution at perimeter and through partitions
distribution through floor grid (usually 1800–2000 centres)
distribution through false floors (height should be 50–500)
distribution from ceiling (NB problem with safety)
distribution through fin walls (points at desk top height)



5 Distribution through fin walls

Fig. 7.6

It is pertinent that a proper space definition is made from the onset, seeing that the success of an office design programme may be derive from a proper implementation of the various grid systems in combination.

7.3. Air-Conditioning Types:

Consideration of this aspect of serives at the inception of design helps achieve greater economy.

Of the three general air-conditioning methods:

(a) Vapour compression

(b) Absorption refrigiration

(c) Thermometric

The vapour compression method is most suitable for office Block purposes. Out of the methods of the vapour compression method i.e.

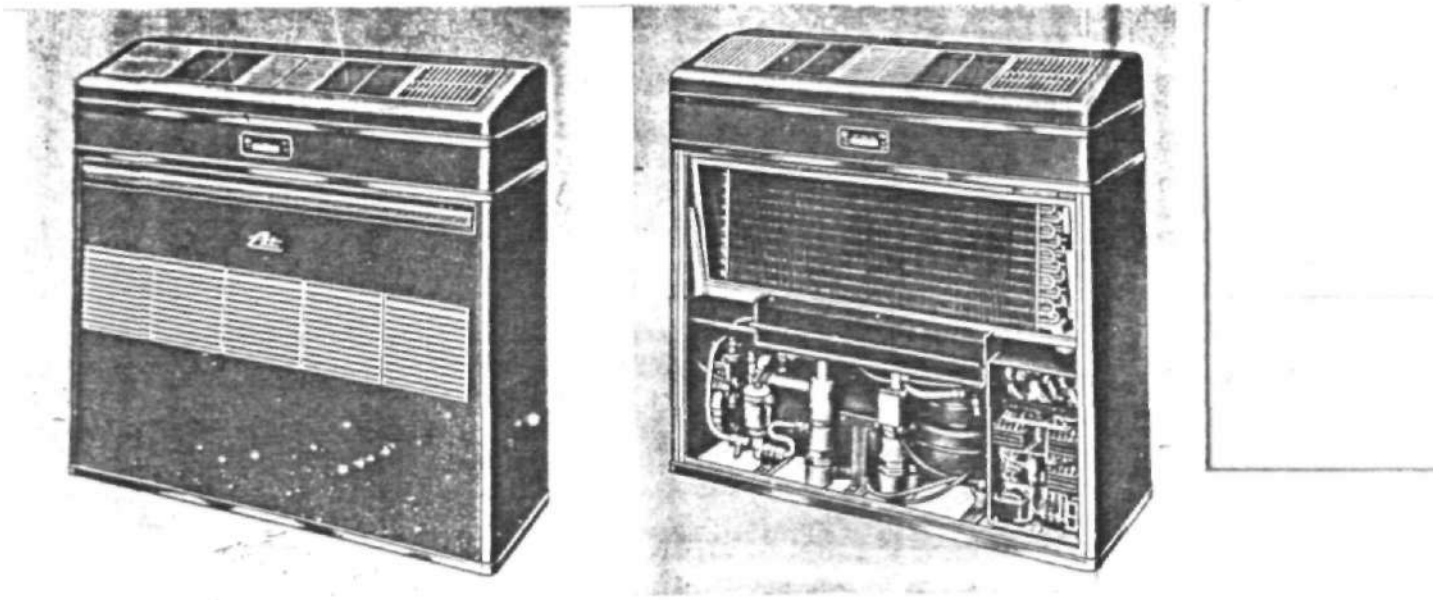
(a) Unit air conditioning systems

(b) Central air conditioning system

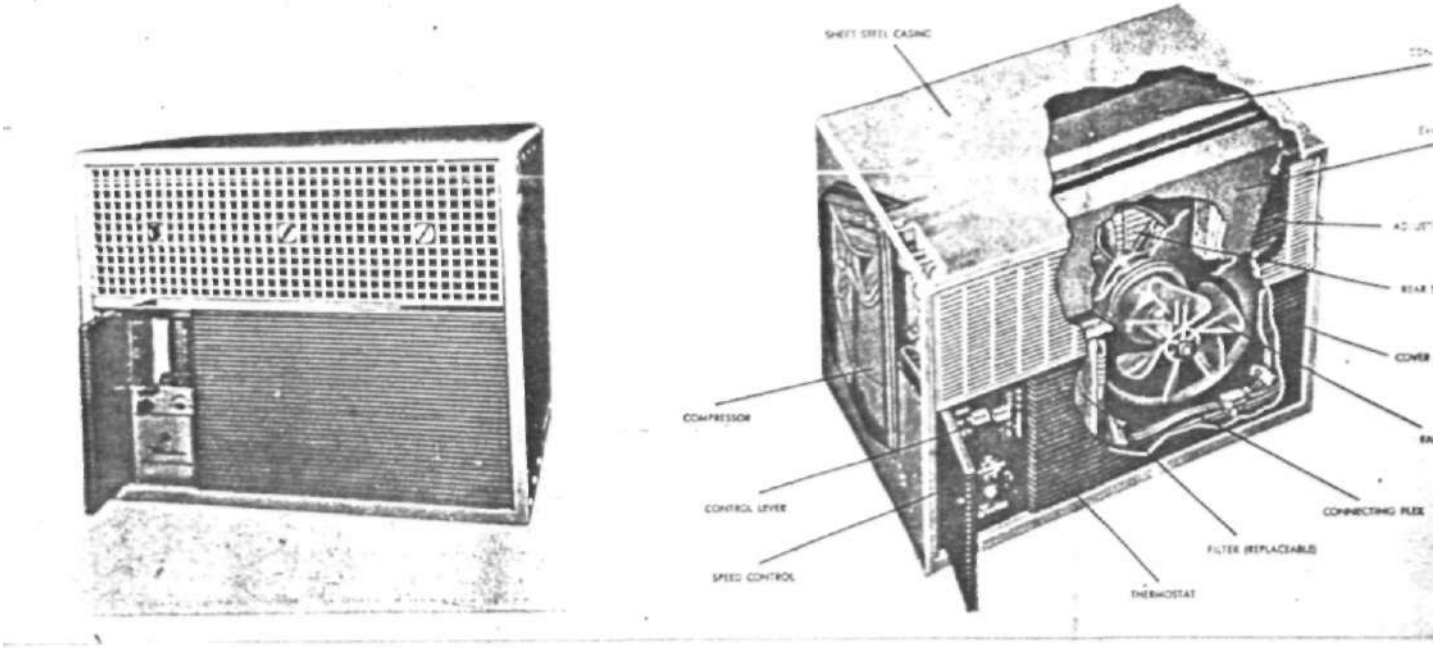
The central air conditioning system is most economical and adequate as long term benefits will compensate for the initial high cost of purchase and installation and duct work. However, a brief discussion of vapour compression methods shall be enumerated below.

7.3.1 Unit Air-Conditioning Systems

In unit air conditioning systems, they are self contained cabinet or box type. In the unit



320



Unit - Air Conditioning Systems

PLATE IV

type, the air is drawn in directly from outside the building into the air conditioners where it is cooled, humidified or dehumidified, cleaned and delivered to the room. An advantage of this system is that the supply and return air ducts, which are relatively expensive especially with low-pressure system are eliminated, since the air is drawn straight into the appliance from outside. Besides, the atmospheric condition of each room can be individually controlled. However, the cost of servicing the appliance is higher than with the centralised system and the ultimate running cost are probably higher as well. See Plate III

7.3.2 Centralised Air Conditioning Systems:

The centralised systems may be of

(a) low pressure air-conditioning type

(b) high pressure air conditioning type with convector.

The signficant feature is not the pressure, but the velocity of the air. The range of application and the potentialities of the two systems are determined by the difference in velocity. The all important requirement for the efficiency of high pressure and low-pressure systems alike is the provision of a set of automatic control devices which regulate the room temperature in accordance with the variations of the outside temperature.

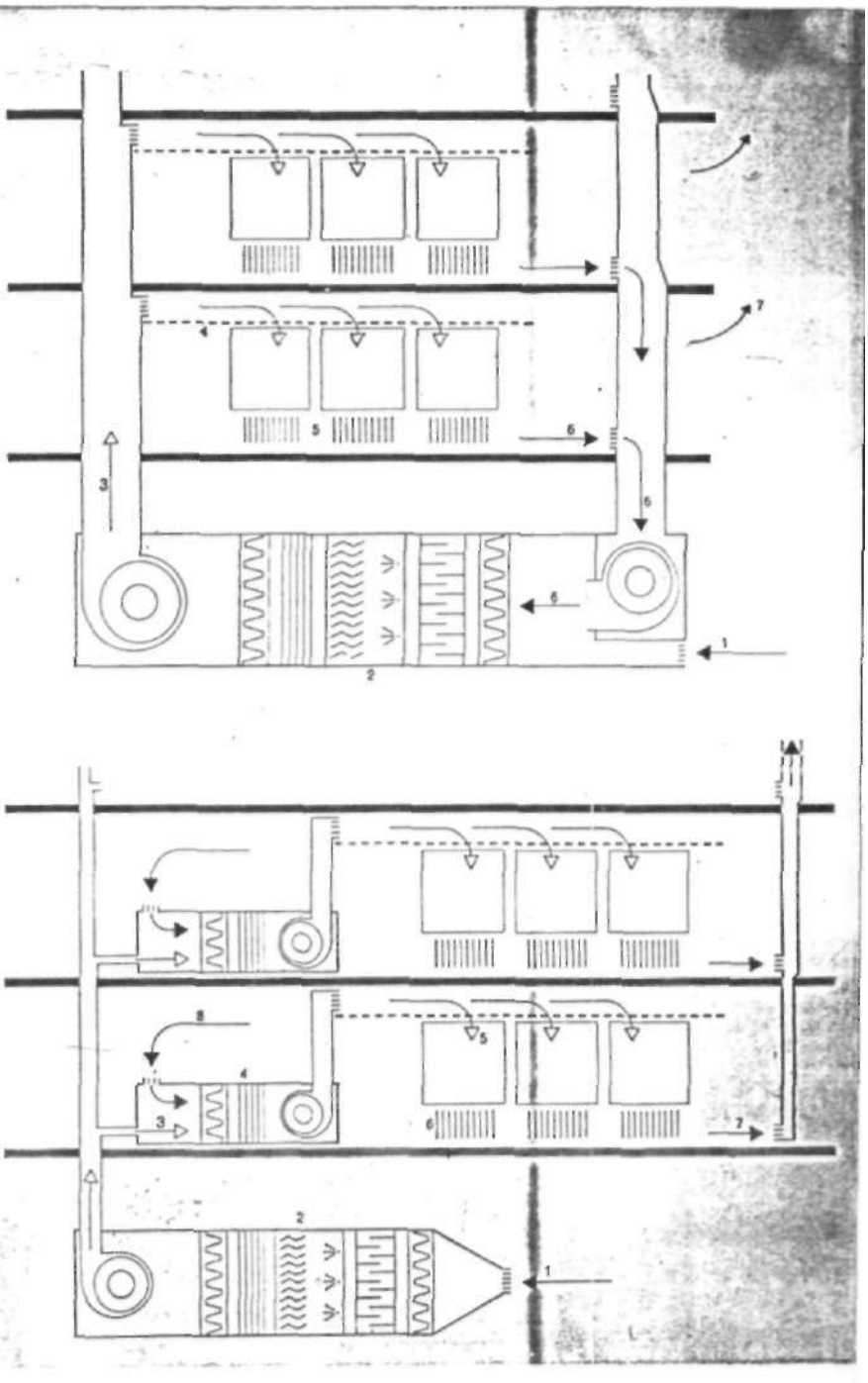
Low-Pressure Centralised System

In the conventional low pressure systems the air velocity is between 5 and 8 m/sec. They are designed essentially to operate on the recirculation principle i.e. the conditioned air supplied to the room is extracted and returned to the central air conditioning plant (See figure 7.7...) The supply and return ducts have relatively large cross-sections and therefore take up a good deal of space. The air is delivered to the rooms through inlets in the corridor, walls and is subsequently extracted through other openings. However no individual room temperature control is possible. For all rooms have same temperatures.

These system is especially most suitable for individual large halls, such as theatres, cinemas, restaurants, assembly halls, etc.

High Pressure System with Convectors

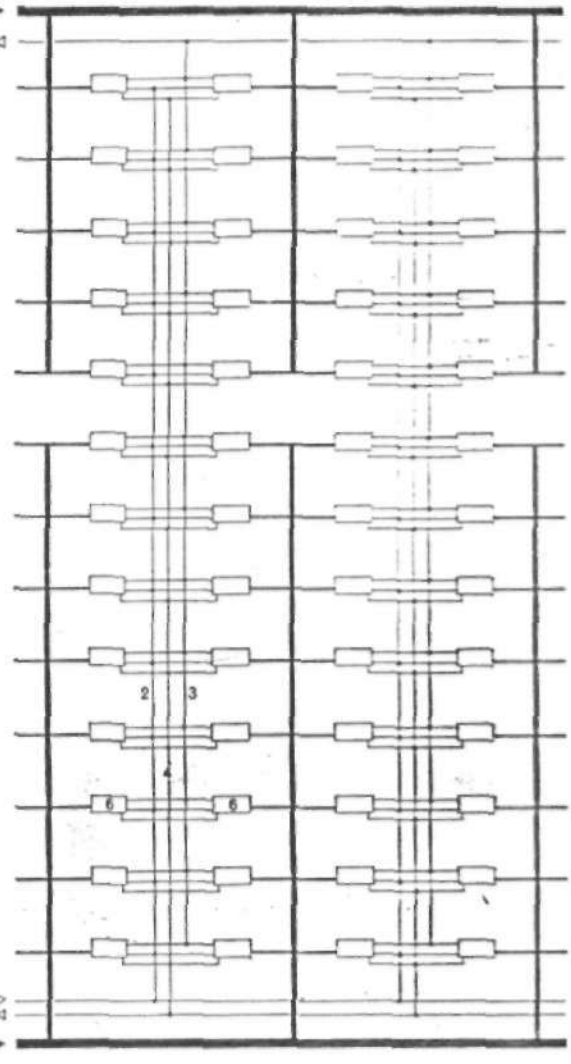
In the high pressure systems, the air velocity may be as high as 25m/sec. The most frequently employed and which appears to be most suitable for office is that of the central high pressure conditioning plant operating in conjunction with induction type unit air conditioners known as convectors (See figure..7.8...) The temperature of the air delivered by the convectors or induction units can be controlled individually to suit their own requirements, which is not possible with



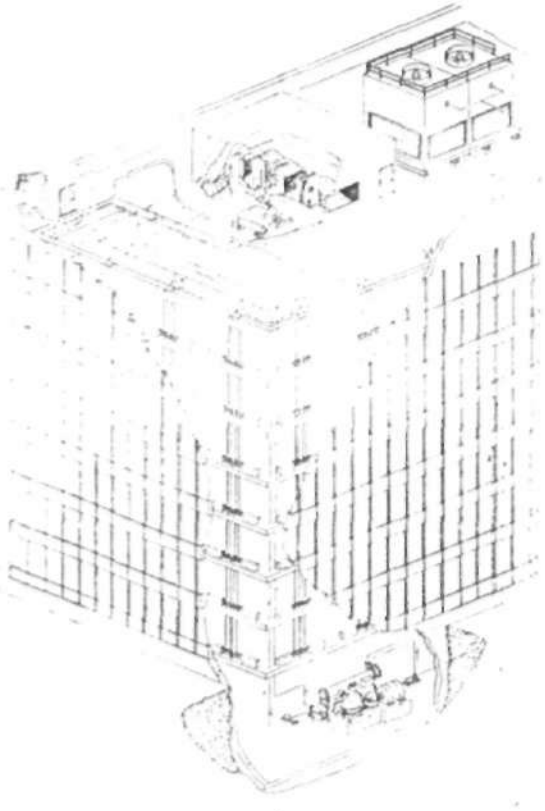
I. Conventional low-pressure air-conditioning system: fresh air intake (approx. 20 %); 2 air-conditioning plant comprising preheater, filter, humidifier, dehumidifier, eliminator to remove surplus moisture, cooler, reheater; 3 supply air (80 %); 4 conditioned air delivered to room through perforated ceiling; 5 additional heaters at windows to prevent draughts; return of part of exhaust air to central plant (approx. 80 %); discharge to open air (approx. 20 %).

II. Improved low-pressure air-conditioning system: fresh air intake (approx. 20 %); 2 air-conditioning plant; supply air (approx. 20 %); 4 subsidiary plant with reheater as recooler; 5 conditioned air delivered to room through perforated ceiling; 6 additional heaters at windows to prevent draughts; 7 discharge to open air (approx. 20 %); 8 exhaust air returned to subsidiary plant (approx. 80 %).

Fig 7.7 Low Pressure Air Conditioning Systems



3.7 Diagram of a high-pressure air-conditioning system with convectors for a 13-storey office building. The building is served by two central air-conditioning plants, in the basement and on the top storey respectively. The central heating plant and refrigerating plant are installed in the basement only. The convectors on all floors are supplied with hot water (or cold water, if cooling is required) from the basement (flow and return pipes).
1 conditioned air supplied by plant in basement; 2 flow pipe; 3 return pipe; 4 condensate return pipe; 5 conditioned air supplied by plant in top storey; 6 convectors (induction units).



3.8 High-pressure air-conditioning system with convectors for a seven-storey building (American example). The central conditioning plant and cooling tower are installed on the roof of the building; the refrigerating plant is in the basement. In the United States, office buildings are often heated by a district heating system.

Fig. 7.8. High Pressure Air Conditioning Layout

low-pressure systems. No return air ducts are used and as such no recirculation of air is possible hence smells that may arise in any particular room will not constitute a nuisance to the occupants of other rooms because the stale air is being discharged through the corridors of the building and eventually into the open air. Favourable features of the high - pressure systems are small ducts, absence of return ducts and individual control. However, a disadvantage of high-pressure systems is the noise caused by the high air velocities in the supply ducts. But by installing sound absorbing devices in the ducts, it is possible to keep the noise below the general level of noise prevailing in an ordinary office.

In high office building, the following possibilities are available:

- installing both central air-conditioning plants on roof and in the basement.
- installing plants in separate intermediate floors sandwiched between the office building.

However, there are a number of other high pressure air conditioning systems but are not very suitable, for they are too noisy, besides they have high power consumption.

7.4. Fire Service Equipment

Modern buildings require not only means of escape, access for fire brigade and structural

protection, but also first aid equipment.

In very large buildings, expert advice on the appropriate provisions and the maintenance desirable for particular cases of special installations should be sought from local fire brigades.

A number of common equipments for fighting fires include buckets with water, buckets with sand, soda-acid fire extinguishers, foam extinguishers, etc. These are usually placed at strategic points and are movable.

Fixed apparatus include rubber hose reels, usually in recess and sited near means of escape and sprinklers.

Sprinkler installations have an advantage in that they are automatic installations and do not depend on the presence of occupants for its operation.

They usually consist of a grid of water pipes fixed under the ceiling with delivery heads normally on a 3m square grid. Water is prevented from emerging by glass or quartzoid bulb containing liquid with the liquid designed to expand and break the bulb when temperatures rise. Bulbs are available which break at temperatures ranging from 68^{o}C to 180^{o}C.

A spray of water is then delivered over an area of about 10^{2}m.

7.5. Acoustics in Buildings

Many acoustical problems in buildings can be avoided by considering the broad requirements early in the design process. Later as, rectification is rarely satisfactory or economical.

7.5.1 Room Shape and Quality:

For very large auditoria, halls depending on the use of which it will be put, whether for debate, ceremonies, lectures etc, where early sound reflection are preferred, room shape becomes a significant determining factor on acoustics. In this case halls should normally be rectangular both in plan and section. However, auditoria, for speech and drama where clarity is a prime factor and where a shorter reverbration time is desired, other shapes such as the horse shoe or fan are satisfactory.

7.5.2 Internal Noise Sources

Effective noise insulation is often impractical and usually costly, noise - producing areas should be sited away from noise - sentitive areas. In modern non-industrial buildings, the mechanical plants room is likely to be the noisiest area, especially if it contains heavy and unherently unbalanced points.

A buffer zone formed by a corridor or storage area around the plant room is a useful control measure.

7.5.3 External Noise Sources

The most important kind of external noise affecting buildings is transport noise from road traffic, aircraft and railways.

An essential characteristic of such sources is that they are not generally under the control of those affected by their noise. It is therefore essential to assess the likely level of external noise to which a proposed building is to be subjected. If this is done early enough in the design process, the scheme can be economically produced to alleviate the effect of the noise.

7.5.4 Sound Insulation

There are basically two ways by which sound is transmitted:

(a) Impact borne

(b) Airborne

Impact Borne Noise

Noise is transmitted through the material on impact. This is affected by the density of the material in question. The denser the material, the lower the transmission. For building purposes, concrete is the most suitable material against impact borne noise.

Air Borne Noise

The sound is transmitted through the air. This is generally affected by openings. Any kind of opening in a partition will seriously impair the sound insulation. Consideration should therefore

be given to such openings as doors and windows. Since they are usually the weakest part of the envelope where sound insulation is concerned.

Floors:

A acoustic problem associated with floors is the direct structural excitation of a hard surface floor by footsteps.

Thick carpets are an effective solution. Where unacceptable, a floating floor must be used if footstep noise is to be avoided, in the room beneath.

Air borne sound insulation of a floor can be improve by suspending an impermeable ceiling below it, but the improvement is often limited by structural limitations on its weight and height consideration.

Walls

The material used for the wall and its thickness is often the primary factor. In areas where the sound quality is of prime importance e.g. committee rooms, conference hall etc. Special consideration should be given to the walls. Sound absorbing materials such as wood slats, thick curtains etc should be used.

Miscellaneous

Consideration should also be given to furniture which could be a nuisance.

7.6. Strucutural Systems

It is very essential at the very inception of design to decide on the structure system that will be used in the final proposal.

There are basically five structure systems namely:

7.6.1 Bulk Active Structure Systems

Short rigid elements, monolithically connected and can span spaces by redirecting loads by means of their bulk, e.g. column and beams.

7.6.2 Vector Active Structure Systems:

Short elements, conncected by pins and triangulated so that loads transmitted by members are either tensile or compressive and can span space e.g. Trusses.

7.6.3 Form Active Structure Systems:

Long flexible elements that must be anchored at both ends, can span space and transmit loads either by pure tensile or compressive forces e.g. cables.

7.6.4 Surface Active Structure System:

Surfaces in particular shapes can re-direct forces to supports and span space e.g. shells.

7.6.5 Vertical Structure System (VSS)

Solid rigid elements in predominantly vertical extension, secured against lateral stresses and firmly anchored to the ground, and

collect loads from horizontal planes in high altitude above the ground, transfering them to the foundations e.g. High rise structures.

They are characterised by the particular systems of:

- load collection
- load transfer
- lateral stabilization

They have no indigenous working mechanism of their own and employ for redirection and transmittance of forces systems of form-active, vector-active, bulk active or surface-active mechanisms.

Due to the necessity to cut down on the section of load transmitting elements for an optimum use of floor spaces, all space defining elements that are necessary for the function of the high rise building are potential structural sections to stiffen against lateral stresses as well as collect the redirect loads: e.g, stair wells, elevator shafts, installation ducts, exterior skins. Vertical structure system can be distinguished by the different systems of storey-wise load collection See Figure 7.9.

- Bay system
- Free span system
- Cantilever system

Bay System

The follecting points are evenly distributed over the whole floor plan (see figure 7.9(a)....)

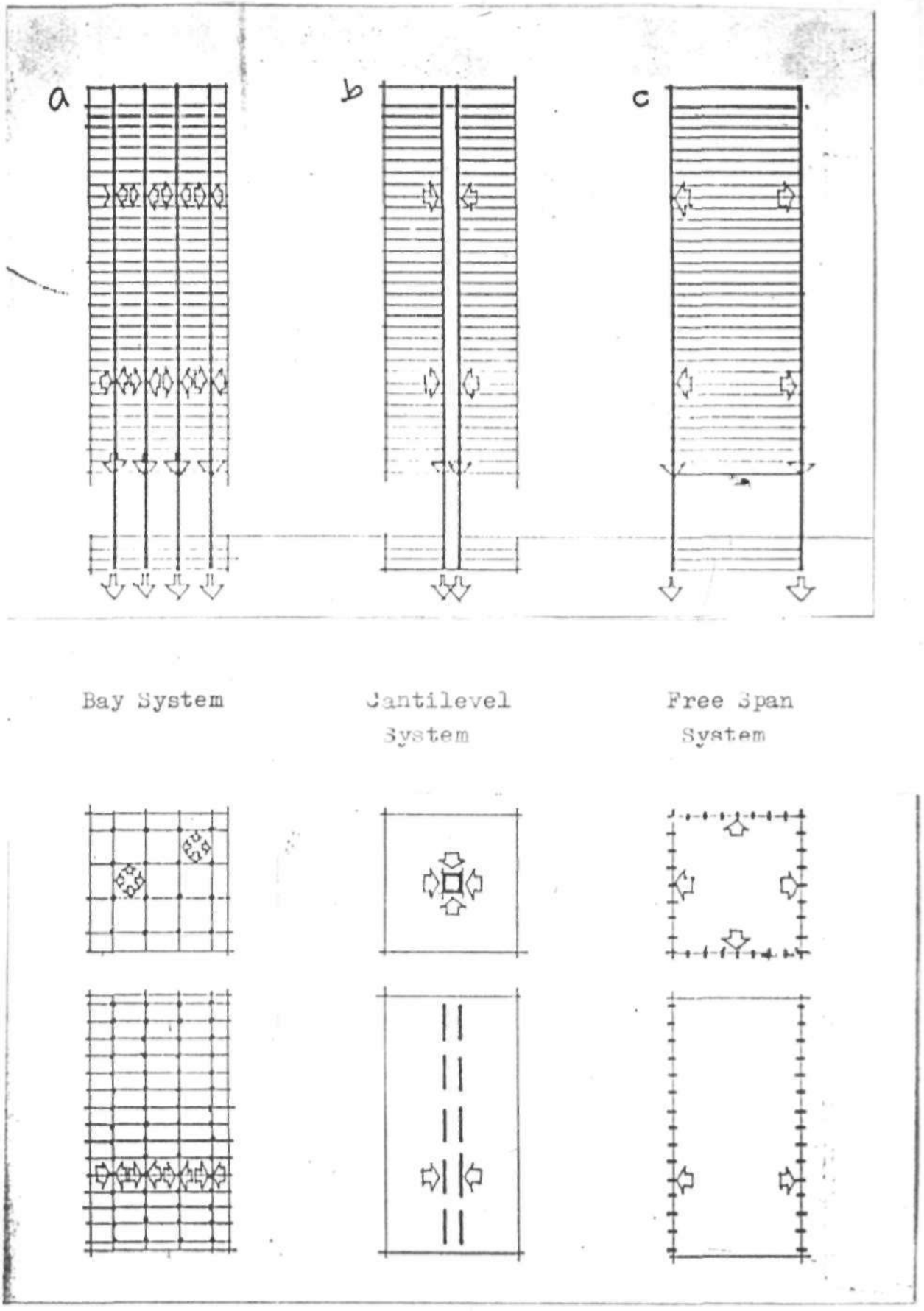


Fig. 7.9. Vertical Structure System Types

Free Span System

The collecting points are arranged peripherally around the floor plan (see figure 7.9(b))

Cantilever System

The load collecting points are centrally located. (See figure 7.9(c)).

Design of vertical structure systems then presupposes a comprehensive knowledge not only of the mechanisms of all structure systems, but because of the interdependence with the floor plan organisation and because of the integration of the technical building equipment, it also necessitates a deep understanding of the inner correlations of all factors that determine a building.

Vertical structure systems are instrument and order for the construction of high-rise buildings. In this capacity they are co determinant in shaping modern buildings and cities.

7.7. Curtain Walls:

Technologically the modern curtain wall has come a long way especially in the last two decades. The behaviour of curtain walls in warding of the effect of the weather is highly complex. They may look simple, but are far from it. Rather, involve assembling of structure, metal and glass working, with much interrelationship and interdependence of elements. Further, there is much to know about

finishes, and many subtle things to know about sealants.

Although technical know-how about curtain walls has increased, yet the problems associated with it have not disappeared.

Problems like - leakage and breakage still remain. The following problems may account for the existent of problems today.

(a) Structurally, curtain walls are being designed closer and closer to the loads they have to withstand in the field with hardly any allowance made for contingencies due to market forces.

(b) Due to the rush attitude of owners to get buildings enclosed, occupied and producing income may force sub-contractors into poor construction practices. Because glazing openings may turn out to be neither plumb nor square, glaziers may resort to nipping corners and sealing edges in order to get the glass to fit, and in the process weakening the glass.

(c) The curtain wall has not been comprehended by designers as a system. For example, the deformation of a wall under wind loading may not be structurally harmful but this movement could open the glazing system to water penetration.

(d) The realities of field tolerance and thermal expansion and contraction have not

been taken fully into account. Columns can be out of line by several inches, spandrel beams will have a certain deflection that may or may not be what was anticipated etc.

However, the two most common failures associated with curtain walls still remain glass breakage and leakage with the latter being the most prevalent.

Other problems include cracking of panes, staining of glass, lack of colour match etc.

Care should therefore be taken when designing curtain walls. Manufacturers should be careful to manufacture to required wind, thermal, and construction specification. To limit future maintenance costs, installa tion must be properly done to specification.

CHAPTER EIGHT

8.0. DESIGN AND DESIGN REPORT

Decisions finally arrived at in the design of the civic centre will be concluded in this chapter. Here is where the design decisions, good or bad are taken which result in the final designed product. The following is a brief of the main element of the final design product.

8.1. Design Concepts:

The layout concept adopted for the design scheme was based on a series of interrelated courtyards. This was as a result of the complex accommodation requirement of the civic centre. Around the courtyards the building layout was then developed. This layout was chosen in an attempt to integrate the principle of increased interior wind velocity when a building form is oriented to the wind direction. This helps in reducing the humidity and temperature level of the interior spaces.

Circulation around the courtyard was adopted, that was with the notion of providing contact with visually and physically stimulating environment during circulation. The basic building form adopted was that of a cuboid which is kept in character with the surrounding building forms.

Coupled with the design concept, I also aim

at achieving the following design objectives:

- To achieve a flamboyant structure which will emphasis the spirit of good administration.
- To achieve accessibility and parking facilities with main circulation modes visible from strategic areas.

8.2. Site Layout:

The site and building layout evolved as a result of the adopted design layout concept integrates other site requirements such as service road, parking facilities, circulation route, bringing the building layout to it final form of interlocking voids and solids which sprawled on the site. However, enough area for expansion program that might need to be carried out have been left.

Landscaping, both of natural and made elements, were utilised in resolving functional, user and aesthetic needs, such as trees to provide shade and buffer along circulation routes, ground cover to reduce solar radiation and hedges to define circulation routes and segregate areas.

8.3. Design

The civic centre complex is centrally located within the site. Accessibility from either the pedestrian route or vehicular route is via a plaza

area which leads to the entrance hall. At this hall level are frequently visited public oriented facilities such as the treasury hall, the Registry and the court room. Within the inner part of the ground level are other facilities like the exhibition hall, the rates & licensing hall and postals service hall. Also the staff canteen and the municipal library are located toward the taper end of the ground floor level. The ancillary facilities also on this level are located on the far ends of the complex depending on the noise level generated and needs for constant service. This facilities are telephone exchange room, archives, treatment room, printing and publication unit on one side while the central supplies, kitchen, maintenance workshop and electrical equipment room on the other side.

On the upper levels through the entrance hall, staircases are well located to convey the public and council members to facilities such as multipurpose hall, press and conference hall, public gallery, council lounge, council chamber, legal department, chairman's suite, clerks department, committee rooms and committee study room. The council member facilities can also be linked from the inner service core which contains staircases and lifts.

The vertical inner service core takes us to

the five-level departmental offices and the mechanical floor on the sixth level.

8.4. Structure:

Structurally speaking, the entire complex is based on a 6m x 6m, 6m x 9m and 9m x 9m modular Grid..

Two structural principle were however employed. The simple bulk active system made up of a combination of column and beams applies to the ground and first floor level of the complex. The floor slabs are however cast - insitu. The roofs employed are of monopitch steel trusses for the offices, multipurpose hall and councils lounge. While reinforced concrete dome encased the council chamber.

For the departmental office building, vertical structure system working on the Bay principle was employed. For the office block, the triple zone layout was adopted in order to have all the service core facilities centrally located, to ease the complication of the structure and the internal planning of the office spaces.

The proposed foundation type adopted being pad foundation. However, the ultimate choice and depth of foundation will depend on analysis carried out by the structural engineer.

8.5. Services

With the zoning of the vertical service core

centrally, it facilitates the ease of handling the servicesof the office building. The vertical service core is designed to carry serives which are made up of electricity, fresh water, waste water, airconditioning ducts, lifts and stair cases.

Ventilation within the complex is aimed at being cross, that is through andacross the interior space. However, the air flow may not by adequate hence centralised high presssure air-conditioning has been employed in the complex. The horizontal service distribution of air is principally via the space provided between each floor slab and suspended ceiling.

Considering the noise generation from generating power plants, refrigeration plants, this facilities will be housed separately away from the complex but connection will be through underground cables, and air condition duct.

The sprinkler and fire alarm system is used for fir e service within the complex and an escape stair case is provided outside, behind the entire complex for the office building.

Close drains are provided all round the building to take care of surface water drainage. While inspection chambers are provided for the waste services to link the central sewer line directly.

Air expellers will be used in cases where the rate of air exchange is insufficient.

8.6. Lighting and Views

Direct daylighting is admitted through window glazed areas and curtain walls. However, the glazed area are treated colour coating and introduction of sun-shading devices are employed to reduce the solar insulation and quantity of glare. Artificial lighting was provided in the form of flourescent lighting wherever proved insufficient.

Views are provided through these windows towards the surrounding environment and the interior courtyards which the building flanks.

8.7. Materials and Finishes

Public and main circulation areas will have hard tearing surfaces. While general offices will be tiled and the departmental executives, council lounge and chairmans suite will have carpeting surface.

Sculptural doors has been suggest at entrances to registry, court room and council chamber, Morals and motif have been suggest within these public oriented facilities.

In places where the image of the functions matter, wood works and acoustic tiles have been employed e.g. council chamber, council lounge and multipurpose hall.

8.8. Landscaping and Other Features:

To make the civic centre appeal to users,

landscaping has to be extensive and varied. Hence the design of the landscape to afford a variety of visual and environmental experiences. Landscaping element provide are such as; reflecting pools, paved plaza with hedges, flowers, shrubs and trees as well as sculptural works to add to the image of the civic centre and to make its use intensive.

CHAPTER NINE

Conclusion

Frederick Gribberd in his book, Town Design gave the following description of typical civic buildings.

> "...As first prinple, the major civic buildings must be in themselves, the most impressive in scale and architectural character, and must also occupy the most impressive site.....
> there is also a need for a dominant space, a place to be in, rather than an object to look at ....
> this is the principal civic space...
> and it forms the major meeting place for the inhabitants..."

Like all seats of political power, the civic centre in which the local (municipal) government occupies has an ideological task - that of imprinting its presence upon the city's consciousness. This process of government being accommodated celebrates its power and importance in both architectonic and inconographic terms.

This thesis has attempted to make a contribution by trying to stimulate civic pride, by injecting regenerative force in municipal life and make different ways individual participation can be achieved in their local development by provide the civic complex which tries to integrate strictly administrative with social functions.

BIBLIOGRAPHY

1. Bacon, E.N. (1967) Design of Cities Viking Press, London.

2. Bako, M.J. (1985) Abuja Municipal Administration Centre M.Sc. Thesis A.B.U., Zaria.

3. Bourne, Larry S. (1970) Internal Structure of Cities Pall-Nall press, London.

4. Callendor, J.H. (1970) Time Saver Standard for I Architect Types. Mc. Graw Hill, New York.

5. Christopher, T. (1970) The City of Man Charle Scrioner's and sons, New York.

6. De Chiara, J. Callender J.H. (1970) Time Saver Standard for Building Types. Mc. Graw Hill New York.

7. Development Dept. (1976) New City Hall 1965 metropolitan, Toronto.

8. Duff, Francis (1976) Planning Office Space. The Architectural Press Limited, London.

9. Fairbrother, N. (1979). The Nature of Landscape Design Architectural Press, London.

10. Frederick Gibberd (1967). Town Design Architectural Press London.

11. Federal Government (1979) Constitution of Federal Republic of Nigeria, Daily Times Nigeria Limited.

12. Fry, E.M. & Drew, J. (1964) Tropical Architecture in the Dry and Humid zones Batsford, London.

13. Halprin, Lawrence (1964) Cities Reinhold, New York.

14. Hedley, E.H. Roy (1965) Toronto City Hall and Civic square, American conc-institute, Detriot.

15. HOHL, R. (1968) Office Buildings An International Survey, Architectural press, London.

16. Hunt, W.D. (1961) Office Buildings Mc. Graw-Hill, New York.

17. IPA (1979) The Master Plan for Abuja F.C.D.A.

18. Joedick, J. (1962) Office Building Cross-lockwood & Son Limited, London.

19. Kemper, Alfred M. (1979) Architectural Hand Book J. Wiley & Son Limited, New York.

20. Lawrence, A.W. (1973) Greek Architecture Penguin Book Limited, England.

21. Lewis, Mumford (1970) Cities in History Sicker and warburg, London.

22. Morris A.E.J. (1972) History of Urban Forms George Godwin Limited, London.

23. Neufert, E. (1980) Architects Data Halsted Press, New York.

24. Olgay, V. (1963) Design with climate: Bioclimatic approach to architectural regionalism, Princeton University Press, London.

25. Oliver, J.E. (1973) Climate and Man's Environment: An introduction to applied climatology John Wiley & Sons, New York.

26. Perenyi, I. (1973) Town Centres Planning and Renewal Akademai Kiado Budapest Limited, Hungary.

27. Salawu Y.O. (1987) Civic Centre for Offa M.Sc. Thesis, A.B.U., Zaria.

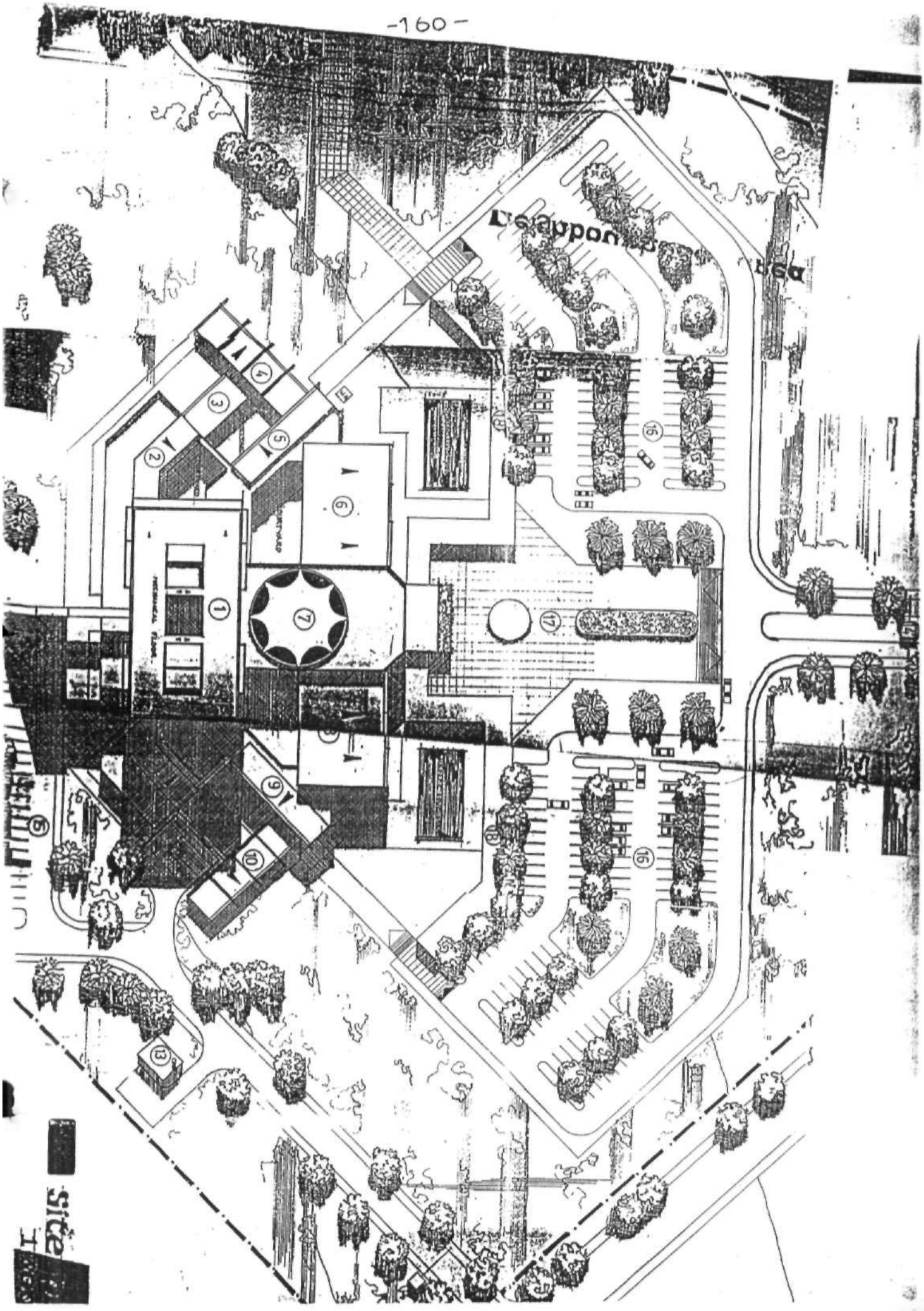
28. Sittee, Camillo (1945) The Art of Building Cities Hyperian Press, Connecticut.

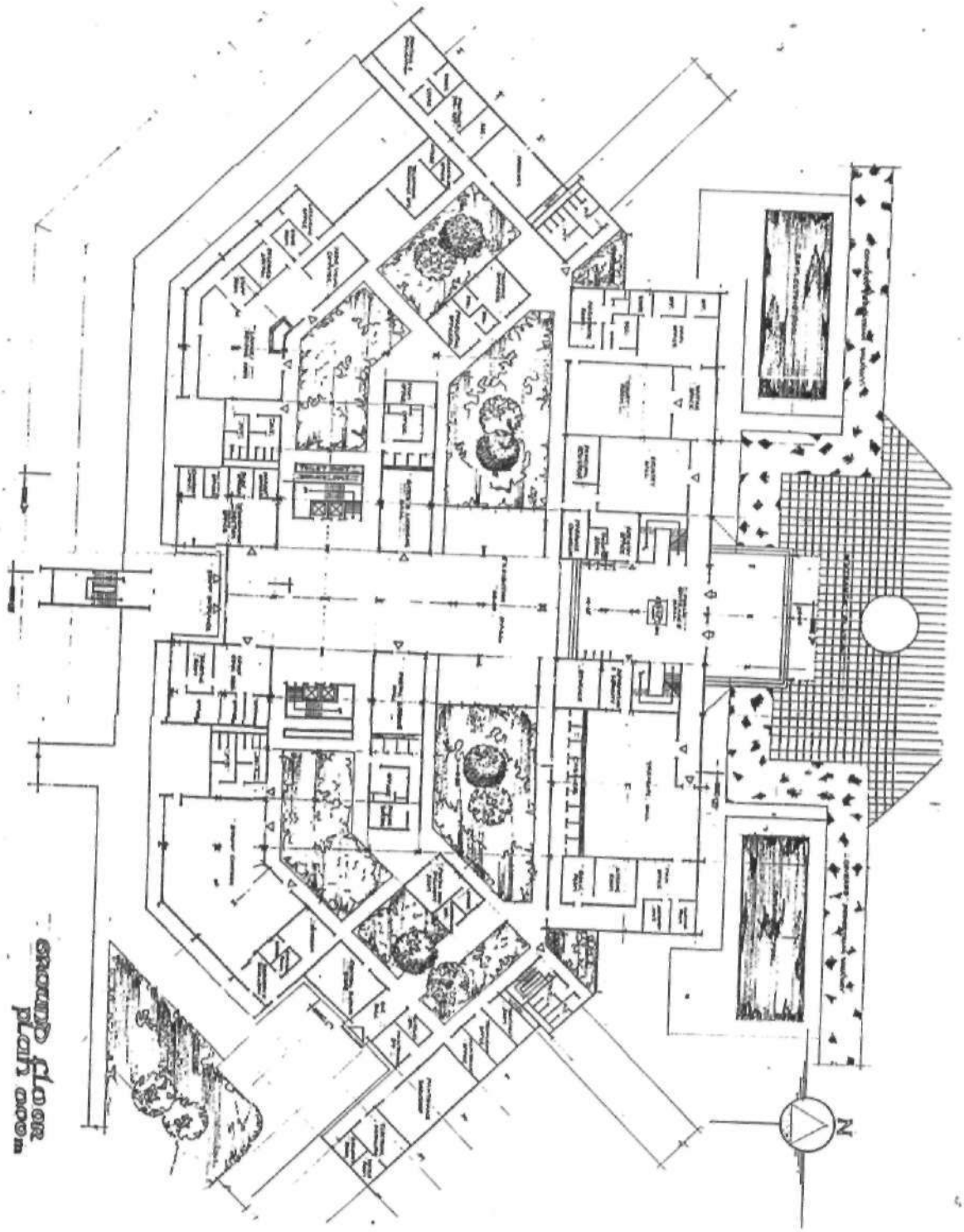
29. Tuff, P. & Ardler, D. (1979) A.J. New Metric Handbook, Architectural Press, London.

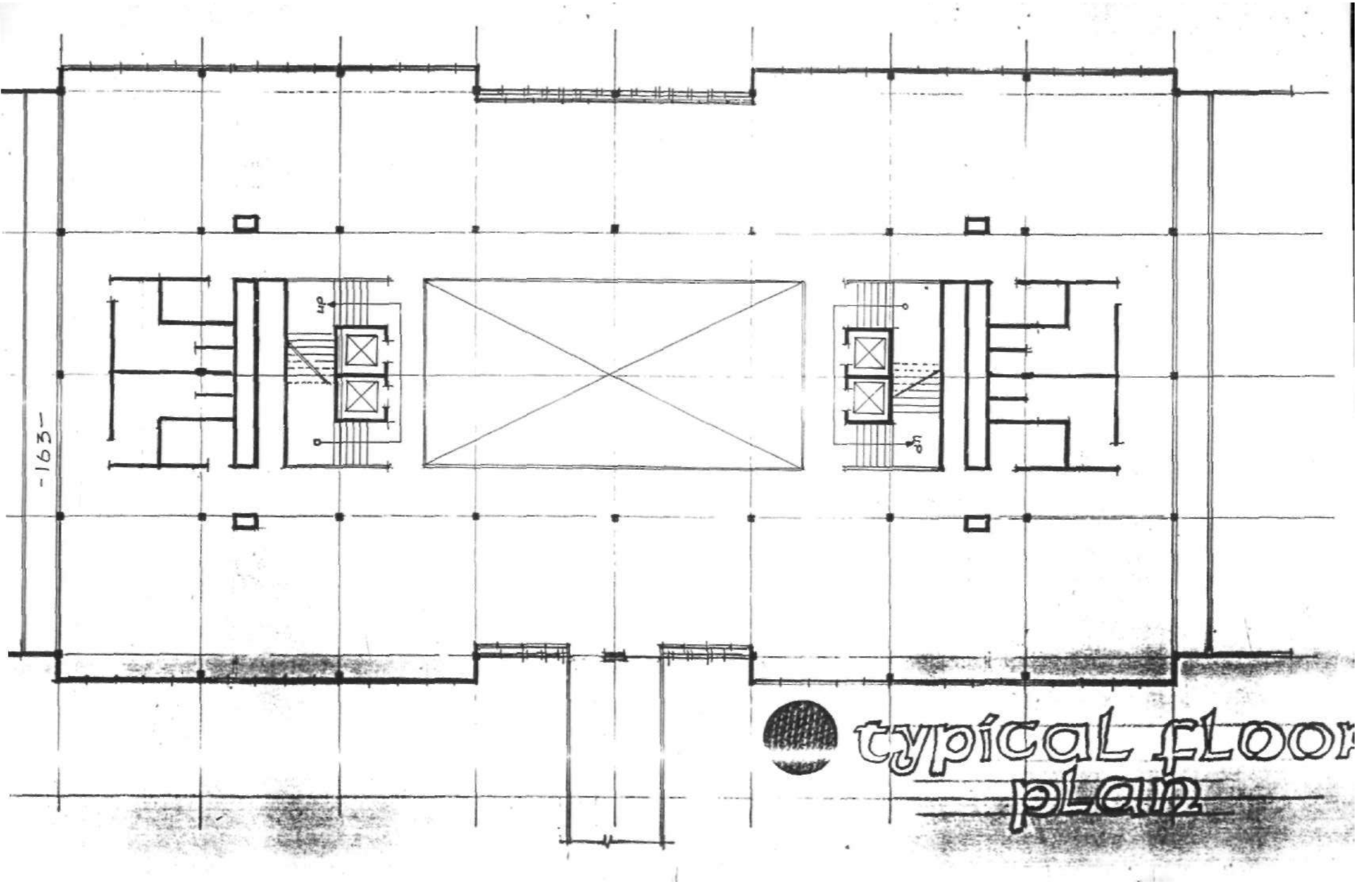
30. Weddle, A.E. (1979) Landscape Techniques: Heinmann for Landscape institute Architectural Press, London.

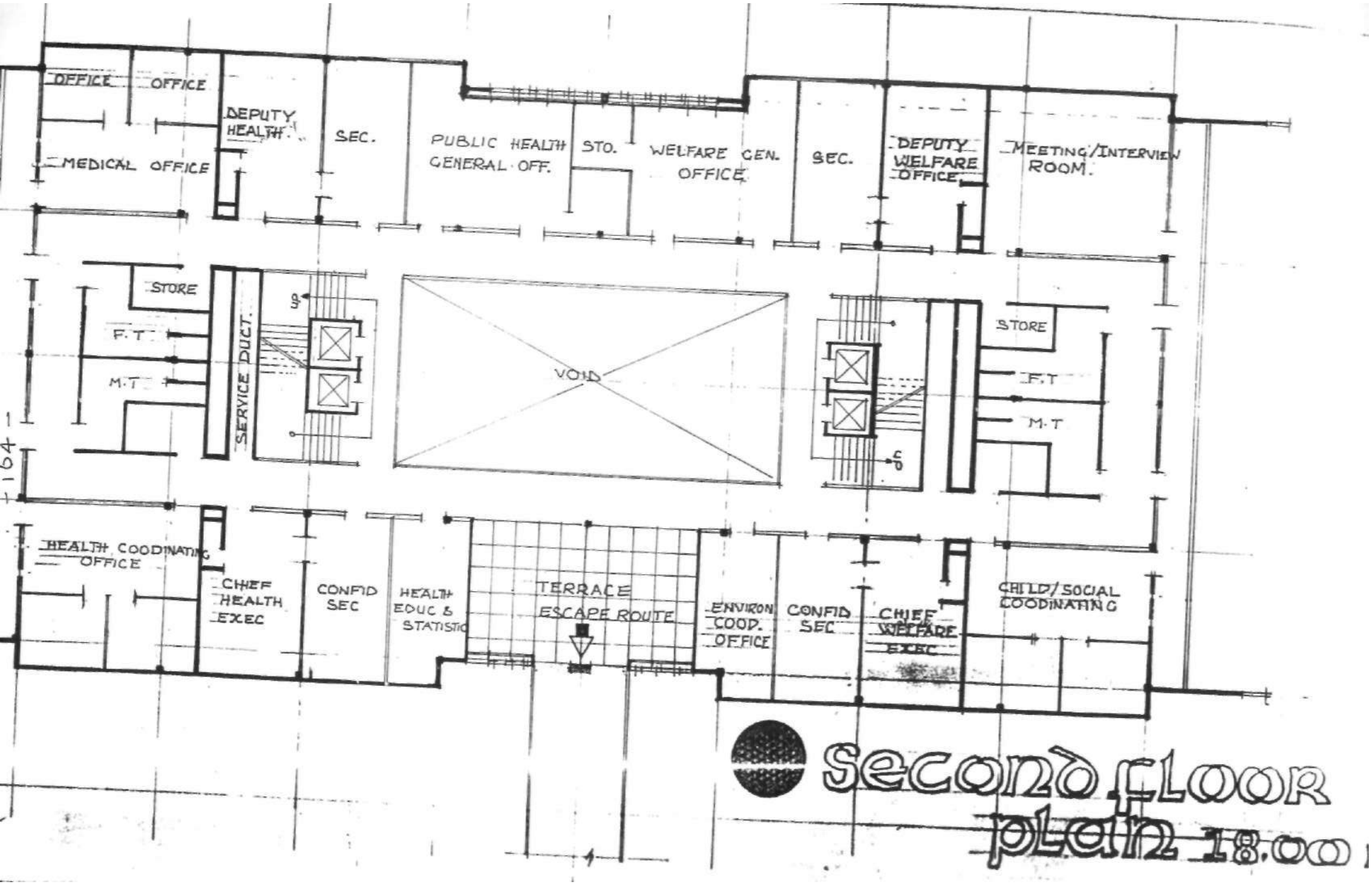
31. Whiffen, Marcus (1962) The Architect and the city M.I.T. Press, Mass,

32. Willi, Furrer (1964) Room and Building Acoustic and Noise Acford Limited; Chishester.

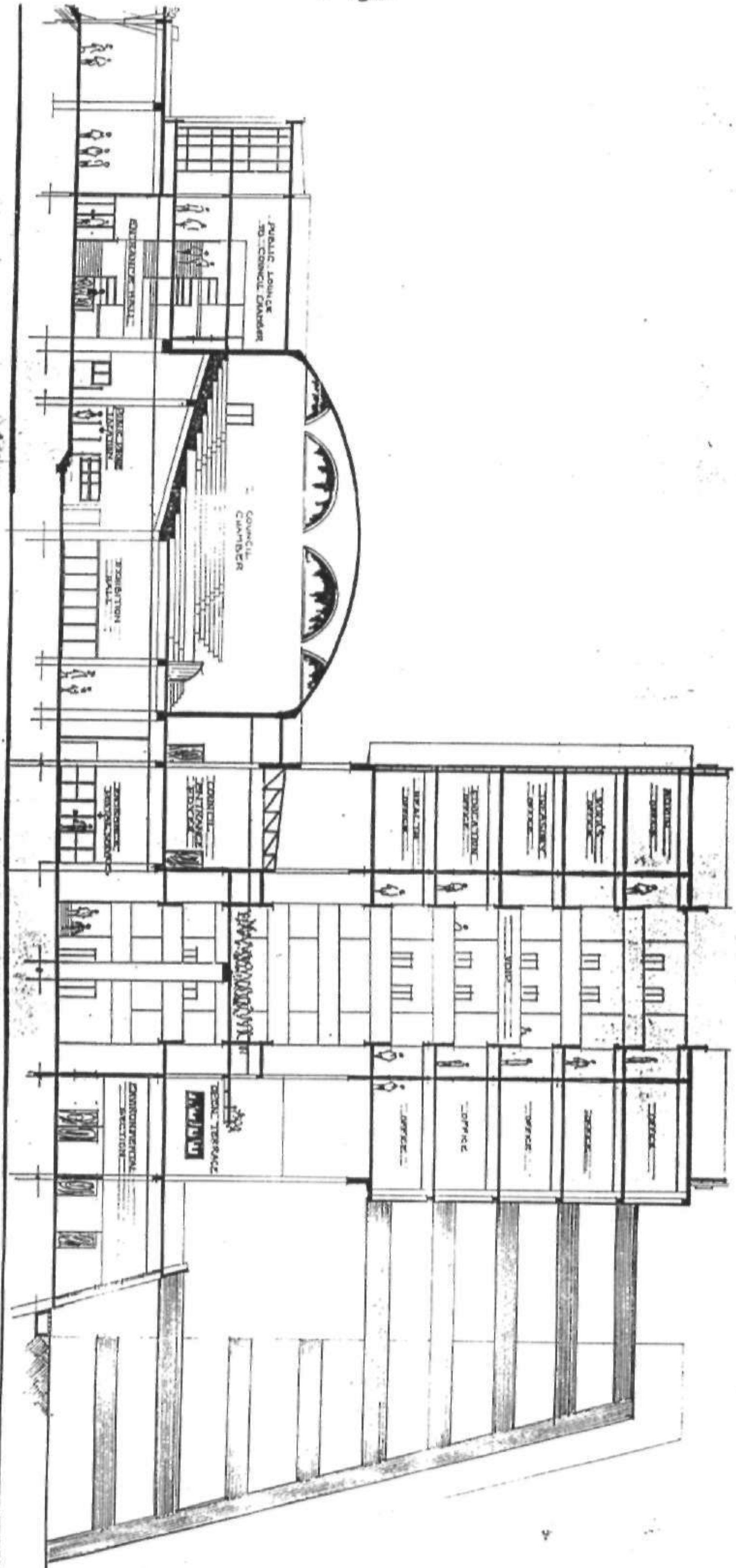

site


ground floor
plan
N

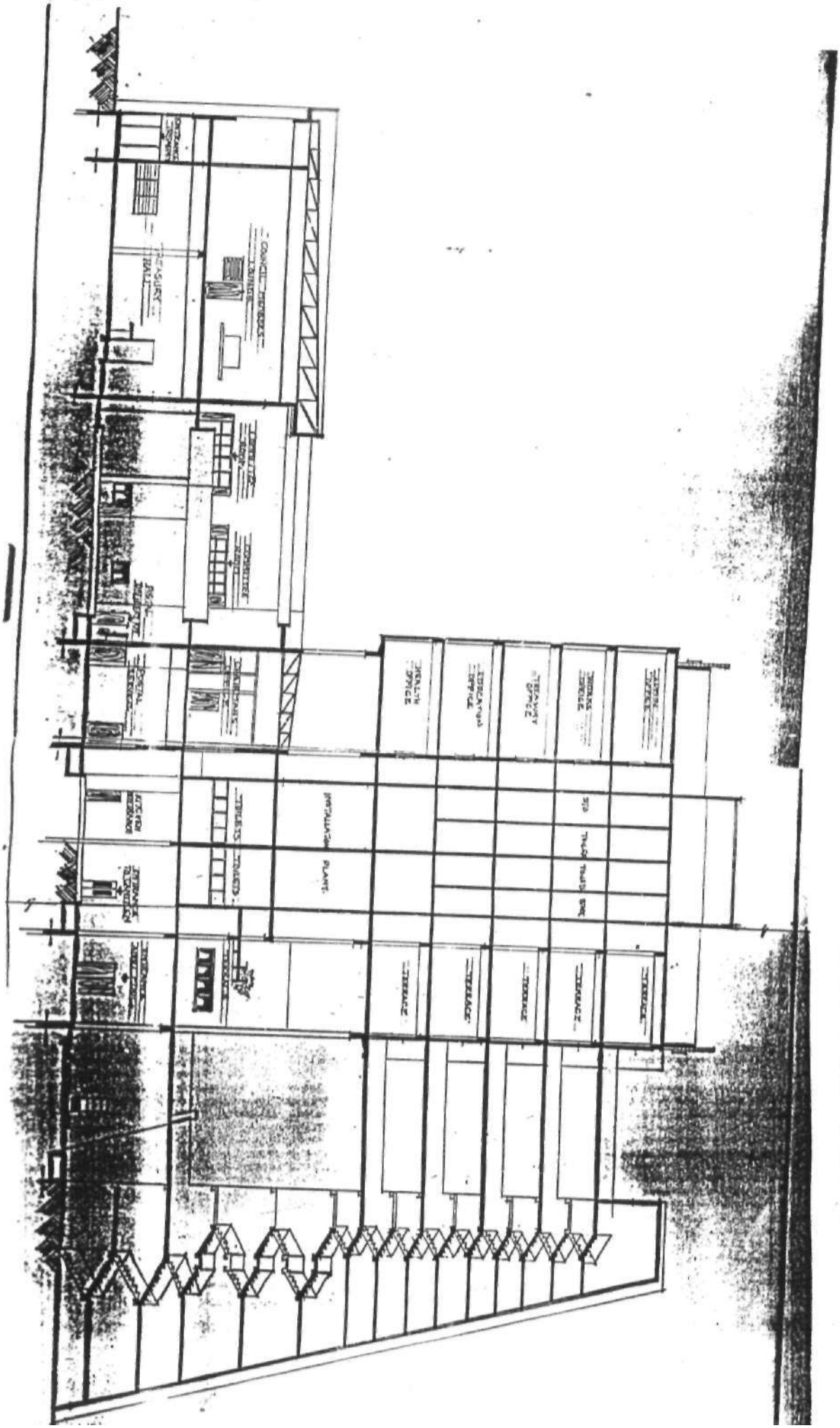

typical floor
plan

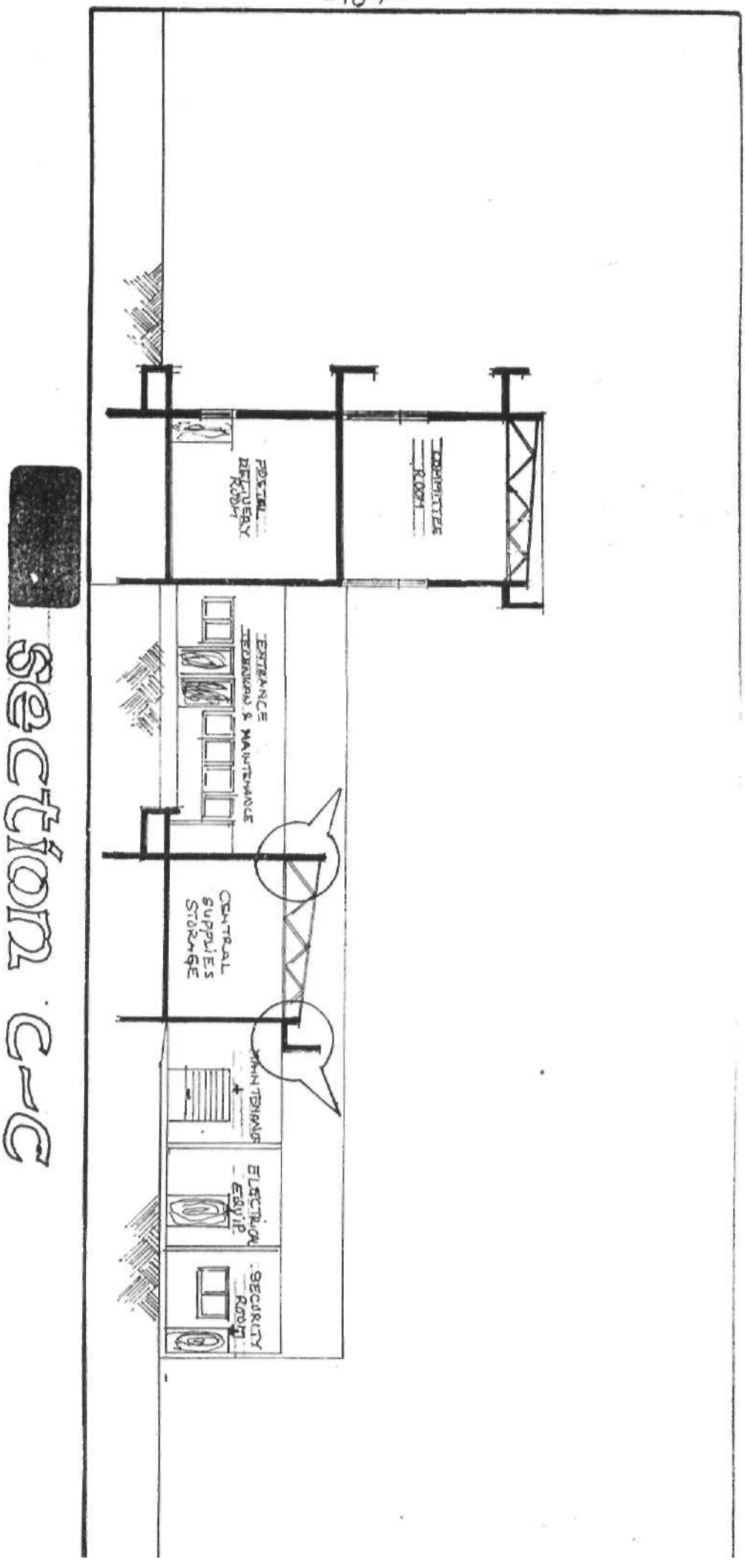


second floor plain 18.00



section a–a




POSTAL DELIVERY ROOM
CORRIDOR
ENTRANCE RECEPTION & MAINTENANCE
CENTRAL SUPPLIES STORAGE
MAIN TENANCE
ELECTRICIAN - EQUIP
SECURITY ROOM

section C-C

