

Evaluation of facades of palaces in Abeokuta, Ogun State

Khaleedah Bolatito Jolaoso¹, Adewale Segun Alabi^{2*}, & Oluwadamilola Ajoke Alabi³

^{1,2,3}Department of Architecture, Bells University of Technology, Ota, Nigeria

Corresponding email: asalabi@bellsuniversity.edu.ng.com

Abstract: *The drive of the study was to evaluate the façade of selected palaces in Abeokuta, Ogun State to understand the extent of the reflection of indigenous heritage on palaces in Yoruba land. The specific objectives of the study were to; assess the architectural characteristics; examine the materials used to construct the facades of this palaces; examine the technologies used to construct these facades; and evaluate respondents' perception and understanding of the façade of the palaces studied. The mixed method was adopted. A case study research strategy using an observation schedule as the research instrument for the visual survey was used to obtain information on the architectural characteristics, materials, and technology used for the façade of assessed palaces. An opinion survey was employed using a questionnaire as the research instrument to solicit information on the perception of the respondents. The sample size for the study was 352 respondents. The study revealed that natural stone, concrete, ceramics, glass, metals, and paints were the materials used to construct and finish the façade of palaces in Abeokuta, Ogun State. The study also indicated that closed and open façade technological systems and mixed-mode technological systems were used in the construction of the façade of these palaces. Lastly, the study revealed that little reflection of Yoruba culture was seen in the facades. However, the Ake palace was rated highest with the reflection of indigenous Yoruba culture (MIS = 3.00), followed by Owu Palace with an (MIS = 2.90). Next was Ibara Palace (MIS = 2.87) followed by Oke-Ona Palace as the fourth (MIS = 2.82). Agura palace (MIS = 2.62) was rated the fifth palace that reflects indigenous Yoruba heritage. In conclusion, the palaces existing in Abeokuta, Ogun State, Nigeria relied more on modern materials and technology for their construction and façade to give the impression of affluence. But, the symbolic meanings of leadership and Yoruba tradition were not strongly emphasised in the facades. The study, therefore, recommends that to preserve the rich indigenous Yoruba heritage, the façade of palaces should incorporate traditional symbolic elements, and forms using modern materials and construction techniques.*

Keywords: Abeokuta, Facade, Heritage, Palaces, Yoruba

1. Introduction

Building facades are typically thought of as static components. This is true for solid walls that serve as both a load-bearing and a protective barrier (their exterior face serves as the façade). Additionally, it applies to post and beam structural systems that have lightweight curtain glass walls covering them. The inside conditions of all structures were initially kept constant by natural processes, such as ventilation and heat/moisture exchange through the envelope. These systems were open. The atmosphere was controlled manually by simply altering window openings for air exchange or drawing the curtains for sun protection (Hamida et al., 2022; Hong et al., 2019). Sandak et al., (2019) classified standard facade systems as closed and open systems and mixed-mode systems. Closed and open systems can form microclimates within buildings, particularly when there are limited opportunities for natural ventilation. To maintain a consistent artificial atmosphere, dehumidifiers, blowers, coolers, and heaters are employed. The building envelope

serves as a barrier that separates two distinct environments, with the windows remaining closed to avoid disrupting the stable indoor air conditions. Mixed mode systems consist of two modes: air-exchanged and air-conditioning modes. These modes are utilized based on the preference of the occupants. This type of system enhances the quality of indoor air, significantly decreases energy costs, and grants occupants the ability to manipulate their environment by opening windows, adjusting blinds and regulating internal temperature to a certain degree (Sandak et al., 2019).

Traditionally, facades of buildings were used to advertise their purpose, symbolic expression of religion, and the authority, socio-cultural, and geopolitical status of occupants before the introduction of other forms of communication, such as writing (Jolaoso et al., 2019). In response to new technologies and materials, the functions of façades have evolved. The word "facia" is derived from post-classical Latin (meaning human face) which evolved to form the term façade. This is constantly adapting and evolving to meet the demands of the residents (Capeluto & Ochoa, 2016; Lovel, 2013; Velikov & Thün, 2013). Façade

can be said to be the external faces of a building and a by-product of the material type employed in building construction since the internal and external surfaces are mostly indistinguishable. Due to the growing importance of aesthetics, the external layer of buildings has been refined to be more attractive to the eye. This results in the growth of architecture, which is distinguished by varied building proportions, styles, and classical orders in tandem with the advancement of geometry and mathematics. Also, more modern applications of lightweight façade and heavy-weight façades such as prefabricated systems, traditional systems, External Thermal Insulation (ETI) systems, and rain screen cladding are explored. Traditionally, the exteriors of the building have been used as symbolic expressions of religion, and the socio-cultural and geo-political status of inhabitants (Bello & Jolaoso, 2017). Traditional façades use traditional building materials such as brick, wood, stone, ceramic, or ethnic rendering (Roselló, 2020; Creang et al., 2010; Söffker & Deplazes, 2005; Wilson, 1997).

Yoruba Palaces

A palace is a huge and impressive structure that serves as the official residence of a king, pope, archbishop, and other dignitaries (Ng, 2022; Calic, 2019). In Yoruba land, the palace is occupied by the king and is distinguished by many courtyards surrounded by housing units (Agboola, 2021; Anifowose & Olatubosun, 2020). The courtyards allow for both public and private activity (Umoru-Oke, 2010). Yoruba palaces were constructed in such a way that a neighbourhood could be accommodated (Akin-Otiko, 2021). They are traditionally expected to be a representation of the kings' wealth, power, opulence, cultural properties, and beliefs (Sabr & Janoory, 2019). Palaces in Yoruba land are typically ornate with carved columns, doors, and stone, pebble, seashell, and cowry shell paved floors (Àmòlè & Fòlárànmí, 2017). Yoruba traditional monarchs' political, social, and religious beliefs are reflected in the exceptional architectural excellence of these palaces (Àmòlè & Fòlárànmí, 2017). Figure 1 shows a view of the façade of an old Yoruba palace design.



Figures 1 a, b, c. View of the façade of a traditional Yoruba palace, decorated carved door, and pillar post.

Source: Fajuyigbe & Okunade, (2015)

Studies show that colonization, urbanization, and Western education have brought about changes to the façades of palaces in Southwest Nigeria (Ikudayisi & Odeyale, 2021; Bello & Jolaoso, 2017; Osasona, 2012; Chokor, 2005). This study therefore examined the architectural features and elements that make up the façade palaces in the city of Abeokuta, Ogun State, Nigeria by addressing the following questions.

- i. What are the architectural characteristics of the façade of palaces in Abeokuta, Ogun State?
- ii. What are the materials used to construct the façade of palaces in Abeokuta, Ogun State?
- iii. What are the technologies used to construct the façade of palaces in Abeokuta, Ogun State?
- iv. To what extent do the façade of the palaces in Abeokuta, Ogun State reflect indigenous Yoruba culture?

2. Study Area

Abeokuta is the capital of Ogun State in Nigeria and is located at latitude 7°09'21" N and longitude 3°02'42" E. It has an elevation of 66m above sea level, an area of 808 km², and a population of 451,607 people according to the 2006 census. It is located on the east bank of the Ogun River, near a group of rocky outcrops in wooded savanna, 77 kilometers by rail or 130 kilometers by water north of Lagos. There are five (5) kings resident in

Abeokuta. These kings relocated from their nearby towns and constructed palaces in the city centre due to wars/conflicts that threatened the existence of their towns and royal lineage. These palaces are Ake palace, Agura palace, Oke-Ona palace, Ibara palace, and Owu palace. See Figure 2 for the map of Abeokuta showing the locations of the five palaces and Figure 3 for the views of the 5 palaces.



b. Agura palace



c. Oke-Ona palace



d. Ibara palace



e. Owu palace

Figures 3a-e. Views of the five palaces in Abeokuta, Ogun State, Nigeria
Source: Authors fieldwork, (2021)

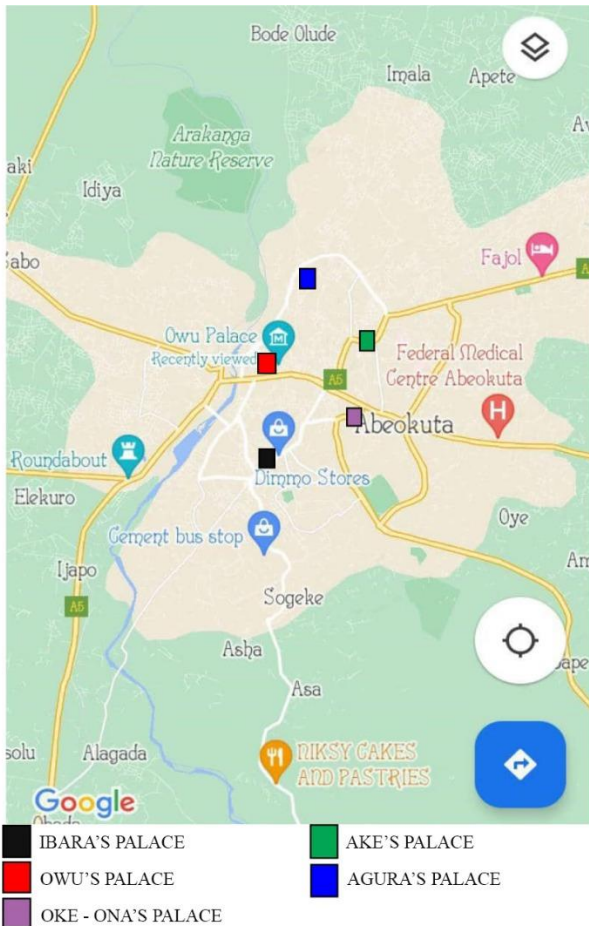


Figure 2. Map of Abeokuta, Ogun State, Nigeria showing the five palaces' locations.
Source: adapted from (Google Map, 2022)



a. Ake palace

Abeokuta is known for agricultural activities which lead to the production and sale of palm oil, kolanut, lumber, natural rubber, yam, rice, cassava, maize, cotton, shea butter, and other fruits (Aromolaran et al., 2020). Cocoa, fruits, palm products, and kola nuts are major exports from Abeokuta to other countries. Rice and cotton were introduced as agricultural produce in the 1850s and have become a very important part of the economy. Abeokuta is also known for commercial activities such as tourism (Olumo rock), and the production and sales of Adire (Batik, and Tie and Dye).

3. Research Method

This study employed a mixed method of research. The qualitative research approach used case study research strategies and sought to gain an in-depth understanding of the cultural and historical significance of the facades, the architectural characteristics of the palaces, materials used to construct façade, and technology employed in the construction of this façade. Data were collected through site visits and interviews with elders considered custodians of Yoruba custom knowledge. While the quantitative research approach employed data gathered through a survey method using a simple random sampling method and a questionnaire tool. This data was analysed using descriptive analysis. Site visits allowed the researchers to conduct a visual inspection of the facades of the palaces and to document any notable architectural features, materials, and construction techniques used. Document analysis was employed in the examination of historical records, photographs, and architectural plans to gain a better understanding of the evolution of the facades over time.

To examine the materials used to construct the façade of palaces in Abeokuta, Ogun State, and to evaluate the technologies used to construct facades of palaces in Abeokuta, the case study method was adopted and the non-participant observation technique was employed for data gathering. Pictures were taken and the data collected was analysed using content analysis. Finally, the survey method was used to gather data on people's perception of the façade of palaces in Abeokuta, Ogun State by randomly distributing pictorial questionnaires and analysing the data collected using descriptive analysis. The summary of the research design is shown in Table 1.

Table 1: Summary of Research Design

S/N	Objectives	Data Gathering	Data Analysis
1	Assess the architectural characteristics of palaces in Abeokuta, Ogun State.	Case Study using visual survey	Content Analysis
2	Examine the materials used to construct the façade of palaces in the	Case Study using visual survey	Content Analysis

study area.

3	Examine the technologies used to construct the façade of palaces in the study area.	Case Study using visual survey	Content Analysis
4	Evaluate respondents' perception and understanding of the façade of the palaces.	Survey Method using a questionnaire	Descriptive Analysis

Cochran's formula was used to derive a sample size of 385 from an infinite population. Thus, a total of three hundred and eighty-five questionnaires were administered to random respondents. 5-point Likert scale and close-ended questions were employed in the design of the pictorial questionnaire. A section requested the demographic information of respondents such as age, gender, level of education, and ethnic group. While another section was used to obtain the perception of people on whether the palaces in Abeokuta reflected indigenous Yoruba culture. The survey had a 91.4% response rate (352 valid responses), which met more than the minimum requirement, as a response rate of 50% is adequate for analysis and reporting social science research (Mugenda & Mugenda, 2003). Statistical analysis was done using descriptive statistics. Specifically, the frequency, cumulative percent, and mean item scores (MIS) were calculated.

4. Results and Discussion

4.1 The architectural characteristics of the palaces

The first objective of the study was to assess the architectural characteristics of the palaces in Abeokuta, Ogun State, Nigeria. All palaces were observed to be low rise with one or two suspended floors. The roof styles remain traditional, having either gable or hip roofs. Only one which is Owu Palace had a parapet. The architectural style used is predominately contemporary. These findings corroborate observations by Ikudayisi & Odeyale, (2021); Bello & Jolaoso, (2017); Osasona, (2012); and Chokor, (2005) that colonization and urbanization have affected the architecture of Yoruba land, especially their façades. Ancient traditional palaces were bungalows, using locally

sourced materials such as clay and wood for their façade, and had traditional style roofs of hip or gable. Wall decorations were mainly motifs moulded with clay or made from arrangements of pebbles, shells, or any other naturally occurring materials while columns, doors, and windows were mostly made from wood-bearing decorative carvings. Table 2 presents a summary of observations of the architectural characteristics of the palaces.

Table 2. Architectural characteristics of the palaces

S/N	Palace	No. of floors	Roof Style	Architectural Style
1.	Ake	2-floors	Gable	Afro-classical
2.	Agura	3-floors	Hip	Contemporary
3.	Owu	3-floors	Hip	Contemporary
4.	Ibara	2-floors	Hip	Contemporary
5.	Oke-Ona	2-floors	Parapet	Contemporary

Source: Field Survey, 2021

4.2 The materials used to construct the façade of the palaces

The first objective of the study was to examine the materials used to construct the façade of the palaces in Abeokuta, Ogun State. To achieve this objective, a non-participant survey was used. The palaces were visited, pictures taken and the materials used were identified with the use of an observation schedule. Table 3 shows the materials used and a description of how these materials were employed.

Table 3. Materials used for façade

S/N	Materials	Descriptions
1.	Natural stone	Stone was used to highlighting the edges of the middle floor and was painted for dramatic impact on Ake palace.
2.	Concrete	Concrete is made up of a mixture of fine and coarse aggregates and used for beams, and columns in all five palaces.

3. Ceramics Fully vitrified ceramic tiles were used to make the entrance to this palace quite a grad and imposing on Ake palace.
4. Glass Glass, a modern material, is extensively used for windows in all palaces.
5. Metals Metals especially steel were used for the gate, burglar bars, and doors while aluminium was used for the window frames on all five palaces.
6. Coating and Painting Coating and painting are applied for functionality and decoration. Three of the palaces – Ake palace, Owu palace, and Oke-Ona palace were painted largely with white paint while Ibara palace had façade elements painted in white. White is a revered colour in Yoruba land signifying purity and spiritual strength.

Source: Field Survey, 2021

Hence, the facades of the five palaces in Abeokuta are predominately made from natural stones, concrete, ceramics, glass, and paints.

4.3 Technologies used to construct the façade of the palaces

A summary of the findings of the second objective which was to examine the technologies used to construct the façade of the palaces in Abeokuta is presented in Table 4. All five palaces make use of mixed-mode technological systems. They are fitted with air-conditioning systems and windows which can be closed or opened to control the microclimate and the introduction of the outside world into the buildings at different times. The façade of the palace is thus opened to the outside world during specific times of the day and year. Before the introduction of modern technologies to control the microclimate within palaces, the external walls of traditional palaces were sheltered with deep eaves which help to keep the interiors cool. This traditional system was not seen in any of the Abeokuta palaces studied.

Table 4. Technologies used for façade

S/N	Technologies	Descriptions	Ref.	Ake	Agura	Owu	Ibara	Oke-ona
1.	Close and open façade technological systems	Introduces a heating, ventilation, and air-conditioning (HVAC) system that provides a variety of options for controlling the microclimate of buildings, including humidity, temperature, air cleansing, and air circulation.	Sandak et al., (2019)	x	x	x	x	x
2.	Mixed mode technological systems	The process of opening the façade of buildings to the outside world during specific times of the year.	Sandak et al., (2019)	√	√	√	√	√

Source: Field Survey, 2021

4.4 Respondent's perception and understanding of the façade of the palaces

The study also establishes the respondent's perception and understanding of the façade of the palaces in the study area using the respondent's opinions. Thus, addressing the third

objective. A mean Item Score (MIS) based on a five-point Likert scale was adopted to achieve the objective. The indices were then used to determine the rank of each palace in the study. Ake palace rated highest with the façade that reflected indigenous Yoruba culture the most. Followed by Owu, Ibara, Oke-Ona, and Agura palaces respectively. See Table 5.

Table 5: Mean Item Score of the Palace Façade

Palaces in the Study Area	N	MIS	Rank
Ake Palace	352	3.00	1 st
Agura Palace	352	2.62	5 th
Owu Palace	352	2.90	2 nd
Ibara Palace	352	2.87	3 rd
Oke-Ona Palace	352	2.82	4 th
Valid N (listwise)	352		

5. Conclusion and Recommendations

The study evaluated the façades of selected palaces in Abeokuta, Ogun State to understand the extent to which the Yoruba indigenous heritage was represented. From the findings, it could be inferred that various modern materials using different technologies were used in the construction of the façade of the palaces. These palaces give the impression of affluence and spiritual power but not all had a significant reflection of indigenous Yoruba culture. The study inferred that the Ake palace reflected the most indigenous Yoruba culture among the five studied palaces.

Based on the findings, the following recommendations were made;

- i. Since natural stones, concrete, ceramics, glass, metals, and painting were used in the construction of the palaces façades and are observed to be quite durable materials, their use should be adapted to reflect Yoruba culture by actively using them for motifs and columns depicting traditional symbols of palace façades.
- ii. The study revealed that the mixed mode technological system was used in the construction of the palaces' façades. It is therefore recommended that this system can be further employed in a way that would reflect

Yoruba culture and other symbolic expectations of a palace.

iii. Arising from the conclusion that Ake palace most reflects indigenous Yoruba culture in the study area, it is recommended that deliberate design approaches should be made to encourage the preservation of Yoruba culture through the façade design of special buildings such as palaces.

iv. Many palaces in Yoruba land have a rich and complex history, and the facades often reflect this history through changes in architectural style and design over time. However, despite these evolutions, the cultural value should be preserved.

v. The preservation and restoration of palaces facades is a key issue in the evaluation of these structures. This includes understanding the materials and techniques used in their construction, as well as the challenges and best practices for preserving them for future generations.

vi. The aesthetic value of palace facades is often a significant factor in their evaluation. This can include considerations of design elements, such as symmetry, proportion, and the use of decorative elements that is particular to the locality.

vii. The function of palace facades has changed over time, from providing protection and privacy to serving as a symbol of power and prestige. Evaluating the effectiveness of the facade in fulfilling its intended function is an important aspect of the evaluation process.

In conclusion, the evaluation of palaces' facades is a complex process that takes into account both the historical and cultural significance of these structures, as well as their practical considerations for preservation and adaptation to modern use. As palaces are sometimes repurposed for modern uses, the evaluation of their facades must also consider their adaptability to new uses and functions. This can include considerations of accessibility, energy efficiency, and modern safety requirements.

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