THE PROPOSED GOVERNMENT HOUSE GOMBE

OPENNESS AND SECURITY CONSIDERATIONS IN GOVERNMENT HOUSE DESIGN

BY

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DECLARATION

I, DAHIRU, Buba Aisha hereby declare that the entire work in this thesis entitled “THE PROPOSED GOVERNMENT HOUSE GOMBE” is a product of my own research effort under the supervision of my mentors, Dr. W. B. Qurix and Arc. M. L. Sagada and has not been presented wholly or partially for the award of any such degree elsewhere. All quotations are distinguished and the sources of information have been acknowledged.

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Signature Date

CERTIFICATION

This thesis entitled “The Proposed Government House Gombe” by DAHIRU, Buba Aisha meets the regulations governing the award of degree of Master of Science in the Department of Architecture of the Ahmadu Bello University, Zaria and is approved for its contribution of knowledge and literary presentation.

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Dean, Post Graduate School

DEDICATION

With gratitude to Allah I dedicate this work to my Parents, Alh. Dahiru Buba and Haj. Salamatu Dahiru Buba. Thank you for everything.

ACKNOWLEDGEMENT

To my family, nuclear and extended; thank you for being there and giving your support. My brothers Babayo, Sadiq, Faisal, Kalid and Al-amin and sisters Aisha and Walida. To Aunty Safia, Aunty Zee, Aunty Hafsatu and Goggo Rabi. And to my cousins; Hauwe, Goggo, Baba, Fati, Ummi and Asma.

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To Adamu Sarki and all the members of staff of Government house and ministry of works Gombe who have assisted me in one way or the other and to others that have helped in Kano and Kaduna state Government houses, thank you.

Lastly to my friends who have given me more reasons to smile, thanks for being a part of my life, some of you have been wonderful, some have gone beyond the extra mile and some simply make the world a better place.

ABSTRACT

The Government house is one of the most important public buildings in any state. By definition, it is an institutional building or establishment owned by the Government of a particular state, which provides office and residential accommodation as well as recreational and social facilities or services for the serving Governor of a state.

Because of the importance of the Governor of a state and the caliber of people that have business to do in the Government house, provision of security becomes very important in running a Government house. Security is provided against terrorism, vandalism, theft, political opponents any other form of threat that could arise.

However, the Government house is a public building, especially in the light of the present democratic dispensation. Certain activities that were non-existent during the military regime are now undertaken; such as political rallies, visits and courtesy calls by political party representatives and visits by political party members for official, political and private reasons. In essence, now the Government house has to be open to the public to a certain extent.

To ensure a smooth running of activities in this establishment, a certain balance and harmony have to be created between these two important entities (security and openness). In creating that balance, certain considerations have to be taken. The purpose of this research is to look into those considerations with the aim of finding a balance between security and openness and using such findings to propose a better design than what we have presently in Gombe state and the country in general.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 INTRODUCTION

Security in buildings has become an increasingly important aspect of Architecture in the 21st century. Especially now that acts of terrorism are on the increase in developed and developing countries alike.

Public buildings are the most vulnerable in terms of security because they are open to many people, thus, increasing chances of terrorism, theft, vandalism and the likes of them. One type of public building is the Government house.

A Government house is an administrative headquarters and official capital residence of the Governor of a state in a state capital to facilitate easy administration, an environment that accommodates administrative, residential, health and recreational activities for its residents and employees. As one of the most important buildings in a state and official lodge of the Governor for the period of his administration, it should be built in order to have adequate security, privacy, and be recognized as the seat of authority. On the other hand, it is a public building, thus, a lot of activities involving the public take place there. This brings about two conflicting entities, security and openness. Striking a balance between these two will require the integrated use of technology, operational policies, facility planning, and an appropriate structural system.

1.2 PROBLEM STATEMENT

Most government houses in Nigeria were built or modified for military administrators. This is because majority of the states were created during the military regime. For

example, the Government house in Kano was built back during the Audu Bako administration in the early 70s, the one in Katsina was modified in 1987 when the state was created. Thus, and they were built to meet their needs. Now, the system of Government has changed. The democratic Governor is a man of the people; therefore, he cannot close his door to them. The Government house then has become a "more public" building.

While meeting that requirement by his office, the security of that office cannot be ignored; neither can the privacy of his family. In an attempt to solve this problem, some Government houses have either laid more emphasis on the security and privacy or the openness. This is because whatever method adopted cannot be efficient without the support of the design of the complex itself.

The problem here then, is how to balance that security that is so important with the openness that is so required.

1.3 AIM AND OBJECTIVES

Aim

i) To find an architectural solution to the problem of achieving maximum security while providing adequate openness in public buildings with multiple functions like the Government house.

Objectives

i) To propose a design that will aid the most effective security system while serving its purpose as a public, multi-functional complex.

ii) To re-establish areas of security conflict in a government house complex.

iii) To propose a design that will require a limited maintenance cost.

iv) To explore different modern finishing materials.

1.4 MOTIVATION

The motivation of this work came form the observation that with the change of the system of Government in Nigeria to the civilian rule, the Government house has to become a 'more public' building. Politics is non-existent without people and with crowds comes a higher security risk.

Therefore, the challenge of finding an architectural solution to opening up to people while maintaining security is one worth taking.

1.5 JUSTIFICATION

Before 1996, Gombe was an integral part of Bauchi state. The creation of new states by the Sani Abacha government of Nigeria resulted in the immediate need to provide a new Government house with the necessary facilities to cater for the new Governor. In doing that, the former Government lodge was immediately converted to a Government house and a duplex was built within to serve as the residential quarters of the Governor and his family. This is still what is in use today.

Because the whole complex was not built for that purpose, there are many problems. Firstly, the complex is located in the middle of town and is boarded on three sides by roads, two of which are quite busy. This makes the complex vulnerable to vandalism or attacks in times of riots. Then the buildings in the complex are arranged haphazardly, as a

result, there is difficulty in controlling the passage of people from part of the complex to another. The whole complex is too open and does not support good security system. The residence is located very close to the entrance gate making it the first building to be seen. This location does not support adequate security and privacy.

Another problem is that the office spaces are not adequate. The residence is also not big enough which is why the present Governor has not moved in.

Therefore, it is with these problems in mind that I decided to look into ways of making provision for the accommodation of the public and yet providing adequate security in a complex like this.

1.6 SCOPE AND LIMITATION

This work is going to cover only the security threats, considerations and design solutions of a Government house complex. This is going to involve designing all the necessary buildings in the complex such as the residence, main office, other offices, clinic, guest chalets, recreational facilities and landscaping of the complex and an overall zoning and planning of the site.

However, its limitations will be difficulty in obtaining some data such as floor plans and pictures from case studies and gaining access to some areas due to the nature of such buildings.

1.7 METHODOLOGY

To effectively formulate a design brief and present a suitable design proposal to accomplish the stated aims and objectives, data has to be collected and analyzed. The method for data collection would include:

a) Primary sources of data collection which would include general interviews where first hand information can be gathered directly from people close to the governor like his ADC, the PPS and others that work in the complex like the chief protocol officer, director admin and finance, chief security officer and the security guards. This will be done because immediate and direct responses will give better information in this case.

b) Study and analysis of data collected from secondary sources like relevant books, seminars and lecture notes, architectural journals and magazines, published and unpublished works of other researchers, newspapers, encyclopedia, and the internet e.t.c. These would be consulted with the aim of understanding the basic ideas regarding the design approach for such projects, drawing of inferences and deductions to be utilized in the design proposal.

c) Case studies: Detailed study of similar design solutions within and outside the country, visiting existing structures within the country where I would physically observe, take notes and snap photographs to be fully acquainted with the prevailing solutions. The case studies will be chosen from states within the same climatic region with the site. Other selection criteria will be accessibility, availability of information, age and geographic region. Based on these criteria, four local and one foreign Government houses will be examined. At least one

Government house will be chosen from the Northeastern, North-Central and Northwestern regions of the country. One of the oldest and one of the most recently built Government houses will also be examined.

d) Exploration of site conditions for the effective exploitation of the proposal.

1.8 ARCHITECTURAL SIGNIFICANCE

As it has already been established, security as well as privacy (where required) are important aspects architecture; therefore solving the problem I have identified will bring about an improvement in the design of government houses for this system of government. A design that, in itself, would achieve security, privacy and openness while supporting the more complex electronic system of security to provide more.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The state has a purpose, and every good government, military or civilian is bound to fashion its policies, programs, activities and energies along this purpose. Governance here means the exercise of political authority in a community, society or state for the purpose of directing the people and administering their affairs in pursuit of generally accepted goals that progressively transform the society so that the people will have a good life. According to John Locke cited in Dikki (2002), "The states purpose is to preserve life, liberties and estates". Adam Smith even with his capitalistic tendencies insists that the state has three functions; protecting the society from external aggression, protecting the citizens and erecting and maintaining certain works and institutions necessary for public good but which individuals cannot erect and maintain. Harold Laski talks of the purpose of the state being that of enabling the masses of the people realize social good on the largest scale by providing for rights such as rights to employment, political leadership and education.

2.2 PUBLIC BUILDINGS

Public buildings have been defined in many different ways. However, a public building can also be defined as any building that is not used for private housing. These buildings normally have services for the public that, at one time or another, will be used by a number of the population; therefore, they should be very accessible. Furthermore, any

qualified person, regardless of his/her, physical capabilities should be able to apply for a job within such buildings.

Public buildings include most spaces where a number of people assemble or gather for purposes such as civic, social, political, religious, educational, entertainment, recreational, sporting or business purposes. These also include outdoor events.

Raskin (1974) also defined a public building as "one that is supposed to be for us but actually belongs to them."

For public buildings to be "public-friendly", the following aspects should be taken into consideration:

i) Entrance: access should be at street level or, where this is possible, a ramp with a gentle slope should be installed. Alternative entry points should, as far as possible, be avoided, being resorted to only under special circumstances (for example, during building work or when the appearance of a building of historic or artistic value would be damaged).

ii) Information about the lay-out of the building: in the lobby there should be a map showing the lay-out of the building: number of floors, the floor on which we are at present, location of lifts, stairways, ramps, emergency exits, etc.

iii) Information about the lay-out of services: next to the above-mentioned information there should be another map showing the different services: number of the floor they are to be found on, office or window number, general information board, etc.

iv) Guidance systems and/or personal assistance.

v) Toilets: There should be enough accessible toilets on each floor with space for wheelchair users, alarm systems and with all the devices accessible both for people of

different height and maneuver capacities. These toilets should be cleaned regularly or equipped with auto-cleaning systems.

vi) Evacuation in an emergency: there are times when lifts cannot be used, either because it is not advisable (fire) or because they are not working (power cut). Therefore, provision should be made for alternative escape routes and fire shelters. In addition, it should be remembered that everybody in the building at such times should realize there is an emergency, regardless of his or her capabilities

vii) Signage: Information signs, logos, direction arrows etc should be clearly visible and should describe the service, which they represent (avoid new designs that create confusion and the use of initials). Signage aimed at visually impaired people should be provided.

viii) Lighting should be enough and located in such a way that it is used as a guide to users.

ix) Walls should be free of obstacles so that blind people use them as guide.

x) Unnecessary dangerous elements: certain decorative elements may be dangerous if they are not well designed, installed or indicated. Examples of these include:

a) Large mirrors or glass windows that give the space a sense of continuity.

b) Waxed floors, which are easy to slip on.

c) Infra-red doors which do not function unless the person is of a certain height.

d) Rugs, which are not fixed to the floor.

e) Counters for dealing with the public, which have edges jutting out.

f) Reflecting surfaces or floors with drawn floor tiles that can seem to drop.

However, in the design of spaces other aspects should be taken into consideration such as allergic people for whom buildings have to be provided with a pollen and bacteria-free air system and separate the smoking areas.

2.3 THE GOVERNMENT HOUSE

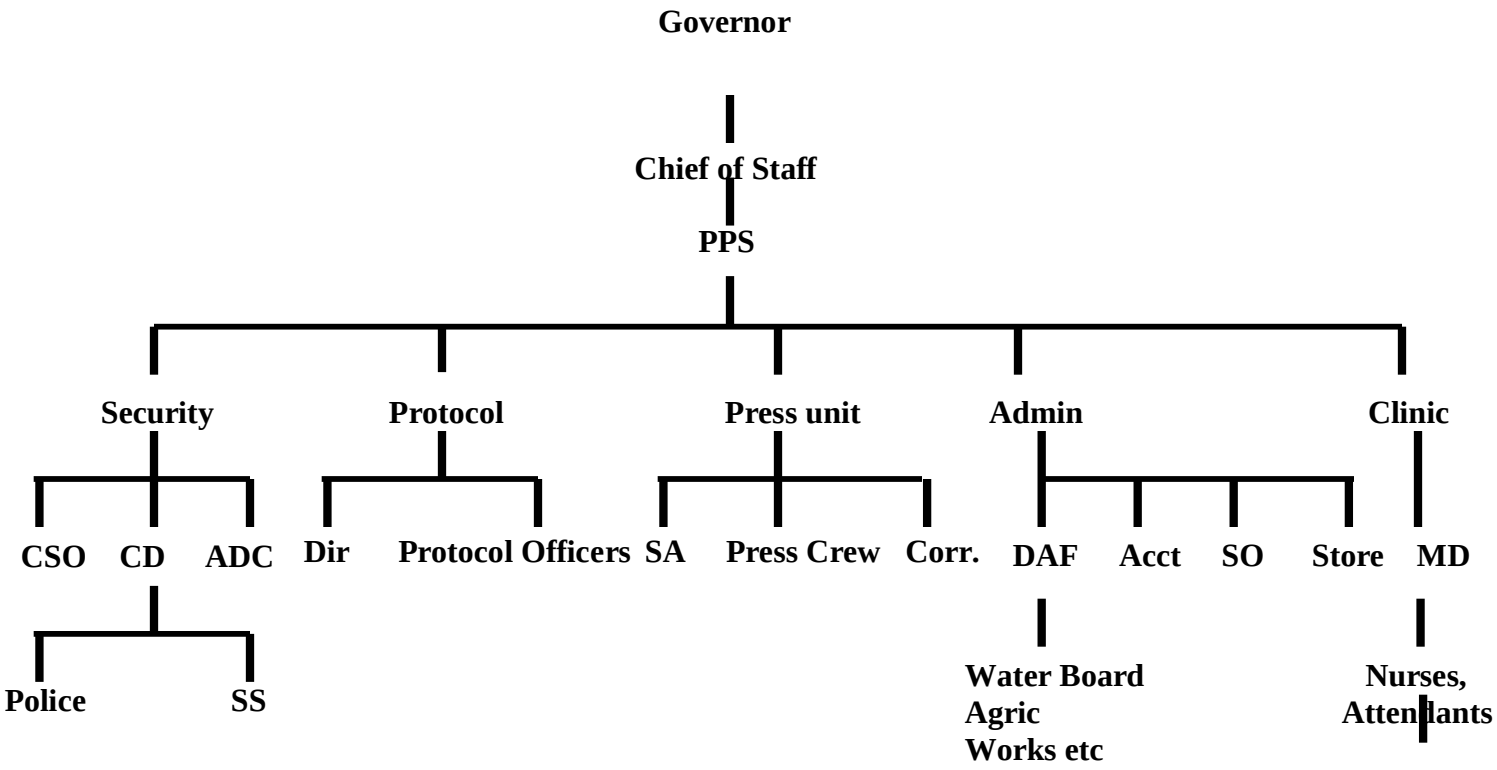
According to the section 176, subsection 2 of the 1999 constitution of the Federal Republic of Nigeria, a Governor in the first instance, is the Chief Executive of a state, one who has been duly elected and declared winner in an organized election for that position. Similarly, a Governor is the number one political decision maker in the state polity in a typical democratic setting.

Webster's dictionary (1998) defines a Government house as an institutional building or establishment owned by the government of a particular state, which provides office and residential accommodation as well as recreational and social facilities or services for the serving Governor of a state, as well as his parade of official staff and other very important guests.

Oxford advanced dictionary (2001) on the other hand defines it as an official residence of a serving Governor and his administrative staff, which also functions as the political nerve centre for most functionaries.

Thorpe (1977) says, "A Government house represents the highest concentration of political and administrative powers that could ever exist in a state polity. As an official temporal residence of the Governor of a state, it is here that all manner of national and illustrious personalities on official visit to the state are hosted and entertained."

2.3.1 Hierarchy of the Governors Office Structure



SS- Senior security

CSO – Chief Security Officer

CD- Chief detail

SA- Special assistant

ADC- Aide de camp

DAF- Director Admin and Finance

SO- Staff officer

MD- Medical director

2.3.2 Functions of a Government House

The basic function of a Government house is to provide an official residence to the Governor in a state capital. These facilities ease state administration and easy identification and protection of the state's Chief Executive. The Governor cannot easily

run a state by staying in any other house that has not been designed to meet the basic requirements of a Government house. Even if that house is in the state capital but not designed to be an official residence of such an important person, security risks may arise which could make the life of the incumbent and his family vulnerable.

The Government house also serves statutory, ceremonial, traditional and social functions. As mentioned by Dikki (2002), "Another function of the Government house is it being one of the major elements that differentiate a state capital from any other town in a state".

When broken down, the functions of a Government house are serving as:

i) The private residence of the Governor and his family.

ii) The administrative centre of the office of the Governor.

iii) The main centre for the performance of the Governor's constitutional functions.

iv) A place where hospitality can be extended to the President, other Governors and official visitors.

v) A venue for official luncheons, dinners and receptions

vi) A ceremonial building for state occasions such as investitures and award ceremonies.

2.3.3 Basic Requirements of a Government House

From the findings of this research, it shows that the Government house has certain requirements. These requirements are:

i) It should serve all its functions as mentioned above.

ii) It should provide adequate security to its residents and employees.

iii) It should provide adequate privacy for its residents.

iv) It has to portray dignity and prestige.

v) It should be adequate in size.

vi) It should be able to adapt to different uses and requirements to be satisfied because of varying occupation patterns likely to come in at every election year (flexibility).

2.3.3 Composition of a Government House

The Government house complex comprises of different buildings. These buildings work independently under different departments, yet their activities are inter-dependent on each other. These buildings include:

The office building

This building can be more than one. Most importantly, there is the main office block where the office of the Governor is located. Other offices that work closely with that of the Governor's are also located here. These offices fall under different departments such as protocol, press unit and admin.

Found in the office building are also the conference hall for press conferences and the likes, the council chamber for cabinet meetings and hosting courtesy calls.

The residence

This is usually a large and luxurious building with a lot of rooms, lounges and a banquet hall. It serves as the residence of the Governor and his family. Utility services such as the laundry and the kitchen are also provided here.

The clinic

This clinic serves only the employees and residents of the Government house. It usually has provisions for a medical doctor, nurses, attendants, a pharmacy, treatment rooms and a few rooms for in-patients.

Security Posts

This can be found in different areas in the complex and at gates. There can also be a building to serve as the security department headed by the chief security officer. This is where the entire security personnel of the complex have their offices.

Guest Chalets

There are usually two to three guest chalets in the complex where close and personal guests are lodged. Otherwise, the Presidential lodge, which is located outside the complex, can serve the purpose of lodging other guests.

2.4 ACTIVITIES IN A GOVERNMENT HOUSE

The basic activities mostly carried out in Government house can be broadly classified under the following:

i) Governor's residence

ii) Administration and staff activities.

iii) State functions and prefecture gatherings.

iv) Guest reception and lodging.

v) Security operations.

vi) Recreational activities.

2.4.1 Governor's Residence

This is self-explanatory. The Governor and his family reside in the government house for the period of his administration.

2.4.2 Administration and Staff Activities

The different activities the members of staff are involved in can be categorized into the following:

a) The Governor's responsibility of state administration. These include the Governor's

b) Day-to-day work life of overall co-ordination of the state activities, making policies and implementing them.

c) All co-ordination of activities in the government office and other allied departments.

d) House keeping services: this ranges from general maintenance work of the entire government house complex to the details of running laundries, kitchen, purchase of residential provisions etc.

e) Technical and security activities.

2.4.3 State Functions and Prefecture Gatherings:

These include official luncheons, dinner parties, receptions, press conferences, and courtesy calls, which take place from time to time.

2.4.4 Guest Reception and Lodging

Hospitality is extended to the President, other Governors and important guests at the Government house. If the need arises, these guests are provided with the following:

a) Living and sleeping space

b) Working space

c) Entertainment space

d) Space for reserving their aides

e) Security

2.4.5 Security Operations

This is one of the most important activities in the government house. Due to the political nature of this house, this activity ensures the existence and protection of all the activities mentioned earlier. This in all forms the main integral operational requirement of the government house.

2.4.6 Recreational Activities

Gardens, swimming pools, green areas and sport facilities are provided in the government house to be used by the residents and guests. They are usually located in the private areas of the complex.

CHAPTER THREE

OPENNESS AND SECURITY CONSIDERATIONS IN GOVERNMENT HOUSE DESIGN

3.1 THE NEED FOR SECURITY

According to Demehen (2002), "Governments and businesses worldwide face increasingly difficult challenges posed by threat sources ranging from vandalism, organized crime and terrorist elements. In many cases, these threats source form loose partnership in the conduct of their threat, intrusion and theft activities. The secondary impact of these activities even affecting the human freedom of life and create a palpable sense of fear and unpredictability". These sources pose threats, which include kidnapping, theft, blackmail, mass/public and personal physical injury and property damage.

Other threats come from political opponents as mentioned by Mohammed (1981) "the Nigerian bourgeoisie will go the extent of physically eliminating any individual who confronts and challenges the system they believed". By 'Nigerian bourgeoisie', he meant 'Nigerian politicians'.

The issue of security is, therefore, no question, the first in priority to be considered in such a building because of the caliber of people that reside in and frequently visit there.

Intrusion into Government houses may occur through the fence, parking spaces, security gates and entrances, there could be security lapses with the building's functional organization, use of materials and staffing, inadequate provision of security personnel.

Security has to be properly coordinated with the functional aspects of the design. In this light, external security provided at the:

i) The fence



Plate i- The fence as an element of external security. (source: field work)

ii) Entrances and gate houses



Plate ii- Entrances and gatehouses serve as the only points of ingress and egress. (source: field work).

i. Parking and pedestrian access

ii. Entrances to buildings

v. Security and observation room

Solving the problem of security in buildings has always been translated into a kind of fortress mentality, for example, in Chicago after the September 11 2001 attack, the managers of one federal building immediately put concrete dividers up in their bustling plaza, blocked passageways between spaces and cancelled the farmers market and other events. It is no doubt that the safety and fear factors are real, but the methods to counter them do not necessarily have to result in sterile and alienated spaces.

Most buildings that require similar level of security with a Government house reveal the new use of bulletproof reflective glasses, barricaded fences with sometimes very high fences separating the property from the surrounding districts.

On the other hand, virtually all experts agree with the use of motion detection sensors, security checks, and guard's surveillance radar, smoke detectors, coating of fiberglass and other security gadgets. However, such gadgets will only aid a proper architectural and structural design layout of a building. This is because there is more to security than metal detectors and other hardware. In designing for public use facility, there is the need to bear in mind that good planning and architecture together with integrated technology enhance building security and help prevent the kind of violence that has been making headlines.

As argued by Klemencic (a structural engineer) cited by Adieza (2004), "Security control starts from the design inception, by looking at security, life safety and egress, the structural redundancy with regards to different types of attacks and events that may affect

the building". Thus, it is no understatement to say that a building's security is paramount in virtually all the services carried out in that building.

3.2 USING ARCHITECTURE TO EFFECT SECURITY

Zoning is the major Architectural contribution that can be made to security. In a complex like the government house, the complex should be sub-divided into public, semi-public and private areas. The majority of people that come to a government house usually have their business in the public areas, which are the offices. This area should be easily accessible from the entrance and exit gates. Members of staff and a few members of the public will then only access the semi- public areas. Buildings in this area may include the guest chalets, clinic and some recreational facilities. Even fewer members of staff and the residents will then access the private area. This is where the residence, household facility and more recreational facility will be located. This kind of pattern is more likely to support a good security system.

Other design features should include topographical, elevation elements, avenues of approach, security station placements, electronic and human features.

Newman (1972) argues that when groups of people come together, they automatically have a beneficial impact on each other because they become, in effect, each other's supervision. He says it is healthier to have built-in supervision in a public place than isolated buildings in public space. This has the effect of many people monitoring each other all the time.

Professor Newman defines “defensible space” as a model for residential environments, which inhibits crime by creating the physical expression of a social fabric that defends itself.

The aim of creating a defensible space through the manipulation of the physical structure is therefore to create a community feeling among residents and helping neighbors take interest in the safety of the environment in general. This is achievable in design by the pursuance of such concept as territoriality, natural surveillance and image ability.

a) Territoriality: This is the capacity of the physical environment to create perceived zones of territorial influences. The claim is reinforced by such elements as shrubs, fences, walls, gates and the positioning of windows. Newman used important some strategies to achieve territoriality. Some of them as related to this research are:

i) Site design: this is the symbolic definitions of the grounds with sufficient space around it making it an entity recognized by both residents and intruders as belonging to a specific building.

ii) Compositional versus organic approach: Newman says the approach to design of the buildings themselves is an important mechanism in mechanism in achieving territoriality.

iii) Street design: it is possible to design in such a way that mere through-access is discouraged in residential areas. Road networks can be evolved in a pattern that allows only intentional movements.

iv) Barriers: several transitional differentiating elements are in use. These elements can either be real like gates, locks, and electronic interview systems or merely symbolic but merely persuasive like open gateway light standards, signboards or plants.

b) Natural surveillance: Newman (1972) defines natural surveillance as the capacity of residents to observe the public areas of one's residential environment and to feel continually that one is under observation by other residents while on the grounds a complex or within the public areas of building interiors.

This well-known and time-tested phenomenon has obvious advantages, which include the elimination of unfounded fears among residents and instilling fear into casual intruders and petty criminals.

c) Image and milieu: This defensible space phenomenon refers to the capacity of design to influence the perception of a building's uniqueness, isolation and stigma.

Other security considerations could also include:

i) Shorter corridors on a square building plan make the building easier to secure via clear lines of sight. With a square floor plan, two staff members can see the entire building at any time. With a circular plan, it will take five or six personnel to secure a floor.

ii) Clear and easily monitored parking spaces.

iii) Conspicuous entrances and exits for the public.

iv) Provision of emergency exits for the governor and his family for when the need arises.

v) A good and uncomplicated road network in the complex.

vi) Separate office building for the VIP in the building.

vii) Locating complex away from densely populated areas.

3.3 THE NEED FOR OPENNESS

Clinton (2004) mentioned, “The hardest thing about the transition was getting used to the security. I had always prided myself in my self-sufficiency and prided my private time …now, other people cooked the meals, cleaned the house and ran the errands”.

The government house as a public-friendly environment should be designed such that, the public which it is also designed to serve could be granted entry or admittance any time such a need arises without prejudice or sentiments. As argued by Loeffle (1998), she wrote that “ a public building should be able to reinforce community identity and the culture of democracy.”

Government house designs are not supposed to be conceived to meet the exclusive need of just the governor and his political clique, but are supposed to be tailored towards the general public good. Even from the functions of a government house, we have seen that apart from it being a private residence for the governor, it serves other functions that involve people coming in from other places. Thus, if the security is made so tight as to block out people, the government house wouldn’t perform its functions properly.

Openness in such public buildings could be classified into:

Visual openness

This involves reducing the high-walled, rigid fences within and around the complex. Openness involves visual contact. The Government house is not supposed to be

mysterious; a passer-by should be able to have a glimpse of the beauty of the lawns without him being able to pose as a threat. This gives the people a feeling that their Governor is accessible without him necessarily being so.

Physical openness

For the multiple of functions that are held in the complex, a certain arrangement should be made so that when people come in, they are made comfortable yet kept away from areas that require high security such as the main office and the residence. Such areas can be made as lawns, banquet halls and amphitheatres, which can be located in the public or minimum-security zones in the complex.

3.4 FINDING A BALANCE

Loeffle (1998) stated that " to find a balance between security and openness one has to find out what makes a building inviting or forbidden and how architecture can be used to reveal the political outlook and cultural character of a given era." The word "public" changes meaning as it applies to different buildings and spaces. This brings about the problem of where to draw the line. Trade-offs usually occur when fear becomes a major design factor but barricading is not an acceptable response to fear and according to Myne a member of the American Institute of Architects, public architecture must remain open. He further stated that one of the biggest quests in designing federal/ government buildings is security and how a designer can structure architecture from the beginning to deal with security issues.

Therefore, with proper designing, a certain balance can created between security and openness to thwart threats that would separate people from their government while avoiding the era of military-style security planning. This argument goes in line with what Predock (FAIA) mentioned once, he said one can focus on security, sustainability or whatever, but a very good architecture will have it all.

Facilities today are balancing security with public access using transparent security site planning and building design solutions to minimize obvious barriers and maximize design excellence. These approaches include integrating the landscaping and perimeter security measures into the design and keeping abreast of all the latest trends in security and technology. Some measures to be taken to achieve good results include reducing clutter, consolidating functions, unifying signage and streamlining security.

3.5 ELECTRONIC SECURITY SYSTEMS

All modern buildings are candidates for electronic security systems, which require planning, and an understanding of its electronic infrastructure as part of architectural design of electronic systems. To ensure an appropriate and effective level of security in both short term and long term, Architects need to be knowledgeable about the range of electronic security technologies and options that affect design. Security systems must also be responsive to codes and regulations. They must also interact appropriately with other building systems. Most importantly, planning for security should be addressed early in the design process.

Electronic security systems provide monitoring and control to ensure the safety of staff and visitors who use a building and to protect property. Access control often extends

beyond who enters a building to monitoring when and where they do so, it provides controlled access within a facility, protection from damage and loss, protection of information and in some cases, it provides alarm monitoring of critical building systems, fluid leak detection, vehicle access control notification and evidence for investigation. However, it does not replace human security measures.

3.5.1 Levels of Security

Determining the level of security required by a building helps to establish the appropriate level of cost and technology of electronic systems planning and installations.

i) low level

These are simple physical barriers designed to detect and obstruct unauthorized activity. They may include electronic control of doors and locks, window bars and grates, timed or motion detector lighting and various intrusion detection systems.

i) medium level

In addition to low-level measures, there can be institute monitored electronic perimeters beyond the boundaries of the protected area and various advanced intrusion and detection systems.

iii) high level

In addition to low and medium levels perimeter alarm system, CCTV system, access control system and security lighting.

3.5.2 Types of Security Technologies

Like other electronic systems for buildings, security technologies are being developed constantly. Current state-of–the–art security systems and technologies are discussed below:

i) Access control/card entry

The number and kind of electronic access systems has kept growing

over the last 10-15 years. In fact, card entry has become increasingly common. The card entry system is able to incorporate time zone access levels, time controlled events, report generation, capability of supporting multiple workstations, video display terminal (VDT) and printers. The most common card entry systems will support magnetic strip readers, wiegand effect readers and proximity readers. Alphanumeric keypad and chip readers augment choices. Once programmed, the system is self-supporting, except for adding and deleting cards, acknowledging alarms and generating reports. Two basic card technologies are available:

a) Magnetic strip cards: these have the codes located on a magnetic strip at the back of the card.
b) Weigand cards have unique card code sand placed inside the card.

ii) Biometric access control technologies

These newer and constantly developing systems directly measure physical characteristics of the individual. They include fingerprint, hand geometry, eye retina scan, speech verification, signature verification and thermo gram technology. The main disadvantage

of current state-of-the-art technologies compared with conventional systems is higher cost.

iii) Intrusion detection

Intrusion detection includes the many types of sensors and alarms now

available. Infrared and microwave motion sensors can be ceiling- or wall-mounted. Although such detectors are mostly used in interior spaces, there are motion sensors available for exterior use. Related characteristics include:

a) Glass break sensors are used to detect shattering of glass.
b) Magnetic alarm contacts are used to detect the opening of doors and windows.
c) Duress alarm switches are used to notify security personnel of a crime situation or other emergency.
d) Buried line sensors can detect seismic activities, flooding or presence of ferrous metals.

iv) Closed circuit television

Closed Circuit Television (CCTV) is a television transmission system in which live or pre-recorded signals are sent over a closed loop to a finite and pre-determined group of receivers, either via coaxial cable or as scrambled radio waves that are unscrambled at the point of reception. CCTV has many industrial and scientific applications, including electron microscopy, medical imaging and robotics, but the term "closed circuit TV" refers most often to security and surveillance camera systems.

Closed circuit television (CCTV) has demonstrated its effectiveness as a security tool in all sorts of facilities, enabling multiple locations to be monitored simultaneously from a single security command centre. CCTV console operators can direct a mobile security force to any area that requires assistance. CCTV systems reduce the costs of staffing and operating observation towers and make it possible to maintain a constant watch on all areas of a facility. CCTV recordings carry the additional value of aiding in the investigation and prosecution of crimes and disruptions that have occurred.



Plate iii – monitoring screens for a CCTV system. (source: Encarta Premium Suite 2004)

3.6 PRIVACY

The Governor is a public figure, but that does not mean he has given up his right to a private life. He is also a family head who has his family obligations and a person who has friends, hence, there are hours in a day that he can dedicate to his private life if he

chooses to. The residence, recreational areas and guest chalets provide areas for his private life. Such areas therefore are located in private areas in the complex away from the eyes of the public.

3.7 FIRE SAFETY

Fire safety has always been an essential requirement for buildings. Even before it was consciously recognized, balance has been sought between the cost of fire accidents and the cost of providing safety. With increasing economic resources and the increased value of human life, fire safety requirements of societies have slowly increased. While urban conflagrations were once a regular nuisance, they now have become a rare event.

Fire safety regulations for buildings have traditionally been prescriptive, allowing at best, alternative approaches as exceptions. Construction products have had to be tested and classified for their ignitability, flame spread characteristics, combustibility, smoke production propensity, fire resistance, etc. Some codes ask for specified product classes for different occupancies making the regulations often a complex set of tables.

However, effective fire safety in buildings goes well beyond meeting codes. It requires a systematic and diligent approach on the part of the architect to prevent fire. Fire control is in all aspects of building design, construction and use. Design professionals can do a great deal to enhance their background in fire safety by knowing useful generalizations concerning the requirements of fire-safe buildings. Consider the following: -

i) Fire safety planning should be based on knowledge of general fire behavior in building and building behavior under fire conditions.

ii) Structural fire resistance is a prerequisite to other considerations of occupant fire safety.

iii) Building contents, their selection and organization, must be recognized as a key influence on fire safety in buildings.

iv) Integrated fire projection should be a planning consideration in every building project.

v) Redundant fire protection (i.e. back-up provision for key systems) should be part of an effective design.

vi) Worst case “possibilities” should parallel “probabilities” as planning tools in developing fire-safe designs.

3.7.1 Code Compliance

This is an indispensable part of effective fire-safety design. Building and life safety codes define the architect’s minimum legal responsibilities for protecting the building user from fire. Their provisions provide a useful framework for expanding the designer’s general knowledge of general fire safety issues.

i) Occupancy classification: - the unique fire safety requirements of building based on the type of activity they accommodate.

ii) Configuration: - the fire safety implication of buildings in context, including setback requirements, site access, e.t.c.

iii) Egress and Evacuation: - Requirements for leaving all spaces and moving safely through the building.

iv) Exterior protection: - from exterior fire, including adjacent buildings, wild lands e.t.c.

v) Interior protection: - Required to maintain structural stability.

vi) Internal separation: - For various occupancies and functions.

vii) Mechanical requirement: - To support fire prevention and control, to protect occupants and property.

3.7.2 Fire Prevention

Other fire preventive measures could also be classified under two-fire defense category namely; passive and active fire defense systems.

Passive defense

This has to do with structural precautions and fire service facilities, which influence architectural and environmental design and construction. This can be achieved through the following:

i) Good site planning design:

A very proper site planning makes access for fire service easier into the building. Hazards of fire increase when the fire service cannot have easy access to the site and into the building due to site planning complications. Additionally, where split components concept is used, proper site planning will make fire between buildings a difficult task. That is to say, a considerable reduction in the incidence of fire spread through radiant heat.

ii) Compartmentalization:

The overall goal in compartmentalization is to ensure that the fire can be contained or confined to the space in which it starts. This becomes more effective if the space is not so large, if travel distance does not exceed limit and also if fire-resisting construction is used to bound each space or component under consideration.

iii) Limit to building height:

This is advisable when applying precautionary measure particularly to the Nigerian situation, which lacks adequate facility to combat fire in tall buildings, because excessive heights make fire fighting very difficult.

iv) Protection of escape staircases:

Normal entrance and entry point should also serve as escape routes. Open staircases are often routes for escape from smoke spread corridors. These corridors leading to escape stairs must be fire resisting ensuring safety from heat and smoke. Permanent vents and windows should be provided to the staircase enclosing to reduce or eject smoke to enable people escape easily, without being suffocated.

v) Provision of Fire Balconies:

The general principle applied to all for escape from a building is that occupants should be able to turn their backs on the fire and to proceed to safety.

Identification of high risk areas:

Areas of high risk to fire is identified and as much as possible separated from the building. Special construction techniques may be given to such areas of high fire resistance rate and provided with special automatic smoke detectors. Such constructions

walls, floors, openings and ceilings e.t.c. will be taken care of and sub-divided into compartments.

i) Provision of Evacuation Platforms:-

In most countries of the world, whenever high-rise buildings exceed ten floors, helipads and evacuation platforms must be provided at the top of the floors. This requirement is necessary to facilitate air-borne evacuation in situations where middle floors are engulfed. This form of approach reduces suffocation due to smoke.

ii) Use of Fire Hydrants:

A hydrant is a large chunk of metal of cast iron materials containing a value to turn on and off the supply of water having one or more threaded outlets for fire hose, which are protected by metal caps. Buildings, which are not close to public hydrants, should be provided with a private hydrant. There are dry rising mains, wet rising, mains or out door hydrant systems.

The fire authority has to advice on the number and locations of hydrants required to cover the premises.

iii) Provision of Hose Reels:

Fire hose reels may be installed on each floor, and this is connected to the nearest water supply, which may be a branch from a wet riser, a connection via an adaptor to an internal hydrant or a specially installed hose reel main.

iv) Provision of Constant Water Supply:

Water must be provided constantly to the location of the building. The use of both underground and elevated water storage and pumps are necessary to avoid an ugly incidence in the event of fire.

Active defense

These involve both manual and automatic operation of fire fighting equipment to suppress and deal with fire out breaks in a building. These can be achieved through the following:

i) Automatic Sprinkler Systems:-

A sprinkler is a fire suppression device designed to interrupt the burning process before a room is fully engulfed in fire. This device can be operated either manually or automatically. The latter consists of a pipe connected to valves, which control the supply of water. The pipes are fixed at or near the ceiling of each floor. The sprinklers head or device is triggered into action when the temperature rises above a certain level causing water spray to discharge over the area below it.

Sprinklers are classified for the different fire hazards they serve as:-

(a) Extra light hazard (XCH)

(b) Ordinary high hazard (OH)

(c) Extra high hazard (XHH)

The first category is suitable for office and public fire hazards.

i) Installation of fire detection systems:

Fire usually starts from a small origin and with a few expectations can be easily extinguished. Fire detection systems are devices that give an early warning of fire. They consist of a number of sensitive thermostatic detector heads, which are installed in the ceilings throughout the premises to be protected and are connected electrically to a large alarm gong outside the building or to the nearest fire station or elsewhere required.

ii) Fire Extinguishers:-

These are devices used to suppress early and minor fire hazards. The location and positioning of extinguishers should be:

a. near, but not too near danger point

b. in a clearly visible position near an exit door

c. In the same position on each floor, i.e. top of stairs, corridor corner.

d. at 30m maximum interval on a floor

iii) Fire alarm system

Some detectors should be provided at strategic locations in the building to provide protection against smoke and fire. It would activate the alarm 24 hours a day even if the system were disarmed. Easy cordless installation battery can be provided.

3.7.3 Fire safety decision tree

These provide valued tools for defining and managing fire-safe design objectives. Two particularly useful conceptual models have been developed for use by architectural and design professionals. In general, both address three major fire safety goals.

a) Prevention ignition of building materials and contents

i) Regulate ignition sources

ii) Control Fuel

iii) Control heat/fuel interaction

iv) Plan for occupant action

b). Control Fire Development

i) Detect fire

ii) Suppress/extinguish fire

iii) Limit Spread

c). Protect the exposed building occupants.

i) Communicate emergency information

ii) Provide for emergency egress

iii) Defend in place

3.8 MODERN FINISHING MATERIALS

Finishes have structural and aesthetic functions. Broken down, the general uses of finishes could be said to be:

i) sound absorption

ii) moisture absorption

iii) decoration

iv) increase in comfort of space

v) increase in durability of surfaces

vi) increase in durability of surfaces

vii) resistance to insects and biological elements

Different finishes are suitable for different purposes depending on the function of the building, nature of users and nature of the finish material itself.

Finishes can be classified based on where they are used on the surface of a building. Some finishes could be used in more than one area.

3.8.1 Floor Finishes

According to Whitting (1995), "The appearance of a finished floor is very important aesthetically and technically since it is the first place the eye looks at for sure footedness, direction and mobility. Flooring is the single most exposed element of a building interior of constant and often heavy use."

Some of the commonly used floor finishes are:

i) Stone flooring

Stone is a very durable finishing material consisting of slabs of stone installed into a cementations setting bed. Stone is chosen for its durability, variety of colours, textures and patterns.

There are many types of stone available. Some of the most commonly used include:

a) Marble

This is one of the most beautiful and colourful of all stone materials. It is a crystalline and compact variety of metamorphosed limestone consisting primarily of calcite, dolomite or a combination of both.

Marble is capable of taking a high polish and is used principally for statuary and building purposes. The resistance of marble to chipping, cracking and abrasion is very good if the slabs are well laid.

Marble is installed by setting it into a soft mortar bed similar to the method used by the masons or unto a dry or cured mortar bed.

b) Granite

This is also a very popular stone. Its composition is of quartz, mica, feldspar and hornblende. Granite has a regular appearance (from fine to coarse). Common colours are beige, pink, white, black, brown, green, and red.

Its characteristics include:

i) High compressive strength

ii) Good resistance to abrasion

iii) Low water absorption rate

iv) Ability to retain a polished finish even under a moderate amount of wear and abrasion.

c) Wood flooring

Wood flooring is a popular finish material made of pieces or strips of wood attached or bonded to a substrate. The beauty of wood flooring needs no stressing, it could be the most beautiful of flooring materials if the variety of the wood and size of the units are chosen for that effect. With the availability of a wide variety of designs, colours and grain patterns, wood can be used in most applications. Rugs and carpets can be laid over them or they can be left uncovered. Types of wood flooring include:

i) plank flooring

ii) strip flooring

iii) parquet flooring

Wood flooring could be finished with varnish, shellac, and polyurethane, penetrating finishes or lacquer.

d) Ceramic tile finish

Ceramic tiles are a blend of clay, shale and other natural materials that

are pressed or extruded into a variety of shapes. They are then fired under light temperatures for specific periods of time creating the finished product. They are quite durable, suitable for a wide variety of installations including high moisture environment. The most common type of ceramic tiles is quarry tiles, glazed tiles and unglazed tiles.

e) Terrazzo flooring

Terrazzo is a mixture of small marble or granite chip mixed with a cementatious or resinous matrix, poured onto a floor surface and ground smooth. It can be made in a variety of colours and patterns depending on the stone used. Terrazzo is very durable and suitable for wet areas.

Patterns can be created by varying the colour of the chips and/or

matrix within a specific area that is separated from the other areas by thin silver divider or control strips. The strips can form patterns and shapes and other forms that divide up the flooring surface.

The colours however, are derived by using different colours and variety of stone and mixing a colour additive to the matrix.

There are three types of terrazzo and they are polyacrylate based, epoxy based and polyester resin based.

A terrazzo installation is only as good as the substrate onto which it is constructed.

f) Carpet flooring

Carpets are heavy fabrics consisting mainly of yarns or fibre combined together. They are one of the most popular flooring materials and are used for interior floor finishing.

Available in a number of fibres and a wide variety of colours and patterns, carpets are made from many fibres that are twisted or spun together forming yarns.

There are different types of carpets namely:

a) woven carpets
b) knitted carpets
c) needle punch carpets
d) tufted carpets
e) fusion bonded carpets

Carpets can be glued to the floor. They could be glued either by installing over a pad with perimeter tack strip holding down the edges, by or directly glued down to the floor, or the carpet could be glued to a pad and the pad glued to the floor.

3.8.2 Wall Finishes

i) Paint

Paint is a chemical composition conveyed through a liquid called the vehicle. The vehicle keeps the paint in a liquid for easy application. This liquid media is volatile because it evaporates and leaves a uniform film which dries up to form a protective coating on the surface applied.

Paint is the most common and inexpensive wall and ceiling finish. It is composed of:

a) a pigment: colour providing material
b) a fluid vehicle: the liquid portion
c) a body: white metallic salts

d) Additives: components added to change or modify paint characteristics in specific ways to accomplish specific qualities.

There are two types of paint. They are:

a) Latex paint: it consists of water with small amounts of other materials for example glycols to keep the paint uniform. The water is essentially non-toxic and the other materials are present in such small amounts in the paint to present any significant toxicity.
b) Solvent paints: these paints use organic solvent like mineral spirits, alcohol, esters as the volatile vehicle. They are flammable and could be dangerous if inhaled.

Paint is made in different colours and textures.

ii) Varnish

Varnishes are transparent solutions heating a drying oil, resin, drier and solvent together. The resin helps to reduce drying time while increasing hardness and the drying oils add an element of flexibility as well as y to an extremely hard finish. Durability. Varnish gives a hard transparent coating upon evaporation, oxidation and polymerisation of the solvent. Varnish could be classified into long oil, medium oil and short oil products.

iii) Lacquer

Lacquers are transparent or pigmented solutions composed of a solvent with high volatility than either stain or varnish. This makes to dry really fast, allowing the application of many coats. However, they must be applied under controlled conditions because of their ability to dry fast. They have a glossy finish and dry to an extremely hard finish.

iv) **Wood panelling**

This finish has been used for centuries. Panels may be made with either rendered or solid wood from a wide variety of wood species. Factors to consider in the design of wood panelling are grain patterns, wood species, edge detailing, and stain or finish colours and size of panels.

The most common element used for wood panelling is plywood. It is used in two ways:

a) Exterior or outside veneer on one side is specifically ordered in available species from the factory.
b) Fitches from vendors special specialising in veneers are custom applied in a custom milk work shop.

The advantages of plywood are that they are extremely stable and that it does not warp like solid wood.

Plywood is available in utility and appearance grades, the appearance being the most appropriate for panelling. The grades are standard, specialty grades, lumber core plywood and particle board core plywood.

v) Stone wall panels, tiles and ceramics

Many of the characteristics and properties of these materials as used in flooring applies to wall application, however, there are a few differences. The main one is the weight and size of the panels. The overall weight of the panel should not exceed the capacity of its method of attachment and the capacity of the workers to handle with or without lifts.

They could be installed using adhesive, mechanical anchor and wire ties (using wires in a somewhat hook way to attach the tiles to the substrate).

3.8.3 Ceiling Finishes

The ceiling is finished to reduce heat radiation from the roof and for decoration. There is less variety of ceiling finishes compared to floor and wall finishes.

i) Gypsum board

This is the most common ceiling finish. It could be used on walls too. It is composed of a gypsum core with a paper backing on two sides to help finishing.

Gypsum board is available in different shapes and sizes. The standard available is 4ft lengths of 8, 9, 10, 12 and 14ft and a thickness of 6mm, 10mm, 16mm, and 25mm (for utility panels).

The different types of gypsum boards which include standard gypsum board, water resistant gypsum board, cementatious backer board, type x gypsum board and foil backed gypsum board. They could also be installed using suspended systems, direct applied systems and furred system.

ii) Plaster of Paris (POP)

Plaster is a product of gypsum and a sulphate of lime. Gypsum is produced in volcanic regions by the action of sulphuric acid on calcium-containing minerals. It can be found in the earth of most countries.

POP is very plastic when mixed, relatively hard about thirty or forty minutes later and can easily telegraph all details from the mould when properly shaped.

POP could be installed in-situ or could be pre-cast. It could be made into boards and nailed to noggins. Decorations are made separately before being attached to the board.

iii) Asbestos

This is a non -flammable fibrous material of several mineral and hydrous silicates of magnesium. Asbestos fibres can be moulded or woven into various fabrics and it is also used as a ceiling material.

They are made in 1.2 x 1.2m sheets and nailed to noggins. Timber batons or strips of 4x40mm are at a criss-cross of 600x600mm to cover the nail heads and improve the surface.

iv) Fibre board

Fibre board is moderately a less expensive finish than others. The boards come in either small 12 x12 inch squares or larger sections. The boards are either nailed to furring strips or ceiling joists. It is usually painted white. The material is very attractive but fragile and vulnerable to damage.

v) Pan

These are tiles constructed from special plastic coated steel prepared for areas which are subject to humidity. It is a very light construction where each ceiling is removable.

CHAPTER FOUR

CASE STUDIES

4.1 INTRODUCTION

A study of Government House design most importantly requires an enquiry into similar buildings to understand their operational and functional distribution. An Architectural appraisal of some existing Government Houses was undertaken.

These case studies were chosen based on some criteria. These criteria are; geographic region, age, accessibility and availability of information. Based on these criteria, the Government houses at Kano, Kaduna, Birnin-Kebi, the Government lodge in Gombe and the State House at Massachusetts were chosen.

These case studies were then studied under certain variables to find out what is important and what isn't in relation to security, privacy and openness. These variables are:

a. location
b. nature of use
c. facilities available
d. site planning
e. zoning
f. extra security measures

4.2 CASE STUDY ONE – Government Lodge Gombe.

Brief historical profile

This building was the divisional officer's residence before 1976. In 1986 it became the Government lodge. When Gombe state was created in 1996, the state Government decided to use it as a Government house. Due to this decision some buildings were converted to offices and the clinic and new structures were erected to serve as the main office and the residence.

a) location

It is located along GRA road in Gombe town, with Pantami road to the left and Tula Street to the right. Hence, it is boarded by roads on three sides, two of which are very busy. Though located in a mainly residential area, it is in the middle of town. This makes it an easy target for vandalism in cases of riots and processions.

b) Nature of use

The office and residence are located in the same complex. This ensures a smooth running of activities in the complex and prevents duplication of security. However, in this case that has not been possible to achieve due to the size and inadequacy of facilities.

c) Facilities available

Since the complex wasn't designed purposely to be a government house, a lot of facilities are missing or even if present, inadequate. No provision has been made for accommodating guests and there are inadequate recreational and sporting facilities. The facilities available in this complex are:

i) main office (see plate iv)

ii) main residence

iii) deputy Governor's office

iv) other offices

v) clinic

vi) mosque

vii) garages

viii) tennis court

ix) parking areas

x) stores

xi) generator rooms

xii) gate houses (see plate v)

xiii) fuel station

d) Site planning

The buildings on site are haphazardly placed, thus, there is no site planning pattern. This makes it quite easy for someone to drift from one building to another without being noticed. However, a good road network has been developed which makes directions less confusing for a visitor. Security check points have not been placed along the roads.

e) Zoning

Since buildings are haphazardly placed, no zoning pattern has been developed. Buildings like the residence that are supposed to require high security and be very private are located right at the entrance gate making it vulnerable to any form of attack. The main office, however, which is where most visitors go, is located deep into the site giving

visitors access to the whole complex. However, the residence has been fenced in an attempt to make it more secure.

f) Extra security measures

The only modern security gadget used is surveillance cameras. Extra security mainly depends on security guards and their check points.

The site plan above shows a complex that has not been properly planned even though there is adequate space.



Plate iv – The main office.

Picture showing main office with good road landscaping elements. (source: field work).



Plate v – The gatehouse as an element of external security. (source : field work).

4.3 CASE STUDY TWO – Government House Birnin-Kebbi

Brief historical profile

The present Government house was initially provided in 1954 to serve as the residence for Resident Officers. After independence, it became the Premiers' lodge and later Local Government Governor's lodge. With the creation of Kebbi State in 1991, it assumed its present status as the Government house for the new state.

a) Location

It is located along Sokoto road at the GRA in Birnin-Kebbi, in a lightly populated, mainly residential area. This makes security implementation quite easy, and with the nature of the area, a certain degree of privacy is guaranteed.

b) Nature of use

The residence and office are located in the same complex. This prevents duplication of security and ensures smooth running of the complex. However, the Deputy Governor's office is located elsewhere.

c) Facilities available

All facilities necessary have been provided in this complex. No residential facility has been provided for the ADC (Aide de camp) and other staff that don't need to live in the complex; this reduces the number of people that reside in the complex, hence, reducing the number of people that come to visit. In effect it reduces security risks. The facilities available are:

i) gatehouses

ii) office blocks

iii) main office

iv) presidential lodge

v) governor's lodge

vi) press centre

vii) clinic

viii) mosque

ix) sport area

x) service quarters

xi) control room

xii) amphitheatre

xiii) parking spaces

d) Site planning

There is a good coordination of activities in the complex because the site is properly planned. All facilities related are situated close together. There is also a good road network between buildings in the complex which eventually lead to the two points of ingress and egress on site. This makes it easy to filter people as they pass from one point of the complex to another. However there are no landscaping elements on site.

e) Zoning

Site has been zoned into minimum, medium and maximum security zones or it could be called public, semi-public and private areas. Facilities that entertain a lot of visitors are located close to the entrance and made “open” to the public while private facilities are located deep into the site. Facilities that are considered private are fenced. In this case, the design has taken care of half of the security implementation.

f) Extra security measures

Some electronic security gadgets such as surveillance cameras and metal detectors are being used. However, extra security mainly depends on man power.

The site plan below shows a good plan and a security conscious design.

4.4 CASE STUDY THREE – Government House Kano.

Brief historical profile

This was formally a State house built to accommodate State guests. After the creation of twelve states in Nigeria, an office was built in the complex to serve as the Governor's office and the lodge became the residence. It has undergone several modifications over the years.

a) Location

It is located off Wudil road at Nasarawa GRA in Kano town. It is generally surrounded by residential buildings with a few offices nearby. The complex is boarded on three sides by buildings and a road on one side. This reduces the accessibility to the site by vandals or any form of threat from crowds.

b) Nature of use

The office and residence are located in the same complex. This prevents duplication of security. However, the Deputy Governor's office is not in the complex.

c) Facilities available

Some of the facilities provided are not of paramount importance in the complex. One of such facilities is the conference hall. When conferences are held, a lot of people come to the venue and enforcing security becomes more difficult. The facilities provided are:

i) main office (see plate vii)

ii) other offices

iii) residence (see plate viii)

iv) Africa house –conference hall and presidential lodge. (see plate x)

v) clinic

vi) service quarters

vii) mosque

viii) press unit

ix) recreational facilities

x) livestock farm

xi) amphitheatre

xii) garden (see plate ix)

xiii) generator house

xiv) parking area

c) Site planning

There is no particular site planning pattern as buildings were erected as the need arose. There is no defined road network connecting the buildings but all the facilities are quite close to each other. This makes it impossible to place security check points at intervals or filter visitors from one area to the next. For these reasons, every building in the complex is very accessible without an intruder being detected. However, only one point of ingress and egress has been provided and that could be used to tighten the security at the gate.

d) Zoning

For the same reason as above, there is no zoning pattern, hence, public facilities are intermingled with private facilities, public facilities are located deep into the complex while private are located before them. An example is the residence located before the conference hall. Due to this, security and privacy are greatly compromised.

e) Extra security measures

Electronic security gadgets in form of surveillance cameras and metal detectors are used moderately but security mainly depends on the security guards around the complex.



Plate vi- The entrance/ exit to the complex. This ensures tight security. (source : field work).



Plate vii- The main office block. This is the busiest building in the complex. (source : field work).



Plate viii – The residence which is located right beside the office because the site complex is poorly zoned. (source : field work).



Plate ix – Landscaping elements. Picture shows beautiful landscaping elements which is quite important in a building of this nature. (source : field work).



Plate x – The conference hall. A building that could have been located elsewhere, thus, adds security risk in the complex. (source : field work).

The site plan below shows a complex with no zoning pattern, and poor site planning. As a result, implementing security would not be easy and smooth.

4.5 CASE STUDY FOUR – Government House Kaduna.

Brief historical profile

Built in the 1950s by the colonial masters, it was converted to a Government house when Kaduna was made a state. The Government house was upgraded with time and built in several phases. Modifications have been made by successive Governments.

a) Location

It is located at Sir Kashim Ibrahim road, Tudun Wada Kaduna. It is surrounded by public facilities like the park, shopping complexes and an Army barracks. Its location in the middle of town and proximity to these public facilities makes it easily accessible to rioters and vandals in times of chaos.

b)_Nature of use

The office and residence are located in the same complex. This prevents duplication of security and ensures smooth running of activities.

c) Facilities available

There are many irrelevant facilities in this complex which bring about more security risks. Such facilities include too many guest houses, many service quarters and the ADC's (aide de camp) residence. Other facilities available are:

i) office block

ii) Governor's residence

iii) Gymnasium

iv) Cafeteria

v) Gate houses

vi) Security checks

vii) Garden

viii) Borehole

ix) Parking areas

x) Recreational facilities

xi) Generator house

d) Site planning

There is no particular site planning pattern because of the nature of development of the complex. The buildings are located far from each other though a good road network connects them. Openness has been achieved but there aren't enough security measures as anyone who passes the entrance gate will have access to any part of the complex.

e) Zoning

For the same reasons as above, no zoning pattern has been achieved. Facilities that require different degrees of security and privacy are intermingled.

f) Extra security measures

As in all the other Government houses studied, the electronic security gadgets used here are only surveillance cameras and metal detectors. Security mainly depends on man power.

4.6 CASE STUDY FIVE – State House Massachusetts

Brief historical profile

This building was designed by Charles Bulfinch as a replacement for the old state house. It was completed in 1798 and has undergone several modifications since then. The final major renovation took place in 2002.

Location

It is located in the neighbourhood of Beacon Hill in Boston, Massachusetts, USA.

Nature of use

The building houses the Massachusetts General Court and the offices of the Governor. It serves as an Executive and Judicial seat of the state. The Governor's residence is located elsewhere.

This type of arrangement is never used in Nigeria but it gives an insight of how all these activities can be housed in one building and still function well.

The building

The building sits on 6.7 acres of land on top of Beacon Hill. There is a dome on the roof that is made of wood and covered with copper and painted gold leaf. It is topped with a pine cone. In front of the building is the statue of General Joseph Hooker. Other statues are located in the laws. The original red brick Bulfinch building contains the Governor's office with the Massachusetts senate occupying the former House of representative

chamber under the dome. The house of representatives occupies a chamber and the west side of the Bingham addition.

Facilities available

i) Doric hall (see plate viii)

ii) Nurses hall

iii) Hall of flags

iv) The great hall (see plate ix)

v) House of representatives

vi) Senate reception room (see plate x)

vii) Executive offices (see plate xi)



Plate xi – The State house Massachusetts. Picture showing the front view.

(source: www. Wikipedia Encyclopaedia).



Plate xii – Statue of General Hooker in front of the building. (source: Wikipedia Encyclopaedia).



Plate xiii – The Doric hall (source: www. Massachusetts State House.com)



Plate xiv – The Great hall. (source: www. Massachusetts State House.com)



Plate xv – Senate reception room. . (source: www. Massachusetts State House.com)



Plate xvi – Senate chamber. (source: www. Massachusetts State House.com)



Plate xvii – Reception to Executive offices. (source: www. Massachusetts State House.com)

4. 7 CONCLUSIONS FROM CASE STUDIES

Location

i) Location should be in a lightly or medium populated area which is mainly residential. This is because such areas have the less security threats than densely populated areas.

ii) There should be a maximum of two roads boarding the site so that access to complex can be minimised.

Nature of use

i) Office and residence in the same complex is the ideal set-up.

ii) It is better to locate the Deputy Governor's office elsewhere to reduce the number of people that will work in or may visit the complex.

Facilities available

i) The offices, residence, recreational and utility facilities, one or two guest lodges, clinic and staff supporting facilities are the basic facilities required in a Government house. Any extra facility brings more security risks.

Site planning

i) A maximum of two points of ingress and egress is adequate for security.

ii) All facilities should be connected by a good road network.

iii) Good landscaping elements are also important.

Zoning

i) Site should be zoned into different security and privacy zones and facilities classified into these zones.

ii) Private/ maximum security facilities could be fenced.

iii) Private/ maximum security facilities should be located deep into the site and vice-versa.

Extra security measures

i) Electronic security systems and man power security are all very important but they can only support a good design.

CHAPTER FIVE

REGION, LOCATION AND CLIMATE

5.1 BRIEF HISTORY AND LOCATION

Gombe metropolis started as small settlement of a few tens of inhabitants. It received its first growth impetus with the transfer of Gombe divisional headquarters to Gombe Doma village in 1919 and the subsequent relocation of the palace and court of Emir Umar Faruk from Gombe Abba to the village in 1920. Accordingly, Gombe served as the seat of administration of Gombe division as well as the headquarters of Gombe Emirate.

After then, Gombe town underwent development in different stages until the creation of Gombe state in 1996, when Gombe town was made the capital city. About 14 000 civil servants immigrated to the town. This led to the construction of many institutional and residential buildings.

Since 1919, the population has grown from 300 to 320 000.

Location

Gombe town is at a central geographical location within the state and is on latitude 10 16’ N and longitude 11 11’ E. It is well linked by road to other regional centres like Biu/Maiduguri, Potiskum/Damaturu, Bauchi/Jos, Kari/Kano and Kumo/Yola. A large part of the existing town is at the foot of Akko escarpment and on a shallow dish-like site. However, there is a westward expansion of the town onto the escarpment.

5.1.1 Map of Nigeria

Fig 5 – Map of Nigeria showing Gombe State.

5.1.2 Map of Gombe State

Fig 6 – Map of Gombe State showing Gombe local government.

5.2 CLIMATIC DATA

5.2.1 Rainfall

Gombe is located within the sub-Sudan climatic zone. It is characterised by two distinct seasons: dry season (November to March) and wet season (April to October). Fig 7 below shows the high values of mean monthly rainfall figures over a period of 20 years (1978-1998).

Fig. 7: Mean Annual Rainfall

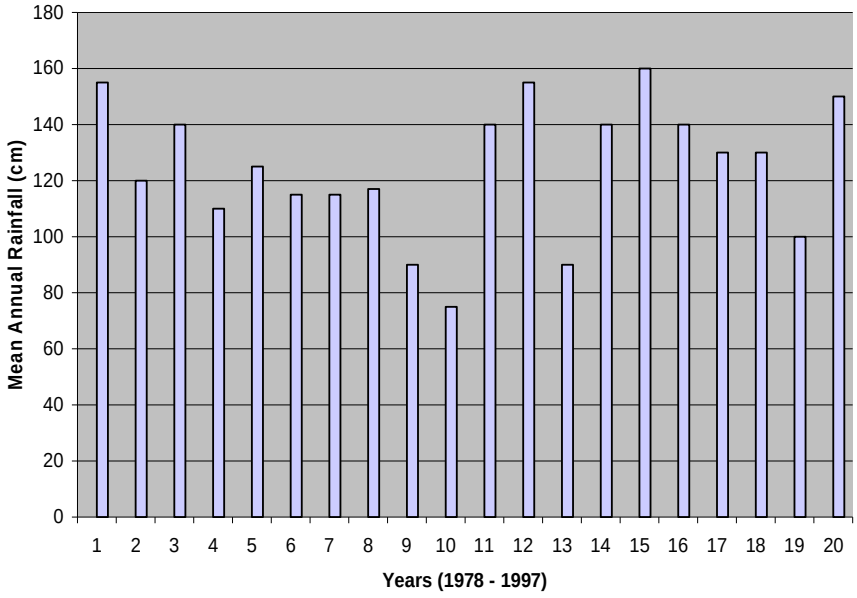
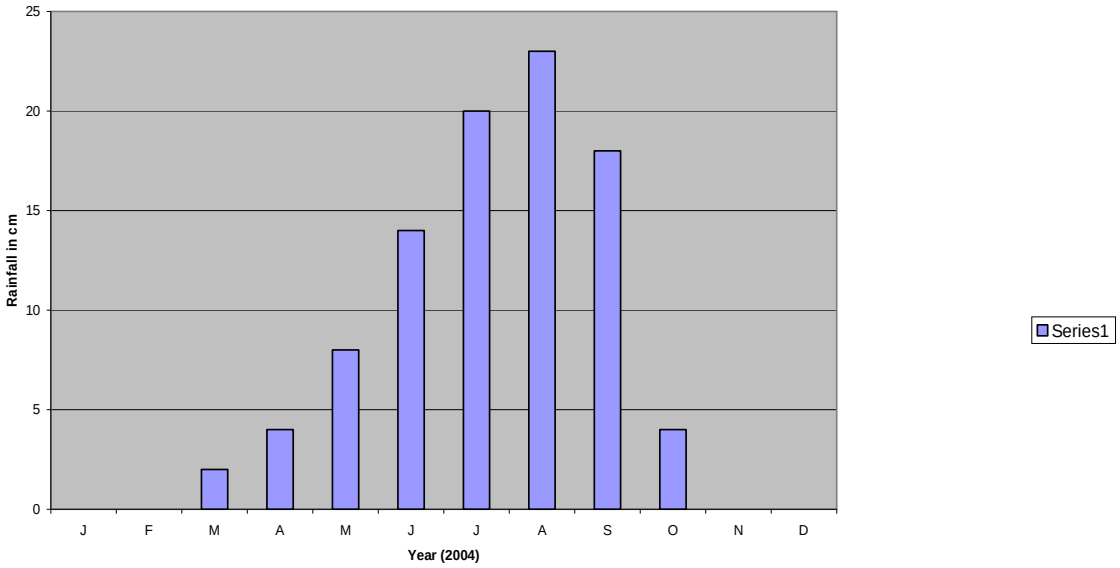


Figure 8 below shows the rainy months are July-September. Since the rains are torrential thunderstorms and because the sandstorms get saturated by July, heavy run-off or storm water is characteristic of this season. This causes soil and gully erosion especially where the slopes are steep.

Fig 8: Mean Monthly Rainfall

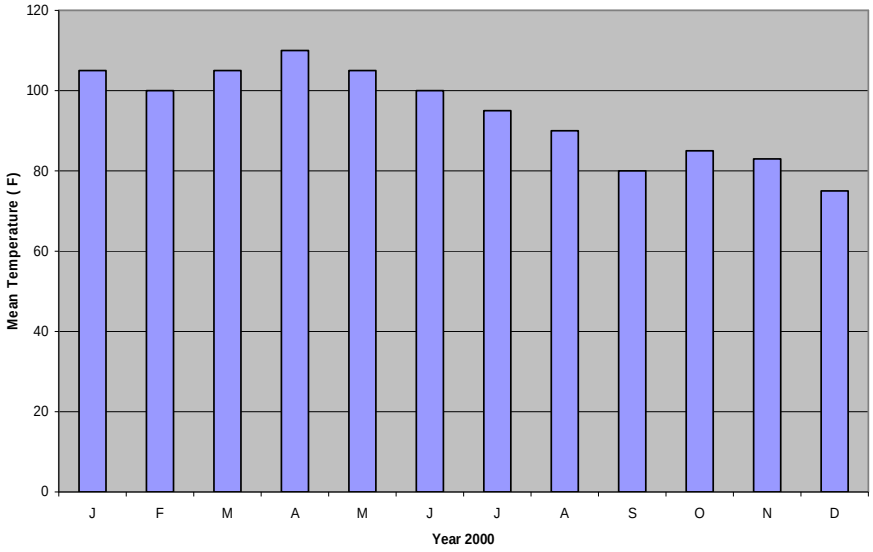


The 2001 rainfall figures from the Gombe weather station of Gombe Agricultural Development Project gives an average annual value of about 122cm received over an average of seven months.

5.2.2 Temperature

During the period from December to February, temperature can get as low as 75F (24 C) due to harmattan and as high as 93 F (34 C) in the months of March and April. However, averages of annual temperature for the various months are generally high. Wet season temperature are high with mean value of about 80 F (27 C), the cooling effect of the rains are only a moderating factor.

Fig 9: Mean Monthly Temperature



5.2.3 Humidity

Average relative humidity is lowest at about 15% during the harmattan period of the dry season and highest at about 86% in July to September which experience more rain days than other months of the season.

This means buildings in this area need to be adequately ventilated using natural and artificial means.

5.3 GEOLOGICAL DATA

5.3.1 Soil

The main soil formations in Gombe and its immediate environment are described as follows:

Bima Sandstones: these have a medium load bearing capacity. It is found in the areas immediately west of the railway and Liji hills.

Yolde Formation: these have high compression strength and therefore high load bearing capacity. It is found around the central part of town.

Pindiga Formation: these have high plasticity, very low permeability and shear strength but very high compressibility. It swells up when wet and shrinks when dry. It is found in town, around Pantami and Doma.

Gombe Sandstone: this has a slope stability problem. Apart from that, it has a good load bearing capacity. It is good for construction and found around the GRA, Prison service yard and Tashan Dukku.

Keri-keri Formation: this has a high load bearing capacity and it is found in surrounding villages.

Basement Complex: these are basically rocks and can be recommended for all construction types.

5.3.2 Vegetation

Gombe is located within the Sudan-Savannah vegetative belt. It is characterised by grassland with a continuous cover of grass interspersed with trees and shrubs.

The plates below show typical illustrations of such a vegetation on a virgin land in Gombe town.



Plate xviii –Vegetation. (source: field work).



Plate xix – Vegetation. (source : field work).



Plate xx – Vegetation. (source: field work).



Plate xxi – Vegetation. (source: field work).



Plate xxii – (source: field work).



Plate xxiii – (source: field work).

5.3.3 Topography

Gombe town site is largely at the foot of Akko escarpment in the west of the town. Newer developments are taking up sites on the escarpment and on the Tunfure plains. The highest points on the landscape are on the Liji hills with about 610.5 m (1850 ft) above sea level and the lowest parts at the BCGA areas, about 412.5 m (1250 ft) above sea level. Many rivers and streams some of which have tributaries with active gully heads, have truncated the town particularly at the northeast and southeast parts, creating west-east striations on the landscape.

5.4 THE SITE

5.4.1 Location

The site is located off Bauchi road, beside Shongo estate along NNPC depot road. This location is at the outskirts of town where new developments are coming up.

5.4.2 Profile

i) Site is located at the outskirts of town.

ii) Following the master plan 2000-2030, the State Government has chosen the site in an area dedicated to be an executive capitol.

iv) The site is boarded on two sides by existing and proposed minor roads.

iv) The site is located beside a housing estate and opposite proposed site for VIP lodges and Commissioner's quarters.

v) The site is relatively flat but has a slope that falls gently to the south. Hence drainage of storm water is natural and gentle.

5.4.3 Selection Criteria

This site was chosen for this project for a number of reasons, some of which are:

i) It is the site recommended by the 2000-2030 master plan of Gombe town.

ii) It is located in an area where maximum man-power security can be provided.

iii) It is large enough to accommodate all facilities required with adequate space for future expansion.

iv) The topography of the site make it easier to enforce security, as a large area can be watched from one point.

v) It is accessible enough without being too open.

5.4.4 Services

There are no services available on site as it is a virgin land surrounded by similar sites. However, electric power and water has been connected to the estate adjacent to the site.

5.4.5 Access

Site can be accessed from the existing road but an exit point can be provided from the proposed road.

Fig. 10 Site Analysis

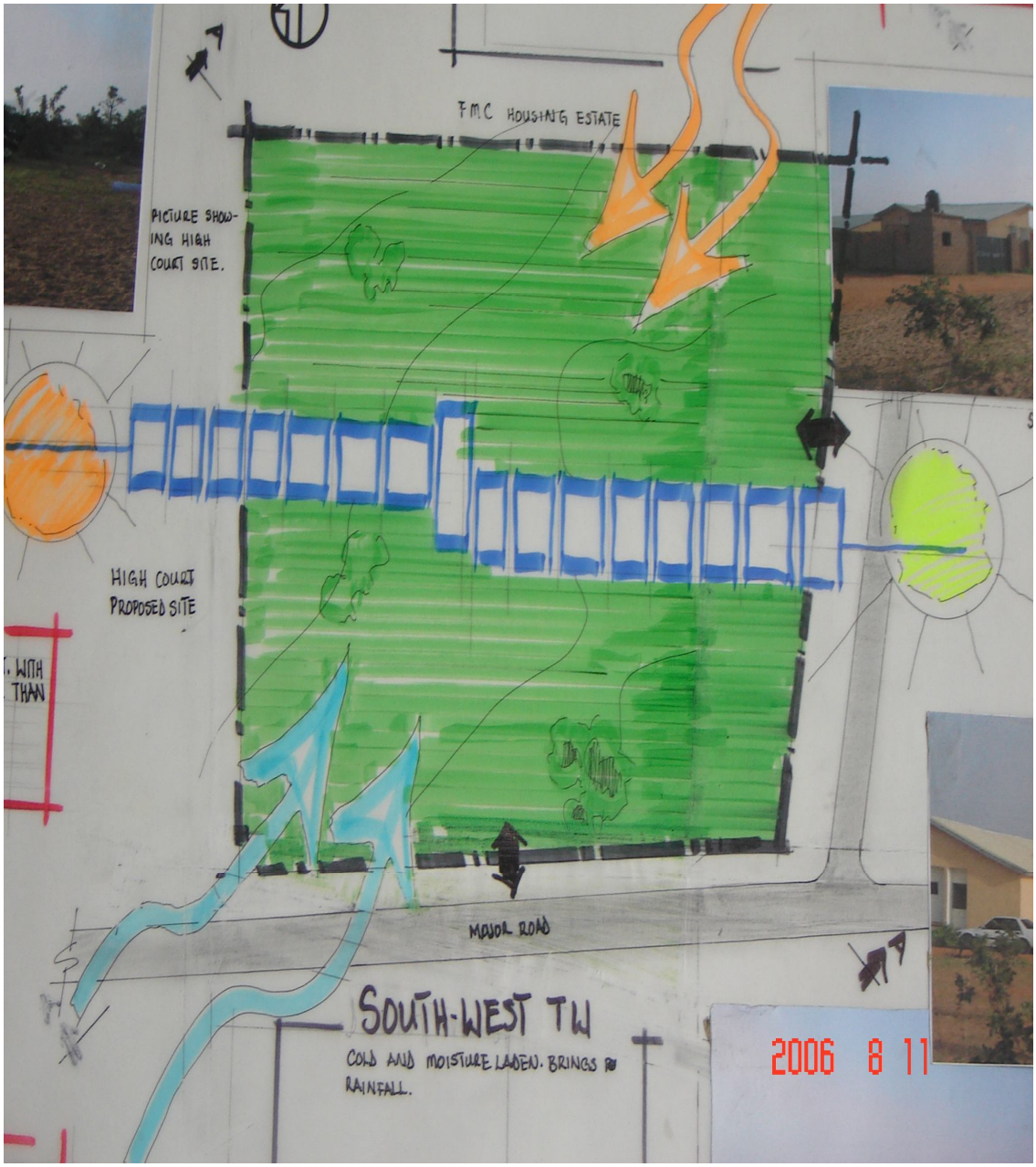




Plate xxiv – The tarred road at the West side of the site. (Source: field work).



Plate xxv – Shongo estate, at the South side of the site. (source: Field work).



Plate xxvi – Picture showing topography of the site. (source: Field work).



Plate xxvii – General vegetation of the site. (source: Field work).

CHAPTER SIX

BRIEF FORMULATION

6.1 DESIGN PROPOSAL

This proposal is a response to the State Government's decision to build a new Government house on a different site from the Government lodge presently occupied by the Governor. This is because the Government lodge is inadequate and was not designed to meet the needs of a civilian administration. Another reason is that the Government wants to retain the complex as a Government lodge.

Having studied problems peculiar to the Government lodge and the other case study sites, many things have been considered regarding the security, accommodation, day-to-day and occasional activities of the Government house. Based on these considerations, a functional design has been proposed.

6.2 THE BRIEF

The Government house is a seat of power in every state capital; therefore it needs to be secure, grand and monumental. It should be a building that the people of the state can identify with.

It is also a multi-functional building which has to accommodate different activities and people. It is a minimum requirement for every Government to have the following characteristics.

a) Easy access public spaces from the entrance gate(s).

b) Adequate office spaces for all the new positions created in this system of government.

c) Good circulation within the buildings and around the complex.

d) A provision for a discrete entrance and exit for the Governor between his office and residence.

e) Adequate spaces for official, political and private visitors.

f) Adequate spaces for political and social gatherings.

g) The design should be made in a way that movement of people from one point to another can be easily monitored.

Putting all theses factors into consideration, the clients (Gombe State Government), require a modern and security-conscious design that will accommodate all the requirements of the democratic system of government. The complex is to be independent and self supporting and should have the following basic facilities:

a) Offices for the Governor, First Lady and all supporting staff.

b) Residence for the Governor.

c) Guest and staff accommodation.

d) Clinic

e) Canteen

f) Prefecture gathering spaces

g) Recreational facilities

h) Adequate security facilities.

6.3 DESIGN CONSIDERATIONS

Designs are made in order to achieve desired responses from occupants. Although it is impossible to satisfy every need, the Architect is expected to make the physical environment comfortable. Design considerations are factors the Architect puts at the back of his mind when bringing out a design. These factors are endless depending on the peculiarities of the design but there are certain factors that are always constant regardless of the type of building. Such factors are:

6.3.1 Orientation

This is the positioning of a building so as to achieve maximum results in terms of comfort, ventilation and view. Buildings are designed to expose minimum area of walls to the sun and ensure adequate air circulation. Hence, they are oriented along the east-west axis. Orientation is a very important factor of design because when it is done wrong, especially in a climate like ours, heat becomes a major problem.

In this design, the main buildings face the South direction thereby making their longer sides face the North and South direction.

6.3.2 Circulation

This is the movement of people and vehicles from one part of a building/ complex to another. These movements include horizontal movements from one part of a floor to another or vertical movements from one floor to another. Circulation is important in this design because of the number of people that come into the complex daily. Wide corridors and accessible staircases will be provided so as to facilitate easy traffic of people.

Vehicular routes to public zones would be up front and not deep into the site. Quick and easy drop-offs would be provided. Parking in the public zones would be situated such that entry and exit is uncomplicated and a separate entrance/exit would be provided for the residence to ensure privacy.

6.3.3 Services

This includes air-conditioning, fire protection and control, power supply, water supply, artificial ventilation, thermal insulation, drainages, sewage and refuse disposal. For every design these factors have to be considered. In this design, power will be supplied by PHCN via a transformer situated in the complex. Alternative power will be supplied by a stand-by generator. Rain water will be drain out of the site via a drainage system which channels water to the roadside gutters. Fire detecting alarm systems will be provided at strategic points in the buildings. For the sewage system, each unit will be provided with inspection chambers and septic tanks which will be connected to a general soak away pit at the extreme end of the site. For other services like refuse disposal, an incinerator will be provided where all refuse from different parts of the complex will ultimately be taken to and burnt.

6.3.4 Security

Security is quite important in every design; however, in this design it is the most important factor to consider. As it has been discussed throughout this project, security will be taken care of using proper zoning and site planning. However, security gadgets and manpower would be used where applicable.

6.3.5 Maintenance

Every building has to be maintained through its lifespan. A low cost of maintenance is usually preferred. Thus, durable materials are of paramount importance provided they meet the functional, structural and aesthetic requirements.

6.3.6 Expansion

Flexibility is a very important aspect of design. The ability for expansion when the need arises is part of flexibility. In this design, ample space will be provided for such an occurrence so as not to encounter one of the same problems that led to the need for this design in future.

6.3.7 Multiple Functionality

This is not a factor that has to be considered in every design. However, due to the nature of this design, it is one of the major factors. A zoning pattern has to be developed based on the individual functions of the different buildings in the complex. A certain harmony will be created between all the functions so that they function as one whole entity.

6.4 CONCEPT

Generally, concepts can be defined as ideas that integrate various elements into a whole. Architecturally, a concept is a way that the requirements, context and imaginations of a designer can be brought together. Therefore, it can be said that Architectural concepts are ideas that have been developed into elements and forms; like sequence of space,

integration of structure and form or setting a landscape. Each of these can influence the general design of a building.

In this design, a concept which has a link with the origin of the people of the state will be used. It would feature in the form or elevations or both.

6.5 SCHEDULE OF ACCOMMODATION

A. OFFICE BLOCK

GROUND FLOOR

Circulation spaces

SPACE	UNITS	AREA/ sqr m
Reception lounge	2	336
Courtyard and corridors		774
Staircases		48
		Total = 1158

Press Department

SPACE	UNITS	AREA/ sqr m
Press Secretary	1	36
Secretary to Press Secretary	1	15
Supporting staff	1	64
Printing room	1	30
Records	1	24
		Total = 169

Security department

SPACE	UNITS	AREA/ sqr m
Chief Security Officer	1	42
Secretary to CSO	1	10
Police and SS	1	90
		Total = 142

Protocol Department

SPACE	UNITS	AREA/ sqr m
Head of Protocol	1	48
Secretary	1	10
Assistant Protocol Officers	1	72
Office for supporting staff	1	52
PRO	1	42
		Total = 224

General services

SPACE	UNITS	AREA/ sqr m
Supporting staff	1	56
Special Adviser	1	72
Secretary	1	35
		Total = 163

Others

SPACE	UNITS	AREA/ sqr m
Council Chamber	1	150
Cabinet Secretariat	1	42
Private Lounge	1	60
Police	1	9
Special Security	1	9
ADC	1	9
Executive Parking	1	52
Toilet Facilities		88
Stores	3	12
Tea room	1	16
Multi purpose hall	1	363
Projection room	1	18
Private Secretary (PPS)	1	49
		Total = 828

First lady's office

SPACE	UNITS	AREA/ sqr m
Reception	1	54
First lady	1	80
Secretary	1	12
Project office	1	42
Press secretary	1	42
PA	1	25
Security		21
		Total = 276

Canteen

SPACE	UNITS	AREA/ sqr m
Dining room	2	264
Kitchen	1	42
Store	1	56
Cooks	1	12
Yard	1	70
		Total = 444

FIRST FLOOR

Governor's Office

SPACE	UNITS	AREA/ sqr m
Governor's Office	1	168
Private Lounge	1	44
Secretary	1	20
PA	1	40
Reception/ security	1	55
		Total = 327

Admin and Finance Department

SPACE	UNITS	AREA/ sqr m
Director's office	1	64
Secretary/waiting		40

SPACE	UNITS	AREA/ sqr m
Head of Admin	1	42
Head of Finance	1	42
Supporting Staff	2	144
		Total = 332

<u>SSG's Department</u>

SPACE	UNITS	AREA/ sqr m
SSG's Office	1	84
Secretary/waiting	1	49
		Total = 133

<u>Others</u>

SPACE	UNITS	AREA/ sqr m
Chief of Staff's Office	1	56
Secretary/waiting	1	35
Chief Detail Officer	1	30
Conference room	1	168
Hall of fame	1	30
Toilet Facilities		44
Circulation		160
		Total = 572

B. RESIDENCE

GROUND FLOOR

SPACE	UNITS	AREA sqr m
Entrance Lobby	1	168
Public Lounge	1	170
Private Lounge	1	88
Governor's Office	1	100
State Dining Room	1	125
Living Room	1	154
Dining Room	1	98
Bedroom	2	70

SPACE	UNITS	AREA sqr m
Closets and Bath	2	25
Kitchen	1	70
Stores	3	78
Terrace	1	150
Courtyard	1	150
Service Yard	1	50
Garage		70
Family study	1	72
Courtyard		150
		Total = 1788

FIRST FLOOR

SPACE	UNITS	AREA
Master Bedroom	1	130
Dressing and Bathroom	1	48
Library	1	50
Breakfast room	1	56
Kitchen	1	42
Box room	1	12
Games room	1	80
Family Living room	1	225
Wife’s Bedroom	2	182
Dressing and Bathroom	2	48
Living Room	2	182
Bedrooms	3	192
Bathrooms	3	30
Staircase	2	30
		Total = 1307

C. CLINIC

SPACE	UNITS	AREA/sqr m
Carport	1	18
Reception	1	30
Consultation room	2	20
Pharmacy	1	9.6
Records room	1	9.6
Injection room	1	15
Lab	1	15
Attendants' room	1	13
Nurses' room	1	12.5
General Ward	1	50
Private Ward	3	65
Theatre	1	40
Toilets/bathrooms	8	44
Store	1	6.4
Courtyard/ corridor	1	169
		Total = 517

D. MAINTENANCE OFFICE

SPACE	UNITS	AREA/ sqr m
Laundry	1	102
Office	4	70
Store	1	17.5
Generator Room	1	53
Toilet	2	10
Yard	1	55.5
		Total = 308

E. SERVICE QUARTERS

SPACE	UNITS	AREA/ sqr m
Bedroom	12	177
Bathroom	6	24
Kitchen	6	29
Yard/ veranda	1	285
		Total = 515

F. GUEST CHALET

SPACE	UNITS	AREA/ sqr m
Living Room	1	125
Bedroom	2	180
Closet and bathroom	2	37
Kitchen	1	16
Store	1	7
Terrace	1	35
		Total = 402

G. GAMES AREA =19500 sqr m

TOTAL BUILT-UP AREA = 9505 sqr m

TOTAL AREA OF SITE = 377 000 sqr m

CHAPTER SEVEN

DESIGN REPORT AND CONCLUSION

7.1 THE FORM

The concept of the form of this building was developed from the shape of a bull's head which is the logo of Gombe State. It signifies the Fulani heritage of the state.

This bull's head shape if abstracted properly could allow for a unique design that allows for easy ventilation because of its many external walls and having a core for a possible introduction of a courtyard. It also has the advantage of having short distances between spaces and being applicable to office and residential buildings. Another advantage is it gives room for recesses and projections where applicable.

Fig. 11 Gombe state logo

7.2 SITE PLAN

Most of the attempt at achieving the aim of this work is done on the site plan. All the buildings on the site are connected by tarred roads in an indirect pattern. This makes it possible to screen, filter and direct visitors at every junction. The site is zoned in such a way that one comes in; the first thing to be seen is a large roundabout, this serves as a focal point in the complex. Around the roundabout are parking spaces, some landscaping elements and a spread of green lawn. Apart from being appealing to the eye, this lawn can be used for any political or social gathering.

Beyond the lawns is the main office which is the most attractive and most dominating building in the complex. This gives it the air of authority required. Towards the west of the roundabout is a rally ground with a grand stand for political gatherings and other outdoor events. All the above mentioned functional spaces make up the public zone.

Further into the complex is the semi-public zone where the clinic, maintenance office, some sports facilities and guest chalets are located.

Located deepest into the site is the residence of the Governor with a private pool, sit-out and private garden. The residence is screened from the public by the office building, thereby giving it a certain degree of seclusion and privacy. From the residence, a road leads to an exit to a minor road. This exit can serve as an entrance to the residence or a discrete or emergency exit from the complex for the Governor and his family.

7.3 THE ELEVATIONS

The elevations are the result of a merge of modern architecture and cultural elements. In the recognition of the requirements of the building's appearance rising from its function, dignity and grandeur, an attempt was made to bring out the monumentality and air of authority it is supposed to exude.

To achieve the cultural effect, elements have been used in features imitating the shape of an inverted calabash and the calabash mosaic has been made on the walls using plaster.

7.4 SUMMARY

The need for security in a Government house cannot be over-emphasised. On the other hand, the need for openness in this system of Government has an almost equivalent importance. Therefore, to achieve both conflicting entities, a balance has to be attained.

To understand the level of security or openness to be implemented, one has to understand how a Government house operates and the changes that have taken place in the types of operations since the change of Government from military to civilian. Interviews, study of existing literature and case studies were taken to obtain such information. It was found out that apart from the normal official activities that take place, the Government house now hosts some political activities like rallies, courtesy calls and visits by party members for a number of reasons. Armed with that information, parts of the complex that need to be open and those that need to be secluded and to what degree were identified and solutions were sought for.

Thus, to implement security and openness in a harmonious way, architectural tools like zoning and site planning have to be used. These tools on their own achieve the aim to a

certain degree and they also aid extra security measures like electronic security systems and manpower security.

With all these information and tools at hand, a design that is fully equipped to accommodate the present needs of a modern, democratic Government house was made.

7.6 CONCLUSION

Having clearly understood the utmost importance of security in a Government house based on the activities take place there and the importance of the Governor himself and the calibre of people that associate with him. This research has also opened its mind to the need to render this Government house open to the public as required by the present system of Government.

To achieve the aim of producing a good design, the information acquired in this research were put to use. Based on these findings, areas with major security conflict were identified to be the offices, clinic and guest chalets. But with proper planning and appropriate zoning, this conflict is greatly reduced.

Therefore it is the conclusion of this research that:

a) As much as the Government house is supposed to accommodate a lot of activities relating to the Governor, any office that can operate independent of the Government house like the Deputy Governor's office shouldn't be located in the complex. This minimises the amount of people that will have to come into the complex thereby reducing security risks.

b) There should be a provision of outdoor functions and activities in form of lawns or amphitheatres situated in a place where people can easily be

monitored. These spaces can be used for certain political gatherings, outdoor galas and Children's' Day and Independence Day parties held by the first lady.

c) The use of indirect access between functions helps to control and restrict movement of people from one point to another.

d) Ideally, a Government house complex shouldn't have more than two entrances/exits. This is because they can easily be guarded efficiently and they give adequate room for privacy and discreteness.

e) The architecture of any Government house should be grand so as to be recognised as the seat of power. It should also feature in its form or elevations elements the people of that state can identify with.

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