Incorporating Traditional Architecture into Modern Architecture: Case Study of Yoruba Traditional Architecture

Ade Adedokun
Dept. Of Architecture Joseph Ayo-Babalola University, Ikeji-Arakeji Osun-State

Abstract
This paper first examines the characteristics of traditional architecture with particular reference to the Yorubas of western Nigeria. In this respect, the paper examines various aspects including the characteristic layout patterns of the courtyard, the functionality and general characteristics of the compound, and the unity of purpose and functions provided by the characteristics of the housing. The paper also discusses the aesthetics provided, the social services and the characteristics of environmental adaptation, for example, in the use of the materials, and the characteristics of the shapes and structures of the houses. The paper finally examines how the characteristics of these aspects of Yoruba architecture can be incorporated into modern architecture particularly with respect to the layout or pattern in the concept of genealogy based on descent relation to cultural values, and preservation of family ties. The paper also examines the functionality of the architectural patterns and layout especially with regards to socializing, recreation and productive economic activities. Adaptation to the environment in terms of local raw materials and promoting comfortable indoor climates are also the focus of this paper.

Keywords: Incorporating, Traditional Architecture, Modern Architecture, Yoruba

1.0 INTRODUCTION
A lot of documents and literature exist on traditional building forms and styles, and some of Nigeria’s rural communities still retain a lot of their traditional settlement patterns. Unfortunately, not much work has been done to explore the possibility of incorporating useful characteristics of traditional architecture into modern architecture. Osasona (2007) asserts that the process of documenting the architecture, meaning and the use of space in Africa is far from being well established by African architects, and queries the existence of an ‘African’ or a national type as a result of the myriad of cultures, and influences on the continent.

The present study therefore examines this significant aspect whereby useful aspect of traditional architecture are incorporated into modern architecture for the purpose of improving the standard of living environmental conditions of housing. The study in particular discusses the Yoruba traditional architecture with particular reference to layout plans and building forms, building materials and the socio-cultural aspects of living.

2.0 THE TRADITIONAL ARCHITECTURE

Traditional or post-traditional architecture according to Amole (2000) is the ‘brand’ of architecture that results from the traditional form, morphology and material technology evolving via a process of selective borrowing from external sources, and the ‘core’ of the original traditional dwelling is likely to endure, as the process of modification is gradual and community generated.

Gugler and Flanagan (1978) identified that the compounds were the most important elements in the traditional Yoruba town. These traditional domestic buildings have thick mud walls (cob structures between 6-12 inches), bamboo rafters or other termite-resistant timber with thatched roof construction, and room sizes based on a standard module of 10 feet (ese bata mewa) (Osasona, 2007). It is however became necessary to incorporating traditional architecture into modern architecture.
3.0 STUDY AREA

The Yorubas, one of the principal tribes in Nigeria occupy the south-western part of the country which lies within the tropical rain forest. Their land is one of the most densely parts of Nigeria with population density usually more than km2. This land consists of (a) Plateau of Yoruba land (Fig. 1) and (b) the lower Niger and the western coastal lowlands. The climate is tropical with annual rainfall of about 130—180 cm and relatively high humidity of over 60-80% throughout the year. The mean temperature is also high, usually more than 25°C. Maximum temperatures are usually more than 30°C while minimum temperatures are between 21°-25°C (Table 1). The tropical rainforests near the coast generally give way to the Guinea Savanna to the northern parts of the region.

The environmental differences are reflected in the mode of life of the Yorubas. They are also reflected in the economy. The average Yoruba man is either a farmer, a trader, an artisan or a professional. He settles in a village or town. The people have generally been living in large urban and rural communities for centuries and are well known for their peculiar social—cultural affinities. Urbanization found nowhere else in tropical Africa (Fig. 2) is prevalent and the urban population represents more than 40% of the total population of the area. They usually live: in compounds occupied by members of the same family and lineage. Thus, the Yoruba compound is a physical expression of the genealogy traced from the ancestor; It is usually of rectangular construction made up of one-storied buildings enclosing an open space. Two or more storied buildings are signs of foreign affluence. They are highly industrious, and they build dwellings that accommodate some of their indoor activities. They house their gods, which they worship and reference in their houses, because of the belief that they hold the trust for protection and prosperity.

4.0 METHODOLOGY AND DATA

Data for this study was collected through questionnaires, observations and review of literature. In this regard four villages were visited to study the architectural characteristics of some traditional buildings in these villages. These villages include Isemi -Ille and Ilua (in Kajola Local Government Area of Oyo State) and Telemi and Kuta (in Iwo Local Government Area of Osun State) (Fig. 3a, b). A total number of 100 students (including that of Architecture) (25 for each village centre) were used in this study. Various questions were drawn to give information on the traditional life of the people and to have some firsthand information on the historic past, particularly with reference to the housing construction. Among the information sought for are historical background to the compounds, the architectural designs of the houses, the characteristics of the labour force in housing construction, and the building materials. In addition, personal observations were made and oral interviews were conducted to obtain some of these information or complement data ‘obtained through the use of questionnaires. All the students used were from the villages, in addition to the practical knowledge gained by this writer by visiting the villages and having oral interviews with the villagers. The present writer also had the opportunity of obtaining information about the Yoruba traditional architecture through coordinated students design works, and experience in traditional African architecture gained from the studied villages. In addition, there are available materials on the subject in literature published by various scholars.

5.0 CHARACTERISTIC OF YORUBA TRADITIONAL SETTLEMENT PATTERNS AND HOUSING DESIGN

Yoruba people are Negroid stock of sub-Saharan West Africa. They are homogenous in culture, religion (the belief in Olodumare) and language though with variants of dialect. They spread over the South Western part of Nigeria and the neighbouring Benin Republic (formerly Dahomey) (Umoru-Oke, 2010). The several hundreds of years of existence of the Yorubas have fostered a culture that is unique to the tribe, yet intriguing. They are the second largest linguistic group next to Hausa of the northern Nigeria. Oduduwa Olofin was believed to be the progenitor of the Yoruba race (Fadipe, 1991). With the incoming
of the Europeans, its gradual move into the international community and the imbibing of modern tradition had been historically bumpy, yet with gradual assimilation and cooperation, the integration of modern culture had been allowed to occur. In spite of this integration of modern culture, the Yorubas still maintain their strong ties with tradition. This is for example the case with traditional architecture. Idowu (1982) stressed that Yoruba do not build magnificent temple for their divinities. The Yorubas build courtyard architecture (Fig. 4). The basic form is cuboidal with a rectangular impluvial courtyard, placed in the rectilinear compound. A typical compound has only a single entrance (enu ilo, ilo) into the compound which leads to the colonnaded courtyard. The rooms are rectangular or square and arranged in a linear pattern to surround the courtyard, which acts as the centre of activities or point of focus.

The household head occupies the room near the entry gate to provide surveillance and security, and show hierarchy from oldest to youngest. Sometimes two rooms (with one serving as Visitor’s room are provided) (Fig.4). The older boys occupy the corner rooms because they are bigger than the other rooms, which are allocated to the wives and -their children. These rooms have small windows and doors, which open to the verandah and the immediate courtyard. The wall plane is made of courses of mud materials, which are readily available and are usually mixed with vegetative materials such as straw, as additives and adhesives (enhance bonding). The small window openings are usually above the door lintel-level. A little above the small window openings, the wall plane is germinated and a ceiling made of mat from palm fronds or split-bamboo is placed on wood beams (lowering room and verandah) acting as reinforcement; mud is then placed on the mat as a decking material. It must be emphasized that construction takes place mostly in the dry season to accelerate dryness and currying.

A pitched pyramidal wood structure is placed to cover the ceiling (locally known as Aja using rope fibres us a tying-member. The ceiling-space is a storage area for items such as valuables (e.g. clothes), and preserved foods such as yam flour, dried core, pepper, beans, etc. The structural roof frames is then covered with woven thatched-mat.

6.0 FUNCTIONALITY

The Yoruba compound, as a whole is very functional, judging from the various gainful activities going on in them, and their interconnectedness. The compound is purposely designed to meet the various functions, according to the needs of the people. According to (Denyer, 1978:3) traditional African Architecture is primarily a personal adaptation to a group solution. Every society has its own typical style of building which has been handed over from one generation to the other all in solving the immediate problem of habitation (Umoru-Oke, 2010). In general, the Yoruba traditional architectural buildings are adapted to the socio-cultural characteristics. The living areas play specialized roles, with the rooms for sleeping and storage having small window openings, which satisfy the climatic need in allowing for lighting and keeping the place at a normal temperature. The thickness of the wall, the material mud and the ceiling, all act as thermal control regulating the thermal conditions especially during the cold harmattan season and the hot humid months. The verandah, an open-colonnaded space, allows a greater amount of light and air, which make indoor activities possible throughout most of the day and with favourable weather conditions, the courtyard is available to share part of the activities. Perceptually, there is a well-defined organization of spaces, which can be said to be a hierarchy of spaces from the sizes and arrangement of the rooms. The courtyard and the corridor spaces perfectly define two volumes of space; an outer and inner space.

Functionally, the corridor, which is better lit than the rooms, is used for indoor activities such as weaving, cooking, socializing and recreation. The colonnaded corridor (known as oode, odede), the only interior circulation and socializing place allows for visual continuity into the adjoining courtyard which is a ground for commercial (drying, weaving, carving) domestic (outdoor cooking) and recreational activities. Some goats and chickens are reared in the courtyard; pens, cages and rooms may be provided separately for the animals or sometimes adjacent to the main structure. Most compounds have wells for
domestic water supply. A small walled room is sometimes provided for bathing. The physical environment and materials are used for housing construction.

7.0 UNITY
Architecture is a reflection of the need and aspiration of its maker and user; it is predicated on the economic circumstances of its owner as understood in terms of its component motifs (Egonwá 1995). However, the corridors running through the inner periphery of the building encloses the compound in a unifying manner and is an excellent solution for air circulation within the compound. The spatial flow of the corridors is very well defined by the columns. The roof overhang above the corridor tends to reduce the glare from the sun. And as already noted, the colonnaded corridor (oode, odede) allows for visual continuity (defensible space, harmony, surveillance), in the adjoining courtyard. The courtyard is an active social space for commerce, recreation and domestic chores through which members of the family come together. Thus the corridor represents a strong physical and social centre in inter-family relationship within the strong kinship system.

The decision to analyse physical spaces, and the objects and activities together, was supported by the challenges of understanding the nature of physical space. Giddens (1984). Hillier (1996) and Hillier and Hanson (1984), stated that space is a primary element of buildings. The authors further explained that the configuration of (internal) space is a direct expression of social relations, and its key focus being the ability to move from one space to another (permeability), as well as the co-presence of people within a space. The spatial arrangement of the rooms in hierarchical order between husband, wives and children is a reinforcement of close family ties, and represents a physical expression of genealogy, with descent traced continuously from ancestor.

The head being the decision-maker, bears the risk of the compound, and can be likened to an entrepreneur in a business venture. He has his room placed closed to the entrance gate for the control and restriction of movement in and out of the compound. He is regarded as the first and most important person in the compound, hence his room is first approached. Another example is the entertainment room located closely to the head of the family’s room, and which is to allow for easy access by the head and keep visitors within the front portion of the compound for reasons of privacy.

The interplay of forms that are related perceptually defines a unifying relationship. The relationship of the size of the rooms to the courtyard and the courtyard to the whole compound also connotes a sense of visual unity. Conceptually, a sense of unity is created by the courtyard space for ceremonial activities, during which the members of the household come together as one in this courtyard. Activities are being distinctly separated. Thus one can identify the front and some part of the back as dwelling/sleeping areas, while the rear concentrates on domestic and household activities such as cooking and bathing. It simply illustrates the architecture as radiating spatial and orderly arrangement of function and spaces.

In the socio-cultural context of the corridor and courtyard also; the primary mode of achieving adaptability and functionality was through the placement of internal furnishing which allowed the space to be utilized for a variety of activities ranging from meeting, relaxation to cooking. This adaptability in architectural form helps to accommodate varying social needs. The core space of the courtyard thus enhances the interaction and sense of unity of the people, which, further reinforces the respect and cultural values they have for one another.

8.0 AESTHETICS
Aesthetically, the stucco texture of the walls is pleasing to the eyes. The harmonics effects created by the colour of the ground to the walls and the brownish thatched roof are captivating. Decorative china pots that accentuate the entrance to the rooms are equally gorgeous and this bears resemblance to Yoruba’s palace architecture, which has highly aesthetics carved motifs on doors and roof supports.
9.0 SOCIAL SERVICES

An effective utilization of space is created in Yoruba architecture in the rectilinear forms because it can be easily ordered to utilize all available spaces. A comparison between circular and rectilinear forms must have been made social/cultural before settling for the rectilinear form. The corners of the rooms equally serve as a point for shrines like Sango worshipping, and ceremonies attached to twin-babies (locally called Ojubo Ibeji).

A circular form not only results in leftover odd shapes, but also generally prevents a greater utilization of space to maximum capacity. The rectilinear form that has thus come to stay reflects simplicity just like the people that inhabit them. The basic precise geometry adopted is a manifestation and a good marriage of culture and architecture. The reasoning behind the space concept evolved from the elements of a point, line and plane, which one does not visualize physically. Unity is then created from things that are not seen. The four corners of each space is a point, which thus generates a line when a course or layer of the wall plane has been erected. This further develops to a plane and when the four planes are standing, a space is created.

Also, as already noted, most compounds have wells for domestic water, while recreational activities provide other social events.

10.0 ENVIRONMENTAL ADAPTATION

The courtyard is an effective regulator of heat. It allows the hot air to flow upwards and then outward. In addition, effective ventilation, reduction of glare from the sun and the reduction of weathering on the walls are other principal roles played by the courtyard, which also permits light to enter the compound as it is sky-lit and thus natural lighting is made use

The corridor/verandah (odede) is sheltered against weather due to the large overhangs. At the same time, it allows for indoor activities to be shaded from the sun; however, constant supply of flesh air is assured. The thickness of the banco walls enables it to function as a good heat and sound insulator and a structural stable plane. The pyramidal roof plane with inclination of 400°600, allows the heavy tropical rain to run-off faster into the jars in the courtyard, placed at the corners of the building.

The building materials for Yoruba dwellings are also adapted to the existing physical environment. Thus, the materials used are those easily available in the environment. Mud, from lateritic soils is indigenous to the physical landscape. Wood, palm fronds, and thatch materials are equally easily obtainable from the tropical rainforest. The wall plane is made of mud course, rough texture is emphasized. The roughness adds an element of strength and stability to the wall. The mud (earth) is particularly a good regulator of heat, being, a material with, a low thermal conductivity which is an advantage in the humid region. It blends with the environment and strong in compression.

Thatch, the material for rooting is arranged in layers in-between cane and placed on bamboo or thick midribs obtained from the raffia palm to form the covering. The material creates a contrast and harmony with the greens of the vegetation and reddish-brown of the earth and is an excellent thermal insulator.

The building material (mud vegetable admixture, raffia wood and bamboo) used for the construction are not only easily available in the environment, but adapt to the existing climate. The wall plane made up of courses of mud admixture given a rough texture, adds an element of strength and stability to the wall while a sense of beauty is perceived. The unevenness of the wall plane shows movement and depicts dynamism and life to the plane. The wall can be likened to a texcote finish present in today’s modern architecture to form various patterns. It blends well with environment and natural surroundings and is aesthetically pleasing. The architecture thus radiates tranquility and calmness.

The material thatch arranged in layers in-between cane or thin wood and placed on the bamboo or thick mid-ribs obtained from the raffia palm to form the covering is readily available and blends well with the greens of the vegetation arid, the brown of the earth. It is also an excellent thermal insulator. The roof
and the ceiling (locally known as Aja) give a cool interior since a lot of heat is trapped in the ceiling space.

11.0 INCORPORATING TRADITIONAL ARCHITECTURE INTO MODERN ARCHITECTURE

The above analysis of the Yoruba traditional architecture shows a lot of useful characteristics that can be incorporated into modern architecture.

The court layout or pattern reinforces the concept of genealogy based on descent with respect for cultural values and preservation of family lies often destroyed in urban centres in the new layout system which equally lacks defensible space with its emphasis on individuality, individualism destroys community spirit, aggravates social disequilibrium through promotion of residential segregation. Social anomy (crime, drug abuse, sexual, misconduct) are often associated with such informal life exhibited in the urban centres where traditional life has been abandoned. The courtyard system aside from performing such role, is equally an extension of the private space.

The courtyard in the residential layout of the Yorubas performs such functions as socializing, ceremonial and recreation; productive economic activities such as weaving and dyeing are carried on within it; it is a defensible space. It insulates the living areas from environment hazards such as smoke, noise and blight. It equally protects the traditional culture and genealogy which assists in curtailing some of the social ills such as violent crimes (murder, rape, robbery) that characterize the new residential layouts in the urban and rural centres. These characteristics are lessons that need be learnt and incorporated into modern plans and building designs.

Functionally, the building layout with particular reference to the corridor is a multi-purpose space for domestic, social and economic activities as already noted. It guarantees good visual and security control for the compound thereby satisfy the various functions and creating a strong physical and social space. The hierarchical pattern of the layout, front, (courtyard) back (dwelling units), rear (domestic activities — cooling, toilets) coupled with other aspects that modern planning and architectural designs must learn to incorporate into their system are the characteristics of functionality, use of local materials and the aesthetics. For example, functionally coupled with the use of internal space reinforces (corner, collective space, head of household’s room, wife’s room and other rooms) balance, asymetry, sequence, and order in the traditional architecture. It equally reinforces the strong family ties in a related unified manner.

The use of local material adaptable to site is good much more so since the mud used in the wall plane is a good insulator in this hot humid region. The ceiling space aside from its good thermal conductivity is a functional space used as storage. The high-pitched roof allows torrential rain of the tropics to run-off fast thereby preventing leakages. Run-off water is equally collected in pots in the courtyard for household use such as washing of clothes and bathing. All these can be adapted and incorporated into modern designs instead of the purely imparted materials, which is the most common especially in the cities. Materials and functions have thus manned to produce an architecture that is sensitive to the environment.

12.0 CONCLUSION

In this paper, the need for incorporating Yoruba traditional architecture, have been discussed. The paper in particular discusses the characteristics of Yoruba traditional architecture with particular reference to the layout plan, material utilization, structural characteristics and social service and unity afforded by the design.

No doubt, a lot of these characteristics can be incorporated into modern architecture. For example, as already emphasized, the layout with its strong focal and central courtyard; the functional use of internal
space and the good insulating material and design concept is one of the characteristics that can be incorporated into modern architecture.

In doing this, a number of problems are likely to occur. The thatched roof is easily combustible; the bamboo and wood materials are susceptible to insect attack, particularly termites which damages the material. The small window openings in the bedroom limits the rooms function due to darkness. Ventilation is equally not adequate in the rooms. The windows would have to be emerged.

With cooperation, modern professionals in the building trade, particularly planners, architects and engineers, a lot of improvement can be achieved. The professionals could.

References
