



Theory and Design for the Contemporary Residential Buildings: A Case Study of Kano Metropolis, North-western part of Nigeria

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ABSTRACT

In recent times, the desire for foreign, taste, in terms of building form, aesthetics, elevations and materials has brought, the neglect in the use of local building concept and materials, this neglect is not unconnected with the colonial masters' influence and the modern trends of innovation diffusion through the imposition of new models and materials on Africans traditional building. Consequently, having succeeded in creating lack of faith in the durability of these local materials, its attributes and local construction techniques in our society, this study attempts to highlight the current trends in the transformation of *Hausa* traditional residential architecture, the emerging new architectural design theory, and data as an alternative traditional *Hausa* residential architecture. However the findings reveal that Kano people or craftsmen attempts to achieve an equilibrium between the concept and materials in both traditional and modern materials in the provision of present day housing for the low income both in rural and urban communities., hence improving the durability and sustainability of new Contemporary archetype or building, through new and improved concepts, building material, and construction techniques.

Keywords: *Hausa* Traditional Architecture, Design Theory, Kano Metropolis and, Contemporary archetype

1. INTRODUCTION

Human residence is a unit of societal existence that is been evident in one form or the other. Right from the inception of humanity, man has been deeply affected and consequently conditioned by his natural environment. He sheltered himself in trees, caves, huts, etc., as it was evident in the pre-historic times. The quality of a shelter or residence is relative, or a matter of opinion. Shelter or a residence is any place where a person resides, and gets a protection against weather element, a source of protection from enemies and enjoys personal privacy together with other elements. Every man is deeply affected and consequently conditional by his interior environment. He cannot escape the cumulative effect that would eventually affect his style and character. The architect or designer is in a sensitive position, which makes him to realize his societal responsibility both to the individual client and to the contextual expression and projection of the evolution of life itself.

The design of a residential space in contemporary *Hausa* residential building archetype must express the essence, character, culture, beauty and rhymes of contemporary living within its own context. A successful designer is the one who is able to adequately assimilate all the clients' requirement and limitation and logically come out with a design which represents the following primary consideration:

- I. Firstly – the design must represents adequately, the essence of the interior from the exterior appearance of the building, (form follows function).
- II. Secondly – the symbol must be adequately captured, the essence of taste as it relates specifically to the client, such that the design of residential space appears fundamentally easy, thirdly the

ability of the architect or designer to create an atmosphere, conducive to the inhabitants way of life depends largely on his ability to comprehend the clients imagination and transform them into reality and a logical conclusion. However, it should be noted that, this conduct of thinking process which has been logically and intuitively developed to its maturity. In satisfying the result that requires no pre-conceived ideas aside from the essence of functionality, and confortability of a building form.

1.1 Aims and Objectives

This study aim at highlighting the current trends in the transformation of *Hausa* traditional residential architecture, the emerging new architectural design theory, and data to secure a habitable building of medium aesthetic value, serving domestic purposes, hence the objectives is essentially concerned with providing a homes that will satisfy the occupants' needs, and effectively meet the changing need of the occupants over a period of time. Invariably this serves as a basis for design data, for use in planning building, layouts and furnishing, with adequate clearances to allow comfortable accommodation and activity.

1.2 Influence of Culture and Religion in Design of Residential Space

Culture and religion plays a prominent role in the design of residential houses. This determines the adaptability of any design to the people (clients) needs. Any successful design must be accurately conceived within the context in which it exists. However, culture is an issue that affects people to various degrees depending on several factors. For instance, the family size will determine several issues, such as the space required, their size and the interrelationship between them, in some cases, it requires complete separation of living space. Based on religious injections female (wives) areas are located behind the male (master) rooms called *Haremlik* spaces and *Salemlik* space i.e prohibited and unprohibited spaces respectively.

Moreover, the influence of religion and traditional is also noticed in the zoning system for privacy such as areas for public, semi-public and private; that is restricted and unrestricted spaces for guests, where as boys and servants areas, are referred to as semi-public, public for guests and private strictly for the family where the word "*Ba shiga*" is implied. These areas are completely inaccessible. However, the guest's areas are accessible; the master's wing remains to be the quiet zone; where as the family is semi-noisy and the public (guest) is the noisy zone of the compound.

1.3 Traditional Hausa/Fulani Residence

Umar (1997) reported that; Traditional Hausa/Fulani buildings are constructed from all pervasive and readily available local materials, such as, timber, grasses, thatch stone and mud, built in mud walls covered with timber or thatch roof, with small openings for good air circulation and ventilation, floor are usually finished with traditional mud materials, known as "DABE". Rooms shapes are in curvilinear or rectilinear shape, surrounded by a thatch or mud wall compound fence, the size of the compound depends largely on the family size or the number of wives, of the compound head, its conceptually divided into family sleeping area, compound heads area, cultivation and rearing of animals area, the entrance and guests area are related to the environment in a cluster of shelter Which subsequently formed a settlement.

1.4 Normative Standards and Construction Materials

Popoola (1982) reveled that; the, traditional customary ways of designing and building Hausa/Fulani house is usually influenced by many factors, such as the family size, socio-religious factors, building materials and construction method, the first term brought about variation in building type in relation to plot size, the second under the influence of Islamic tradition that has disciplined the planning of residential building by the law of segregation of sexes and privacy etc, this has significantly influence the planning of houses.

However, the design theory may not be in a good position to achieve a good plan unless, it include revised version (case studies) of traditional architecture, and a link should be created between the traditional and the contemporary typologies.

Traditional *Hausa/Fulani* houses are sensitive to climatic reason, usually maintained and reconstructed in any of the three, distinct seasons, rainy, hot and dry, season due to the pervious nature of local materials (mud and *azara*). The designer should consider the use of 'contemporary' materials popularly used in

most of the Hausa traditional building, these includes cement blocks, timber and zinc roofing sheet, cement wall, floor finishes metal door and windows and azara (African Decking in upper floor).

1.5 Design of contemporary archetype

Literature on design methods and theories began to appear in the 1950s and 1960s, initially it was a rare description of craft evolution of literate and craftsmen of the ancient artistic time (Sturt 1923), a few quotations quickly gives insight into reasons and process by which the works of craftsman are governed.

A common feature of both criticisms of traditional methods and the proposals for new ones is in the attempt to isolate the essence of designing and to write down standard method that can be relied upon in all situations. Some recent philosophers defined and describe design as funding the right physical component of a physical structure (Alexander 1963), a good and direct problem solving activity (Archer 1965), Decision making in the face of uncertainty with penalties for error (Assimowo 1962), the condition factor for those parts of the product which came into contact with people (Farr 1960). However, Gugeloy (1963), wrote a practical and successful design methods, as information stage, and model making stage; and virtually every stage displays typical characteristic and inter-relationship, these should be the tentative steps to follow and they relates to the definition of theories in order to achieve a definite 'design theory' for a Hausa/Fulani residence.

2. MATERIALS AND METHODS

For the concept to be developed or improved to certain standards, in order to achieve a possible design theory for a residence of a family, the design has to be viewed in three parts or process consisting of an initial state, a method or processes of transformation and an imagined future stage. These components will identify the existing concepts, process, and the method for achieving and implementing the solution, through compliance with building bye-law and regulations. Perhaps, it is noted that, people have been planning and building in Hausa/Fulani community for a long time using local concept and materials by locally and inherited skilled craftsmen (Sa'ad 1986), called traditional 'magina' this shows the origin or architectural design of Hausa traditional buildings which predate the first architect of Hausa traditional buildings.

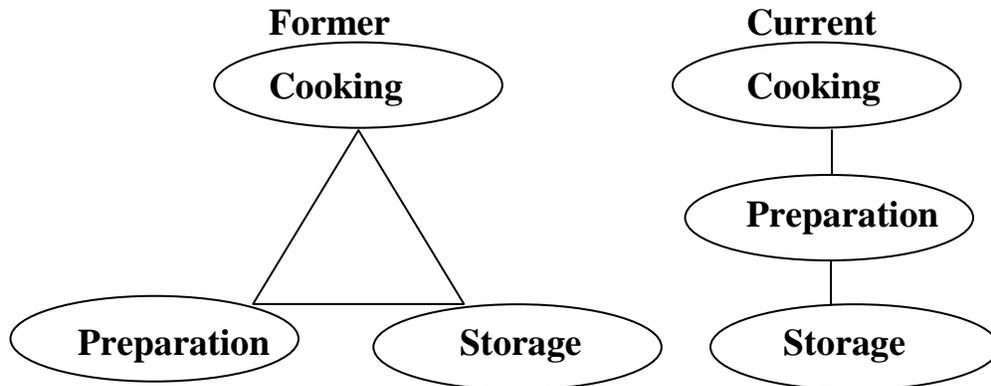
2.1 Design Theory and Data for Contemporary Archetype

Design in the context of architecture, is simply the ability of generating proposals that may change something that already exists into something that is better. For a Hausa/Fulani family the residence is primordial, that is there exists a concept or a theory that, satisfies the need of a sample shelter or a residence as presented by other researchers.

Theories' are general statement dealing with, 'what Architecture is', what architecture should accomplish, and how best to design. Theories and history have always been essential to the study and understanding of Architecture. The theories are concerned with the identification of key variables like space, structure or social process in terms of which building should be seen or evaluated – Bruno Zevi advocates a 'theory of architecture, in which a space is the fundamental ingredient, to grasp a space and to know how to see it, is the key to the understanding of building.

2.2 Design consideration in space

Similarly, various room sizes are determined generally by the functional items or furniture to be used within the various rooms such as bedroom, kitchen, living room etc. and each space has its determinants i.e. in the room. the bed furniture, wardrobes, reading table (and seating) where applicable, and in the kitchen are the storage facility, preparation area and cooking area, which has a triangular working relationship.



However, in the modern day same design central courtyards systems are introduced as against multi-courtyards for ventilation and household activities and straight or L shape foyer (Zaure) are used nowadays, as in the case of biggest and series of Foyers (Zauruka) used for guests as against the present guest room with toilets accessed through living rooms the modern day architect should design these spaces with due consideration to space, economy, and related to available plot sizes.

3. RESULTS AND DISCUSSION

3.1 Entrance Lobby (Zo Ka Wuce)

Entrance lobby, in contemporary Hausa Residential Building serves as means of entrance and exit of the house, only for circulation, therefore it should be kept to a minimum as presented below: the common types are I, L, shapes with entrance door directly on opposite sides or at on the extreme end of the parallel walls. The entrance lobby should preferably adjacent to the exterior room by the extreme end, directly accessed to the courtyard or any room space.

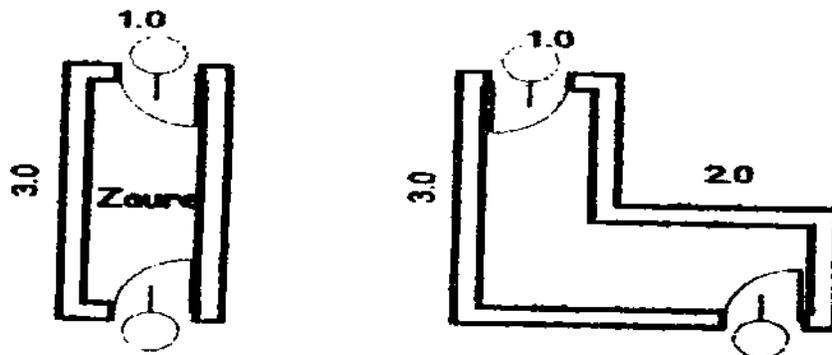


Figure 1: Entrance Lobbies

Source: Author's Field Work, 2011.

3.2 Master Bedroom (Dakin Mai Gida)

The master bedroom usually contains only a bed space, praying area, possibly two seats, and a cabinet, with a self-contained toilet. The praying area/ space usually face the direction of the east with one or two windows for ventilation and lighting.

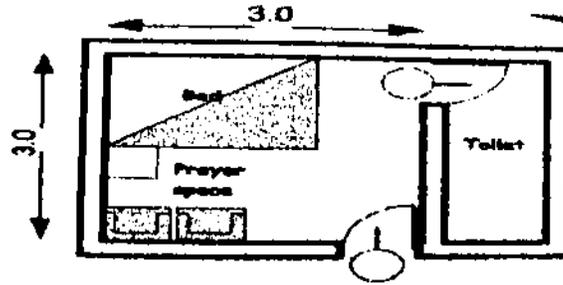


Figure 2: Contemporary Master Bedroom

Source: Author's Field Work, 2011.

3.3 Bedrooms (*Dakuna*)

The activities that usually takes place in bedrooms includes, sleeping, storage for clothing in wardrobes and dressing area, personal care, reading and writing, sometimes video and audio relaxations. Four (4) categories of bedrooms were identified, the master, the wife, children (male/female) and the guest where available. The first two types of bedrooms have hardly any significant difference in size, design, and furniture, accommodation as elaborated.

However, from the average room sizes presented, the minimum requirements for furniture and space are prescribed, if occupants are to be comfortable and conveniently carryout their normal bedroom activities. Cabinets should be provided in front of and around the furniture, all the time.

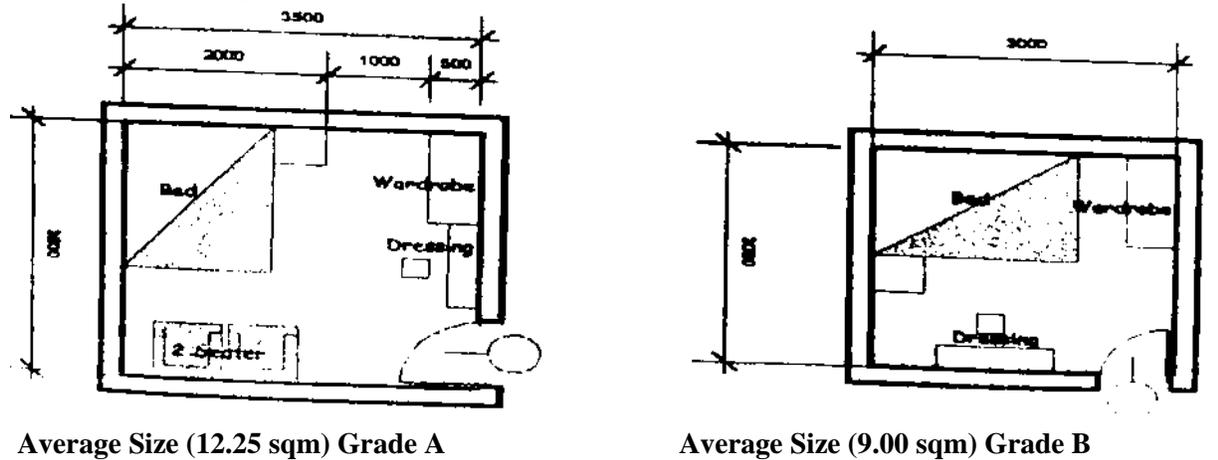
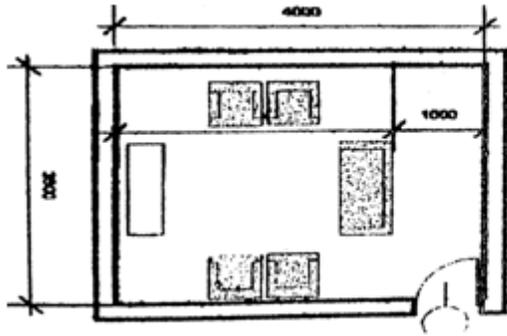


Figure 3: Contemporary Female Bedroom

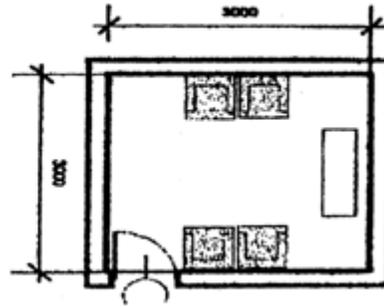
Source: Author's Field Work, 2011.

3.4 Living Room (*Falo*)

Basically, a living room is the most impressive and the largest of all rooms and should be conducive to general family gust entertainments and group **activities**, as well as individual relaxation, entertaining, reading, writing, reception etc. two common types were identified (i.e. the wife and master living rooms).



Master Living Room



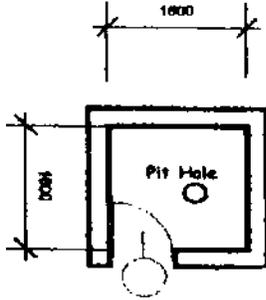
Guest Living Room

Figure 4: Contemporary Living room samples
Source: Author's Field Work, 2011.

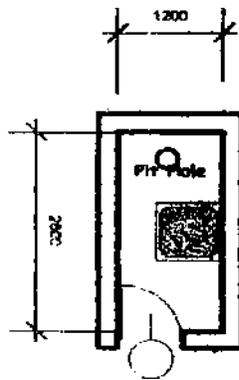
Living rooms are expected to have efficient natural lighting and ventilation system, especially in the Contemporary archetypes. Nominal sizes of window should be 1/3 of room width or size and height relative to increase in length and should be sufficient enough to accommodate furniture arrangement and circulation spaces.

3.5 Toilet: (Bandaki)

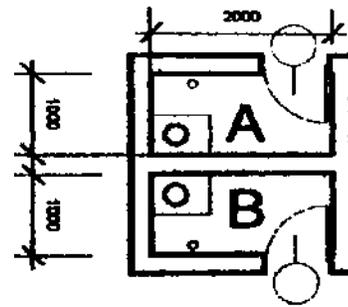
Toilet – place for bathing, easing or excreting for the health and comfort of human beings, it depends upon the size of the plot and number of rooms, the number of occupants, three (3) common types are identified, ranging from 1.0sqm-5.0sqm in square or rectangular forms, some sharing one pit with two squatting points separated partly by a wall of ceramic floor tiles finished and smoothed with special cement mortar, with a floor waste provided to drain waste water to the exterior.



Square



Rectangular



Semi-Detached

(A- For the family while B – For the guest)

Figure 5: Contemporary toilet samples
Source: Author's Field Work, 2011.

3.6 Courtyards (Tsakar Gida)

Courtyards should be functionally designed to serve dual purposes; lighting and ventilation, likewise circulation, and other household activities, and partial landscaping for thermal comfort. It's expected that; Functional Contemporary courtyards should not be less than between 9 – 12sqm in ordered to achieve the proper flow of air/wind into the room through available openings in the building.

The serve according to plot sizes and the number of rooms required. The common types are straight, rectangular, L shape, or square shape, the size ranges from 4sqm-16sqm, finished with ordinary floor cement screed with opening to rooms' spaces, accessed from the courtyard.

It is appropriate to have courtyard surfaces finished with light and soft finishing materials to avoid surface solar radiation, and to provide a sufficient roof eave of 400mm-600mm in to serve as shading devices order to control unnecessary wind and rain influx to the building.

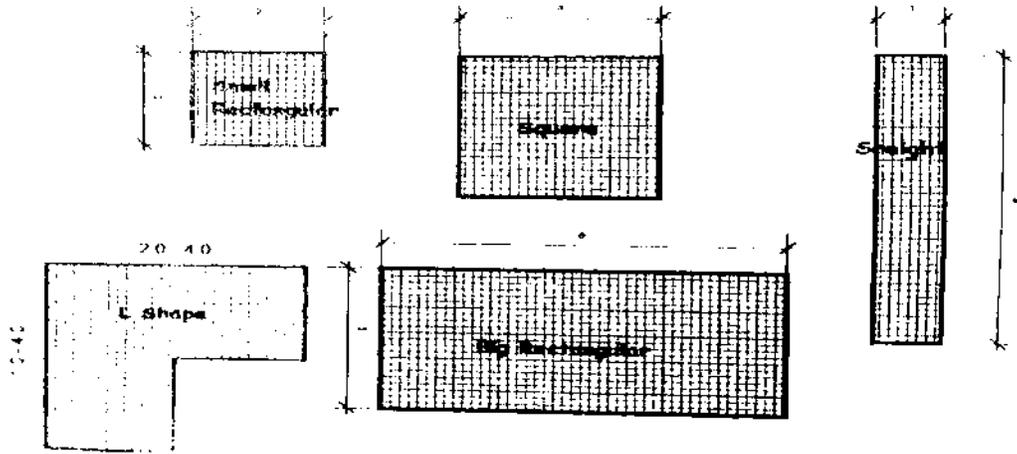


Figure 6: Contemporary Courtyard samples
Source: Author's Field Work, 2011.

3.7 Kitchens (*Kicin/ Dakin Girki*)

One of the primary functions of the Contemporary kitchen is to provide a space for cooking, using kerosene stove, fire wood, coal stove, and gas cooker, etc., and partially a storage space for food stuffs, utensils etc. Three common types have been identified from the four categories of samples and averages sizes computed as Grade A, B and, C.

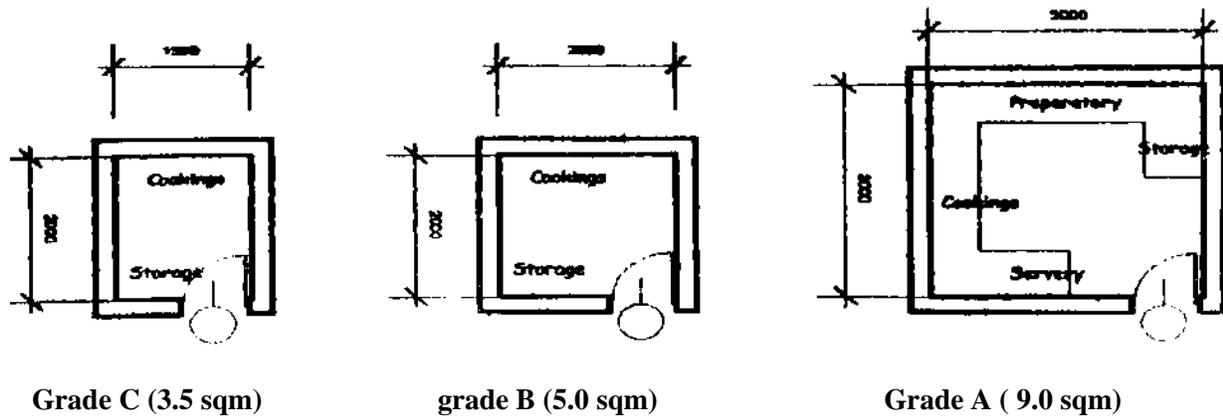


Figure 7: Contemporary kitchen samples
Source: Author's Field Work, 2011.

The kitchen design should be functional in order to ease reaching and stooping of a cabinet, that serves as storage facilities, it should not be higher than head clearance of a person from the floor, the working areas should be kept compact, likewise the kitchen arrangement, storage, working space, should permit a comfort safety and working posture.

It should be noted that most Contemporary kitchens are linear or L shape types, with average sizes ranging from 3-9sqm, with a few cabinet in local setting the floor to ceiling heights is normally 3.0m with

smaller or no window opening, ventilation sometimes is achieved through the entrance door, opening. It should have at least a high level; window if not normal window of (2.00sqm) which is almost desirable.

3.8 Lighting and Ventilation

Good lighting helps to prevent fatigue, as it promote safety and a pleasant atmosphere the recommended window size is 1/3 of wall area or size centralized; an openable window should be provided above, a the which sink for a good view, and safety and to allow a smoke from stove, or fire wood to escape.

4.0 CONCLUSION AND RECOMMENDATIONS

Conclusively the study may serve as tentative guide for the design of Hausa/Fulani traditional family residence, in order to produce sketched drawing workings, specification of materials, and other necessary documents for the construction houses or village settlements in Hausa/Fulani community, in order to improve the standard of living of the society and environment, as practically and successfully achieved in Malawi, Sudan, Egypt, Liberia, India etc.

In developing concepts and tools to design a Hausa/Fulani house, designer should consider the family size, plot size, visa-vis to increase in family by birth rate or addition of wife by the compound head, the functional subdivision of spaces by use of internal courtyards for house hold activities, ventilation and lighting requirements. Average and regular room sizes and shapes should be considered, so as to achieve a proportional and functional space for the possibility of expansion either in horizontal or vertical forms (in form of storey building) which normally serves as master's wing with future stair case at any suitable place usually in open courtyard or enclosed space. The Anthropometrics shall be used in allocation of spaces such as in bedroom, living room, kitchen entrance etc., as well as building heights the circulation in the room space and traditional interrelationship should also be achieved. The designer should also try as much as possible to relate his design to thermal and material properties of each material to be used in the house. And also initiate an architectural design alternative consideration in the use of materials like building orientation, landscaping etc., to achieve a comfortable and habitable residence.

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