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Exploring the Construction Choices and Material Choices at the Trade Fair Complex Lagos Badagry

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ABSTRACT

The Lagos Trade Fair is one of the most significant trade exhibitions in West Africa, serving as a platform for international business exchange and showcasing Nigeria's economic potential. The fair's origins can be traced back to the post-independence period, during which Lagos emerged as the commercial capital of Nigeria. Over time, the fair became a symbol of Nigeria's aspirations to engage in global trade, particularly as the country sought to diversify its economy beyond oil. However, the fair's move from Lagos to Badagry marks a significant shift in both the location and the economic development priorities of the country.

Badagry, historically known for its role as a center for trade and its proximity to the Atlantic Ocean, provides a new and promising venue for the fair. This move was aimed at relieving congestion in Lagos and bringing economic benefits to the wider Lagos State region. This research explores the history and significance of the Lagos Trade Fair, tracing its roots from early trade routes in Badagry to the event's relocation and its economic and cultural impacts on the region. By examining both the successes and challenges of hosting the fair in Badagry, this research aims to offer insights into how trade fairs can contribute to economic growth in emerging markets. It emphasizes comprehensively the material choices and construction techniques on the building or structure with major emphasis on the original trade fair structures in the Lagos badagry trade fair. It highlights the significance and early uses of these structures and their respective roles they play in the region.

Keyword : Listed building, Trade fair, Architectural conservation,

INTRODUCTION

BACKGROUND OFTHE STUDY

The Lagos International Trade Fair Complex, located in Badagry, has a rich history dating back to 1976 when it was commissioned as an international trade hub [1]. The complex was designed to facilitate trade with countries along the West African coast and was strategically located along the Lagos-Badagry Expressway, a major gateway into Nigeria. (Wikipedia 2014)

The trade fair complex was constructed in the 1970s and was officially opened in 1977, with the first Lagos International Trade Fair held the same year [2]. The complex was built on a 322-hectare land area and features 12 exhibition halls, an office/administration complex, a motel complex, and other facilities [3].

Over the years, the Lagos International Trade Fair has grown to become one of the largest international trade fairs in West Africa, attracting investors and entrepreneurs from over 1600 companies worldwide [2]. The fair is organized by the Lagos Chamber of Commerce and Industry (LCCI) and is held annually, usually in November. (Fashola. B 2015)

In addition to its economic significance, the Lagos International Trade Fair Complex also holds cultural importance, with the surrounding area of Badagry being a historic town with a rich cultural heritage [4]. Badagry was an important center for the Trans-Atlantic slave trade, and its historic sites, such as the "Point of

No Return," serve as a reminder of the town's complex past.

Today, the Lagos International Trade Fair Complex continues to play a vital role in promoting trade and investment in Nigeria and West Africa, while also showcasing the region's rich cultural heritage. Bola T , 2008)

PROBLEM STATEMENT

The Lagos trade fair origins outline the historical development of the early commercial activity in the southwest region of Nigeria making it one of few economic pinnacles of west Africa in the 20th century. Maintenance, a necessary procedure required to be carried out on building and structure is a culture

not strictly adhered to by people in this part of the world. This ripple effect has led to a downward spiral and great compromise of the appearance in aesthetics and structural stability of the building and structure of the Lagos trade fair Badagry. The reluctance and overall incompetence in ensuring proper maintenance in buildings and structures in this part of the world could pose a threat to the rich historical tradition and commercial cultural activities of the trade fair.

RESEARCH AIM AND OBJECTIVES

- The research aim is to explore the construction techniques and material choices at the Lagos trade fair complex Badagry.

OBJECTIVES OF THE RESEARCH

- To explore the various material choices and their uses in the Lagos trade fair Badagry
- To explore the various construction techniques used in the Lagos trade fair Badagry
- To explore the continued possibility that the construction techniques used in Lagos trade fair badagry are available knowledge to the posterity so that it can evolve

SIGNIFICANCE AND CONTRIBUTION

Although, there are several campaigns about people who understand the significance and importance of the trade fair. This is duly part of the fact that people or groups of people can come together to initiate trade in a commercial environment. Although various efforts by the Nigerian government have been incorporated to initiate the same experience throughout the country for instance in states like Abuja a more contemporary version of the Lagos trade fair and Kaduna as well.

ETHICS OF STUDY

Anderson, Johnson, Gotterbarn and perrolle (1993) discussed fundamental ACM code of ethics and professional conducts regarding intellectual property, privacy, confidentiality, quality of professional work, fairness and discrimination, liability and unreliability, software risks, conflicts and interests, unauthorized access. They give sample sceneries these ethics must hold on to the duty of a professional. In addition to professional conduct, there are moral imperatives expected of a professional or a researcher. It is expected of a researcher to contribute to society and human wellbeing, avoid harm to others, be honest and trustworthy, be fair and take action not to discriminate, honor property right including copyrights and patents, give proper credit to intellectual property and respect the privacy of others.

SCOPE OF STUDY

The scope of this study focuses on exploring the various construction techniques and material choices at the Lagos trade fair Badagry. To ensure that this knowledge is passed on to posterity and study the faults and how to improve the various construction techniques and exploration of different material choices as a future reference in improving the Nigerian construction industry. This research primarily uses the Lagos trade fair center located in Badagry as a basis for case study and ensuring that the knowledge gained from the research can be used in the evolution of the Nigerian construction industry.

LITERATURE REVIEW

This chapter seeks to inform, establish and remind the reader of the application of computer science concepts, application software, frameworks and paremiology principles that aided the transition of the research. The review encompasses large amounts of related topics to the research topic.

GLOBAL HISTORY OF THE TRADEFAIR

Trade fairs are similar like the Champagne fairs and the Skane Market, which were founded in late medieval Europe during the period of merchant capitalism, they are the model for modern trade displays. Produce and craft makers traveled to towns during this time period to sell and display their goods at trading fairs. Buchmesse, Frankfurter (2018). These marketplaces were conducted once a year or on a few designated days, usually in physically advantageous areas and in connection with a religious event to capitalize on the crowds. In certain places, the custom of holding fairs in the spring and fall has persisted to this day. Reflecting the technological dynamism of the Industrial Revolution, industrial exhibitions began to appear more frequently in North America and Europe in the late eighteenth century. Murk, David (2 February 2025)

The idea of yearly industry-wide trade exhibitions gained popularity in the late 19th century and expanded from North America to European manufacturing hubs. By the 20th century, permanent trade show grounds or conference centers were created as venues with a revolving calendar of trade shows, and specialist companies were formed just to oversee the trade-show sector. With Asia's increasing industrialization in the twenty-first century, trade shows and exhibitions have become widespread across the continent. China leads Asia's exhibits market, selling over 55% of all space sold in the region in 2011. Murk, David (2 February 2025)

HISTORY OF TRADE FAIR IN NIGERIA

The origin or the Nigerian trade fair in general can be rooted deeply in major Nigerian states like Kaduna and Lagos. The concept of trade fairs in Nigeria began with the need to promote indigenous products and stimulate economic relations both locally and globally. Trade fairs first originally emerged in

Nigeria during the colonial era when the British established platforms for the promotion of Nigerian agricultural products like cocoa, palm oil, and groundnuts. However, the first major independent trade fair was the Lagos International Trade Fair held in 1960, shortly after Nigeria gained independence Ojo, M. (2003). This event marked the beginning of a sustained effort to showcase Nigeria's economic potential and connect the local industries with international markets and investors at large. Trade fairs were seen as vital for post-independence industrialization, which led to the establishment of other fairs across various states in the country through subsequent decades Olowu, D. (2007). These fairs began to focus on diverse industries such as agriculture, manufacturing, technology, and services, offering Nigerian businesses an opportunity to engage in international trade.

EVOLUTION OF TRADE FAIRS IN NIGERIA

Trade fairs in Nigeria have evolved significantly over the years. Initially, the early trade fairs in the 1960s and 1970s were modest events specifically focused on agricultural and industrial products. However, as Nigeria's economy diversified in the 1980s and 1990s, trade fairs also grew in scope, to embrace various other sectors such as technology, services, construction, and real estate (Wikipedia 2005). The Lagos Trade Fair remains the largest and most prominent of these events, attracting international exhibitors, visitors and possibly investors. As Nigeria's economy became more industrialized, fairs began to feature a wider range of products, including machinery, electronics, textiles, and automobiles. Over time, regional trade fairs in cities like Kano, Port Harcourt, and Kaduna were developed to meet local needs and promote regional industries -Jiboye, A. (2014).

CHANGING VENUES FOR TRADE FAIRS AND THE MOVE TO BADAGRY

Trade fairs were originally held at various locations in Lagos, such as the Tafawa Balewa Square and Eko Expo Centre (Wikipedia, 2016), which could not accommodate the growing demand for exhibition space. As the economy and population grew, the need for a larger, more accommodating space that wouldn't make numbers a hindrance to commercial activity became apparent. Badagry, was identified as a strategic site due to its historical significance, available land for development, and a potential for urbanization.

The move to Badagry was driven by various factors, including traffic congestion in Lagos, the need for better infrastructure, and the goal of developing the region into a hub for international trade Fashola, B. (2015). In addition, the shift aligned with the Nigerian government's policy of decentralizing economic activities to reduce congestion in Lagos and promote regional development.

GOVERNMENT POLICIES INFLUENCE THE MOVE

Various government policies have influenced the move of the Lagos Trade Fair to Badagry, including The National Development Plan of the 1980's. The move was targeted to be Focused on the promotion of regional development and infrastructure expansion, which necessitated better facilities for trade exhibitions. The Lagos Urban Renewal Project Aimed at decongesting Lagos by promoting industrial and commercial activities in peripheral areas such as Badagry. National Planning Commission (2004). The Nigerian Industrial Revolution Plan (NIRP 1970), Focused on building industrial hubs outside of Lagos, with a strong emphasis on Badagry as an emerging economic zone.

HISTORY OF THE LAGOS- BADAGRY TRADE FAIR

The Lagos-Badagry Trade Fair was commissioned as a strategic move to boost the economic, trade and commercial activities in Nigeria. In the early 2000s, during the Obasanjo led administration, the Nigerian government began the construction of an expansive trade fair complex in Badagry to accommodate international and local trade and commercial exhibitions, with the aim of establishing the area as an economic hub. Lagos Trade Fair Authority (2008). This was an extension of the Lagos International Trade Fair that was originally intended to provide more space for the increasing number of exhibitors and visitors. While the project faced certain difficulties such as delayed construction and financial constraints, it became a symbol of Nigeria's ambition to become a leading trade center in Africa. By the mid-2010s, the fairground in Badagry began to see increased participation from foreign companies and investors, reaffirming Nigeria's position in west Africa and in the global market at large. Abiola, T. (2016). The original trade fair structure was 10 mega supermalls which are still in existence till this present day but not fully functional. The concept still incorporates an open trading atmosphere with a mega structure for shelter. The system was created for 9 of the structures to surround one in the middle with the aid of an opened connection lobbies/ bridges in every single one of these structures that can be accessed to any other mall without leaving their immediate surroundings.

Figures showing The exterior view of the center piece original mega mall connecting all nine other structures around it








The original structures represented strong architectural monuments intended for trading and commercial activities with detailed building components. These components included materials in certain areas which are not limited to but includes.

A. Roof

The was built to follow the shape of the building. It is a hexagonal component of the building with grey like long span aluminum roofing sheet. The roof is supported with a series of metal beams concrete form work around the roof gutter that are arranged to follow that same shape in order to ensure structural stability.

B. Windows

The windows in this structure are broad and wide. The windows are glazed translucent window with aluminum frame fixed to the producers' manufactures specifications. The windows are separated by two layers of beams and a column that are arranged at an interval of 5 meters. layers of the windows on the highest level are non- movable(fixed) but some sections of windows on the first and ground level are movable, and this allows for proper airflow and circulation. The windows on the highest were incorporated mainly to prevent stack effect. (Kelechi,2025). The windows are translucent, and they allow for sunlight and solar radiation to enter the building.

C. Floors

The floors were built with a matte surfaced terrazzo all through the interior parts of the building. The exterior areas contain matte masonry like stone interlocked materials with the entrance areas consisting of just the natural ground around the surrounding environment of the building.

D. Walls and columns

The walls were built with blocks and plastered with cement and stone dust all through and painted with emulsion white. While the columns are costumed designed in a circular pattern. They span around 1200mm in diameter. The headroom varies accordingly with the height of the walkway from the main entrance being 4.5 meters. The headroom around the walkway from the roof to the ground varies differently.

E. Stairway

The stairway incorporates a unique design, with custom columns to serve as structural support from the ground to the ceiling. The stairs were built with concrete, and the finish was done with Tyrolean and cement finish. On the riser and thread. The railings are metal with gold brushes.


Entrance ceiling

The entrance ceiling is a set costume made triangular design arranged accordingly whose material is concrete.

F. Exterior cantilever.

The exterior cantilever spans about 25 meters in length and 5 meters in width. The cantilever has a concrete celling of unique triangular patterns that are designed explicitly for the building to enhance its aesthetic value and functionality. The exterior cantilever is supported by 6 columns of diameter 1200 millimeters (3 on the left and 3 on the right). All columns are also built with concrete materials.


top view showing all connecting original trade structures

Other façade materials

There are other materials that contribute to the aesthetics and functionality of the building. A major material is a long metal-like structure brushed with gold felt paint. The structure provides shade due to the very large windows. It serves to provide shade and control the amount of sunlight that enters the building.

Alternatively, there were also other trading buildings that were created by the government in large numbers within close and far proximities around the mega malls. They are a far cry from the mega malls but are very much in numbers. Because of their large numbers, these buildings are tagged in line with the country's 36 states for easy location.

BADAGRY IN THE POST COLONIAL ECONOMY

Badagry, located along the Lagos Nigeria's coast in the west African region, historically played a significant role as a trading unit during the transatlantic slave trade that occurred in the 19th century (Wikipedia 2005). Post-independence, Badagry retained its importance as a gateway for trade and commerce, particularly in agricultural products such as palm oil, cocoa, and timber. The town's strategic location made it a significant area for regional trade and commerce, especially as Nigeria sought to diversify its economy beyond oil. Adewumi, B. (2010). Badagry's role as a trading area was further reinforced with the development of its port and transportation infrastructure, allowing it to serve as an important figure for both local and international trade.

HOW BADAGRY CONTINUES ITS ROLE AS A TRADING TOWN

Badagry continues to play an important role in the Nigerian economy due to its location along major trade routes and networks of commercial pathways. The town's proximity to easily access other major areas of Lagos towns allows it to serve as a natural extension of the commercial activities in the city. - Gbenga, T. (2018). Additionally, the expansion of transportation networks such as the then Badagry Expressway now generally known as the Lagos badagry express way and the development of maritime infrastructure have boosted Badagry's role as a trading region. Local markets, including those that trades agricultural products, continue to thrive in Badagry, and the town remains a key center for trading goods between Nigeria and neighboring countries, particularly in West Africa. Ibraheem, L. (2020).

THE EXPANSION OF INFRASTRUCTURE IN BADAGRY

The expansion of infrastructure in Badagry has been important to its development as a major trading and commercial area. The Major infrastructural projects critical to the development of the region include Ministry of Works and Housing (2017).

- **Road development:** The construction of the then Badagry Expressway which connects the town to other major areas Lagos, has significantly improved trade and logistics.
- **Port development:** Badagry is set to benefit from a new deep-sea port, which will ease congestion at Lagos ports and provide a major boost to Nigeria's maritime trade.
- **Urbanization projects:** Various urban development initiatives are enhancing the region's capacity to handle trade and commercial activities, with an emphasis on modernizing facilities such as markets, hotels, and exhibition centers.

CONSTRUCTION TECQNIUES IN THE NIGERIAN CONSTRUCTION INDUSTRY

The Nigerian construction industry uses a mix of traditional and modern construction

challenges such as poor infrastructure and limited skilled labor. Although, the industry has experienced growth, largely due to the adoption of modern construction technologies techniques which are not limited to but include the following: - Adeyemo, O. (2011).

A. Reinforced concrete construction: Reinforced construction (RC) is a method that incorporates steel reinforcement within a mix of concrete elements to enhance its tensile strength and overall durability. Concrete while strong in compression is weak in tension, meaning it can crack or fail under tensile stress. By adding steel reinforcements (commonly known as rebar) the material becomes much more robust and capable of handling both tension and compression and this method is commonly used for commercial, industrial, and residential buildings. The key components essential for reinforced concrete construction include concrete, Reinforcement (Rebar) and bonding.

Fig 2.10.1 Image showing reinforced concrete construction

- **Concrete**: The primary building material, made from cement, aggregates (sand, gravel or crushed stone) and water. When mixed the concrete undergoes a chemical reaction called hydration, which hardens it into a strong material over a period.
- **Reinforcement (Rebar)**; They are steel bars or mesh embedded in concrete to resist tensile stress. The steel's strength allows it to counteract the concrete's weakness in tension. Rebar is typically made of carbon steel, through stainless steel and other alloys that are used in a corrosive environment.

Typical designs for a reinforced concrete construction method include beams, slabs, columns, footings and walls.

B. Brick and block construction: This method is still a popular technique in rural and suburban areas for affordable housing. It is a traditional method that incorporates bricks or blocks as primary materials for creating walls and any other form of structural elements. This method has been widely used for centuries due to its strength, durability and versatility. In the construction process, bricks and blocks are laid in courses (horizontal rows) with a mortar to bond them together. The major key components in this construction process includes

Images showing blocks and bricks

- **Bricks**: A small rectangular block made from clay, concrete, or any other moldable material. They are usually fired in a kiln to harden. Bricks are commonly used for walls, facades and decorative elements in the building.
  - **Blocks:** They are larger units made from materials like concrete, aerated concrete or other similar substances. Blocks are often used for loadbearing walls, foundations, and sometimes partitions. They are generally larger and heavier relative to bricks.
  - **Mortar**; A mixture of sand, cement, lime, and water, used to bond bricks or blocks together. The mortar also fills in the gaps between the bricks or blocks, ensuring a strong and durable connection.
  - **Reinforcement**: reinforcement steel bars are components that are added to improve the strength and structure of a building element especially in load bearing walls.

C. **Prefabrication and modular construction**: Used increasingly in the construction of commercial buildings, offering faster completion times and cost efficiency. This refers to the process of manufacturing a building component or a system in a factory setting before being transported to the construction site. These components can include walls, roofs, floors and even entire rooms or sections of the building. The key factor in this construction process is the idea that parts of the structure are assembled away from the site reducing on site labor and time required for construction. The following includes the various types of prefabricated construction components. Eze, C. (2011).

- **Precast concrete**: These include pre- made concrete elements like beams, slabs, columns and wall panels. They are mostly casted in molds of site in a factory and OMI

precast concrete

- **Wooden prefabrication**: Timber components such as precut walls, frames or trusses, can be manufactured in a controlled environment. These wooden pieces are then shipped to the site where they can be assembled into a building structure.

Wooden prefabrication

- **Steel prefabrication:** steel frames, gliders, and columns can be prefabricated in a factory and transported to site for installation. Prefabricated steel is commonly used in large commercial and industrial buildings.

steel prefabrication

- **Prefabricated wall panels**: The entire wall sections, complete with insulation windows and sometimes finishes can be built in a factory and shipped to the construction site for installation.
- **Roof systems**: pre-engineered roof trusses and decking systems can be prefabricated and moved to site.

MATERIAL CHOICES IN THE NIGERIAN CONSTRUCTION INDUSTRY

There are numerous amounts of construction materials that are used in the Nigerian construction industry some of the key materials are not limited to but includes the following:

- **Steel:** It is a metal component building material that is primarily used for high rise buildings and large-scale construction projects.

- **Clay bricks and blocks**: Common in residential construction and low-cost housing. They are small rectangular building material that are built with concrete aggregates, sand/ clay

clay brick and blocks

- **Timber and local materials**: Often used in rural construction, although their use has decreased with urbanization.
- **Block and brick;** They are small rectangular building material that are built with concrete aggregates, sand/ clay. It is a material that uses a traditional method that incorporates bricks or blocks as primary materials for creating walls and any other form of structural elements. This material is incorporated in both urban and rural areas. This method has been widely used for centuries due to its strength, durability and versatility. In the construction process, bricks and blocks are laid in courses (horizontal rows) with a mortar to bond them together.
- **Cement:** This is a bonding agent that is used in concrete and its aggregate mixtures. It is used to combine constituents together in most cases to form reinforcements, attach certain materials together or even act as an aesthetic element.
- **Aluminum:** This is a metal like construction material that can be used for various construction needs. It can be used in building construction components like roof, curtain wall panels, window frame, and sliding glass doors. It can be produced and used for individuals and also industrially. It is a material that was incorporated in order to enhance modern look and fairground.
- **Granite:** Granite is a stone-like material that is used mainly during concrete mix for reinforcement. It is a solid material that ensures stability if applied properly to cement and sharp sand during the construction of concrete, reinforcement and other structural elements like beams and columns.
- **Sand;** Sand (in most cases sharp) is a material that can be gotten below sea level. It is a material used also in concrete mix for reinforcement.
- **Glass:** It is a clear crystal like textured material that can appear either glazed or rough. It is used for the construction of building components such as doors windows, curtain walls to mention a few.

The choice of materials often depends on factors like cost, availability, and the nature of the project. The use of material elements such as granite, sand and cement can be used to achieve structural elements like reinforcements (in most cases beams and columns) through the adherence of a building reinforcement mix ratio. The better the ratio the more stable the mix will be. In general, These material choices were influenced by both functionality (durability, weather resistance) and aesthetic considerations, as the fairground aimed to appeal to international audiences.

RESEARCH METHODOLOGY

In the previous sections, relevant literature that have direct or indirect relevance to the research topic were considered and reviewed. This section discusses the research methodology explored for the purpose of this work.

This chapter further discusses the overarching methodology taken to achieve the study aim. It also describes the methods of accomplishing the sub objective. (Everson, 2007). The overall approach to this study is research through interviews of professional field personnel (engineers) and relevant

questions that were recorded through questionnaire responses. (Forlizzi, ayash, 2014) In general, the methodology asserts the knowledge gathering that occurred at the Lagos trade fair Badagry Lagos through qualitative and quantitative analysis.

AREA OF STUDY

The sole aim of conducting the comprehensive interviews with the professionals (civil engineers, and builders) present at the Lagos trade fair Badagry, was to explore the construction techniques and material choices at the Lagos Badagry trade fair center. It is noteworthy that the construction industry in Nigeria and beyond is evolving and to better understand this evolution it is paramount that a study is carried out on one of the early monumental structural centers for commercial activities in Nigeria and west Africa as a whole. However, since the resulting application would most likely capture by professionals in the built environment, their opinions should be captured in the analysis.

PARTICIPANTS SELECTION CRITERIA AND ATTENDANCE

Experience in the field of expertise, proficient use of various knowledge to explore various techniques of construction and materials that were used for the Lagos trade fair in general retrospect. It is important to point out that experience in the construction industry, personals with knowledge of construction techniques and building materials are criteria used in collection of data. Both genders, male and female of 100 stake holders were represented respectively In no particular during quantitative analysis.

TRANSCRIPTION OF DATA

This study contributes firmly towards the growth of knowledge. The Researcher(s) do not claim to have collected all known knowledge for the construction of all the buildings and structures in the Lagos trade fair Badagry. Rather, the Researcher(s) selected relevant construction techniques and material choices that were used and is still in used in Lagos trade fair Badagry. The research data presentation and analysis illustrate the comprehensive breakdown of the construction techniques and material choices, with pictorial representation and analysis from the said location. It further illustrates how long these construction techniques and material choices can be explored

METHOD OF DATA ANALYSIS

An analytical procedure of data analysis was carried out to determine a way to answer the research questions. The researcher(s) analyzed the construction techniques and material choices based on.

A. Interviews

B. Pie chart

C. Bar chart

D. Case studies

A. Interviews

This is a formal conversation between two or more people, typically between an interviewer and an interviewee, with the major aim of gathering information, assessing qualifications, or deciding. (Merriam webster, 2022). This was a formal discussion with the specific purpose of exploring the construction techniques and material choices with structure and characteristics around the Lagos Badagry trade fair through experienced professionals (engineers, builders and so on). While carrying out the interview process the researcher(s) ensured the following steps were followed. (StephenR, 2007)

- **Active listening:** The researcher(s) pays attention to the professional's (Engineers) responses and asks follow-up questions, if necessary, about the related subject.
- **Clear communication:** The researcher(s) and the onsite professional communicate clearly and concisely about the related subject.
- **Respect and professionalism;** The researcher(s) and the onsite professional treated each other with respect and professionalism.
- **Preparation:** The researcher(s) prepares thoughtful question and the onsite professional prepared and gave concise information critical to the aim and objectives of the research.

B. Pie chart

This is also known as a circle graph. (Data camp, 2022). This is a type of circular statistical graphical representation of information divided into slices to illustrate numerical proportion. Each slide is demographic information that contains a category or group of data, and each size of slice represents the portion of data that falls into that category. (Statista, 2022).

C. Bar Chart

This is also known as a bar graph; this is a type of graphical representation that displays categorical data with a rectangular bar of varying length. (Data camp, 2022)

D. Case Study

A case study is a form of research methodology that involves an in-depth examination of a single or small number of case(s) Robert. K, 2014. It is a detailed analysis of a specific situation, event or phenomenon, with the aim of gaining a deeper understanding of the underlying issues, relationships and dynamics. (Kathleen.M 1989). In this research, a collective case study was carried out. This was done to explore the study of multiple cases to identify the patterns or relationship in context to the research aim and objectives.

It is essential to note that the numerous methods of data analysis essential to research are not limited to the earlier above but, in retrospect to the research aim and objectives of the research, The above three were the essential patterns used by the researcher(s) to effectively analyze the data essential to this research.

DATA PRESENTATION AND ANALYSIS

This chapter presents the findings from the research conducted on the construction techniques and material choices at the Trade Fair Complex, Lagos-Badagry. The data collection methods included interviews with key stakeholders involved in the construction process and a site visit to observe the construction methods and materials employed at the complex. The chapter starts with an analysis of the collected qualitative and quantitative data, followed by a discussion on how these results answer the research questions.

The aim of this chapter is to assess the construction techniques and material choices, focusing on their impact on sustainability, cost-effectiveness, and overall performance. It also compares observations from the site visit with perspectives from construction professionals to identify trends and areas for potential improvement.

DATA COLLECTION METHOD

A mixed-method approach was employed to ensure a comprehensive understanding of the research topic:

A. Interviews: Conversations were held with architects, engineers, contractors, site workers, and suppliers to gather expert opinions and firsthand experiences.

B. Site Observations: Visits to the Trade Fair Complex were conducted to record construction methods, material use, and labor practices.

C. Quantitative Surveys: Surveys were given to 100 stakeholders, including professionals and end-users, to understand their preferences for materials and techniques and to identify any challenges.

DISCUSSIONS

CONSTRUCTION TECHNIQUES

The reliance on manual, traditional techniques reflect broader industry trends in Lagos-Badagry. These methods, while cost-effective, often compromise efficiency and quality, as observed by Adeyemi (2023). The use of raft foundations in sand-filled areas indicates adaptation to site-specific challenges.

The Lagos-Badagry Trade Fair required state-of-the- art construction techniques due to the scale and complexity of the project. Due to the soil texture and topography of that geographical region the federal government in the 1970's Kelechi (2025) decided to sand fill the area to make the soil texture ready to begin the construction of the Lagos badagry trade fair. The following techniques were chosen to accommodate the large number of exhibitors and the need for expansive exhibition halls and facilities Techniques employed include the following:

A. Reinforced concrete construction: Reinforced construction (RC) is a method that incorporates steel reinforcement within a mix of concrete elements to enhance its tensile strength and overall durability. Concrete while strong in compression is weak in tension, meaning it can crack or fail under tensile stress. By adding steel reinforcements (commonly known as rebar) the material becomes much more robust and capable of handling both tension and compression and this method is commonly used for commercial, industrial, and residential buildings. The key components essential for reinforced concrete construction include concrete, Reinforcement (Rebar) and bonding. Aftermath the sand filling, the process paved way for the use of excavation and bonding, a construction technique that can be categorized under the various forms of applying reinforced construction to accommodate the type of foundation needed for the building to be structurally stable.

- **Excavation:** This is a construction process that involves the removal of earth, rocks and other materials from a site to prepare for the construction of foundations, basements, utilities, roads and other structures. This process is critical to the construction of constructing buildings, roads, and other infrastructural projects. The process requires careful planning, execution, and safety measures to ensure the integrity of the worksite and the stability of the final structure.

an ongoing excavation

Excavation process

Although there are various types of excavation, due to the soil texture and the geographical nature of that region, the most used type of excavation is called earth excavation. The following are also other types of excavation. Kelechi (2025)

- **Earth Excavation**: This is the most common type and the most generally adopted form of excavation for the Lagos trade fair sites. It is the type of excavation which involves the removal of soil or earth materials. It can be carried out for construction foundations, trenches and utilities. (Wikipedia 2019)
- **Rock Excavation**: In this type of excavation, hard rock is removed using specialized and professionally recognized construction tools and equipment. This is often needed for the construction of tunnels, foundations or road areas with solid rock formation. Techniques like blasting, drilling, or mechanical tools can be used to break up the rock. (Wikipedia 2019)
- **Trench Excavation**: This is typically used for the installation of underground utilities, such as pipes and cables. The excavation is done in the form of a trench, which is usually narrow but deep. (Wikipedia 2019)
- **Foundation Excavation:** Foundation excavation is focused on preparing the site for the construction of a building's foundation. It may require the excavation of trenches or pits to the required depth based on the foundation's design. (Wikipedia 2019)
- **Dredging:** This is the type of excavation that is done underwater, typically for projects like canal construction, harbor dredging, or riverbed maintenance. Specialized equipment such as dredgers are used to remove sediments, rocks and debris from the bottom of water bodies. (Wikipedia 2019)
- **Rock fill Excavation:** This is the removing or moving of large quantities of rock for the purpose of backfilling or grading. This is a significant factor in preparing the land for construction or roadwork in a hilly terrain. (Wikipedia 2019)
- **Bonding:** This is the interference between concrete and steel reinforcement which must be strong enough to transfer stress from concrete to steel. The ribs on the rebar are designed to grip the surrounding concrete to ensure the materials work together efficiently. (Wikipedia 2019)

B. **Steel-frame prefabricated construction**: This is a for of prefabricated construction technique that is created for large exhibition halls, providing flexibility and durability. Their structural elements comprise of strong steel members that can be re arranged to suit different structural forms. (Wikipedia 2019)

C. **Pre-stressed concrete**: They for key infrastructural elements such as parking lots, roads, and building foundations. (Wikipedia 2019)

D. Modular construction: A form of prefabricated construction that enables enabled quick construction of temporary structures and exhibition spaces. (Wikipedia 2019)

MATERIAL CHOICES

The preference for cement blocks and reinforced concrete aligns with previous studies (Agboola & Adekunle, 2021), emphasizing affordability and local availability. However, the tailored use of reinforcement sizes based on function underscores the importance of design considerations in material selection. The various material choices that were used for the construction of buildings at the Lagos trade fair Badagry span out in similarities from the general construction materials used in the Nigerian construction industries. While certain conditions or limitations like cost, determining the various types of materials to be used through several factors, time and even force majeure to mention a few. The following are not limited to but includes the general materials used in most buildings' construction at the Lagos trade fair

- **Block and brick;** They are small rectangular building material that are built with concrete aggregates, sand/ clay. It is a material that uses a traditional method that incorporates bricks or blocks as primary materials for creating walls and any other form of structural elements. This material is incorporated in both urban and rural areas. This method has been widely used for centuries due to its strength, durability and versatility. In the construction process, bricks and blocks are laid in courses (horizontal rows) with a mortar to bond them together.
- **Cement:** This is a bonding agent that is used in concrete and its aggregate mixtures. It is used to combine constituents together in most cases to form reinforcements, attach certain materials together or even act as an aesthetic element.
- **Aluminum:** This is a metal like construction material that can be used for various construction needs. It can be used in building construction components like roof, curtain wall panels, window frame, and sliding glass doors. It can be produced and used for individuals and also industrially. It is a material that was incorporated to enhance the modern look and fairground

curtain wall panel

- **Granite:** Granite is a stone-like material that is used mainly during concrete mix for reinforcement. It is a solid material that ensures stability if applied properly to cement and sharp sand during the construction of concrete, reinforcement and other structural elements like beams and columns.
- **Sand;** Sand (in most cases sharp) is a material that can be gotten below sea level. It is a material used also in concrete mix for reinforcement.
- **Glass:** It is a clear crystal-like textured material that can appear either glazed or rough. It is used for the construction of building components such as doors, windows, and curtain walls to mention a few.

DATA PRESENTATION

QUALITATIVE INSIGHT FROM INTERVIEWS

Interviews revealed key insights into material preferences, construction techniques, and challenges:

Material Preferences:

Cement blocks and reinforced concrete were identified as the most commonly used materials due to affordability, availability, and suitability for local conditions.

Steel, though strong, was less frequently used due to its high cost.

Construction Techniques:

Raft foundations were employed, especially for larger structures, as the area was initially sand filled to stabilize the ground.

The size of the reinforcement used was directly related to the building's function. For buildings that did not house heavy goods, 16mm reinforcements were used, while 33mm reinforcements were utilized in structures designed for heavy items such as warehouses (Kelechi, 2025).

Excavation was also carried out to ensure proper foundation depth and stability.

Challenges:

Issues such as delayed material supply, substandard materials, and skilled labor shortages were common (Olajide, 2020; Adeyemi, 2023).

Policy gaps and inadequate training were highlighted as systemic barriers.

OBSERVATIONS FROM SITE VISITATION

Field observations provided a detailed view of on- ground practices:

A. Structural Techniques:

Shallow foundations were common in low-rise structures, reflecting cost-saving measures, but larger buildings relied on raft foundations for stability.

Reinforced concrete beams and columns were used to enhance structural integrity, with reinforcement sizes varying by function.

B. Material Storage and Handling:

Materials like cement and sand were often stored in open spaces without adequate protection, exposing them to weather conditions that could compromise quality (Fadeyi, 2021).

C. Labor Dynamics:

The workforce was predominantly informal, with limited adherence to safety standards and protocols (Amusan et al., 2018).

D. Stalls and Warehouses:

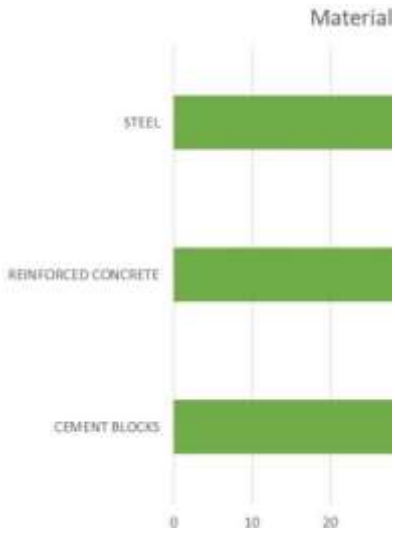
Different building types were observed, including stalls for small-scale vendors and warehouses designed to house heavy goods. These structures varied significantly in material requirements and reinforcement specifications.

QUANTITATIVE SURVEY RESULTS

A survey of 100 stakeholders provided measurable insights:

Material Preferences:

- Cement blocks (70%)
- Reinforced concrete (60%)
- Steel (40%



Bar chart illustrating the discrepancy of various material preferences

Techniques Adoption:

- Traditional methods (80%)
- Modern methods (20%)

Key Challenges:

- Cost constraints (85%)
- Material availability issues (75%)
- Skilled labor shortages (65%)

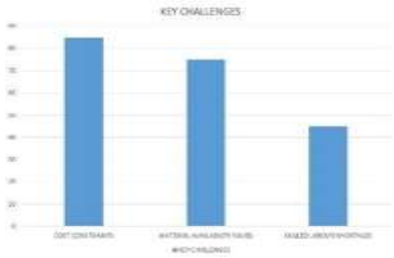


Fig 4.3.3.3 Bar chart illustrating the discrepancy between the key challenges

DATA ANALYSIS

COMPARATIVE ANALYSIS

Findings from interviews and surveys were validated with site observations:

- The material preferences noted in interviews and surveys matched what was observed on site, especially the use of cement blocks and reinforced concrete.
- A discrepancy was found between awareness (60%) and actual use (20%) of modern techniques, indicating barriers like cost and lack of training (Oseni & Adeoye, 2022).

QUANTITATIVE ANALYSIS

Regression analysis explored relationships between material choices, construction techniques, and project outcomes: A strong relationship (R = 0.78) was discovered between poor material selection and project delays, highlighting the need for careful material procurement (Adekunle et al., 2020). Cost emerged as the most significant determinant of material choices, followed by availability and durability.

CASE STUDY INSIGHTS

The Trade Fair Complex illustrates the blend of traditional and modern methods:

The main structures used reinforced concrete for strength, while decorative features included prefabricated materials, indicating a move toward innovation (Bamidele & Johnson, 2021). Issues like material waste and labor inefficiency highlighted the necessity for better project management. To further explore some of the construction techniques and material choices in the Lagos Badagry trade fair center the researcher(s) investigated ongoing building projects in the location paramount to the research of study.

A. PROPOSED PLAZZA FOR PRIVATE INVESTOR

Government leases and acquisition by private investors lead to construction of newer plazas and malls. This has allowed for a continuity in the flow of construction techniques that has existed for years (Kelechi 2025). All things being equal and the same environmental and climatic factors being considered, the general construction techniques and material choices that are being used from the inception of the construction of the original trade fair

structures are still being used but in a more contemporary and advanced way. (Femi, 2025). Excavation and bonding, the primary mode to begin the construction of these buildings, emphasizes the longevity and evolution of the continued existence of these construction techniques and material choices.

ongoing construction project showing the sub structure of the plaza

image showing construction of a substructure going on

image showing a unit of the plaza at an almost completed stage

CHALLENGES AND OPPORTUNITIES

Key challenges include:

- **Cost Constraints:** High material and labor costs deter stakeholders from adopting modern techniques (Ogundele, 2017).
- **Skilled Labor Shortages:** The reliance on informal labor underscores the need for structured training programs (Nwosu, 2022).

Opportunities for improvement:

- **Policy Interventions**: Subsidies for modern materials and equipment can bridge the cost gap.
- **Capacity Building:** Training initiatives can enhance the adoption of efficient construction methods.

- **Advanced building materials:** Modern and contemporary building materials can be incorporated into building construction to reduce the cost of labor and the adverse overall effect on cost for the entire project.

The analysis of both qualitative and quantitative data, along with insights from the site visit, offers a clear understanding of the construction methods and materials used at the Trade Fair Complex in Lagos- Badagry. Modern techniques like prefabrication and the use of durable materials such as concrete and steel were common. However, issues with cost, logistics, and sustainability were also noted. The results indicate that while the Trade Fair Complex showcases successful modern construction, there is potential for better material sourcing and the adoption of more sustainable practices.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

CONCLUSION

The chapter of this research, having analyzed and explored the construction techniques and material choices of The Lagos trade fair Badagry, seeks to conclude and suggest areas for probable recommendations for posterity. The Lagos Trade fair Badagry as originally intended by the federal government of Nigeria was to aid commercial activities and promote international trade. There has been a downward spiral largely on the part of little to no maintenance of trade fair centers in Nigeria today as these structures used to house these events were architecturally monumental and aesthetically pleasing.

SUMMARY OF WORK

This research has been able to explore the construction techniques and material choices of the Lagos trade fair Badagry. It shows the evolution of these construction techniques and highlights their importance. The value of the various material choices in this research cannot be understated as it Is a fact that even now are such techniques and material choices still being used in the Nigerian construction industry till date. Although in a more contemporary state of practice it is very evident that these practices would continue to evolve through to the next prosperity with the possibility of establishing new discoveries that can lead to the construction of various building types and more contemporary monumental forms of structures.

This research made effective efforts to answer these questions:

A. What is the relevance of trade fair centers in Nigeria?

B. What kind of buildings or structures housed Trade fairs in Nigeria?

C. Do those kinds of buildings or structures still exist?

D. What kind of construction techniques are used in the Lagos Badagry trade fair center?

E. What Material choices are considered in the Lagos Badagry trade fair centers?

RECOMENDATIONS

Based on the findings of this research, several recommendations are made for the improvement and development of the Lagos International Trade Fair, Badagry. These recommendations are not limited to but include the following:

1. **Infrastructure Development**

The Lagos International Trade Fair Complex should be renovated and expanded to meet the needs of modern trade fairs.

2. **Technological Advancements**

The trade fair should adopt modern technologies, such as digital platforms and social media, to promote trade and commerce.

3. **Environmental Sustainability**

The trade fair should adopt environmentally sustainable practices, such as waste reduction and recycling, to minimize its environmental impact.

4. **Cultural Exchange**

The trade fair should promote cultural exchange and understanding among nations, through the organization of cultural events and activities.

5. **Routine and constant proper maintenance** Poor maintenance led to the ruins of the original building and structures that housed the Lagos Badagry trade fair centers in the early days. Proper Maintenance should be ensured to service the building or structures to allow prolonged existence

6. **Government policies**

Policies can be implemented to favor the ever- fluctuating cost and the ratio of demand and supply of labor force, cost of materials and tools.

7. **Advanced Training**

Certain training should be arranged and encouraged in order to improve the knowledge on the various construction techniques. This could open up new possibilities, a way to discover more modern construction techniques and choices of materials.

8. **Incorporation of Advanced building materials** Modern and contemporary building materials can be introduced into building construction to reduce the overall cost of labor and the adverse overall effect on cost for the entire project.

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