CENTRE FOR PROFESSIONAL EXCELLENCE FOR THE NIGERIAN BUILDING INDUSTRY: DESIGN CONSIDERATIONS FOR PROFESSIONAL HARMONY

BY

MAI, HAMZA

BEING A THESIS SUBMITTED TO THE ARCHITECTURAL DEPARTMENT, AHMADU BELLO UNIVERSITY ZARIA IN PARTIAL FULFILMENT FOR THE AWARD OF MASTER OF SCIENCE IN ARCHITECTURE (M.SC.) ARCH.

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CERTIFICATION

This Thesis entitled Centre for Professional Excellence for the Nigerian Building Industry: Design Considerations for Professional harmony by Mai Hamza meets the regulation governing the award of the Degree of Master of Science in Architecture of Ahmadu Bello University, Zaria and is hereby approved for its contribution to knowledge and literary presentation.

CHAIRMAN, SUPERVISORY COMMITTEE	DATE 10/2/2020
MEMBER, SUPERVISORY COMMITTEE	DATE 10/2/2020
HEAD OF DEPARTMENT	DATE
DEAN OF POSTGRADUATE SCHOOL	DATE 18/12/20

DECLARATION

I hereby declare that this thesis work entitled Centre for Professional Excellence for the Nigerian Building Industry is a product of an unbiased research conducted by me. All sources of information are duelly acknowledged by means of references.

Sign. ----------

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My profound appreciation first goes to the Almighty for giving me the opportunity to contribute to knowledge and the will to see through its successful completion.

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DEDICATION

This work is dedicated to the kind and caring children of Bappa Manga. May God reward you all and give me the will and courage to reciprocate.

ABSTRACT

There is a growing interest in the performance of the building industry ana its role in national development. Concern has been expressed by government, private sector and the general public over the professional conducts and even the relevance of the professions that make up the building industry. This is because after many years of professional training and practices in Nigeria not a reasonable number of Nigerians have been provided with affordable houses in both the rural and urban centers. Major construction works are handled by the foreign expatriate either owing to the lack of interest. Either way indicates an in-house problem in the building industry that is affecting its effective professional operation.

This thesis therefore highlights those problems affecting the effective operation of the building industry, the causes and finally proposes a Centre for professional excellence for the Nigerian building industry. An environment for voluntary continuing education for the promotion of mutual professional training and practice, for research in the related fields of building construction techniques and for professional grooming for the purpose of professional recognition.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 PROBLEM DEFINITION

The Nigerian building industry is in a serious dilemma. This is because Nigerians are yet to feel its impact in the area that touches their lives most, the provision of affordable mass houses and better environmental conditions. Majority of the major construction works in the country are handled by expatriates. This shows lack interest and/or professionality on the side of the indigenous contractors. Either way indicates an in-house problem that need to be addressed.

These in-house problems are due to the loss of professional ethics and conducts which has resulted to such malpractices as; supplanting, bye-pass of formal procedures and operating beyond professional limits. This will be fully discussed subsequently. Worse still, the decaying system of education in the country does not train professionals that are either capable or interested in addressing the peculiarities of the Nigerian society.

Further more, the system of training in the Universities has fueled the rivalry among the professionals by not encouraging mutual interaction and brainstorming as one family in the cause of academic pursuits.

These problems adversely affect the effective discharge of professional duties of the building industry and therefore requires urgent attention.

1.2 AIMS

The aim of this thesis work is to highlight the ways by which spacial relationships in terms of hierarchy, functional integration and spacial co-existence can be used to promote professional harmony and cooperation in the building industry. This is important as it will not only ensure effective professional operation in the building industry but it will also give the professionals the advantage of further professional recognition. This will come in the form of preparations for the exams of their various professional bodies in Nigeria and abroad.

1.3 OBJECTIVES

The objectives of the study include evolving a model of an institute that will lead itself to mutual training and interaction of the entire professional within the building industry. This shall be achieved through the provision of facilities that will encourage the coming together for the following purposes.

a) Professionals in the building industry can enroll for voluntary continuing education in short courses related to their fields and in the areas of overlap.

b) Fully equipped laboratories where testing of samples of building materials shall be carried out.

c) Conducive atmosphere for research and development in the fields related to the building industry.

d) Evolve an environment for professional qualification examinations.

1.4 ARCHITECTURAL SIGNIFICANCE

For the proposed centre to achieve its aim, the architecture must acknowledge with the hierarchies, diversities and complexities that exists among the professionals that make up the building industry. And evolve an environment taking into consideration spacial hierarchy, spacial integration and spacial co-existence that will now promote mutual training and interaction among the professionals as users of the centre.

Further more, an application of the indigenous architectural values of Nigeria as well as affordable building materials in the design and building specifications of the proposed centre will create an environment that will awaken the conscience of the professionals and create awareness on the national expectations on them.

1.5 SCOPE OF WORK

Owing to the magnitude of the users of the institution and its size of operation, this work will be limited to the

focus on the academic and administrative parts of the institution. Application of the local building materials will also be explored to encourage our indigenous technology improve on the limitations of the local building materials.

1.6 CONSTRAINTS AND LIMITATIONS

- This research work may suffer from the constraints of time and limitations due to cost.
- It may also suffer from lack of information of related works. This is because there is no proposal earlier made to bring together the professionals within the building industry.
- The work may also suffer from lack of cooperation by the professionals. This is due to the claim of supremacy by all the professionals in the industry when issues of leadership arises.

1.7 METHODOLOGY OF STUDY

The study shall be a product of thorough research work. Primary sources of Data include administering of questionnaires, interviews with the professionals in the building industry and physical documentation of related works. This will be in the form of pictures, sketches and live documentation. Secondary sources of data include literature of past works for review, journals and magazines for related information and topologies.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Several efforts have been made to assess what the building industry has achieved so far and to encourage harmony and instill sanity in the building industry. These efforts are seen in the write-up both published and unpublished on architecture in Nigeria (Susan 1984 and Dmochowsky 1990), and professional education in Nigeria (John, 1989 and Ian 1997). Other literature reviewed dwells on the influence of politics on professional education and training in Nigeria.

2.1 ARCHITECTURE IN NIGERIA

Susan (1984) assesses one hundred years of Architecture in Nigeria. She asserts that interesting efforts had been made by the early traditional builders to face the challenges of spanning great distances and carrying heavy loads using the primitive indigenous technology they could master. This she said, they achieved because they were all-rounders in building construction and all activities relating to building. Unfortunately the orthodox specialisation in various fields that concerns building needs, whose sole aim is for achieving better results through division of labour and organised team work has brought about modernity and westernisation of the building industry. This has relegated to the background, the need to understand and appreciate the peculiarities of the

Nigerian society.

She suggests that the growing number of professionals (with emphasis on architects) coupled with the oil wealth and the present hardship should foster a climate hospitable for the development of architectural styles responsible to the special and varied cultural, climatic and economic problems posed by the Nigerian environment.

According to Dmochowsky (1990), familiarity with the architectural achievements of one's country, an understanding and appreciation of its traditions, peculiarities and development through the ages is very important. This he said, is the tool for the formation of national consciousness and self assertion. This is to create difference and regard through which love can be expressed for one's own country. He highlights the various building traditions with respect to team work, building types and materials with respect to climate across the country.

2.2 PROFESSIONAL EDUCATION IN NIGERIA

Mbina and Ahmed (1989) argues that the system of general and professional education in our Universities (with emphasis on Architecture) is not geared towards solving the peculiarities of our societal problem. This is because it did not evolve in consonance with the Nigerian perculiarities. It is an alien system. The western based system, according to

them, which is practiced in Nigeria is producing techno-bureaucratic professional who may know how things are done and not how to do them. They suggest a conscious effort that will incorporate the study of Nigeria's indigenous building materials and construction methods. And in addition, the physical and social peculiarities of the country to constitute a major part of the teaching curriculum.

John (1973) stresses the need to re-examine the method with which the schools of architecture in Africa develop the architects specific preparation, particularly the formation of his mind. This, he says, is due to the existence of new social, economic and historical pressures which is as a result of the developmental task confronting the African society. There is therefore the need he points out for academic and professional excellence in the various environmental disciplines and skills. This is essential for the creation of an efficient human environment.

According to Adewolu (1992), the focus is now on bridging the educational and professional gap between the architects and the other professionals within the building industry. This is to avoid misrepresentation and to properly groom the architect for his leadership role in the changing times. He suggests, that young architects must be trained to be responsive to the emerging needs of their communities. And architects in practice must be retrained through continuing

education programmes to be able to respond more rapidly to the national hopes and aspirations of the people.

Ian (1997) assets that, if architects and engineers consider themselves as designers, then both must be aware of the aims and means to reach quality solutions. He said that, too often the engineer is concerned with the means disregarding or ignorant of the wider aims, while the architect faced with unfamiliar techniques and materials looses confidence and security in his position as the leader of the design team.

2.3 INFLUENCE OF POLITICS ON PROFESSIONAL TRAINING AND PRACTICE IN NIGERIA

2.3.1 PROFESSIONAL TRAINING:

Politics and government decisions have affected the value and quality of professional training of infrastructural development related fields in the country. Zubairu (1994) says each new state wants a University of its own, soon after their creation. This, according to him, led to the sudden emergence of numerous of schools of Architecture and other related fields in the country, many of which lack adequate facilities and lecturers. And the old schools are suffering from under-funding dilapidation and brain drain, the result of which is a set of less qualified professionals in to the building industry.

2.3.2 PROFESSIONAL PRACTICE:

Government policies and interest groups hinder the

consultant in the building industry for reasons of project management and cost implication of the project both of which are his responsibilities as evident from his curriculum of training.

2.4 HISTORY OF THE BUILDING INDUSTRY

The building industry which is known today as a team of professionals related to building and general construction works, went through phases of development from the early times in various civilisations to date. This chapter therefore focuses on the emergence of those professions that make up the building industry, what elicited their emergence and the developmental changes. This is subsequently narrowed down to what happened and what is obtained in Nigeria.

2.4.1 HISTORICAL DEVELOPMENT OF THE BUILDING INDUSTRY

This section skips the history of how and when man lived on the trees and in the caves. This is owing to the lack of refined level of building techniques and defined roles of individuals in the societies then.

The first builders were the multi faceted individuals who were looked upon as Form givers to the societies. They were involved in philosophy, astrology, mathematics and building. History reveals Galileo Galilei's involvement in building during his life time. As the demands of the societies increased, the form givers had to open up for specialisation,

as they could not, as individuals attend to the general needs of the societies. This gave birth to the master builders.

The master builders were responsible for sketching and building houses and other structures such as market squares and bridges. At that time, some societies in some parts of the world had no defined roles for individuals related to building needs. Some made it a communal responsibility.

Architecture came as a discipline as the master builders began to attain a higher level of refinement. The architects built houses, market squares, constructed bridges and planned cities. The architect was in charge of all that concerned the building and other construction works. Vitruvius a first century Architect/Engineer is an example.

The coming of the industrial revolution marked a major change in the role of the architect. He graduated from depending solely on the Churches and the states to the architect of bewildering building types as he was commissioned by individuals and organisations for commercial and industrial purposes. In addition there was large scale accommodation required for the factory workers. His response to that was to develop the new role of licenced professionals. Accordingly, he opened up for further division of labour in the design process and construction. One of the first buildings where the architect and the engineer were separate was the Granary (1811) in Paris.

The civil engineering works were executed even in ancient and medieval times. This is evident in the Roman Public baths, roads, bridges and aqueducts; the Flemish canals; Dutch sea defence and the French Gothic Cathedrals. Talented craftsmen, stone masons, tools and instruments makers all began to exhibit impressive results in their works based on inventive ingenuity and persistent experimentation. James Brindley who started as a millwright became the foremost canal builder of the eighteenth century. John Ronnie a millwright apprentice eventually built the London bridge. And Thomas Telford a stonemason became Britain's leading road builder.

The term civil engineering was first used by John Smeaton (an instrument maker) in 1756 in England. He built the Eddy Stone light house (1756 - 1757) with interlocking masonry work.

The quantity surveying profession evidently predates 1785 as shown from the records when the Reading firm started practice. It was in 1802 that some Scottish quantity Surveyors met and produced the first method of measurement. The practice then and up to the middle of the nineteenth century was to measure and value building works after their completion. Bills of quantities were not prepared.

This practice changed as the building owners became dissatisfied with the outrageous bills and claims reflecting on the cost of works. There was also the increasing problem of

reconciling the amount of materials on the invoices with the quantities measured on the completed works. More so that the volume and complexity of the building works were escalating.

Planning of land uses became more and more complex with the level of development in the societies. The act of physical planning is evident in the towns of ancient Egypt, Greeks and of perfected by the Romans. Physical Planning was used to express authority of the Roman Empire where ever they conquered.

It was in the nineteenth century, at the high point of the industrial revolution that the modern land use or physical planning emerged. This was indispensable due to the problem of rural-urban drift, as a consequence of the industrial revolution. There was a drift of over four million people in Europe between 1821 - 1851. Responses to this problem include port sunlight, 1888 in England.

The Peak of the industrial revolution also paved way for organised and even central facilities for building services. The invention of the steam engine in the latter part of the eighteen century. The telephone in 1876 and electric incandescent light in 1878 brought about the need for defined roles of electrical, mechanical and plumbing services for the buildings. This was as a result of the need for easier

vertical movement or transportation, passive means of ventilation and lighting, water supply, refrigeration, air conditioning and other means of environmental control.

2.4.2 ORTHODOX PROFESSIONAL TRAINING AND PRACTICE

The orthodox training and practice of the professionals within the building industry came as a result of the need for continuity. Knowledge needed to be passed on and room be given for improvement. The informal training therefore graduated from the master builder-apprentice relationship to a more flexible and favourable, but formal system. This came in response to the problem of the monopoly of knowledge by the former. The master builders had the tendency of passing on without dissipating all that they knew. In some cases, there were mystical reasons.

The formal system of education therefore ensured healthy and conducive learning environment where the students were taught by a group of tutors who were experts in various aspects of the disciplines.

The first school of Architecture commenced in France in the Nineteenth century; Ecole des Beau-Arts. This came as one of the responses towards the industrial revolution. Gradually other schools of Architecture sprung in Europe. The Bau Haus commenced training in 1925 after the merger of the Weimer

Schools of Arts and Crafts. It was headed by Walter Gropious. Other tutors of the institution include: Hans Meyer, Lazlo Moholy Nagy; Ludwig Mies Vanderone and Poul Klee. Although there were earlier schools of Architecture. These include J.F. Blondel's School of Architecture in Rue De le Harpe in 1743. He became the master of the visionary architects that included Louis Boulee and Claude Micholas ledoux. The Ecole Polytechnique 1793 was another early school of architecture in France.

The civil engineering as a formal discipline got its roots in the Foundation Of Bridges And Highway Corps in France (1716). This grew up to the Ecole Nationale des ports et Chausees (National School of Bridges and Highways) in 1747. The teachers of the school wrote books that became standard materials on the mechanics of materials, machines and hydraulics. It was at that point that design and calculation replaced rule of thumb and empherical formulae.

John smeaton in 1771 founded the society of civil engineers. Other earlier schools were Ecole Polytechnique in Paris in 1794 and the Bauakademic in Berlin 1799. In 1818 a group of young men in Great Britain founded the institution of civil engineers. Formal education in civil engineering became widely available as other countries followed the lead of France and Germany. Rensselers Polytechnique Institute was the first school to offer civil engineering courses in the United

States in 1824.

Electrical engineering started as a discipline in 1864 when James Clerk Maxwell, a Scottish Physicist Summarised the laws of electricity to Mathematical form. Other earlier works that influenced the graduation of electrical engineering from Mathematical Science to laboratory demonstration and finally to formal education include the practical application of electricity in the invention of the telegraph by Samuel F.L. Morse in 1837; the invention of the telephone by Alexander Graham Bell in 1876 and the incandescent camp by Thomas Edison in 1878.

The branch of electrical engineering that mostly concerns the building industry is electric light and power installation in buildings. This has to do with the design of outlets for electrical services with respect to location and power for safety and convenience.

The mechanical engineering profession received formal recognition in 1847 in the institution for mechanical engineers in Birmingham. This came due to the need to further classify major aspect of engineering dealing with tools and machine production which came in response to the invention of the steam engine.

The branch of Mechanical engineering that is related to the building industry is the aspect of environmental control. This is where mechanical devices are used for the purpose of

ventilation, refrigeration and air conditioning. Other purposes include vertical movement in buildings and drainages.

2.4.3 THE BUILDING INDUSTRY AS A TEAM

There is no evidence on record as to when the professions that make up the building industry came under one umbrella. But, following the historical development of the search for shelter from nomadic to sedentary and then to more complex settlements and structures, the master builder opened up for specialisation and further division of labour. This later gave birth to the orthodox professional training which introduced architectures as a profession. As the societies grew larger in sizes, the requirements for shelter grow more complex. These complex requirements ranged from size of the buildings, materials for construction to comfort and convenience for habitation. Furthermore, aspirations of culture, religion, politics and status symbol needed to be expressed. As a result, architecture gave birth to the sister professions with a view to achieving precision, strength and durability within reasonable cost and projected time. One of the first buildings where the architect and engineer worked as separate professionals but as a team was the granary in Paris in 1811.

2.5 THE NIGERIAN CONTEXT

Nigeria has had its own share of the developmental changes in the techniques of building construction. This

change is basically from traditional to modern. The design philosophies, building materials and management of all building related activities in the different parts of the country is evidently influenced by colonization which then graduated to westernization. The buildings of mud and thatch usually of single units shifted to compact designs realised with different materials ranging from concrete to metal and glass in both the urban and the rural areas.

Although this change has not completely discarded the indigenous methods of building construction, use of materials and management.

2.5.1 THE EARLY TRADITIONAL BUILDERS

The act of building in most Nigerian societies essentially started as an individual responsibility. Talents of building techniques were passed on from generation to generation. The challenges then ranged from spanning generous spaces to carrying heavy loads due to the nature of the building materials available which was predominantly mud and stones for wall construction.

In the Hausa states, the concept of gwaninta (genius) encouraged individual creativity. This boosted the indigenous local which made it possible to span great spaces. The advantage of the plasticity of mud was exploited fully and arches were created to make voults and roof domes. Notable

among the gwanis include the Babrugwani of Zaria. Saidu Bakane of Sokoto and Bala Dangwani of Kano. The ancient Nok culture which now covers parts of the present Plateau and Kaduna States also had its rich building tradition. The construction of buildings was achieved through a collective efforts of able bodied men in the villages.

In the eastern part of Nigeria, the Igbo speaking areas, construction of buildings is a communal responsibility. In the olden days, all that was required is advance notice to the able bodied men of the area and preparing food for them during day of the construction work. But today, some renumeration has to be made in addition to the food served. Materials for constructions were mainly wattle and daub walls and high pitched roofs of palm leaves.

In the South eastern part of the country, similar construction modes with that of the Igbo speaking areas exist. This is with the exception of the deep riverine areas where the materials for construction is bamboo sticks.

In the South Western part, however, the Yoruba speaking areas of Ilorin and parts of the Oyo empire was influenced by the Hausa/Fulani building traditions. As such, individuals were given the responsibilities of constructing houses and other buildings. This is not as refined as that of the Hausas, though. In other parts of the Yoruba speaking areas, however, building supervisors coordinated the activities during

construction and to indicate where the various functional spaces are to be located. This was more accentuated in the construction of the Afins; Yoruba Palaces.

In the Benin Empire, the building coordinator and supervisor was used in building the Oba's and chief's palaces and other nobles' houses. Ordinary houses depended on communal efforts.

2.5.2 THE BUILDING INDUSTRY IN NIGERIA

The building industry in Nigeria initially comprised the architect, engineer, builder, quantity surveyor and the contractor, all working for the services of the client, according to the 1992 professional scale of fees. Additions were however made in the 1996 edition to include the estate and the land surveyors. The clientele is usually government in the public sector and corporate organisation such as banks and individuals mainly for residential developments in the private sector. Although 70% of project commissions in Nigeria are government projects in the public sector. Projects include offices in various capacities, research institutions, schools, hospitals, market, prisons to mention but a few. 9% of annual budgets are usually committed to insfrastructural developments in the country. The 1999 financial year has a budget of .... for capital projects.

In the private sector however Projects usually include

corporate offices for banks and other organisations. Individual clients also contribute immensely to the activities of the building industry. This is usually in the form of residential developments and commercial buildings.

The Nigerian building industry enjoys collaboration with financial institutions in financing some projects. This is usually through loans given to the clients who in turn commission the professionals for execution of the projects. Government also liases with the financial institutions in fund revolving schemes especially in mass residential projects. For example, the Gwarimpa Housing project in the federal capital territory, Abuja, where over four thousand houses are constructed. Others include the federal housing projects in the various states of the nation. Commercial complexes are also created as financed by the urban development bank, African Development bank and the United Nations Development Projects.

The Nigerian building industry is basically made up of professionals working in various capacities either in the government parastatals or in private practice, workng to provde shelter with all its comfort and convinience in various forms. As to the problems and prospects of the building industry in the country, the thesis shall dwell on, subsequently.

2.6 CONCEPT OF SPACE IN INSTITUTIONAL BUILDINGS

Institutional buildings refer to structures or forms of shelter that are erected to accommodate such functions as administrative, academic, health care and other official activities. These buildings are usually made up of any or all of the functions listed above. The functions these buildings serve are usually indispensable for consideration before spaces are allocated for the functions. This is because the nature of the functions and details of the relationships that exist between these functions affect the general activities to be carried out by the users of the building. This chapter therefore focuses on the concept and effects of space in an institution building and how it can encourage professional harmony in a common ground for the professionals in the Nigerian building industry.

2.6.1 SPACE ORGANISATION

Space has been defined in so many ways by different people. This is based on the individual perception of the subject and which aspect of it, the individual focuses on.

The layman views space as any portion of the surrounding that may be enclosed or not as long as it is defined (with boundary(s). Philosophers and natural scientists have also made their statements on the definition of space. This ranges from an imaginable and non-existent, a reality but with no

bodily existence to a field high above the atmosphere on the earth where there is nothing, not even air.

In architecture however, this says it all; "space constantly encompasses our being. Through the volume of space we move see objects hear sound and smell the fragrance of flower garden in bloom. It is a material just like stone or wood, yet it is inherently formless. Its visual quality, dimension and scale depends completely on its boundaries as defined by the elements of form. As space begins to be captured, enclosed, molded and organised by the elements of form, architecture comes in to beings". Francis D.K. Ching (1979).

Spacial organisation primarily starts from the basic spacial relationships. These are inter locking spaces, spaces within a space, adjacent spaces and spaces linked by a common space.

a). INTERLOCKING SPACES

This refers to the overlap of two or more spaces. Each may retain its identity and definition but the area of the overlap may be subject to many interpretations. These include a claim of the overlapped area by either of the spaces, use of the interlocked area as a space on its own or serve as a link to the original spaces.



Fig 2·1a

Examples of interlocking spaces include the carthage villa in Tunisia 1928 by lecorbusier.

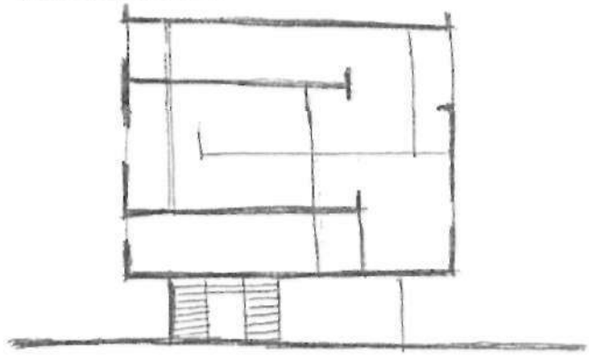


fig 2.1b

b). SPACES WITHIN A SPACE

In this case a larger space contains or accommodates a smaller space(s). The smaller contained space(s) depends on the larger space containing it to relate to outdoor spaces. visual and spacial continuity is easier accommodated.

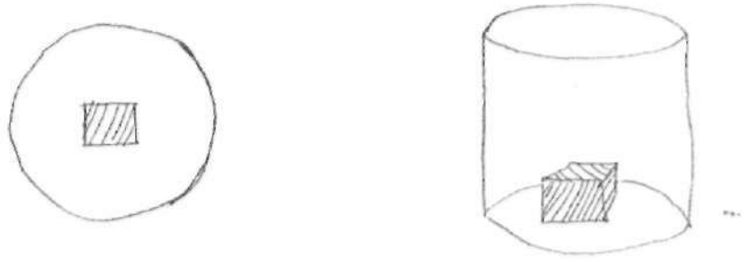


fig 2.2a

The New Canaan glass house 1949 by Phillip Johnson is a listed example of space within a space.

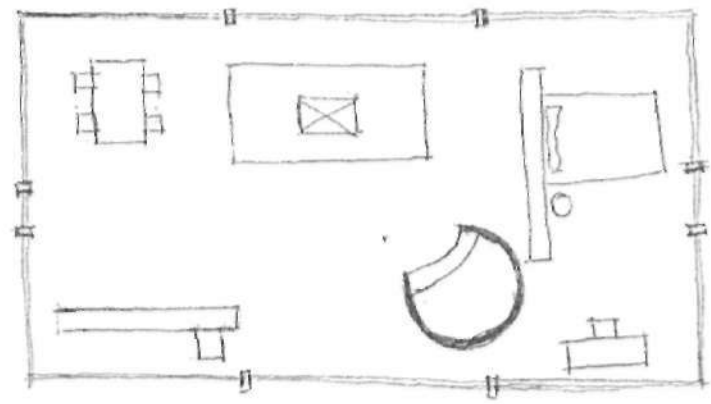


fig 2.2b

c). ADJACENT SPACES

This is the arrangement of spaces in a manner that they neither interlock or contain each other. This allows each space to be clearly defined and respond independently to its functional or symbolic requirements. The visual and spacial continuity between the spaces depends on the nature of the plane that demarcates the two spaces.

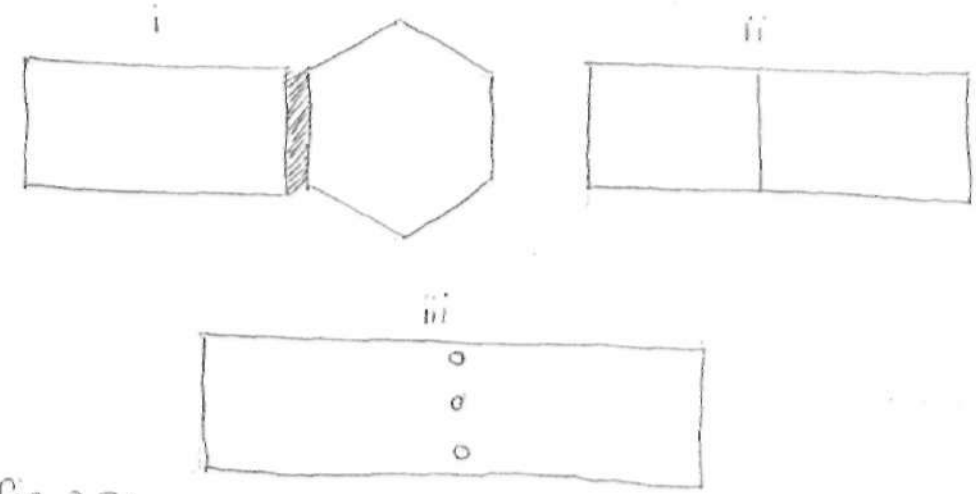


fig 2.3a

The architecture departmental library, Ahmadu Bello University, Zaria is a good example of adjacent spaces. There are two stores at northern and southern extremes and accessible from the reading area.

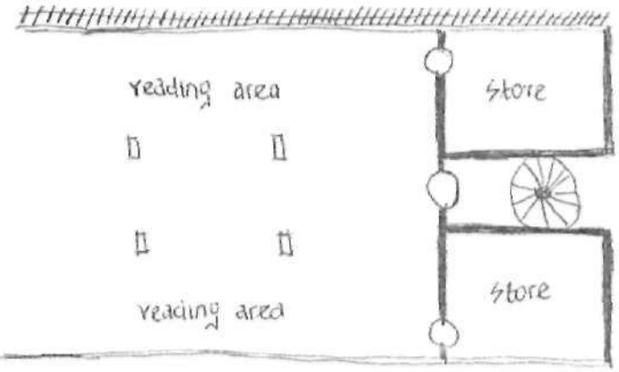


Fig 2.36

d). SPACES LINKED BY A COMMON SPACE

In this case, an intermediate space or a link can be used to connect two or more distant spaces. The relationship between these spaces depend on the intermediate space or link to which they share a common relationship. The link may be different in size or shape to define its role as an intermediate space. It can also have the same size and shape with the other spaces in a linear arrangement.

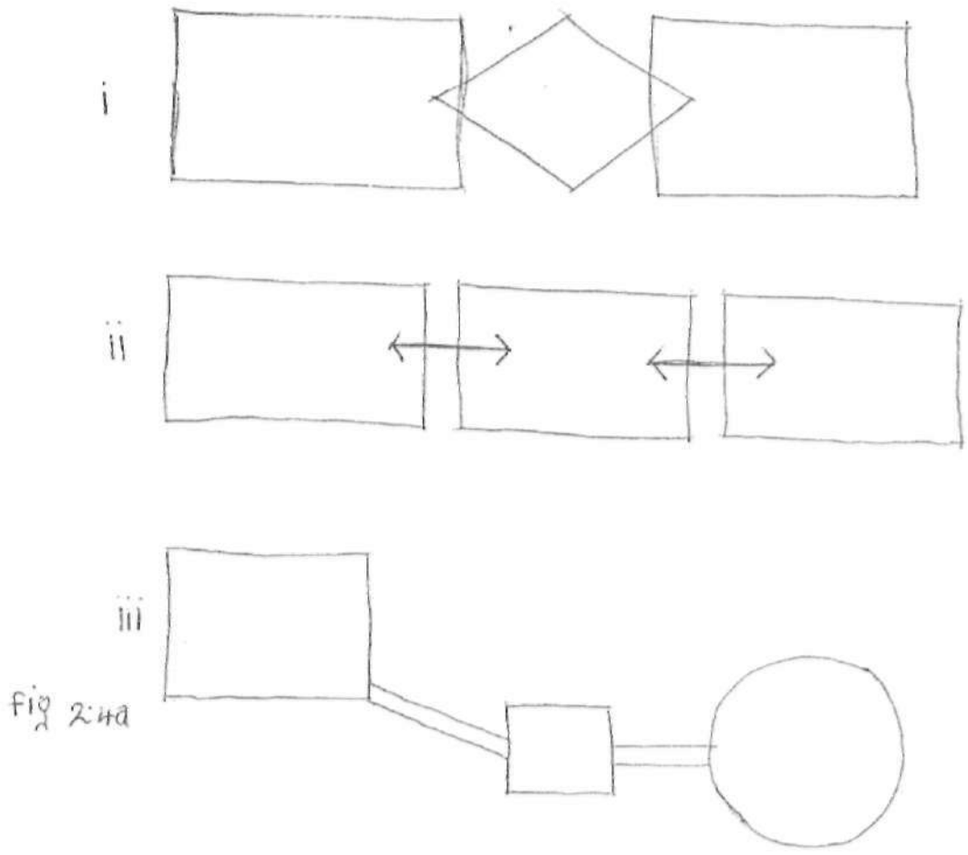


Fig 2.4a

The one half house by John Hegduk 1966 is a good example of this spacial relationship.

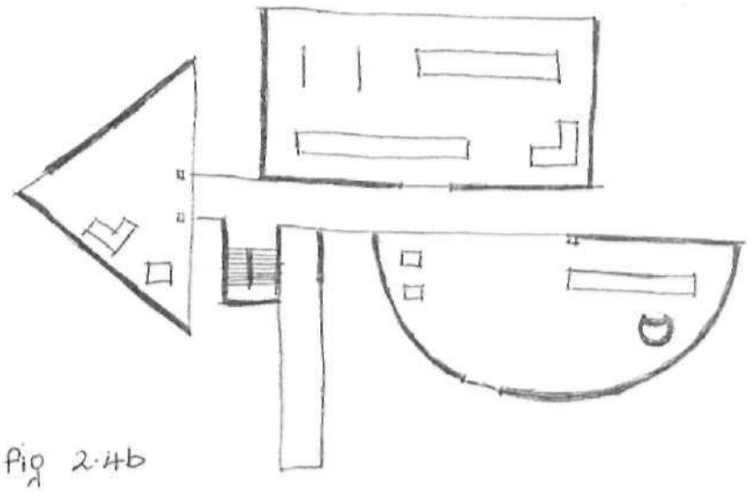


Fig 2.4b

These relationships do not only define the extent of the spaces but also express their roles. This is completed by the elements of form that are used to enclose the spaces to give them vertical dimensions into volumes. Of course, articulation and celebration of the space gives it dignity and status. The combination of the primary spacial relationships into a composition, as a result of complex spacial requirements gives rise to further relationships between the spaces.

2.7 SPACIAL RELATIONSHIPS

Complex spacial requirements gives rise to a combination of the primary spacial relationships into a composition. This creates further relationships between the spaces. These relationships define the roles dignity and expectations of one space on the other(s). Such factors as size, shapes, location proximity and overlap are used to achieve these relationships. These are discussed below.

2.7.1 SPACIAL HIERARCHY

This refers to the expression of significance or importance of a form or space. Hierarchy exist between forms or spaces in a composition. This is usually expressed in terms of exceptional size, unique shape and strategic location.

a) Hierarchy by Size: This is achieved when a form or space expresses dominance over other elements in an architectural composition by being significantly bigger in size. An element can also express hierarchical importance or position by being smaller than the other elements. But this is usually achieved with the compliment of a well defined setting.

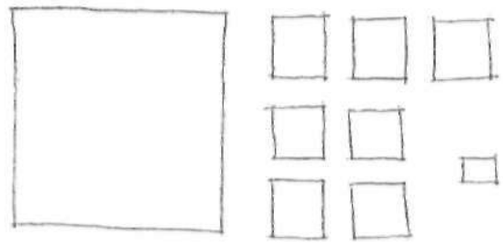


Fig 2.5a

b) Hierarchy by Shape: The expression of importance of an element either in form or space can also be achieved visually. This is by distinction in shape from the other elements in a composition. The contrast in shape can be made critical either in terms of geometry or regularity, as long as it conforms with the functions of the space.

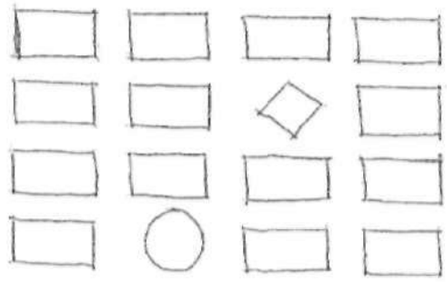


fig 2.5b

c) Hierarchy by Location: An element can also be made hierarchically important by being strategically located in a composition. This makes the form or space attract the attention of the users and the spectators to recognise it as an important element and win respect for the users it serves and the functions it accommodate.

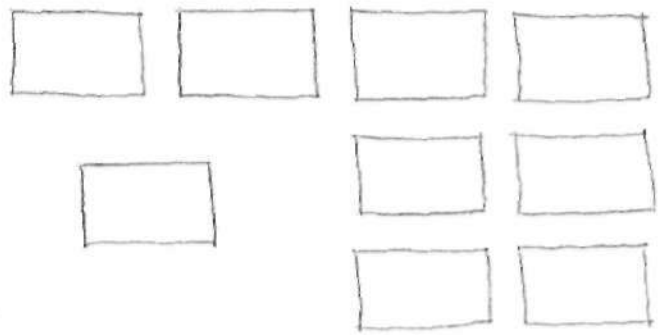


fig 2.5c

These locations may be achieved through:

a) The termination of a linear or axial organization.

b) Placing the form or space at the center of a symmetrical or a radial organisation.

c) Placing the element as an offset either above or below the other elements in a composition.

Special hierarchy has been expressed in the past. Examples include the ideal church designed in BC 1400 by Leonardo da Vinci.

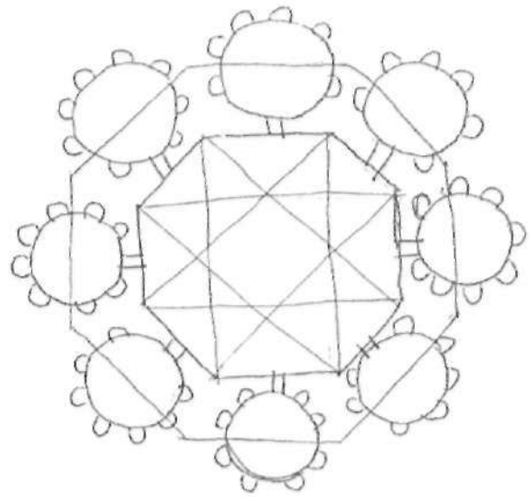


fig 2.6

In this Church, the main congregational Church hall is placed centrally with a unique shape (octagonal) to distinguish it from the circular smaller prayer rooms. Further more, its exceptional size expresses its hierarchical importance over the surrounding spaces.

Another example is the first unitarian Church rochester in New York, designed by Louis Kahn in 1959. A very large congregational hall, virtually circular in shape is surrounded by smaller functional spaces.

The Nigerian National Petroleum Corporation headquarters at Abuja also expresses spacial hierarchy. The larger circular conference hall is located centrally from the four offices towers. This time around, the strategic location of the conference hall is not intended to show that it is more

important than the other functional spaces but to portray the importance of its central location for easy access from the towers and its circular shape to break the monotony of linear design.

2.7.2 SPACIAL INTEGRATION

This refers to the arrangement of spaces in a way that they connect to each other through visual relationship and overlap of functions so that they may flow into each other. Forms or spaces can be made to relate with each other visually and functionally or even flow into each other, yet maintain their respective classes or distinctions. This is achieved through the various forms of space celebration and articulation. Spacial integration may be classified into the following:

a) Visual Connection

b) Overlap of Functions

c) Composite Relationship

a). Visual Connection: Forms or spaces can be made to relate with each other visually by creating a transparent medium as a barrier or boundary between them in a composition. These transparent media may be curtain walls of glass, or screen walls. It informs what the various forms or spaces do in a composition but with no automatic access to each other.

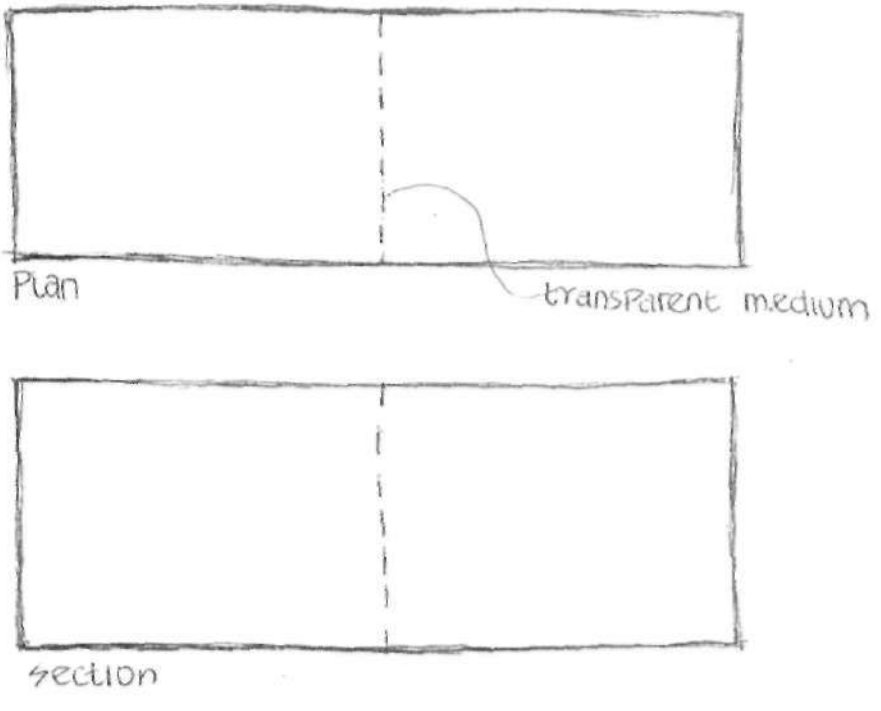


fig 2·7a

b). Overlap of Functions: This happens when forms or spaces in a composition are arranged such that no functional space claims a clear boundary from the other. This arrangement is done in a way that the functional spaces are made to encroach or overlap each other.

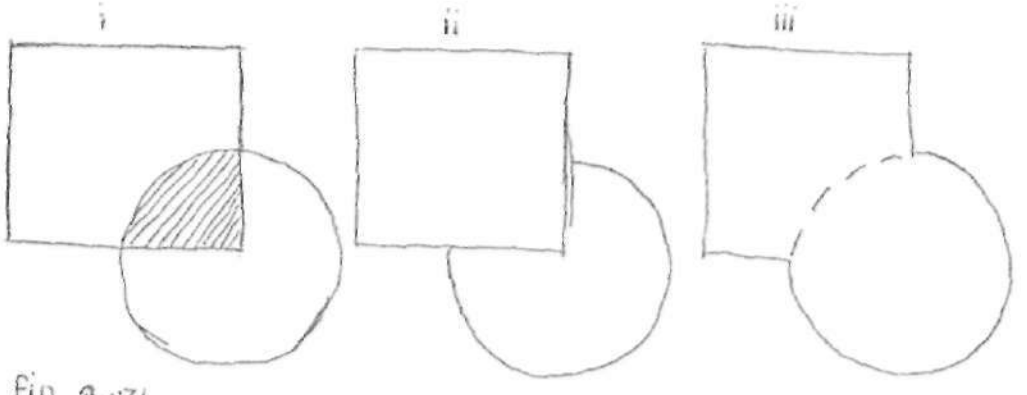


Fig 2·7b

This way, the area of overlap can be used as another function or be left as a deliberate area of encroachment.

c). Composite Relationship: This refers to the arrangement of spaces in as a manner that they relate with each other both visually and functionally. Functionally in the sense that, there may be automatic access from each other or flow of one function into the other.

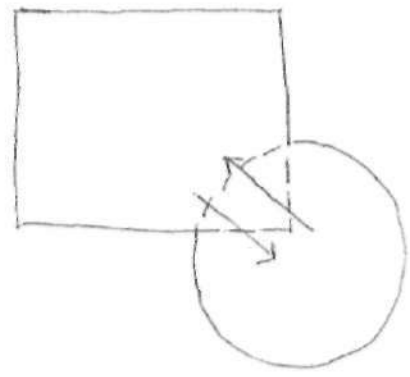


Fig 2·7c

The difference between this class of spacial integration and that of the overlap of functions is that a deliberate effort is made to incorporate both visual relationship and functional overlap.

Spacial integration is used consciously or otherwise in buildings and is known to exert influence on the users of the buildings as well as the functions. Examples include the drama village, Ahmadu Bello University Zaria where the arena or stage is integrated into the two extreme round huts. The round huts are in turn used as ante spaces into the stage and also

for background musicians during performances. This integration ensures good visual access of the stage for the musicians who may not be required to be seen by the audience.

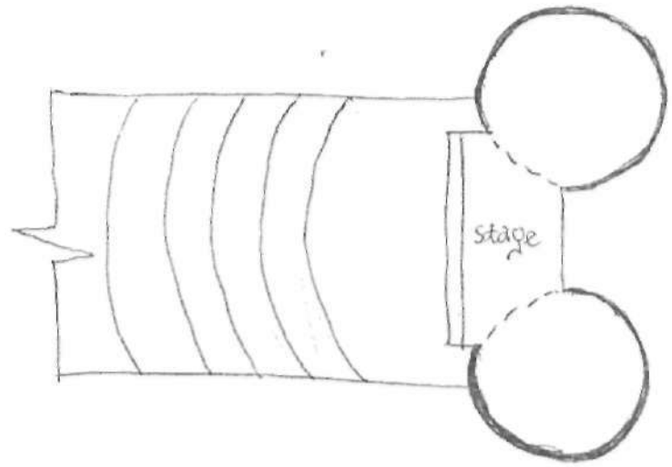


fig 2·7d

Another example of spacial integration where visual relationship is used is the open banking halls. Glass curtain walls are used to create visual contact for transparency to break the boredom of monotony of doing the same work every day and for supervision. In some cases, Dwarf Walls are used to maintain and circulation flow.

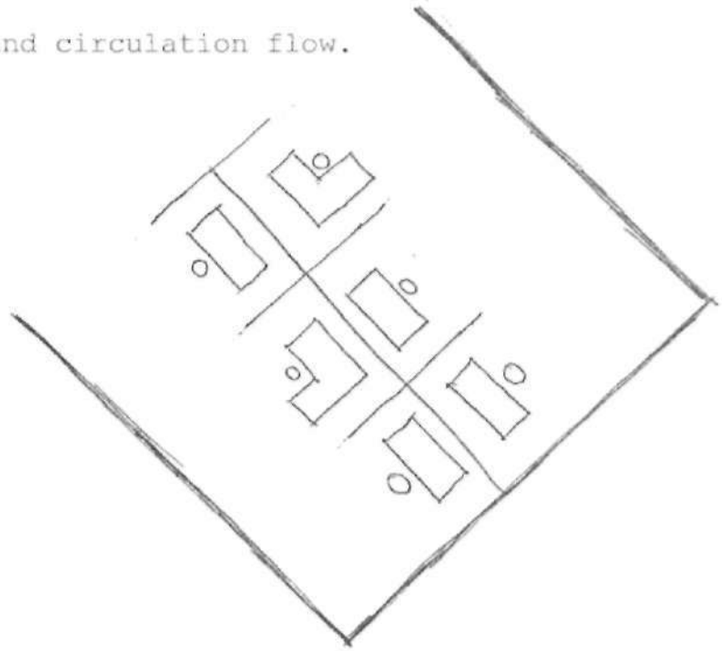


fig 2·7e

2.7.3 MUTUAL CO-EXISTENCE OF SPACE

This is the arrangement of spaces in a manner that they exist as exclusive but also dependable special entities. This means that the spaces can stand on their own but may relate to each other taking into consideration their respective specific roles, functions and classes (in terms of hierarchy).

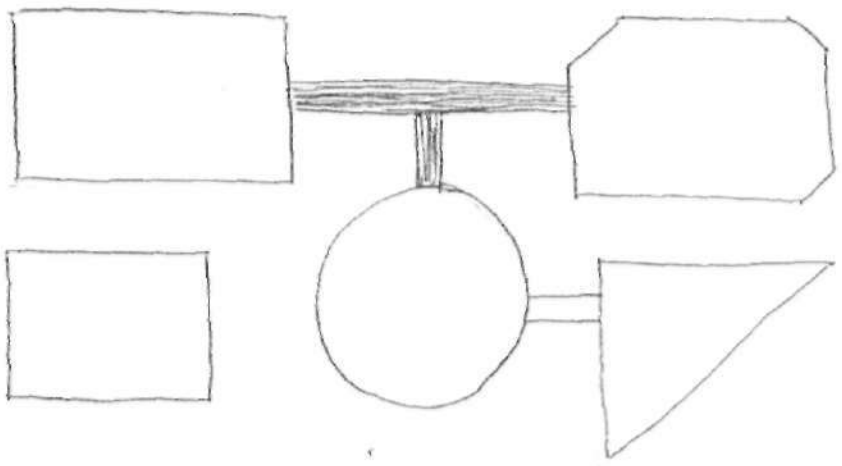


fig 2·8

Mutual coexistence of spaces exist in virtually all buildings where spaces are lined up or arranged to accommodate various functions. These functional spaces may not have direct access or visual contact with each other.

It is important to consider the mutual co-existence of these spaces so as to avoid or regulate unwanted inference or encroachment of one function by another. It is in this regard that zoning both on large and small scales becomes important.

2.8 SPACIAL ORGANISATION AS A TOOL FOR EFFECTIVE RELATIONSHIPS AND HARMONY

As space constantly encompasses our being, it exerts influence on functions it accommodate and the users it serve. These influences may be positive or negative depending on the factors considered. However, space can be arranged in a manner that it will promote or encourage effective relationships among the various users of the spaces in a composition.

In an institutional complex where there may be so many departments and facilities, in the conventional set up, ranging from administration area, mainstream area, support facilities, recreational and/or residential accommodation. These departments are made up of many functions. A good design requires careful planning of the departments as functions as they relate to each other (zoning) before dwelling on the various functions within each department.

In the institutional buildings, the mainstream department(s) is the basis for the idea or the existence of the institution. Since the mainstream area usually has various functions and for various users, from different training and disciplines, who may come to work together. Space and all its

complements should be carefully allocated with a view to encouraging them to understand and appreciate each others' works and exist harmoniously. The two main factors that can encourage effective operation in an institutional set up are the policy of operation and planning of infrastructure and both are important. In fact, infrastructural planning can even influence the policy of operation in an institution. This is usually in a case where the curriculum of training or the mode of operation may be proposed by the designer.

In the infrastructural planning, however, those ways by which space can influence effective relationships will be considered first in the main stream area and then to the various functions. These influences of spacial organisation fall under the following aims: awareness, mutual operation and integration.

a). AWARENESS

In a case where facilities are provided for different professions, the designer should take into consideration the need to express what the professions are all about and what the proposed facilities intend to promote. This is with a view to informing the users what their respective functions are, their specific roles and what the provided facilities are expected to promote.

Awareness ensures that all are well informed about the

activities happening not only through enlightenment programs but also the evocation of the nature of the activities through a careful design. This will consider visual contact between the various functions either through transparent curtain walls or at depression level.

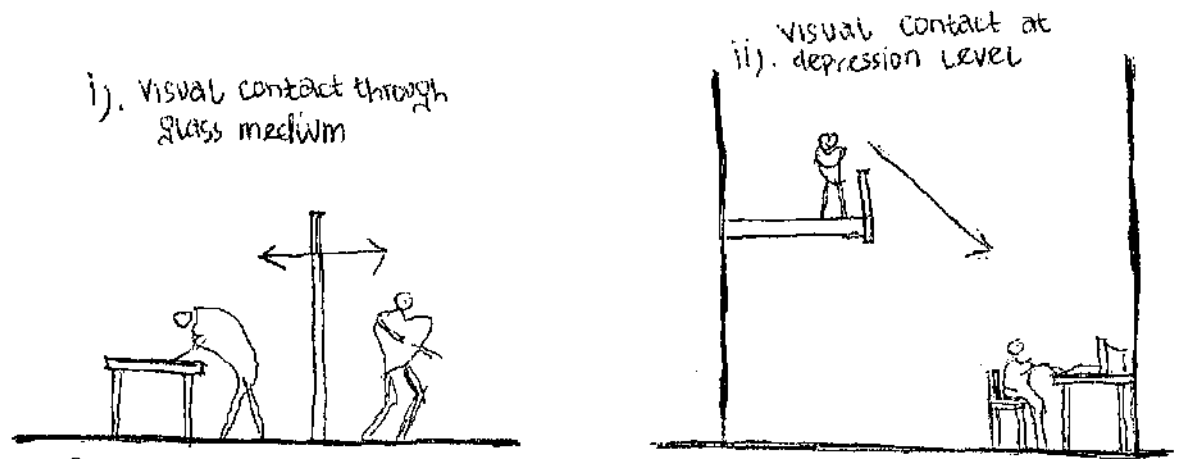


fig 2.9

b). MUTUAL OPERATION

Awareness gives rise to understanding and appreciation of the various activities that are accommodated in the different spaces in a composition. This understanding and appreciation makes the various activities in the different spaces within a composition exist mutually with respect and regard for each other.

This is achieved in design through a careful planning by strategically locating the functional spaces in manner that they do not unnecessarily interfere with each other, even though they may require contact of some sort.

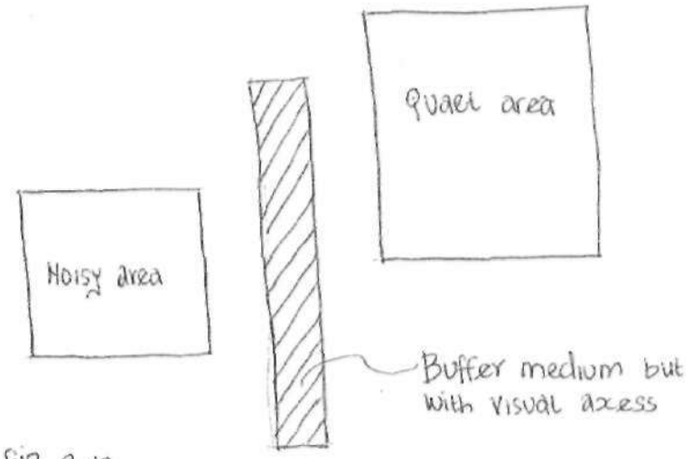


Fig. 2.10

c). INTEGRATION

The mutual co-existence of the functional spaces which is achieved through their understanding and appreciation gives rise to the need for the various activities to come together as one. Come together as one in the sense that they complement and support each other in the areas required. This is achieved in design through the integration of the functional spaces where overlap or merger is required. The integration of functional spaces exist in the main stream areas of institutional buildings where harmonious operation of the various functions within the mainstream area is required. Functional spaces such as the computer laboratory, gallery and the classrooms for instance should have that kind of relationship, especially when the classrooms are for different

training, overlap or integration may be considered between these three functions;

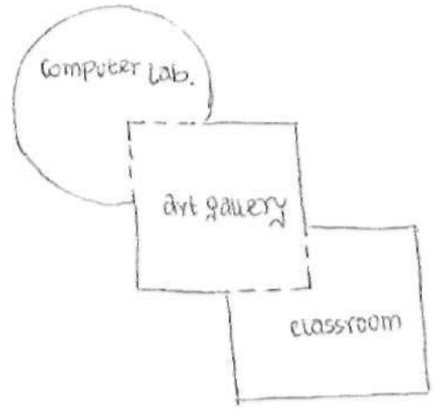


fig 2.11

The factors that should be considered in achieving the three aims namely, awareness, mutual operation and integration have been discussed earlier. They are visual contact, overlap of functions and composite relationships.

Space in addition to its planning and enclosure has other factors that can further influence not only effective relationships among functions and the users of space, but also boost effective working environment. This is achieved through celebration and articulation of the spaces.

CHAPTER THREE

3.0 PROBLEMS FACING THE BUILDING INDUSTRY IN NIGERIA

The Nigerian building industry is faced with the problem of lose of professional ethics and conducts. This has resulted into malpractices ranging from supplanting, bye-pass of formal procedures and operating beyond professional limits. The repercussion of this is poor professional performance by the entire participants in the industry, the result of which is a set back in the national development.

This chapter therefore discusses these problems facing the building industry, their causes and to justify the need for professionalism in the Nigerian society and finally suggest the way forward.

3.1 PROFESSIONAL MALPRACTICES

Malpractice may be defined as the illegal use of one's position or authority to either gain money, favour one party over the other with no legal justification or act in contrary with the laid down rules and regulations for one selfish gain or the other. A Professional refers to an expert in work which requires special training, skills or knowledge.

Professional malpractice therefore refers to illegal use of one's position as a specially trained or skilled person (professional) or a custodian of the knowledge of special training or skills for one selfish gain or another. Professional malpractice in the building industry means acting

in contrary with the rules and regulations laid down by the Federal Government of Nigeria through the Federal Ministry of Works and Housing and codes conducts laid by the various professional bodies in the building industry.

Professional malpractice in the building industry may be classified into supplanting, bye-pass of formal procedures and operating beyond professional limits. They are committed by the professionals deliberately or otherwise for reasons of financial gains or pay back of favours. Either way, they adversely affect the effective operation of the industry. This is evident in the assessment of what the building industry has done so far. Planning laws are grossly abused and this was caused unwanted congestion in our cities. Building materials are used without any consideration for long term effects resulting to either perpetual discomfort or collapse of structures. Any body can be contractor without any certification of either experience or fitness resulting to low quality works and/or collapse of buildings. Prices of building materials are always on the increase without any vision or action on the need to collaborate with research institution to come up with cheaper means of construction so as to tame the price escalations. All these indicate that there is a problem and that it has a cause; deviation from the guiding principles of effective operation and neglect of professional ethics, instances of which will be sited subsequently and causes

discussed.

3.1.1 PROBLEM OF SUPPLANTING

This refers to an illegal action performed by one party to out do another. In the building industry, supplanting usually takes place when contracts are competed for. An instance is where one party offers to render the same services quoted by an earlier party but for charges less than what the professional scale of fees stipulates. The client readily commissions the second party since it is cheaper but the latter has given up his real value and in addition he has removed his professional colleague from the race illegally. Another instance is where a professional bribes his way in cash or in kind to win a contract that his proposals could not match, as a result it was meant for another party with a more feasible and responsive proposal. In this case, he may have won the contract but he may not deliver the adequate services required of the project, thereby leaving the society and/or the users at the receiving end.

Cases of supplant occur in the building industry but are hardly reported. They usually come up when the victims complain or when the culprits confess. This difficulty of records of this kind of malpractice is due to the nature of the competition for the contracts. The contracts are hardly

bided for openly. And even where the open competition take place, the competitors are hardly served with the entry proposals and to justify the winner.

3.1.2 BYE-PASS OF FORMAL PROCEDURES

This refers to shunting or side tracking of laid down procedures in submitting proposals or pursuing commissions or payments. It is usually committed, either in an effort to bye-pass some screening for fear of unfitness or to safe time. This type of malpractice causes congestion, confusion and stagnation of administrative works in the course of either disbursing payments or sorting of proposals for the award of contracts. Bye-pass of formal procedures usually results in to infiltration of the proper system and influencing bad decisions on the laid down process. In the long run, bad decisions translate in commissioning of less qualified professional and/or selection of wrong quotation. This again reflects on the quality of the final product and its effects on the society/users.

Bye-pass of formal procedures has become an institutionalised activity especially in the parastatal concerned with approval of schemes. Today, all it takes to get either a building permit or complete scheme approval is how much one can give to the officials. Otherwise schemes are left

awaiting approval until and unless they are accompanied by brown envelopes. The result of this is that unchecked but approved schemes translate into live structures that may not have considered any planning regulation, fire prevention of even adequate ventilation or circulation that could prevent or reduce the impact of natural disasters such as epidemic out-break of communicable diseases. This problem has ripped respect off the eyes of the public for the authorities so much that fresh constructions are served with stop orders and even crossed with red paints by the authorities. But they still go ahead up to completion and subsequent occupation. This problem is seen in our cities, the example of which include the existence of a building or even a settlement under a high tension electric cables, settlement within the danger zone of rail track, encroachment of building in to access roads and locating building in area meant for other purposes.

3.1.3 OPERATING BEYOND PROFESSIONAL LIMITS

This is the most common of the defaults committed by the professionals within the building industry. It is the act of performing somebody else duty and illegally. There are cases where the architect is being accused of doing the engineer's work, or the engineer doing the architect's work. The case of dispute between the service engineers and the quantity surveyors concerning the bill of quantities for services. The

services engineer are saying that the quantity surveyors always come back to them for interpretation of their design which perhaps is not part of part of their training. The quantity surveyors are saying that, their work covers all that concerns cost commitment or implication on building projects. The case have cause many unwanted accusations and arguments so much that it has been taken to the industrial arbitration panel. As to whose specific role is what is yet to be resolved on that matter.

There was also a case of who should approve of site plans, between the architect and the town planners in Rivers State. The case was argued out and was ruled in favour of the architects. It was In fact observed that lack of proper integration of the two profession from training might have caused the lack of understanding between the two similarly, the architects and the quantity surveyor are questioning the involvement of lawyers on the case of arbitration. They are of the opinion that since there is a clause that says parties must arbitrate before going to the court of law and that since there are professional in the building industry who are trained to arbitrate in addition to their primary assignments, there will be no need for the lawyers involvement. The building engineers are also saying that they are in a better position by training to prepare structural design for building projects since their main works are building structures,

services and maintenance of buildings. And that, even though the civil engineer also do structures, by training it is civil oriented; that is to say heavy construction such as bridges and other works that require engineering profession.

Operating beyond professional limits is so rampant and is committed by the entire professions in the industry so much that it is seen as just another means of survival, however, illegal. There are existing buildings that have designed by engineers. Architects have always been accused by the quantity surveyors that the former encroaches to extend of preparing bill of quantities. Although, this problem is caused be the confusion between the British system where every professional in the industry including the quantity surveyors have their specific roles and the American system where the architect is allowed to not only prepare bill of quantities but also all other services not exceeding four floor levels. Despite the foregoing, its just another means of survival by the less privilege architect who may not be in a position to get sustainable jobs.

3.2 FACTORS RESPONSIBLE FOR THE PROBLEMS

The Nigerian building industry is faced with so many problems due to so many factors that are Unfavourable for its effective operation. These factors affecte national productivity generally, but in this case, it will be discussed

within the scope of the research: as it affects the Nigerian building industry.

3.2.1 GENERAL DECAY OF EDUCATION IN NIGERIA

The Nigerian education sector has suffered so much set backs in proper training of young professionals and furthering research in the past decade or so. Academic calendars are always interrupted either by strikes on the part of lecturers or unrest by the students. This usually makes the training compacted and in unfortunately in a rush so as to make up for lost periods. As a result, students always prepare them selves only to pass examinations and not for use after graduation.

Worse still, lectures are not properly paid which make them divide their attention between teaching and looking for alternative or supplementary means of lively-hood. This problem is so serious that the teaching profession has become virtually a last option. Furthermore, The problem of brain drain has made Nigeria lose many custodian of knowledge. Unfavourable teaching and research conditions have made so many professors run for greener pasture. All these affect the quality of professional training and education in general which is received by the professionals-to-be of the building industry. In fact, since this problem is not an issue of yesterday, it can be said that there are many low quality professionals flooding in the labour market of the industry.

This is evident in the fact that contemporary Nigerian professionals can hardly compete in international competitions. Not even indigenous construction companies owned and managed by the professionals related to the building industry can do good jobs and be compared with that of the foreign expertrate. The mode of training is still not so dynamic as to give room for improvements; computer aided design is still a hear-say for almost all the schools.

Consequently, the building industry receives professionals that are not properly trained due to the problems already discussed and most of whom are so eager to start their own independent practices without working to gain some experience from the senior ones.

3.2.2 ECONOMIC HARDSHIP FACING THE COUNTRY

Another factor that militates against the effective professional discharge of the building industry is the economic hardship faced by the country. The economy as stable as the economist might put it, still does not favour the common Nigerian. The monthly wage paid to the civil servant is not even enough to sustain him self and his family talk less of saving to build his own house. And even when he gets to be in the position to build one, he uses materials that are of low quality or the high quality but inadequate. This leads to

the comprise of quality and standards which results in to shortening the life span of buildings, most of which look dilapidated few years after construction. Cracks and leakages showing some times before completion.

The most pathetic aspect of it all is that the professionals in the building industry are usually involved in these malnourished projects. This they have to do to survive. In fact this problem of economic hardship has left so many professionals just struggling to survive, so much that there is always a professional ready and willing to go in to these projects that are either malnourished, unrealistic or irrelevant in the society. This they have to do to survive. This problem does leave out the government projects. Coupled with myopic nature of planning, projects are signed for execution without any consideration for development in phases. The result of this is that every thing gets to be done, but unfortunately not only in a rush but also cheap and low quality building materials that eventually crumble not long after completion.

3.2.3 LEVEL OF CORRUPTION, INDISCIPLINE AND LAWLESSNESS

Corruption in Nigeria today is virtually institutionalised. Kick backs or brown envelops must always be given to either win a commission or pursue for one's fees. This has transcended all the participants so much that the

hierarchy of the professionals as a team has lost its relevance. There are cases where an architect could not stand up to the contractor when he deliberately does some things on the site to cut cost and maximise his profit. This is because the contractor treats him well (thick envelops). Too bad it may be to the detriment of the client/users. After all, every body does it. The quantity surveyors lias (after being treated well) with the contractors to inflate either the quantities or the rates of the building materials in a project. The structural engineer backs the contractor (of course with considerations) that reducing the diameter of reinforcements or their number will not affect the strength and stability of the structure and that the difference of which may be made up in the volume of concrete poured. Surveyors working for the ministry will always demand for a certain fee before they can establish beacons for buyers of land. Every-one-does-it therefore justifies why individuals do it.

This has resulted into lose of respect between the young and older professionals in the industry, after all, we all do it. This indiscipline has graduated to breaking the rules and regulation, guiding the basics teachings and ethics of the professions since there is no one to raise an eyebrow. Unrealistic and non functional schemes get approved by the related officials after due consideration (bribe). Some actions of the professional are so daring to the law because

not even the law enforcers are law abiding.

3.2.4 UNFAVOURABLE GOVERNMENT POLICIES

Government policies in Nigeria have in the past not favoured the building industry. Decisions are taken and resolutions past with proper consultations with the professionals concerned. The issue of housing for all by the year two thousand is a good example. Even as at 1991 the census figure was 80 million people which is today put at over 100 million. Our leaders wake up with very bright ideas and the next thing they address the nation of their intentions without any consideration for how difficult or unrealistic these ideas may be, the cause of which is lack of proper consultation.

In 1979 the Federal Government approved only 1.5 million Naira as against the 5 million Naira for the then proposed National Institute For Policy And Strategic Studies, Jos Plateau state. As a result, mud was used in some areas in the complex which is now presenting problems such as dampness, cracks and flacking of plaster. Some projects awarded by the government are usually accompanied with unrealistic datelines. In Nigeria, wet construction is still dominant and consequently there are factors that determine the pace of these projects. They include season and safety pauses in terms of setting and curing periods which are usually in multiples

of days. All these affect or determine the period for completion of projects. Unfortunately it has been over shadowed by the desire of fame to be known as fast project executors.

The issue of the prime consultant brought by the 1996 professional scale of fee is still an unsettled matter. It says that anybody who initiates a project and coordinates the activities of the consultants of the project is the prime consultant for that project. This clearly defines the role of the architect. Unfortunately it is interpreted by the other professionals within that industry, with the Quantity Surveyor at the forefront, in a way that the project initiation can be done by anybody in terms of proposing an idea that scales through and subsequently being commissioned to do the job. Not project initiation in terms of a scheme for the idea proposed.

This also has brought so much argument that the professional some times go beyond their professional limits so as to prove their superiority over one another. Of course the result of this is that the professionals point accusing fingers at each other each time a problem comes. Problems that may have adverse repercussions on the buildings.

3.2.5 LACK OF AWARENESS IN THE NIGERIAN SOCIETY

This problem if soived is capable of wiping away most of the other factors mentioned earlier. Lack of awareness in the Nigerian society has posed as a serious dilemma for the Nigeria building industry. Awareness in terms of the specific roles of the various professionals in the industry and the implications of default. Awareness in terms of what the society should expect or require the professionals to do. The implication of using low quality building materials especially when there is an option. The implication of commissioning a quark professional to do the job because it is cheaper.

There are in fact some clients who do not see the need for any quantity surveyor or an engineer when there is an architect capable of rendering their services. There are also clients who compromise basic requirements in their buildings so as to maximise space and increase profit (in terms of tenancy), ignorant of their repercussions. This compromises adequate ventilation, lack of which may be insecure in case of desease out breaks or even suffocation in the case fire hazards. All these militates against the effective operation of the building industry and require urgent attention.

3.3 THE NEED FOR PROFESSIONAL EXCELLENCE IN NIGERIA

Nigeria after thirty nine years of independence with a population of over a hundred million and with all the natural resources at finger tips requires professionalism to be able to harness all these resources and move the country forward. Professionalism is indespensible for Nigeria to be properly developed which can only be achieved by evolving a condusive environment for everyone to do his job.

Professionalism in Nigeria is required not only in the building industry but in all aspects of nation-building. This is in terms of boosting the agricultural sector to feed the nation and beyond, providing adequate housing for all Nigerians, creating job securities and opportunities, stable power supply and sustainable drinking water etc. All these are not just dreams of Nigerians but their basic rights. Basic rights that can only be realised through selfless professional discharge of all and sundary.

3.4 UPLIFTING THE PROFESSIONAL STATUS OF THE NIGERIAN BUILDING INDUSTRY

The building industry is the medium through which the Nigerian society realises its building needs and other related infrustructural developments. So much money is expended through the industry for the execution of one project or the other. It is through the building industry that the country expects to provide shelter for all and all other related infrastructural developments. In fact, it is the medium that shape the environment in which we live. And it is for these reasons that uplifting the professional status of the Nigerian

building industry becomes important. As to how it can be achieved, this thesis goes further:

a) All policies and decisions concerning the building industry on issues of either housing or infrastructural needs should be taken jointly by the policy makers and the professionals within the industry. This will ensure that decisions taken are not detrimental to the society.

b) The mode of training of professionals should be so dynamic as to move along with the changing societies, talkless of the perculiarities of Nigeria. Further more, continuing education should be encouraged among the professionals in the industry. This will ensure that they are well informed of lattest techniques of construction and project management.

c) Professionals in the building industry have always had problems pursuing the fees either from the government or the private sector. This has made them go down so low just to get what is rightfully theirs, thereby losing respect. This should be attended to. Professional must be paid for services rendered as soon as it is certified complete, otherwise other considerations are attracted.

d) Corruption among the professionals must be discouraged and perpetrators be flushed out as this will only continue producing low quality structures that tend to collapse. The issue of shelter provision is a serious matter that requires only the serious selfless and dedicated professionals who have the love of their

professions and the lives of the users at heart. Standards and quality must not be compromised for any selfish considerations.

e) The Nigerian society should be enlightened on the roles of the professionals in the building industry and the need for their involvement in building projects. This will solve the problem of clients commissioning quack professionals for cheap but low quality services.

CHAPTER FOUR

4.0 CASE STUDIES

Every proposal requires, in its formative stage, a study of related existing projects. This is to analyse, assess and criticise these projects with a view to extract lessons from their merits and demerits in the same manner. For the purpose of this research, case studies are carried out both within the country and abroad to study how related projects were able to address the context of the proposed activities.

4.1 THE NATIONAL INSTITUTE FOR POLICY AND STRATEGIC STUDIES, KURU PLATEAU STATE

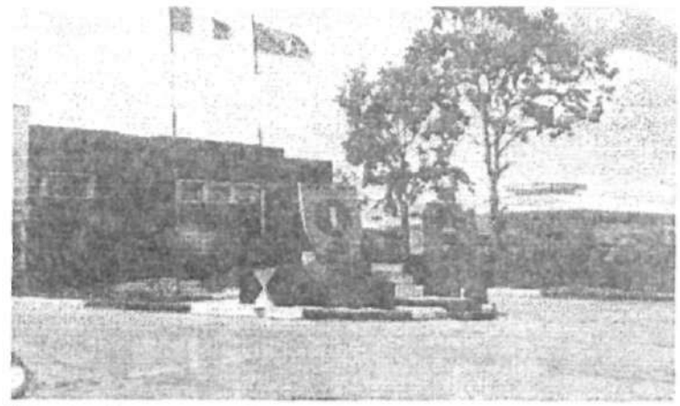


Plate 1. View of Admin. block.

The National Institute on Policy and Strategic Studies is located in Kuru, a village 20km south of Jos in Plateau state. It was established in 1979 and known to be highest or senior most institution in the

country. Its sole aim is to serve as a resource centre for high level exchange of knowledge and research for National Development. The institute has trained so many senior civil servants, military personnel and experienced personalities in the private sectors.

i. **Architects**: Architect Fola Alade was the first to design for the institute after the adoption. He designer mainly the residential chalets. Other architects were subsequently commissioned. These include the Environmental-seven, an architectural firm based in Kaduna, who designed and built the new extension of the residential chalets and the multipurpose hall. Architect Zanzan Uji designed the institute's chapel.

ii. **Users**: Policy initiators, policy executors and citizens of mature experience for high level interaction, research and dialogue.

iii. **Facilities**: The institute is basically made up of the

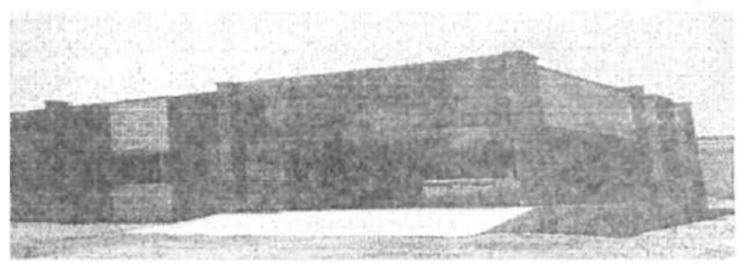


Plate ii. new accommodation for participants

Administration complex which it inherited from the barracks it displaced, the new admin. Block, the academic area, staff accommodation and chalets for participants and visitors.

Other functions include the club-house, library and restaurant.



Plate iii. Old participants' charlets

iv. Planning: The planning generally appears to consider all the functions. Proper zoning has ensured strategic location of all the function. The staff accommodation is on one side with administrative complex in front and the chalets and the recreational facilities over looking the

lake.



Plate iv. MAP of school layout

v. Form and Structure: There appears to be uniformity in the building forms especially in the staff accommodation and the participants and visitors chalets. These are basically connection of four circular form by an interlocking rectangle. Other facilities such as the administrative block, the multipurpose hall, library and club house are near.

The structures do not present any kind of structural challenge. This is because conventional wet construction materials were used in seventy percent of the complex remaining of which is mainly one storey buildings.

vi. Observation: There is a problem of general dilapidation of

structures especially the old admin/academic areas. The building was made of mud block and appears to be wearing away. So are the floors. The physiognomy of the entire institute does not reflect its position as the senior most institution in the country.

4.2 THE ADMINISTRATIVE STAFF COLLEGE OF NIGERIA BADAGRY, LAGOS

The Administrative Staff College of Nigeria was established in 1973. It is located in Badagry in Lagos. Its role is to provide higher management training for the development of executives for the public sector. It also provides and arranges comparative study in the principles and techniques of management and administration and for exchange of ideas and experience.



Plate V. approach view of admin./teaching area

i. **Users**: Public servants in public administration functional, financial and general management research and consultancy.

ii. **Facilities**: Facilities in the complex include Admin. block/teaching area auditorium/theatre, kitchen/dining complex, medical centre, maintenance yard and supermarket. Others include club house staff quarters, participants accommodation, guest

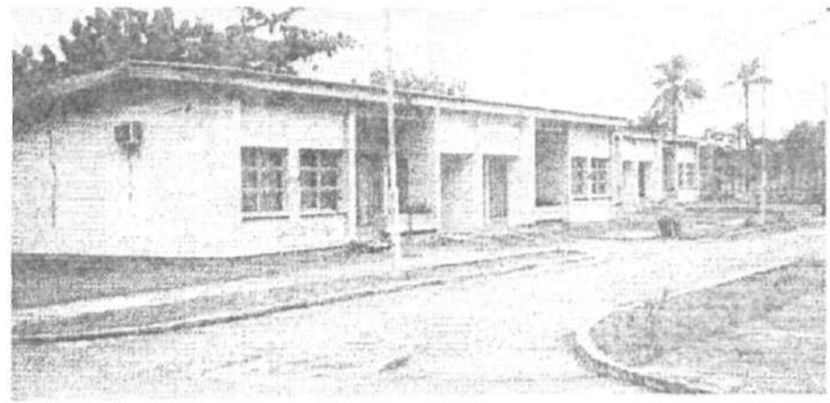


Plate Vi. Participants charlets

chalet, out door games petrol station, security gate house and jetty.

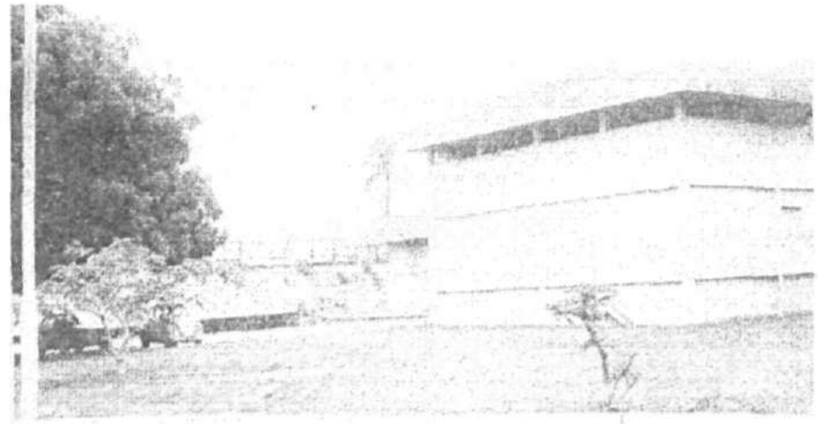


Plate vii. side view of club house

iii Planning: This has ensured proper zoning of functions with respect to their status and nature. Proper landscape has also softened what would otherwise have being a congested view. The strategic location of the admin. and teaching areas at the centre of the complex indicates its status as most important point of reference. Outdoor games and other recreational facilities are well located close to the water body (bight of Benin) which gives a good view. So are the guest chalets.

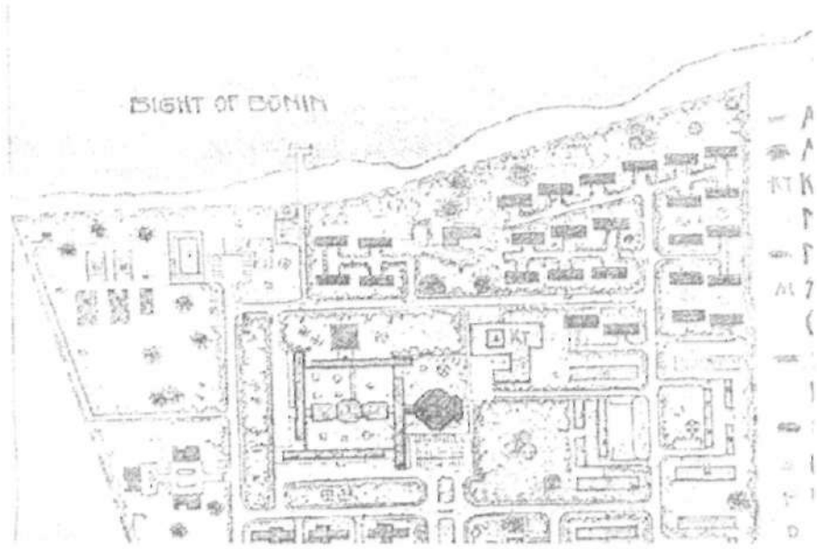


Plate VIII. Layout of Institution.

v. Form and Structure: Leaner forms of basically rectangular shapes are used in the complex. This in a way gives an impression of uniformity. This is further translated in the elevations that depicts a corporate outlook. Structural grids are used to place columns and space beams in the different units. This is found in virtually all the buildings, most of which are either one or two storey buildings.

vi. Observation: The complex has only one entrance and exit. This constitutes congestion closing hours and festive periods and this does not favour the workers who live in the complex with their families when rushing in and out of the complex for one reasons or the other. The nature of the class rooms are so rigid

for mature and high level training of participants. The maintenance yard constitutes nuisance to the medicare.

4.3 THE BAU HAUS DESSAU WEST GERMANY

The Bauhaus was established at Weimar in 1919 with Walter Gropius as the first Director. The School was moved to Pessau in 1926 which was a more hospitable ground for its training. Its aim was to merge the theories of arts and practical works of craft with a view to evolving a revolutionary approach to build a better society. As a result, it was involved in not only architecture but also physics, textiles, fine arts, sculpture etc. the buildings in general are erected on structural grid system which locates the load bearing elements; columns and beams. The entire building is linear with repetitive elements which combine to give simple and uniform impression.

vi. Observation: Flat roofs are usually associated with problems of leakage. The cost of maintenance is usually high especially if not consistent. The physiognomy of the elevations lack ornamentation. This gives a boring impression to the observer, since all the sides of the building are virtually the same.

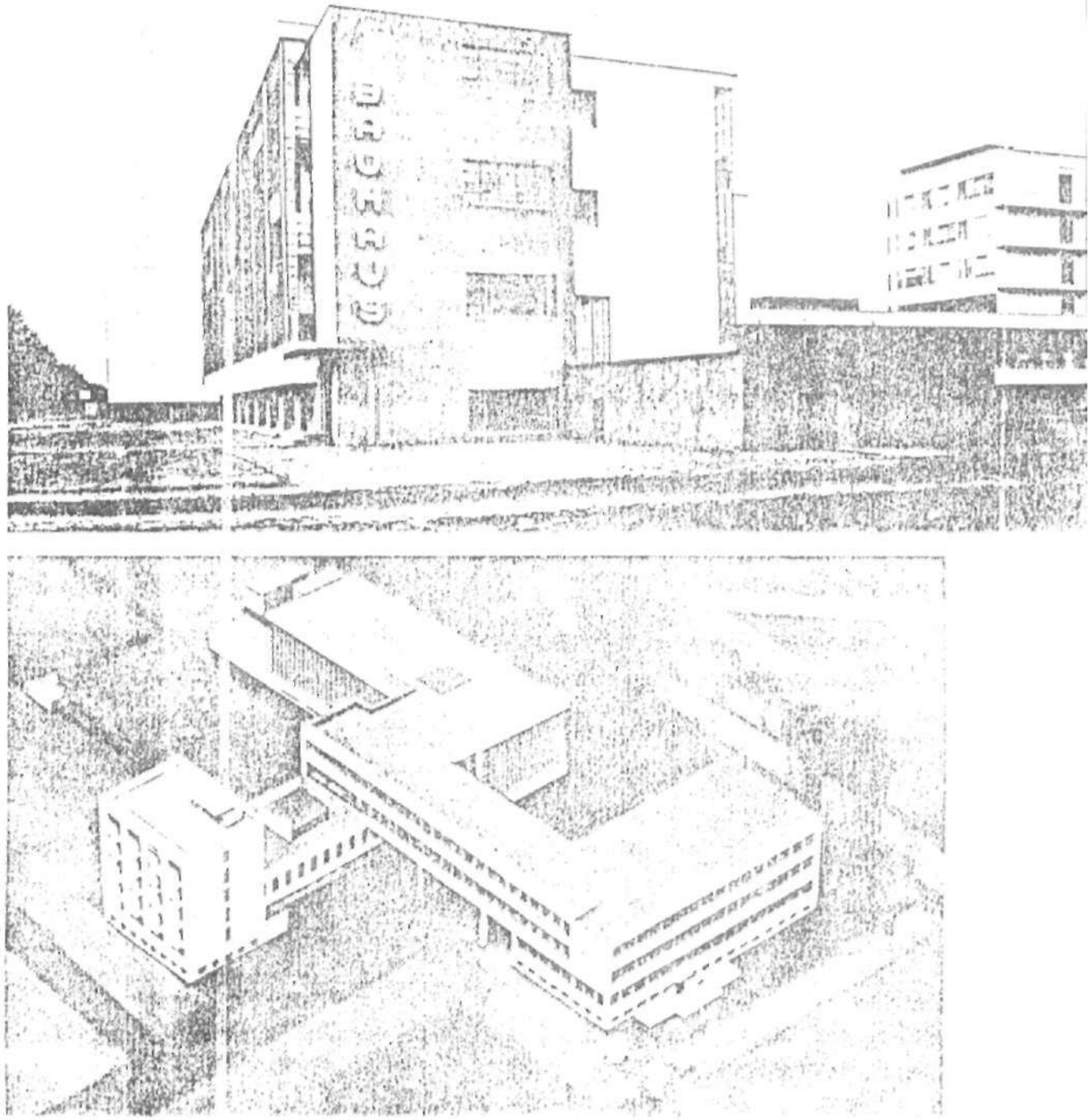


Plate IX. View of the Bauhaus at Dessau

CHAPTER FIVE

5.0 DESIGN BRIEF

5.1 Introduction

The research work has earlier dwelled in the Nigerian building industry; problems and prospects. This is with a view to justifying the need for uplifting the standards and quality of professionalism in the industry. This as earlier discussed can be achieved through a gradual process of interaction and mutual training so that they can understand their specific roles and areas of overlap. This means working as a team for optimum results.

The idea of the proposed situation is therefore such that a common ground or a conducive environment shall be evolved for the entire professionals within the building industry so that they may come together for mutual training and interaction in the following areas:

I. Project matters in areas of specific roles and areas of over lap.

ii. Technical services such as specialisation in such fields as model making for the architects, further interpretation of drawing for quantity surveyors and engineers.

iii. Research and development as it relates to technology and professionalism in such areas as computer aided design, analysis of building materials and

construction techniques and general appraisal of research activities around the world through electronic correspondence systems.

iv. Social interaction through recreational facilities.

The proposed situation shall address openness and mutual co-existence of the professionals in the institutes.

a). ARCHITECTURAL INTERPRETATION

The design brief translates into evolving a scheme of design proposal that will address and influence mutual professional training and harmony. This, architecturally, will be achieved through functional integration or flow of functions into one another, visual accessibility and mutual coexistence of functional spaces. This will also take into consideration the diversities and complexities inherent in the professions within the building industry.

b). DEVELOPMENT

The Centre for professional excellence is a hypothetical proposal to the Association of Professional Bodies of Nigeria (APBN). This is a body that coordinates the activities of the professionals and their bodies in Nigeria with a view to protecting their interest on policies and decisions taken by the government as they affect the professions. It is mainly made up of different

professional groups called coccus. Some of the cocci include the building coccus, manufacturers caucus the medical coccus etc.

The centre for professional excellence shall be only for postgraduate training, the minimum requirement of which will be first degree in any of the professional courses within the building related disciplines. The centre shall be totally devoted to the high level training of the professionals within the Nigerian building industry.

c). DESIGN REQUIREMENTS

The design requires a complete scheme of proposal whose emphasis is design for mutual high level training. The functional requirements fall under the following macro-categories.

I. Administrative Area

ii. Public Service Area

iii. Support/Ancillary Area

iv. Academic Area

v. Accommodation Area.

d). POPULATION AND STRUCTURE

The Centre for Professional Excellence shall cater for a projected population of one hundred and twenty people. This is exclusive of the public services area

which is essentially

let table office suits. However, the breakdown of the population between the administration, support and academic areas are given below.

Administration Area	15
Technical Support Area	5
Academic Area 100	100
	120

The administrative policies will be such that the admission is restricted on first come first serve basis for the first five years before it can be reviewed. In this regard each profession shall have ten vacancies into the various courses.

Professions	Vacancies
Architects	10
Engineers (Structural)	10
Engineers (Services) (x 3)	10 x 3
Quantity Surveyors	10
Estate Surveyors	10
Planners	10
Contractor s	10
Special Consideration	10
	100

The Organisational Structure of the administration shall follow the list below.

Director

Deputy Director

Academic Secretary

Accountant

Personnel Officer

Permanent Lecturers

Visiting Lecturers

The structure of the academic activities, however, shall be divided into three departments. This is accompanied by the structure of courses below.

I. **Technical Services Department**

Advanced Model Making

Design Interpretation

Building technology

Analysis of Materials

ii. **Project Matters Department**

Advanced Professional Practice

Cost and Project Management

iii. **Technology Department**

Computer Aided Design

Computer Design Programming

e). CURRICULUM OF ACTIVITIES

The duration of courses shall vary depending on the nature of the courses. This is in view of the fact that there is the need to make the curriculum flexible so as to favour the different professionals who have different working programmes either in the public or private sectors. This will encourage the professional to enroll, bearing in mind that the programme is based on voluntary attendance.

However the duration of the course shall range from fourteen days to three months. The short duration is in recognition of the fact that the professionals in the building industry usually have tight schedules year in, year out. The short duration therefore encourages them to either incorporate their working schedules with that of the short training courses to break the rigors of professional practice with short exercise of updating or specialising in one's field through continuing education.

The courses are structured in a way that the various departments integrate or flow into one another in the course of training these areas of integration or overlap shall include:

I. Design interpretation and advanced professional practice

ii. Building technology and computer design programming

iii. Cost and project management and analysis of

materials.

iv. Computer aided design, cost and project management and design interpretations.

f). QUALIFICATIONS OBTAINABLE

There are basically two groups of certificates to be obtained. One can be obtained in the institute. These are for the certificate courses offered in the centre. The other can be obtained through the centre. These are professional examinations of the various professional bodies nationally and internationally whose preparation and /or conduct are carried out in the centre. This of course shall be in collaboration with the parent professional bodies who shall be the patrons of the centre for professional excellence.

Since the programme is aimed at high level training, candidates shall be allowed to enroll in courses of their own choice.

5.2 TECHNICAL INFORMATION AND SITE SELECTION

THE SITE: ABUJA

Abuja, the Federal Capital Territory of Nigeria is geographically the Centre of the nation. It lies on latitude 8.25 and longitude 7.45 . It is chosen for the location of this centre due to the following reasons.

I. Its central location ensures equal distance from the

extremes of the country for the professionals from far and wide to converge.

ii. Abuja as the Federal Capital Territory is endowed with many on-going projects. In fact the largest in the country. This has attracted the professionals in multitude for engagement in one project or the other in both public and private sectors. The professionals are therefore more likely to enroll for short training in an environment where they either stay or come for their businesses of practice frequently.

iii. The abundance of on-going projects also favour the location of this centre as the curriculum of training includes site visits and invitation of the consultants of the on-going projects for special discussions.

iv. Abuja being the seat of government is the place where most policies and decisions related to the building industry are taken. And the curriculum of training also includes awareness programmes for policy makers on building related issues.

5.2.1 POPULATION AND PEOPLE

The Federal capital has experienced considerable increase in population from 125,000 in 1977 to 378,671 in 1992. This is on the increase due to the movement of

activities to the FCT.

Ethnic groups in the Federal Capital Territory are basically Gwari, Koro, Gade and Gwandara. It is however important to note that Abuja has experienced much influence of immigrants from the different parts of the country. This has affected the structure of ethnic groups owing to the deliberate policy of noman's land.

5.2.2 CLIMATIC DATA

1) **RAINFALL**

Abuja experiences rainfall between April and October with high concentration in July, August and September. Torrential rainfall is usually characterised by dark clouds, thunder and lightening and strong winds which often causes damage to weak and/or bad constructions.

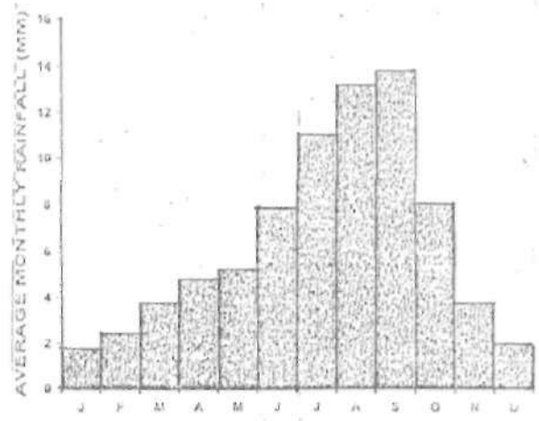


Fig 5.1

11) TEMPERATURE/HUMIDITY

Highest temperature in the FCT is recorded during the dry season (28-34°C) between February and April. Diurnal temperature goes up to 17°C during this period, the relative humidity goes down to 20 percent between the months of January and March. Low temperature is however recorded during the rainy season between the months of July and August with diurnal temperatures not exceeding 7°C. During this period the relative humidity goes up to 80% thereby causing heat trap. Lowest temperature is usually between the months of November and January with the minimum being 18°C.

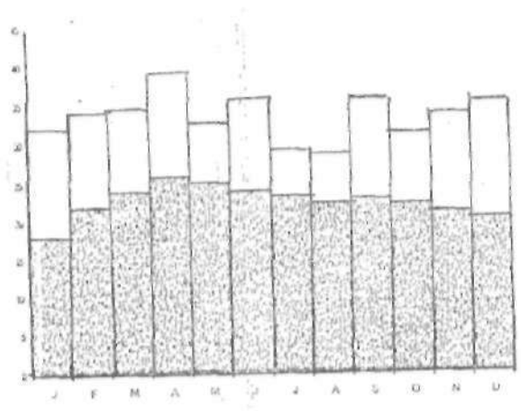


fig 5.2a

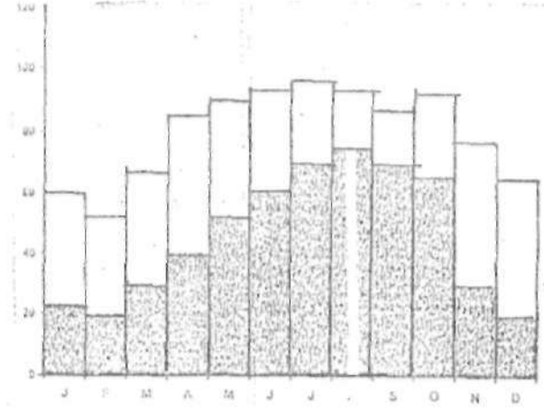


fig 5.2b

111) WINDS

There are fundamentally two air masses prevailing on the FCT. They are the tropical maritime and the tropical continental Air Masses. The former is associated with the south-West monsoon winds which is warm and moist bringing rain. While the latter which is developed over the sahara is hot dry and dusty causing dry season from November to March.

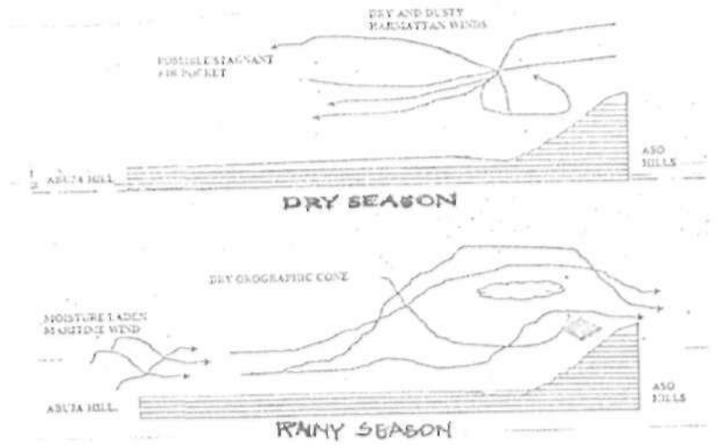


fig 5.3

iv SUNSHINE

Abuja is exposed to 2,500 hours of sunshine annually. This is usually recorded with the highest figures between the months of November and April. The commencement of the rainy season is associated with decline in sunshine hours. The lowest values are recorded in the month of August at the peak of the rainy season.

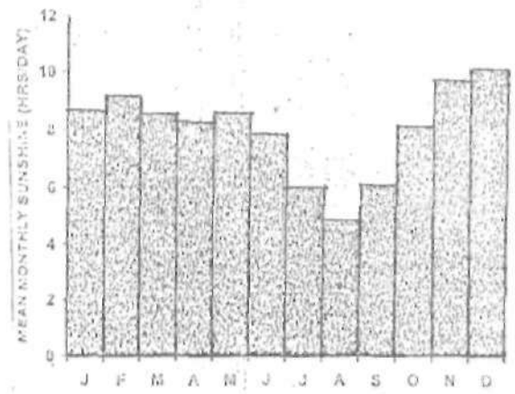


fig 5.4

5.2.3 JABI DISTRICT: THE SELECTED AREA

Jabi is a district located within the phase II development scheme of the Federal Capital Territory. It is bounded on the North by Kado district and on the east by Utaku district which borders with phase I of the FCT.

5.2.4 MAIN FUNCTIONS OF THE DISTRICT

Jabi district as proposed by the Federal Capital Development Authority (FCDA) is essentially for the following purposes.

a) Residential development

b) Mild commercial activities

c) Institutional/corporate activities

d) Recreation.

5.2.5 TOWN PLANNING REGULATIONS

I. Consideration of harmony of proposed building with the site and surrounding.

ii. Accessibility should be considered in terms of traffic to site, parking within and pedestrian movement.

iii. Effective landscape.

iv. Proposals should take account of the existing buildings and services with respect to electricity supply grid, waste disposal, drainage system and water supply with the water board.

v. Zoning must be in accordance with the FCDA regulations.

vi. Building orientation should be such that effect of wind pressure and glare is reduced.

vii. Safety of users and area involved is important in case of fire outbreak.

viii Proposal should express good character depending on the type.

ix. FCDA must approve all schemes before construction commences.

5.2.6 **SITE SELECTION CRITERIA**

The following factors are considered as criteria for selecting a site for any institutional scheme.

a) LOCATION:

The choice of location of site for an educational purpose should consider the general zoning. In this

case, site should be within an area reserved for institutional facilities and far from such nuisance as industrial noise and traffic. Ease of access to and from the site should also be considered for effective and smooth flow of traffic. Adequate space for expansion and parking should also be considered.

b) SOIL

The load bearing capacity of the soil on the chosen site should be able to support the heavy structures to be built. Permeability should also be such that problem of water logging is avoided. A minimum of 25cm topsoil layer should also be considered. This is to provide support for turf.

c) ECOLOGY

Adequate vegetation cover for landscape on the site should also be considered. This will help in enhancing the microclimate.

d) TOPTOGRAPHY

A relatively flat terrain or gentle slope is also important. This is to reduce the cost of preliminary works on site, such as site clearing and cut-off.

e) HYDROLOGY

A minimum of water Table should also be considered so

as to support plant life on the site.

f) MICRO CLIMATE

The site micro climate should be reasonable such that it exerts positive influence on the general climate. Adequate landscape and vegetation on the site will aid in regulating such climatic factors as temperature and humidity. Tall trees will also serve as wind breakers to protect roofs.

5.2.7 JUSTIFICATION FOR SELECTED SITE

The site for the proposed centre for professional excellence for the Nigerian building industry was chosen after a careful consideration of the criteria discussed.

I. The site located in Jabi district which is within the institutional/residential area of the FCT. It is centrally located since it is in the phase II of the FCT which serves as a link between the phase I and III of the development scheme. The site is also large enough to accommodate future expansion.

ii. The site is located less than a kilometer away from the Northern parkway, after the Jabi Water Reservoir. The strategic location makes the site stand out with the potentials of being a land marks between the phase I and Phase III of the FCT development scheme.

iii. The site is tree of pollution and nuisance as it is

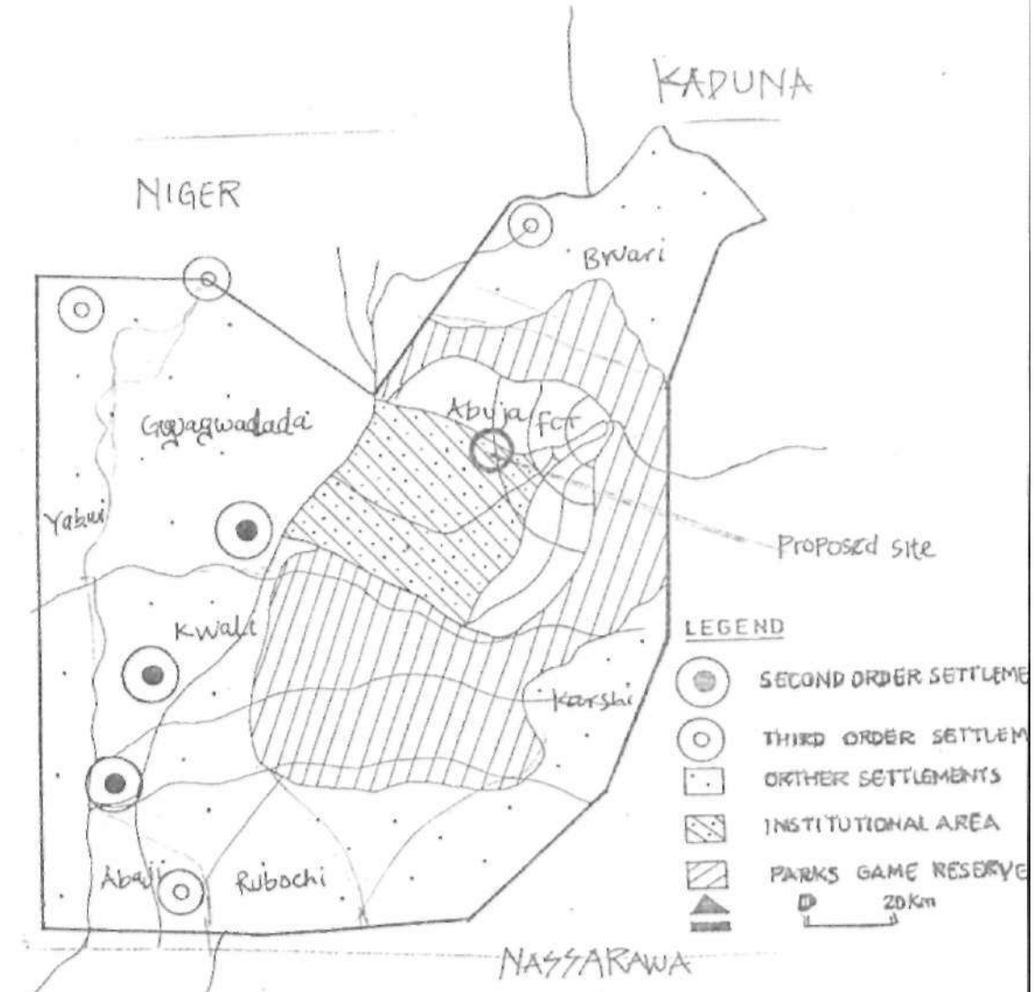


fig 5.5 Map of Abuja showing site location and distribution of fuctions and major towns.

far away from the industrial and dense commercial areas.

iv. The site, like other areas in the Jabi district is based with igneous and metamorphic rocks, this compliments the load bearing capacity of the alluvial soils.

v. The site also offers good view for leisure both to and from the site.

vi. The presence of some physical natural elements enhance the microclimate of the site. These are the tress of moderate heights which serve as wind breakers, vegetation cover and the water body near by help in regulating the temperature and humidity.

5.2.8 SITE ANALYSIS

The proposed site is located on the eastern bank of the Jabi dam reservoir, within the phase II of the FCT development scheme. It is located between the central areas of phases I and II.

I. **Geology:** The site is based with crystalline igneous and metamorphic rocks. Magmatite and biotite granite constitute the geological formation of the site. There are usually fine to medium grains in size.

ii. **Topography:** The site has a uniform gentle slope. This

is the direction of the water body.

iii. **Vegetation:** The site is characterised by Savannah vegetation. Tress and shrubs such as Tectorium, Avicennoides and Tarminalia are predominant on the site and its surrounding.

iv. **Soil** The site is characterised by 75% alluvial soils of laterite base with weathered debris at the foot of the slope.

V **Services**

I. **Water Supply:** A 600mm mains parallel to the northern parkway supplies water to the existing structures bordering with the park way reservation. This extends to the few buildings that are neighbouring with the proposed site. Water will therefore be supplied to the site the extended mains supplying the neighbouring building. Another supply mains is also in the pipe line, passing by the site along the NB collector road on the east.

ii. **Drainage:** The site slopes towards the Jabi dam. This natural drainage will take care of rain water on the site. Artificial drainage will however be designed as

collectors in the following categories.

a) **Tertiary Collectors:** These drainage pipes and gutters will collect water from the various parts of the individual units in the complex.

b) **Secondary collectors:** These convey the water from the various parts of the individual units in the complex.

c) **Primary Collectors:** These are box channels that collect the water from the secondary drainage system.

d) **Main Collectors:** Which are open channels that ultimately drain the water to the Jabi dam.

Sewage drainage will be through 600mm mains along the two collector roads to a central sewage system. This is in turn drained by gravity to the sewage treatment plant which has a daily capacity of 450,000m^3.

iii. <u>Electricity</u>

An 11 kilovolt power line is presently been put in place along the N8 collector road on the east. This will be the source of electricity to the site.

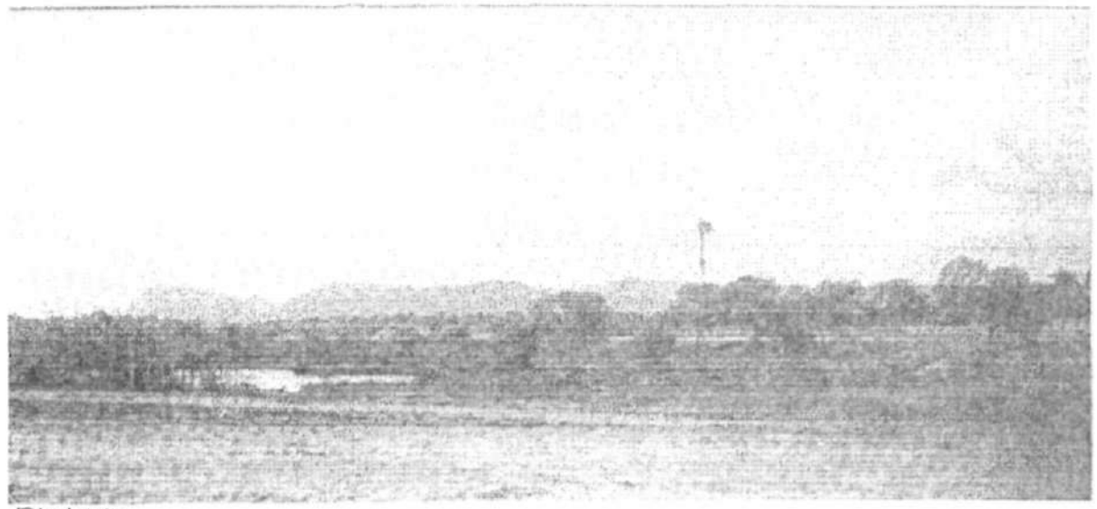


Plate X.
View from South Side

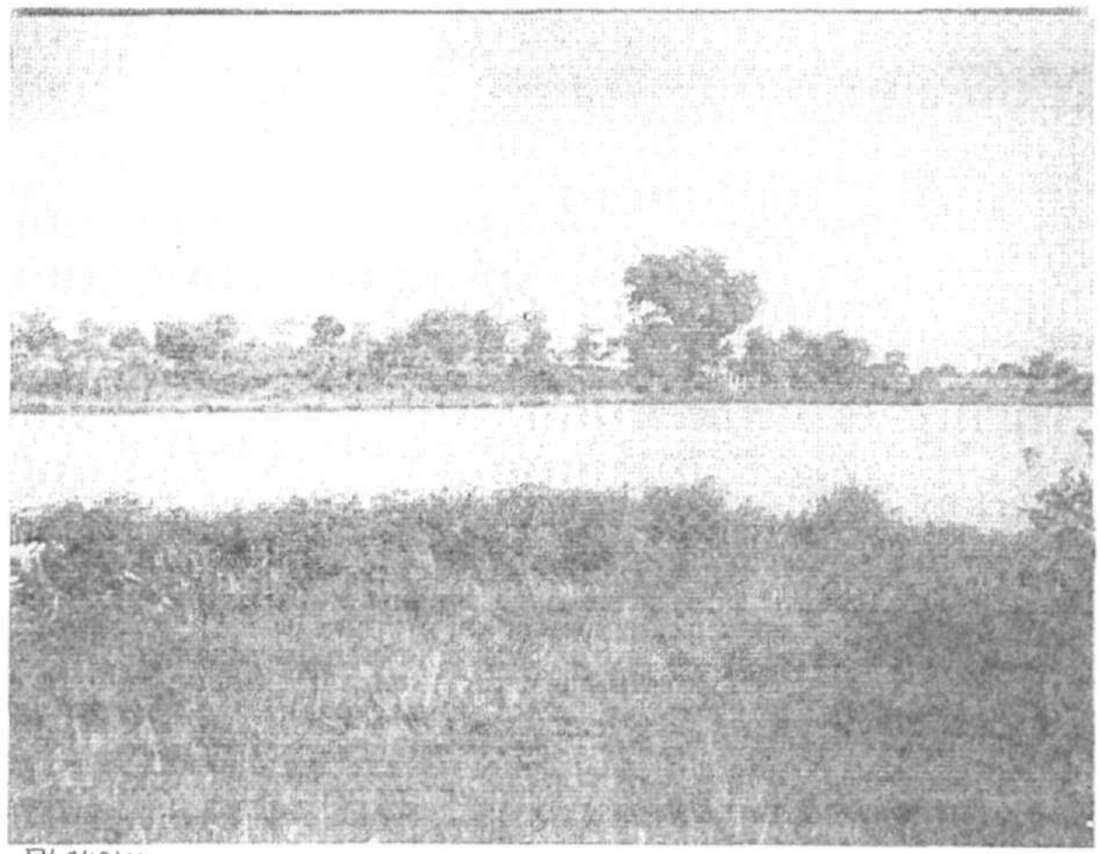


Plate XI.
View from Jabbi Dam boardering the site



Plate x II

View from East Side

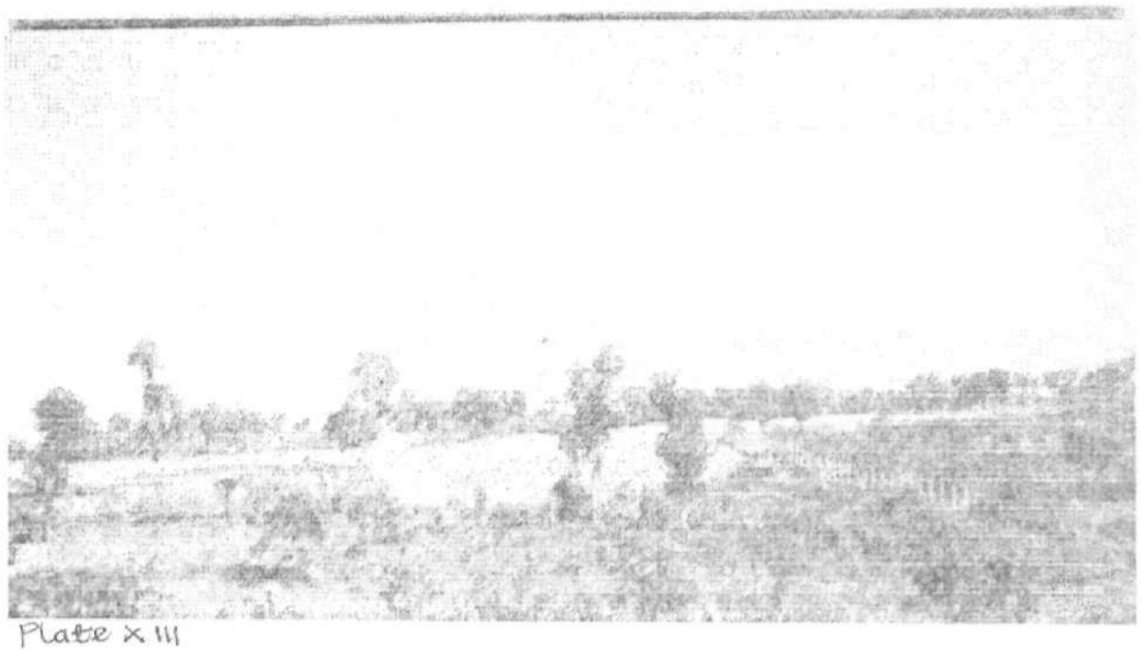


Plate x III

View from North Side

iv. Vehicular Traffic

Two roads will be provided from the site to connect to the two collector roads on the east and south one of which will be the main entrance/exit. And the other as services access.

5.3 DESIGN CONSIDERATION

5.3.1 Functional Relationships

In an effort to evolve a scheme for the proposed centre of mutual training for effective team work for the professionals within the building industry, it is important to consider the functional relationships of the spaces to be provided for the various activities. This is with a view to achieving the main objective which is team work for effective operation. In this regard, the following are considered.

a) **Overlap of Spaces:** Functional spaces shall be designed taking into consideration possibilities of their integration. This is with respect to the pragmatic, visual and circulation functions in accordance with the proposed curriculum of training where most of the activities are activities are functionally related to each other.

b) **Visual Relationship:** Functional spaces shall be

designed in such a way that they have visual access in to their respective activities. This, architecturally, promotes transparency and psychological sense of belonging and togetherness between the functional spaces and the users.

5.3.2 FLEXIBILITY OF TRAINING ACTIVITIES

The design shall also recognise with the fact that the proposed centre is for high level training of the professional and therefore evolve a design scheme that is free of rigidity and strictness. Class rooms, in this respect will be discussion rooms. These shall be loose but organised arrangement for not just teaching, but for exchange of ideas.

5.3.3 MATERIALS OF CONSTRUCTION

Design shall be evolved with material of construction in mind. The materials for construction in this case are the ones that will influence the functions to be accommodated by the spaces. These include the use of glass curtain walls (transparent) to achieve the visual relationship earlier discussed, high quality aesthetically appealing materials for finishes. This is to achieve optimum space dignity that will conform with the class and taste of the professional within the building industry who are the users of the facilities.

5.3.4 OTHER DESIGN CONSIDERATIONS

Other deign considerations ,include all faction that are basic requirements for consideration they are:

a. Orientation with respect to prevailing winds and unbearable heat and glare from the sun.
b. Security of lives and properties within the complex.
c. Proper landscape for optimum micro climate and serenity.
d. Materials for construction with respect to thermal comfort limits.
e. Circulation and relationship between the pedestrian and vehicular traffic.

5.3.5 SITE ZONING

After a careful study of the site with respect to an analysis of the natural and physical elements on the site and the surrounding, the site is zoned to accommodate the functions based on the nature of the activities. This is done with respect to the following:

i. Privacy
ii. Functionality
iii. Hierarchy of importance.

The site is zoned such that all functions that are capable of generating noise or can perform is rather noisy areas are located along the two roads bordering with the site. This creates a buffer for the less noisy functions away from the roads. The less noisy area in turn serves as a buffer for the private/quet area both from the public/noisy area and from the two collector roads.

The functional areas are therefore grouped into the zoned classes.

(a) Private/quiet areas

- Academic Area
- Accommodation Area
- Dining/Recreation Services.

(b) Semi-Private/Semi Noisy Areas

- Administration Area
- Public Services Area

(c) Public/Noisy Areas

- Exhibition Areas
- Technical Support Facilities.

5.3.6 FUNCTIONAL RELATIONSHIP

The functional relationship of the various areas listed above were done taking into consideration the nature of the functions with respect to the site considerations.

The detailed functional flow diagram was then extracted from the site zoning and relationships diagram on site.

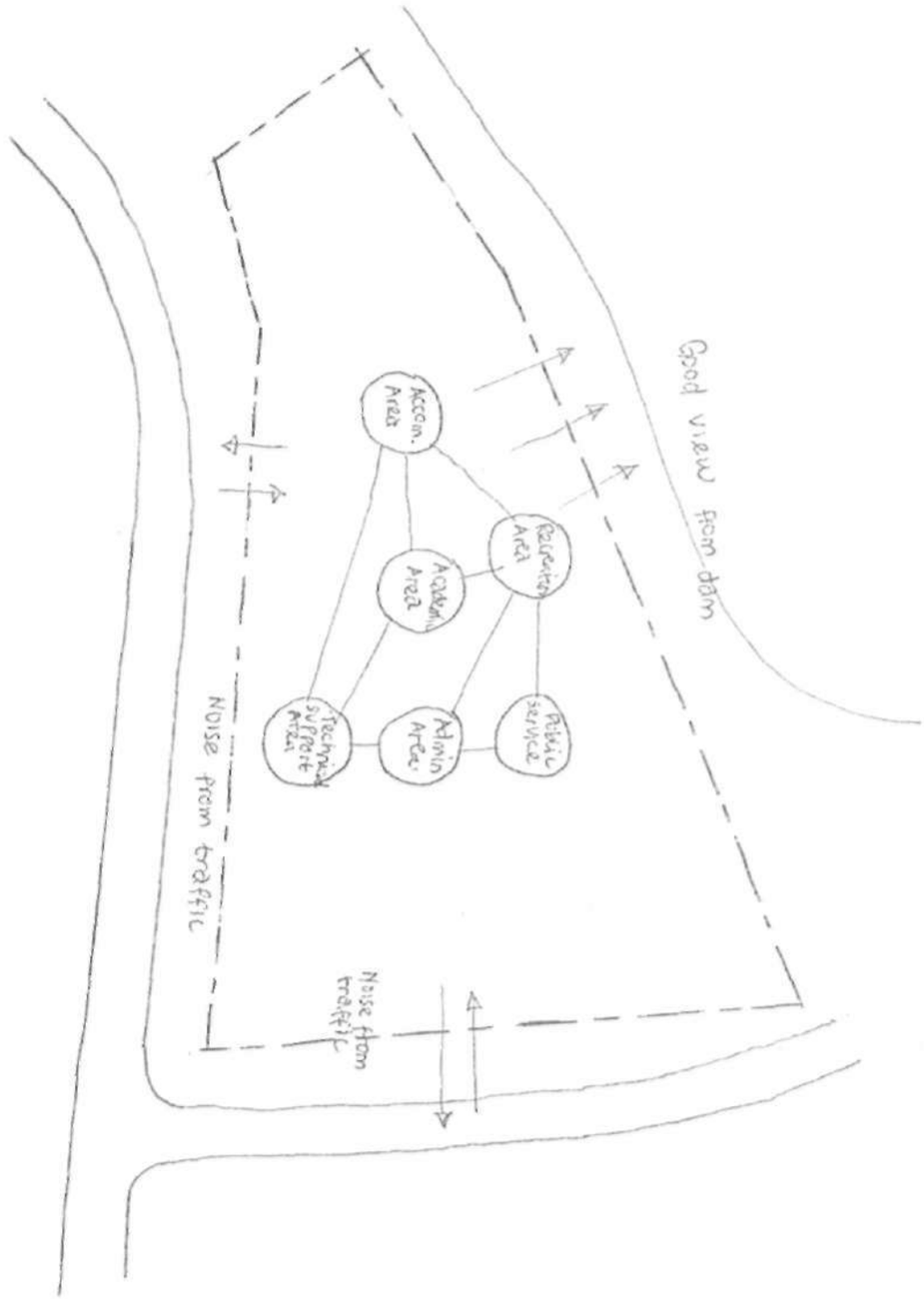


Fig 5.6

(SKETCHES OF FUNCTIONAL DIAGRAM)

Areas of spaces required for the functions to be accommodated were arrived at and based on the following considerations:

i. Number of Users

ii. Space required per person. This depends on the nature of the functions.

iii. The number of the unit areas required.

5.4 SCHEDULE OF ACCOMMODATION

Functional Spaces	*Number of Users*	*Number of Units*	*Unit Area (M^2)*	*Total*
Administrative Area:				
Director's Office	1-6	1	49m2	49m2
Deputy Director's Office	1-6	1	38	38
Secretaries' Office	1-4	1	20	20
General Office	5	1	40	40
Conference Room	30-40	1	-	75
Offices for Tutors	1-3	6	20	120
Accountants Office	1-4	1	20	20
Personnel Office	1-4	1	20	20
Professional Exams. Coordination Office	1-4	1	25	25
Academic Office	1-4	1	20	20
Mini Conference Room	15-20	1	40	40
Exhibition Area		1		162
Mini Museum				66
Waiting/Reception	1-10	1	38	38
Stores		2	16	32
Tea Room/Kitchen		1	5	5
Academic Area:				

i. Technical Services Dept.				
- Discussion Room	10-20	1	49	49
- Building Tech Lab	20	1	100	100
- Model Making W/Shop	15	1	68	68
- Outdoor Teaching	20-30	1	56	56
- Store		1	16	16
ii. Project Matters Department				
- Discussion Room	10-20	1	49	49
- Audio Visual Room	25	1	60	60
- Store		1	16	16
- Research and Correspondence		1	80	80
iii. Technology Department				
- Discussion Room	15-20	1	35	35
- Computer Lab	30	1	60	60
- Store		1	20	20
iv. Anciliary Facilities				
- Auditorium Lab.	200	1	2	275
- Librarian	1-4	1	20	20
- Book Counter				
- Store		1	16	16
- Reading Area/Book Stalk	30	1		90
v. Support Facilities				
- In-house Printing Room	1-3	1	48	48
- Store		1	16	16
- Telephone Exchange		1	12	12
- Monitor Room		1	12	12
- Cleaners Store	1-4	1	9	9
- Properties Office	1-3	1	16	16
- Laundry				
- Generator House/Store		1	20	20
- Gate House/Waiting		1	9	9

Recreational Facilities				
- Kitchen/Store		1	20	20
- Restaurant	50	1	0	70
- Bar	50	1	70	70
- Lounge/Indoor Games		1	64	64
- Squash hall		1	70	70
Out-Door Sports Area				734
Hostel Accommodation				
Single Room Apartment				
- Bedroom		24	16	384
- Living Room		24	20	480
- Toilet		24	5	120
Double Room Charlets				
- Bedroom		12	20	240
- Study Room		12	9	118
- Toilet		12	5	60
- Living Room		12	24	288
Parking Area				
- Staff Parking		20	13.75	276
- Participant Parking		26	13.75	345
- Visitors Parking		10	13.75	137.5
Public Services				
Office Suits				
- Secretary/Waiting		16	25	400
- Office	1-3	20	16	320
- Studies	1-5	16	30	480
Toilet Facilities				
- Admin Area		6	1.5	9
- Academic Area		6	1.5	9
- Multi-Purpose Hall		8	1.5	12
- Public Services Area		12	1.5	18
- Club House		4	1.5	6

5.5 CONCEPT DEVELOPMENT

1. Form Concept

The form of the institutional complex was developed through an abstract formulation. This is in response to the general characteristics exhibited by the professionals within building industry. These are:

Independence/Upright



Encroachment



Supplanting

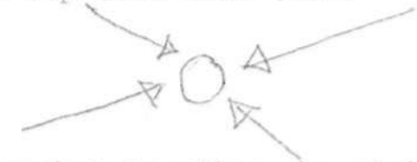


These abstract symbols of the features exhibited by the professionals translate into confusion.

Which leaves the building industry with no defined sense of direction.

ii. Problem Solution

The emphasis of the scheme is how to converge the professionals in the building industry in one point. This in abstract is depicted like this.



This act of coming together is with a view to

understanding and appreciating each others profession through mutual training for unity and progress of the whole industry. Unity and progress is symbolised by:

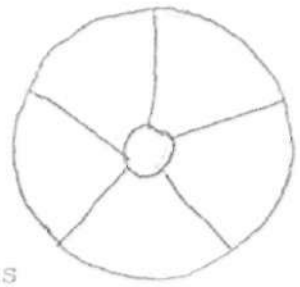


fig 5·7
Wheel of Progress

Finally, the abstract composition of the professionals in the building industry coming together for unity and progress take

The form below:

KASIIM IB... LIBRARY

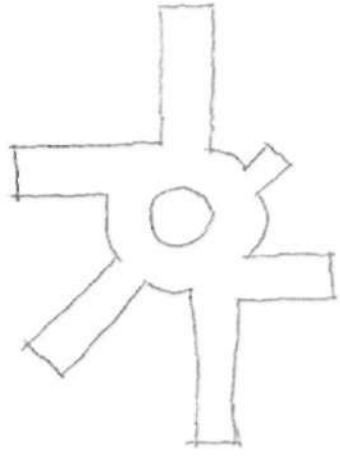


fig 5·8

iii. Design Concept

The design of the institutional complex is based on

a radial concept. It is characterised by a Central Court yard from which the Administrative, academic and support facilities radiate. The radial concept is usually associated with the problem of circulation and congestion. Hence, the Central Court yard is used instead of a built up core.

This radiating system has also taken into consideration the problem of ventilation in the case of deep planning with central built core.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 DESIGN REPORT

The Thesis attempts to evolve a conducive atmosphere for team work. This is with a view to boosting effective professional harmony in the Nigerian building industry. This can be achieved through the actualisation of the set objectives and by the implementation of the space organisation and relationships provded.

The centre for professional excellence is made up of the following functional area. These are grouped into units with respect to their nature of activities.

6.1.1 Administrative Area

This houses the Director of the Centre and all other administrative staff of the centre. This includes office accommodation for the tutors.

Activity: Semi-Public, Private.

6.1.2 Academic Area

This includes discussion rooms, laboratories and workshops, libraries and research area.

6.1.3 Social Area

Sports area, restaurant/bar, common room.

Activity: Public

6.1.4 Other Interactive Areas

These include exhibition areas, museum and the theatre.

Activity: Semi-Public.

6.1.5 Public Services Area

This consist of lettable office suits for the professionals within the building industry for their private practices. The suits are of three different types.

Activity: Semi-Public.

6.1.6 Accommodation Area

This is made up of double and single room hostel apartments for participants and other apartments for resident staff.

Activity: Private

6.2 Structural System

The structural system of the buildings is essentially trabiated system. Columns and beams are structurally located to carry the live and dead loads. These are complemented by perimeter walls which are also load bearing. Solid reinforced concrete floor slabs and in some case waffle grid floor slabs are used. Timber and steel trusses are used to carry the roof.

6.3 Drainage

Rainwater will be drained in to the jabi dam reservoir following the natural slope of the site towards the dam. This is complemented by the drainage pipes which are primarily used for raw water connected to the FCDA drain pipes.

6.4 Services

Electrical services are fed through a trunking system which are located at angles on the soffit of roof slabs. These are done in such a way that the blend with the decorative finishes.

Plumbing systems for toilets are grouped in to areas for sewage drainage. Toilet systems are provided in such a way that the individual cubicles are serviced seperately. This is to avoid suspension of use in case of a problem with one of the toilets (when central service ducts are used for a group).

6.5 Land Scape

Monumental trees and shrubs will be planted to enhance not only the natural environmental aesthetics but also to enhance the micro-climate. This is in addition to grass used as lawn.

6.6 Finishes and Decoration

Decorative elements such as paintings and motifs will be displayed on the walls. These will be complemented by some local finishing materials such as wall mats and ceiling patterns. This will be in addition to the modern paints used both interion and exterior.

6.7 Thermal Consideration

The use of natural mean of ventilation and lighting will be maximised. This is however, controlled by materials of high reflection and low penetration capacities such as glass. This is further complemented by artificial means such as electric fans and air conditioning systems.

6.8 Management System

The Centre will be run under a Director as the head of all operations concerning the school. The policy making aspect will be handled by the representatives of the professional bodies of all the professions within the Nigerian building

industry who are the patrons of the centre. This is in collaboration with the Association of Professional Bodies of Nigeria (APBN) who are the cordinators of all the professional bodies and organisation in Nigeria.

The academic programmes will be run by two set of academic staff. The resident staff and visiting staff either on contract or voluntary patronage. Furthermore the professional in practice who will rent the available lettable office suits shall be incoporated in the academic activities. This is with a view to comparing notes on project issues and professional practice.

The construction project of the centre shall be financed jointly by the professional bodies through the APBN and the Federal Government contributing 70% and 30% respectively. This ratio is aimed at winning the autonomy of operations and policy making for the centre by the professional bodies within the building industry.

The centre shall sustain its operations and maintain the complex through the proceeds of rent in the public services area, the restaurant services and the theatre leasing for public use. Other sources of revenue generation include consultancy services to be rendered by the institute. This services shall be handled by the staff and participants at the centre. A percentage consideration shall be deducted from the profit for all the people involved. This will service as capital insentive.

Another sources of revenue for running the centre will include the fees to be paid by the participants on admission. The size of these fees will depend on the nature of the course and duration.

6.9 Constraints and limitations

This research work has suffered from the lack of complete cooperation from the professionals within the building industry. This is in terms of the following.

i. Each professional interviewed complained of one problem or the other and admitted that there are rampant cases of professional malpractices. But they could not reveal the details of these cases for study.

ii. All professional bodies have fellows and elders whose responsibilities include policy making, dicision taking and settling disputes as abitrating cases. Unfortunately not all these parties could furnish the research with information on cases of supplant and other excesses in the private practice on offences that were committed and handled by the abitrators. The abitrators are the only source of information in this regard because the cases hardly go to court. As a result they are not made officially known.

No concious effort has been made to document the historical development of the Nigerian building industry. So also the professions within the building industry from the crude indigenous methods to orthodox training and practice.

However, despite the factors presented above, the

researcher has done his best to bring forth the problems faced by the Nigerian building industry and the need to boost the standards through team work and effective professional harmony.

6.10 Conclusion

This work only opens up a new case for further research in the area of team work for effective professional operation by the Nigerian building industry. All previous works related to it did not go beyond proposing for advanced or graduated schools for the individual professions within the building industry.

The Architectural Design of this scheme aims at taking into consideration those factors that affect team work in a multidescriplinary organisation. These design considerations were found to be:

a) Visual access or relationship between spaces allocated for the various functions. This is with a view to creating awareness and appreciation between the functions. For example, model making workshop and discussion rooms for interpretation of drawing for the quantity surveyors and other professionals.

b) Overlap of the various functions. This is aimed at making the functions flow into each other with a view to integrating the functions both in training and practice. This therefore necessitates the provision of space that accommodates all the professionals for general discussion.

c) Flexibility of training facilities: In this case, class are designed in such a way that they do not carry any strict or rigid setting. Instead, they are made simple for high level training. Sitting arrangements are also made simple and in an unofficial manner. This is with a view to breaking the rigid system of training where there is a teacher on one side and students on the other.

The design of institutions should therefore take into consideration the objectives they intend to achieve. This could be awareness, cooperation, transparency or security. These objectives if carefully analysed can be translated into architectural terms to evolve spaces that can adequately accommodate the intended functions.

"Architecture is normally conceived (through design) and realised (through building) in response to an existing set of conditions. These conditions may reflect in varrying degrees; social, political, economic, religious, symbolic or even whymsical". Francis D.K. Ching.

Architecture is therefore capable of translating the aims and objectives of an intended function into a built up situation. Accordingly, designers should be able to demonstrate a manifestation of their profered solutions to problems through their designs.

The Centre for Professional Excellence, if implemented will provide common facilities for the entire professionals within the building industry. The proposed curriculum for training will instill profound love for one's profession and

create awareness on the need to work as a team. The limits in the division of labour among the professions will be adhired to by the professionals. Standards and quality of work will be restored in the building industry. Confidence and hope will be reaffirmed. And finally Nigerians can afford to rely more on the professionals so that the business of providing shelter continues. This time in a more organised and orderly manner.

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SITE PLAN SCALE 1:1000

CENTRE FOR PROFESSIONAL EXCELLENCE ABUJA

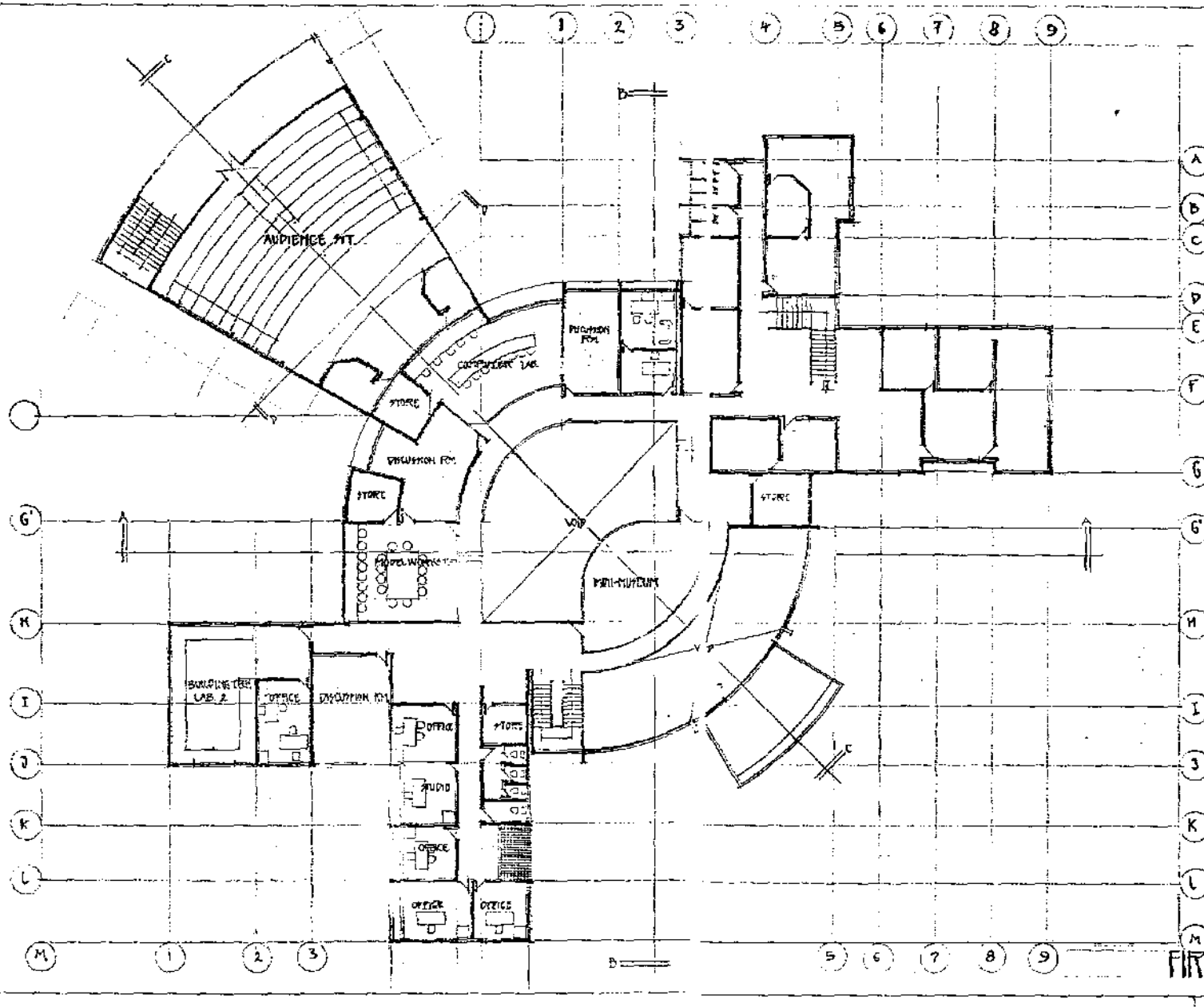
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M/L 99'
SUPERVISOR
DR. AA. MBINA



GROUND FLOOR PLAN SCALE 1:2

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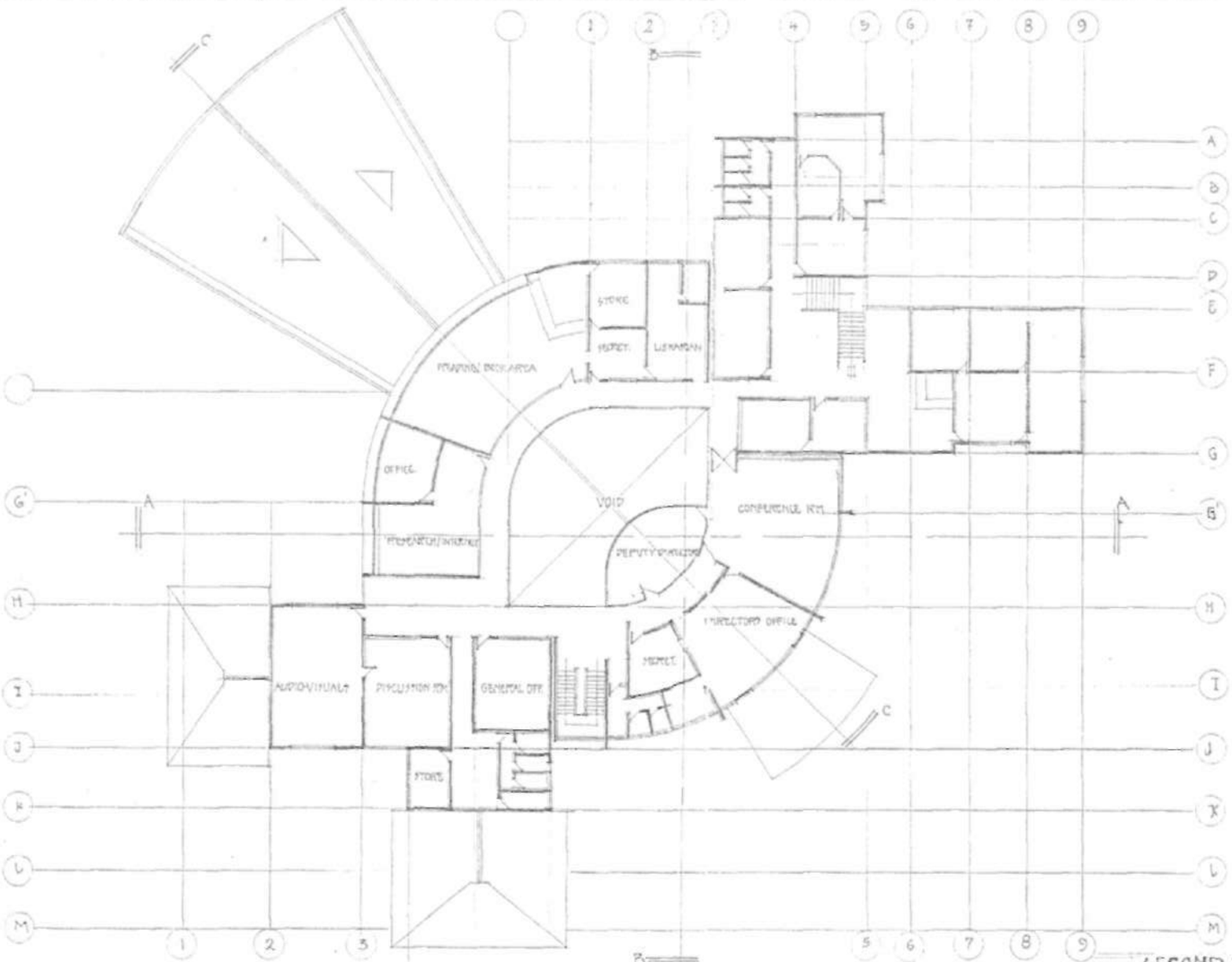
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FIRST FLOOR PLAN SCALE 1:20

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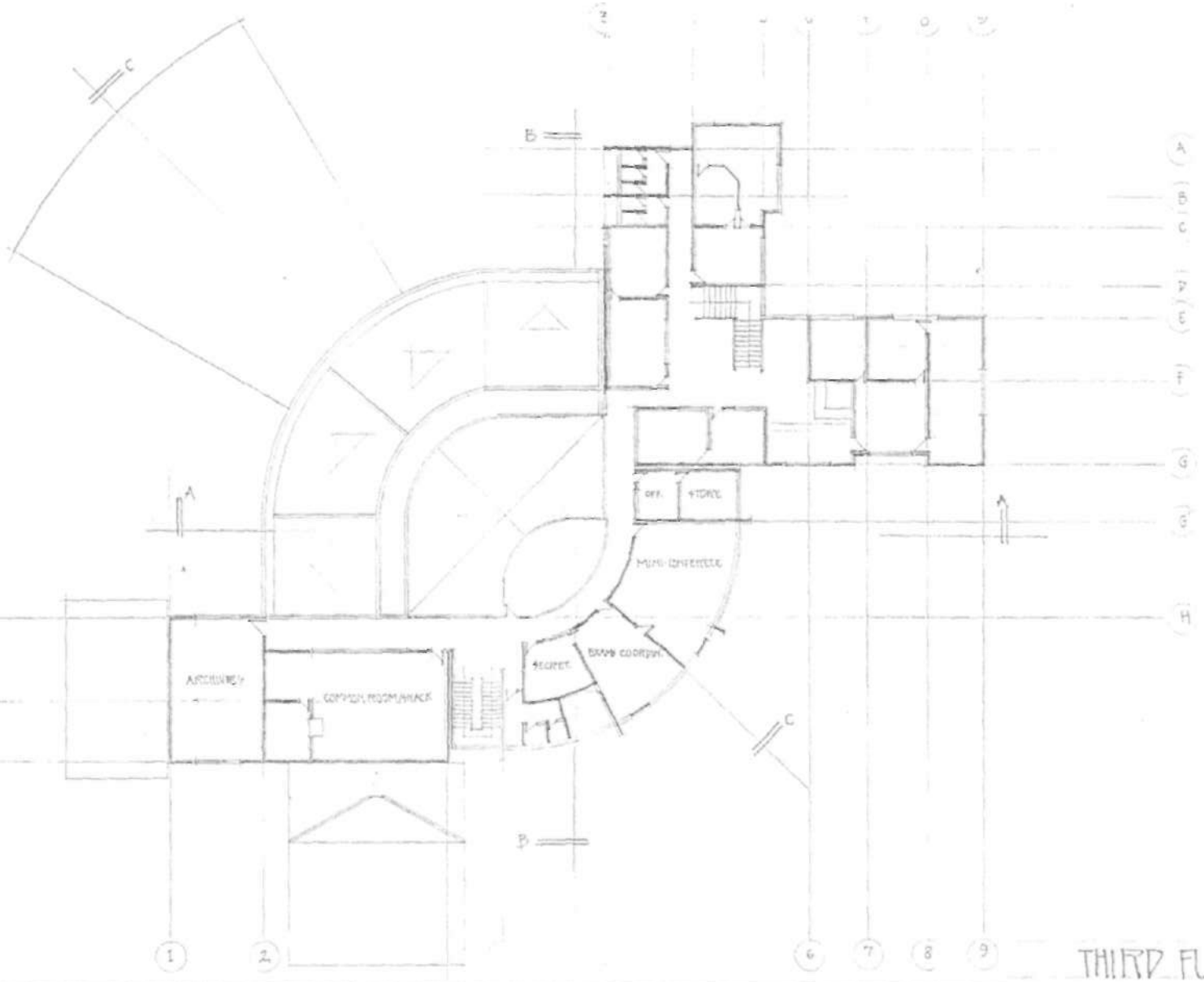
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SECOND FLOOR PLAN SCALE 1:

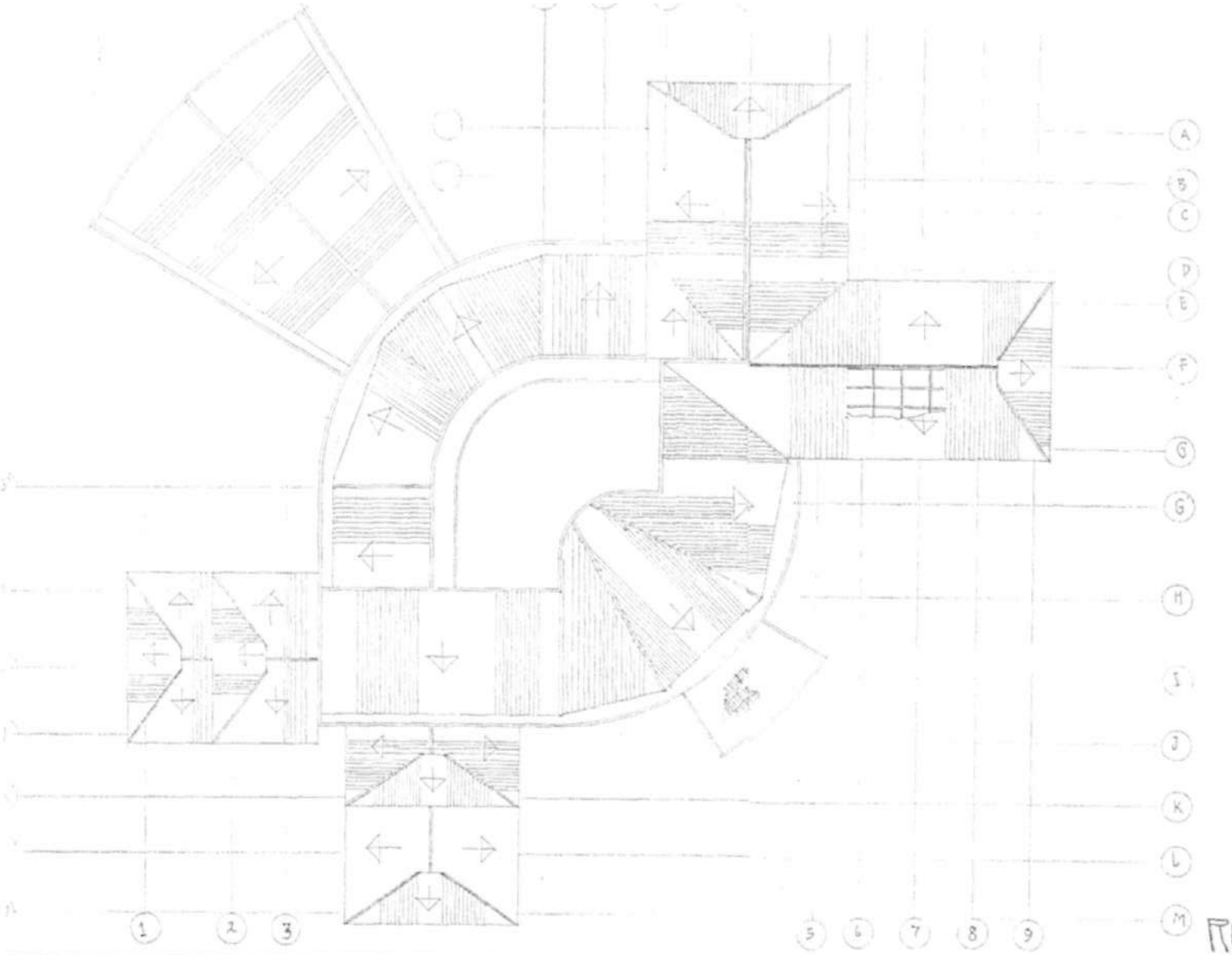
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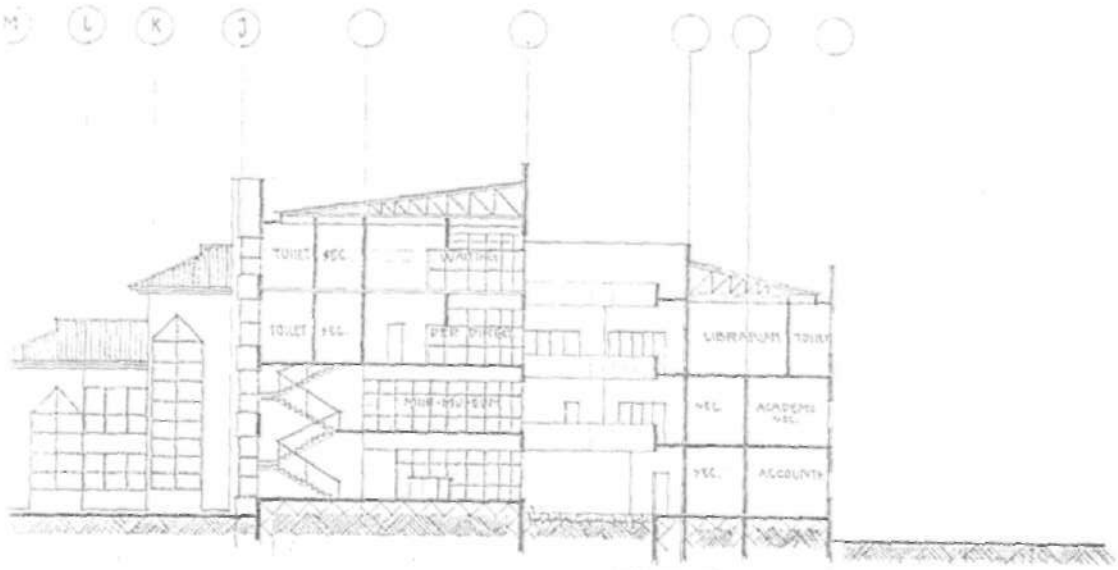
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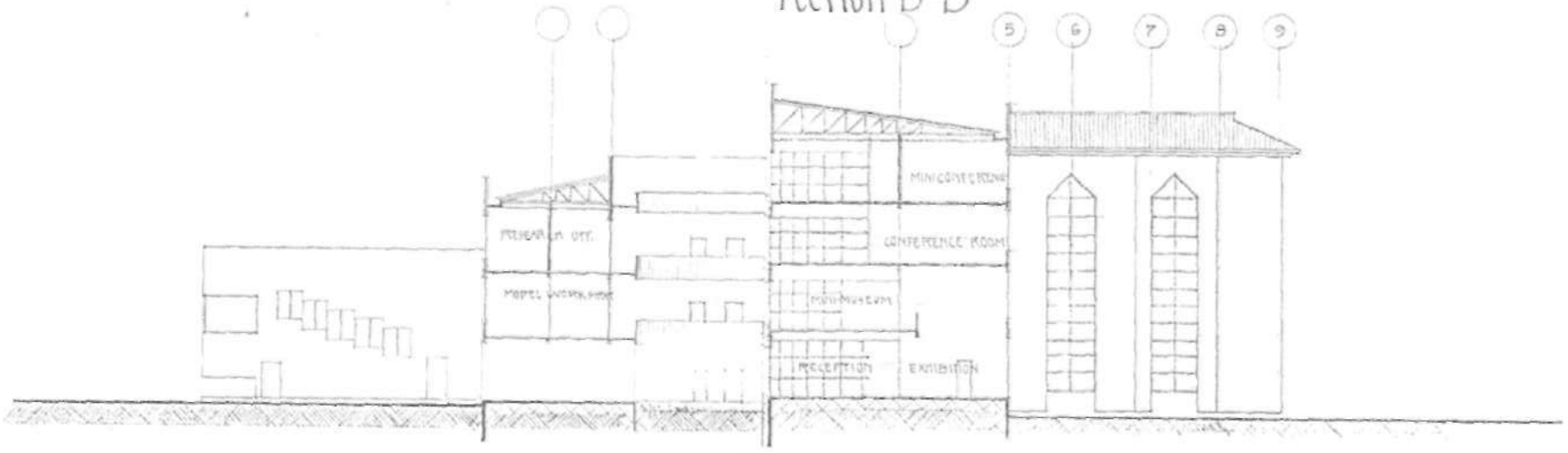
ROOF PLAN SCALE 1:200

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Msc '99
SUPERVISOR
DR. A. AMBINA



SECTION B-B



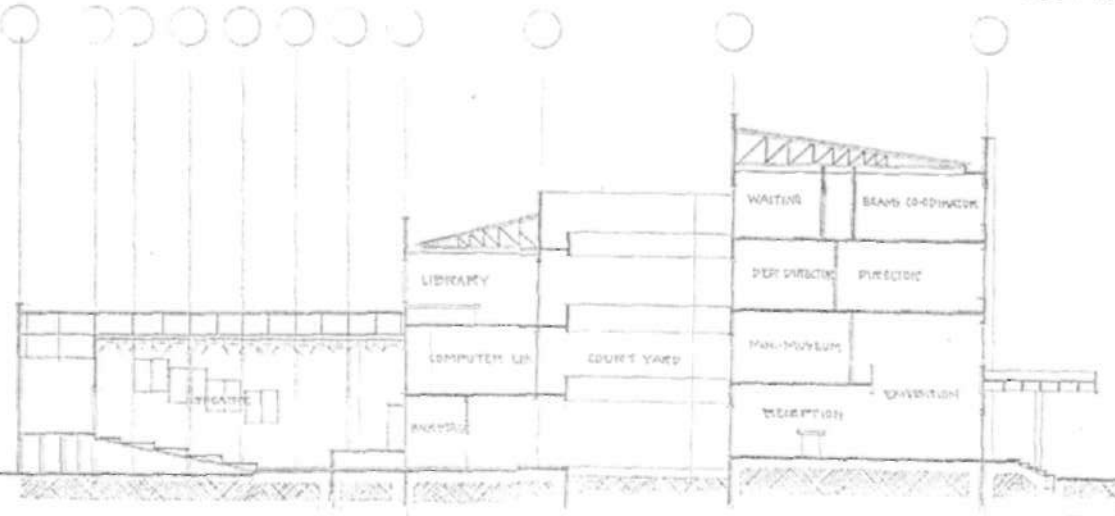
SECTION A-A

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SECTION D-D



SECTION C-C

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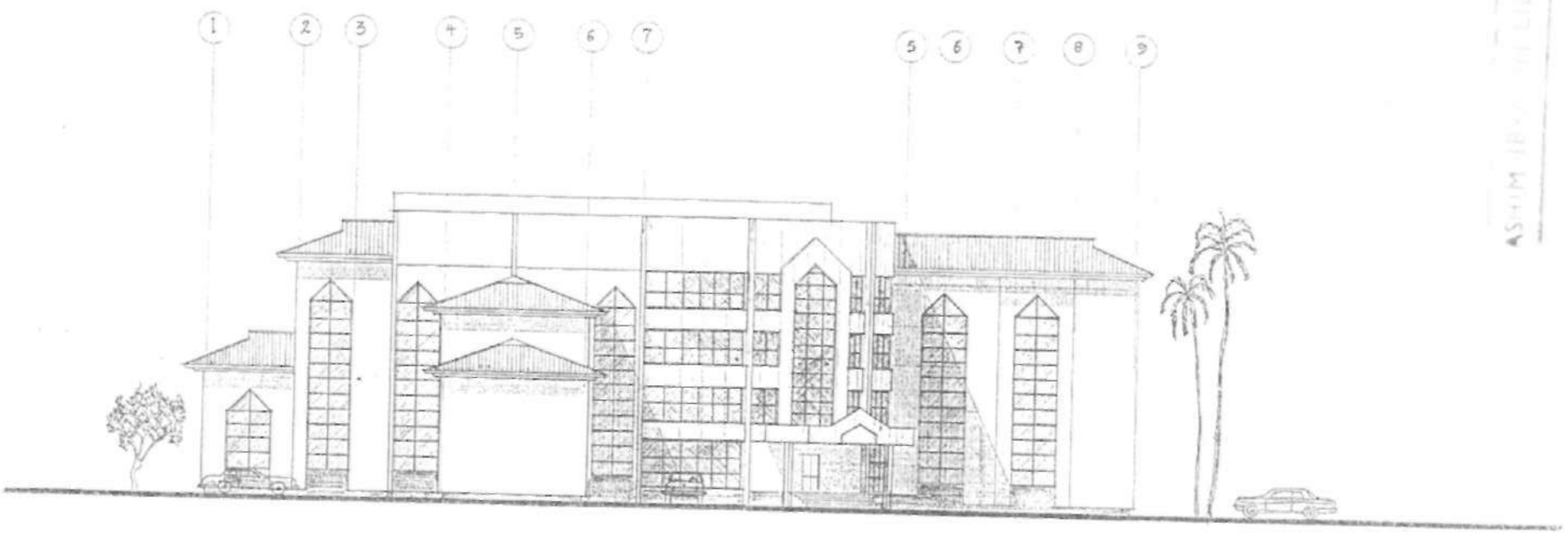
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WEST ELEVATION (APPROACH)
SCALE 1:200

CENTRE FOR PROFESSIONAL EXCELLENCE ABUJA

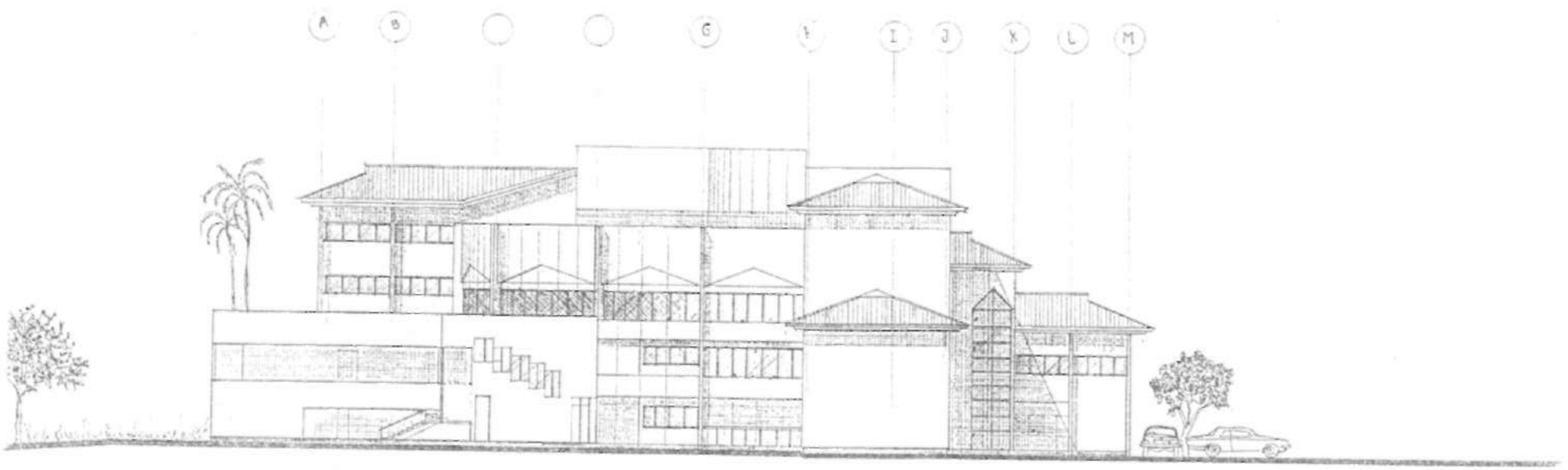
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NORTH ELEVATION SCALE 1:2

CENTRE FOR PROFESSIONAL EXCELLENCE ABUJA

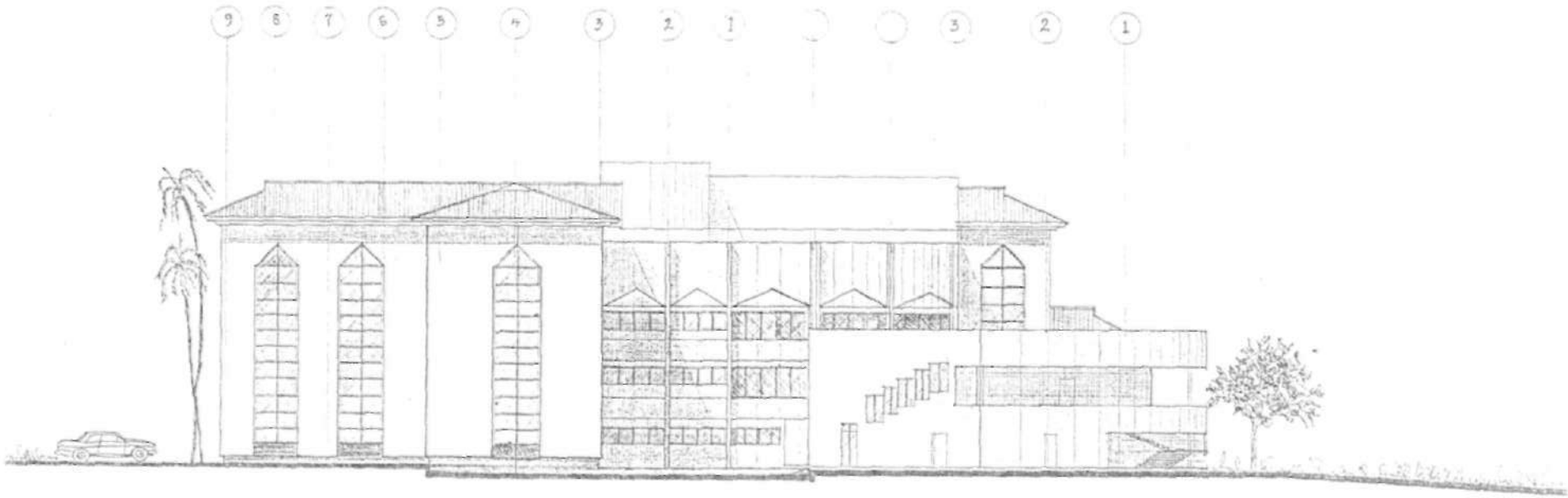
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EAST ELEVATION SCALE 1:200

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SOUTH ELEVATION SCALE 1:2

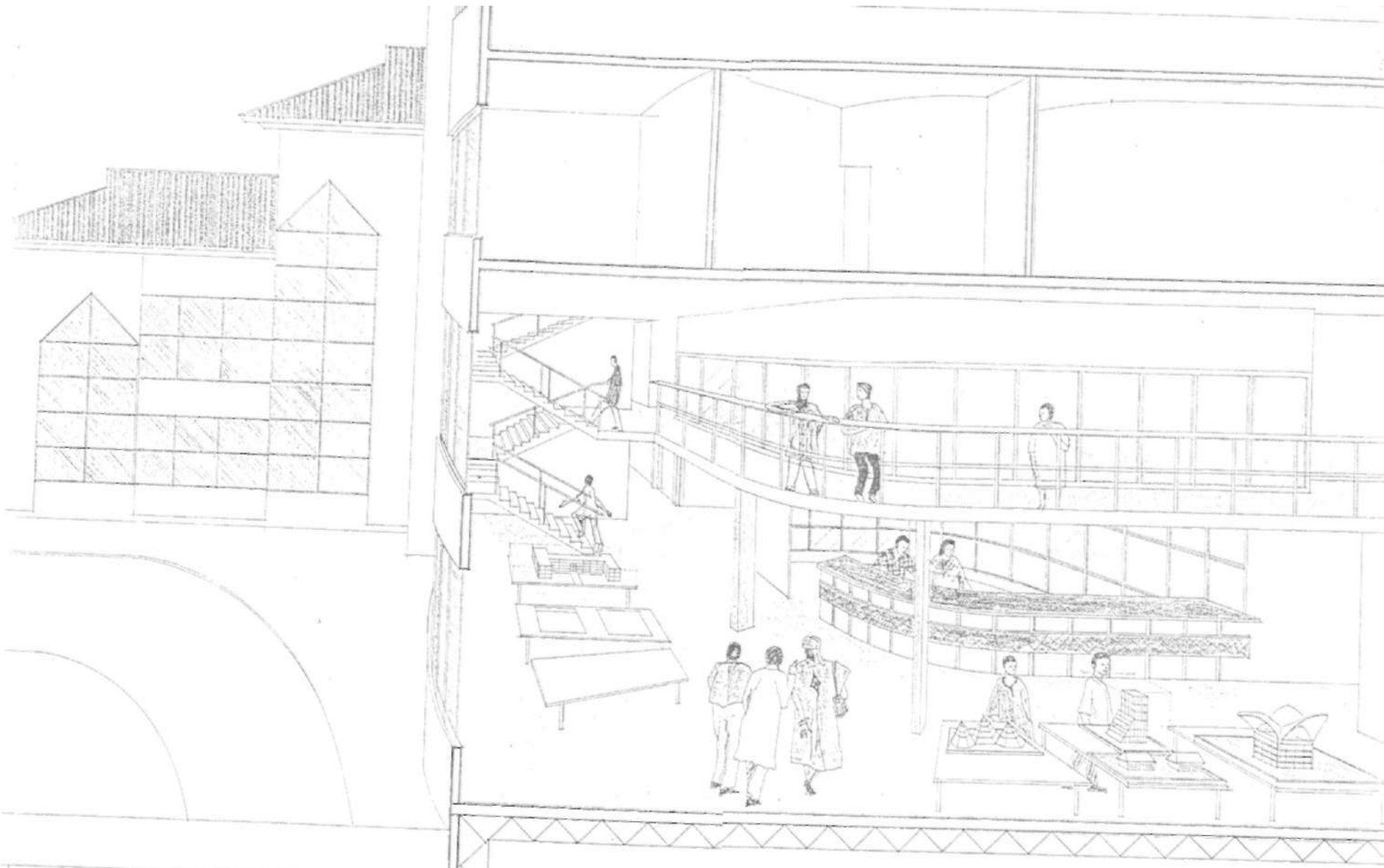
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SUPERVISOR
DR. A.A MBINA



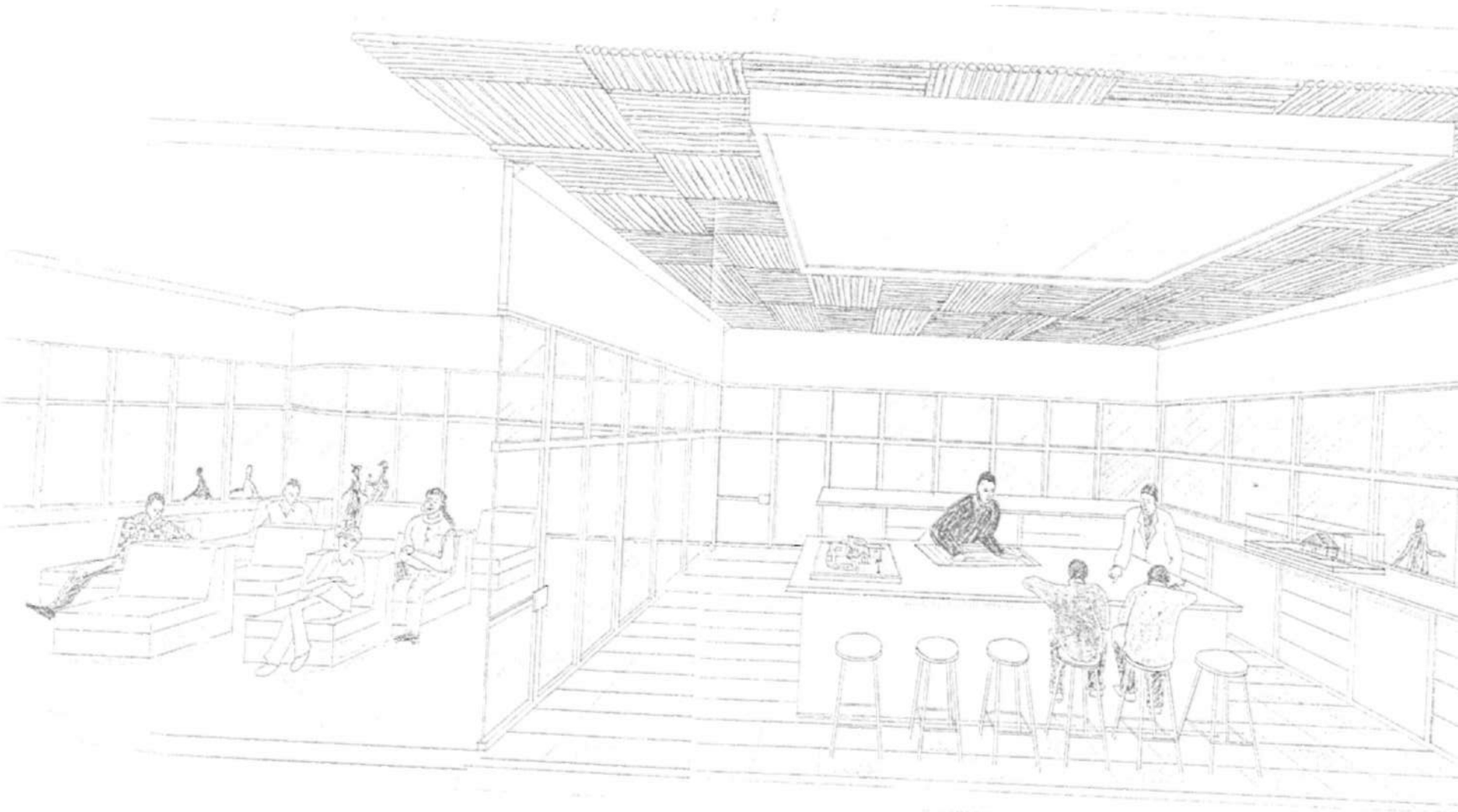
CENTRE FOR PROFESSIONAL EXCELLENCE ABUJA

MAI HAMZA
Msc '99
SUPERVISOR
DR. A.A MBINA



CENTRE FOR PROFESSIONAL EXCELLENCE ABUJA

MAI HAMZA
Mrc. '99
SUPERVISOR
DR. A.A. MBINA



CENTRE FOR PROFESSIONAL EXCELLENCE ABUJA

MAI HAM
Mar '99
SUPERVISO
DR. A.A ME