Proposed Shopping Mall for Odua Investment Company Limited
(A Study On Spatial & Circulation Requirements in Shopping Mall)

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Being a MSc Thesis Submitted to the Department of Architecture, Faculty Of Environmental Design And Management, Lead City University, Ibadan, Oyo State, Nigeria

In Partial Fulfilment of the Requirements for the Award of Master Degree (M.sc) in Architecture

2024

Certification

This is to certify that Bukola Titilayo OYENIRAN with matriculation number LCU/PG/004077, carried out this research work titled; Assessing Spatial And Circulation Requirements In A Shopping Mall: Proposed Shopping Mall in the Department of Architecture, Faculty of Environmental Design and Management, Lead City University, Ibadan, Oyo State, for the award of Master Degree (MSc) in Architecture and has not been previously submitted.

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Dedication

This work is dedicated to God Almighty for giving me the grace to go through this program.

Acknowledgements

I am profoundly thankful to Lead City University (LCU) for providing an exceptional opportunity and conducive atmosphere for my research. The university's library served as a valuable resource for data collection. My appreciation goes to the Academic and Administrative staff of Post Graduate College, Lead City University Ibadan, Oyo State for creating the Architecture platform as an opportunity for me to continue my academic pursuit.

My heartfelt regards and gratitude go to my supervisor who is also the Head of the Department, Dr Oludare Obaleye, for his guidance and contribution to the writing of this thesis, as well as the immediate past Head of Department Arc. (Dr.) Adedire, the Post Graduate Coordinator, Arc (Dr.) Ayanleke, Arc (Dr.) Ajijola O.,for their invaluable efforts towards the realization of this programme. I gratefully acknowledge all the lecturers of the Department of Architecture particularly Arc Oguntunde, Arc Afolabi, Arc Ademola, A., Arc. Fasheun-Motesho, O., A., Arc. Olugbesan, A., O., Arc. Aseyan, B. and Arc. Olaniyan, M., for their wonderful contributions towards the success of this study.

I also appreciate my father Hon Oyeniyi Oyeniran, my mother Cheif Mrs Ajoke Oyeniran for their unwavering support. I cannot help but thank my friend, my prayer partner, Mr Bada I.A., my brothers and all my sisters - the family bond remains invigorated! I sincerely appreciate all my friends and everyone who has positively influenced my success, I say thank you all as I alone stand responsible for the errors, if any found in the work.

Abstract

The study of the spatial and circulation design considerations in shopping mall design seeks to understand how the layout, flow, and organization of these spaces can affect the overall shopping experience and ultimately contribute to the success of the mall as a commercial and social hub. Circulation is a problem in many shopping malls today due to several factors. One issue is poor design and layout, which can lead to congestion, bottlenecks, and confusion for visitors trying to navigate the space. The instrument for the study was a qualitative research method with a case study approach. Two local case studies were examined which are Ikeja City Mall, and Novare Gateway Mall, Abuja. In addition, three international case studies were examined (Accra Mall in Ghana, The Boulevard Mall in U.S.A, and Dubai Mall in United Arab Emirates). Journals, books, and previous research works relevant to the study on layout and circulation of shopping malls were also examined. Deductions from the case studies enabled the study to derive the spatial requirements for a shopping mall that are but not limited to retail outlets, anchor stores, cinemas, entertainment areas, common areas, and services areas. Also from the case studies and literature review, this study was able to assess critical design considerations for achieving proper layout and enhancing circulation in shopping malls. The circulation design consideration were discussed includes clear and intuitive layout, central circulation spine, zoning of similar facilities, ample walkways, strategic placements of entry and exit, provision of service access, design flexibility, accessibility, and safety measures. As a result, the study recommends that circulation design consideration are not overlooked in the design and construction of shopping centres.

Keywords: Circulation, Design, Layout, Shopping mall, Spatial.

Word Count: 275

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Chapter One

Introduction

1.1 Background of the Study

Shopping malls have been a prominent feature of urban and suburban landscapes for decades, providing a one-stop destination for a variety of retail, dining, and entertainment options (Blazy & Łabuz, 2022). The concept of the shopping mall was first introduced in the United States in the 1950s and quickly gained popularity as a convenient and enjoyable way for consumers to shop and socialize. As the retail industry has evolved, so too have shopping malls. They have expanded to include a wider range of stores and services, from luxury brands and department stores to specialty boutiques and entertainment venues (Yang & Lee, 2020). In recent years, however, the rise of e-commerce and shifting consumer preferences have posed new challenges to the traditional shopping mall model. Shopping malls are iconic commercial buildings that serve as important gathering places, retail destinations, and leisure facilities in urban and suburban areas (Nambuge, Peiris, & Kalugalla, 2020). The design and planning of shopping malls are crucial in creating an inviting and efficient space that meets the needs of retailers, visitors, and the surrounding community.

The study to assess spatial and circulation requirements in a shopping mall seeks to understand the unique challenges and opportunities presented by these large-scale, mixed-use developments. It explores the architectural, functional, and experiential aspects of shopping mall design, as well as the economic and social implications of their planning and implementation (Büyükşahin, 2023). Design considerations for shopping malls encompass a wide range of factors, including the layout and circulation patterns, the integration of retail and entertainment spaces, the use of natural light and green spaces, accessibility, sustainability, and the incorporation of advanced technologies.

Additionally, (Ukenna, Idoko, & Obeta, 2019), influencing everything from the choice of retail mix to the overall aesthetic.

Shopping malls are complex spaces that require thoughtful design and planning to ensure efficient and pleasant circulation for shoppers. The study of circulation design considerations in shopping mall design seeks to understand how the layout, flow, and organization of these spaces can affect the overall shopping experience and ultimately contribute to the success of the mall as a commercial and social hub (Jung & Abdelaziz Mahmoud, 2023). The concept of circulation design in shopping malls encompasses a wide range of considerations, including the placement of entrances, the arrangement of stores and amenities, the integration of pedestrian walkways and gathering spaces, and the management of traffic flow. Effective circulation design aims to facilitate easy navigation, encourage exploration, and create a welcoming and dynamic environment for visitors (Ameen, Tarhini, Shah, & Madichie, 2021).

This study seeks to assess spatial and circulation requirements in a shopping mall that can respond to these changes and ensure that shopping malls remain attractive and functional spaces for consumers and retailers alike. By fostering a deeper understanding of the design considerations for shopping mall in the context of shopping malls, it aims to contribute to the creation of vibrant and sustainable spaces that meet the evolving needs of retailers and consumers in the 21st century.

1.2 Statement of the Problem

Circulation is a problem in many shopping malls today due to several factors. One issue is poor design and layout, which can lead to congestion, bottlenecks, and confusion for visitors trying to navigate the space (Memon, Talpur, Nazir, Kaka, & Mahar, 2022). Inefficient circulation pathways can also affect the overall flow of foot traffic, potentially leading to overcrowding in certain areas and underutilization of others. Additionally, changes in consumer behavior and shopping preferences have also affected circulation in shopping malls (Thanasi-Boçe, Kwiatek, & Labadze,

2021). Many shopping malls experience challenges related to inefficient pedestrian flow, congestion, poor wayfinding, lack of accessibility, and suboptimal tenant visibility. These issues hinder the overall user experience, safety, and operational efficiency within the mall (Badiora & Odufuwa, 2019). Especially in developing countries like Nigeria, there is a need to identify and address the specific design considerations for circulation in shopping malls to mitigate these challenges and create spaces that are conducive to safe, efficient, and enjoyable pedestrian movement while also maximizing visibility and accessibility for retail tenants.

Furthermore, the lack of consideration for accessibility and the needs of diverse visitor demographics can contribute to circulation problems. Inadequate facilities for people with disabilities, families with strollers, or the elderly can impede smooth movement throughout the mall (Wagle, 2020). Finally, outdated infrastructure, limited space, and inadequate maintenance can also affect circulation, as these factors may contribute to physical barriers, narrow walkways, or other obstacles that hinder the free flow of visitors through the mall (Chima, Ifeanyichukwu, Callista, & Okwudili, 2021). Hence the need to consider design strategies for commercial buildings with respect to circulation.

The current shopping mall design lacks effective and intuitive circulation patterns, leading to customer frustration, overcrowding, and subpar navigation experiences (Sorensen, 2016). This hinders the potential for increased foot traffic and sales for retailers, affecting the overall success of the mall. There is a need to reevaluate and optimize the layout, walkways, and traffic flow within the mall to create a more fluid and seamless circulation experience that enhances the overall customer journey and maximizes sales opportunities for retail tenants while ensuring safety and accessibility for all visitors (Yau, 2012).

1.3 Aim and Objectives of the Study

The aim of this study is to evolve a shopping mall architectural design proposal for Odua Investment Company Limited, Ibadan, Oyo State by adopting spatial and circulation requirements with a view to enhance efficient layout, flow and overall shopping experiences in shopping malls.

Based on this aim, the objectives of this research are:

i. To identify the typical layout and physical features of shopping malls.
ii. To examine the spatial requirements provided in shopping malls.
iii. To identify design strategies for promoting effective circulation in shopping malls.
iv. To propose a design that incorporate the most appropriate physical layout, circulation strategies and spatial requirements for shopping mall.

1.4 Research Questions

i. What is the typical layout and physical features of a shopping malls?

ii. What are the spatial requirements provided in shopping malls?

iii. What are the design strategies for promoting effective circulation in shopping malls?

iv. What is the most appropriate physical layout, circulation strategies and spatial requirements for the proposed shopping mall?

1.5 Significance of the Study

This study is expected to improve crowd management in shopping malls. Shopping malls often experience high volumes of pedestrian traffic, especially during peak hours or busy shopping seasons. The design and layout of circulation paths, such as walkways, escalators, and elevators, are crucial for effectively managing and dispersing these crowds to ensure a safe and efficient flow of people throughout the mall (Tahseen & Ahmed, 2020). In addition, the circulation design

directly affects the overall experience of visitors within the shopping mall. A well-designed circulation system can offer easy wayfinding, comfortable walking paths, and efficient access to different areas of the mall, enhancing the overall experience for shoppers (Alam, 2018).

Effective circulation design can ensure that retail tenants within the mall have visibility and accessibility to foot traffic, potentially affecting their business performance. Directing foot traffic past various stores and amenities can help improve the visibility of retailers and increase the likelihood of customer visits (Arslan & Ergener, 2023). Circulation design plays a crucial role in ensuring the safety and security of the shopping mall. Well-planned circulation routes can facilitate effective surveillance, emergency egress, and crowd control in the event of emergencies or security incidents. Efficient circulation design can contribute to the operational efficiency of the mall. It can streamline logistics, maintenance, and cleaning activities, helping to reduce operational costs and ensuring the smooth functioning of the facility. Accessibility for All Users: Circulation design must also consider accessibility for all users, including individuals with disabilities, elderly visitors, and families with strollers. Incorporating features such as ramps, elevators, and designated pathways can ensure that the mall is easily navigable for everyone (Jalil & Jian, 2019). As consumer behaviours and retail trends evolve, circulation design must be adaptable to accommodate potential changes in traffic patterns, new retail concepts, or shifts in the overall layout of the mall. Studying circulation design in shopping malls can provide insights into strategies for creating flexible, future-proofed spaces (Liebenberg, 2021).

1.6 Scope of the Study

The scope of the study will focus on analysing and understanding the design considerations for commercial buildings with respect to circulation strategies implemented in shopping malls. This will include examining the layout, design, and flow of pedestrian traffic within the mall. The study will also delve into the factors that influence circulation, such as the placement of stores, the use of signage, and the incorporation of amenities and attractions. Lastly, the study will cover the

heterogeneous spatial requirements for a shopping mall design to be aesthetically pleasing and functional. This will include spaces like anchor stores, departmental stores, food courts, cinema, conveniences, banking facilities, relaxation facilities, and other ancillary facilities required in the design of a mall.

1.7 Operational Definition of Terms

i. **Shopping mall:** A building or collection of buildings housing retail stores with walkways connecting them so that customers may easily go from one store to the next is known as a shopping mall (or just mall), shopping centre, or shopping arcade. The paths might be covered (Newworld encyclopedia, 2023).

ii. **Circulation:** The flow of people through, around, and between buildings and other elements of the built environment is referred to as "circulation." The spaces found in buildings that are primarily used for movement are known as circulation spaces. These spaces include landings, stairs, hallways, foyers, and lobbies (Designing buildings, 2021).

iii. **Anchor store:** A big retail outlet that is the primary attraction in a shopping mall or high street is referred to as an anchor store (sometimes called an anchor tenant). These establishments are frequently department stores or supermarkets (Alysha, 2023). To provide a focal point where customers will congregate, they are typically situated in strategic spots within a retail space, such as corners, ends, or central places.

iv. **Tenant mix:** A variety of elements, such as the percentage of space or number of units occupied by various retail or service kinds and the relative positioning of tenants within the shopping mall, make up the tenant mix (Animesh, ND). Additionally, a diverse mix of stores that complement one another and successfully run separate companies from one another is known as a "good tenant mix."

Chapter Two

Literature Review

2.1 Conceptual Review

Shopping is a fundamental activity that has been a part of human civilization for centuries. It involves the process of acquiring goods or services in exchange for money or other forms of payment (Kusumawati, Ekowati, & Rahmawati, 2018). The concept of shopping has evolved over time, with advancements in technology and changes in consumer behaviour shaping the way we shop today. One of the earliest forms of shopping can be traced back to ancient marketplaces, where people gathered to buy and sell goods in a communal setting. These marketplaces served as hubs for economic activity and social interactions, where individuals had the opportunity to not only satisfy their needs but also engage in trade and exchange ideas (Jocevski, 2020)

As societies progressed, specialized shops began to emerge, catering to specific types of goods or services. These shops provided a more structured and organized environment for consumers, who could now conveniently access a wide range of products in one place. This concept of retailing paved the way for the establishment of department stores during the Industrial Revolution, where consumers could find various goods under a single roof (Grier, 2010). With the advent of mail-order catalogues in the 19th century, shopping expanded beyond physical stores. Consumers could

now browse through catalogues, select items, and have them delivered to their doorstep. This marked a significant transition towards remote shopping and laid the foundation for modern-day e-commerce. The rise of the internet in the late 20th century revolutionized the way people shop (Le, Carrel, & Shah, 2022)

Online shopping platforms like Amazon and eBay opened up a completely new world of convenience and accessibility, allowing consumers to shop from the comfort of their homes. The ability to compare prices, read customer reviews, and access an endless variety of products online has significantly affected consumer behaviour (Hsiao & Chen, 2018). Furthermore, the proliferation of smartphones and mobile applications has taken shopping to a completely new level. Consumers can now shop anytime, anywhere, using their mobile devices. Mobile apps provide personalized experiences, recommendations, and seamless payment options, further enhancing the convenience and efficiency of the shopping process.

2.2 Evolution of Marketplaces to Shopping Malls

Marketplaces have played a critical role in facilitating trade and commerce throughout history. From ancient bazaars to modern online platforms, the concept of marketplaces has evolved significantly over time (Stark, 2021). It started with ancient civilizations such as Mesopotamia, Egypt, Greece, and Rome had bustling marketplaces where people gathered to trade goods. These marketplaces served as social and economic hubs where merchants from different regions came together to exchange goods and engage in commercial activities. The Greek agora as seen in Plate I and the Roman Forum are examples of such ancient marketplaces (Stockdale & Standing, 2004).

During the middle Ages, fairs emerged as important marketplaces. Medieval fairs were temporary events held periodically in different locations and attracted traders from various regions. These fairs served as platforms for merchants to display their goods, negotiate deals, and establish business networks. The Champagne Fairs in France and the Frankfurt Fair in Germany were among the most

prominent medieval fairs (De Ligt, 2023). The rise of the Industrial Revolution in the 18th and 19th centuries led to the emergence of department stores. These large-scale retail establishments offered a wide variety of goods under one roof and introduced the concept of self-service. Department stores like Le Bon Marché in Paris and Macy's in the United States revolutionized the retail experience by providing a range of products in a single location (Chevalier & Gutsatz, 2012).

Supermarkets and shopping malls emerged; the mid-20th century witnessed the rise of supermarkets and shopping malls. Supermarkets brought convenience by offering a wide array of groceries in self-service formats. Shopping malls, on the other hand, combine various retail stores, entertainment options, and dining establishments under one roof, becoming destinations for people to spend leisure time and shop (Artis, 2023). The advent of the internet and e-commerce in the late 20th century transformed the concept of marketplaces. Online marketplaces like Amazon and eBay revolutionized shopping by providing a platform for buyers and sellers to connect and transact globally. These platforms offer a vast array of products, seamless transactions, and a convenient shopping experience from the comfort of one's home (Brynjolfsson & Smith, 2000).

Plate 2.1: The Ancient Agora of Athens
Source: (Athens key 2024)

Plate 2.2: The Southdale Centre in Edina, Minnesota in 1956
Source: (Business Insider 2024)

2.2.1 The History of Shopping Malls in the United States

Shopping malls in the United States have a rich history that dates back to the mid-20th century. The first modern enclosed shopping mall, Southdale Centre, opened in Edina, Minnesota in 1956. This pioneering development was followed by a wave of mall construction throughout the 1960s and 1970s, as a growing suburban population began to favour the convenience and variety offered by these retail destinations. Over the years, shopping malls have evolved to include not only retail stores, but also restaurants, entertainment venues, and even residential or office spaces. However, the rise of e-commerce and changing consumer preferences have presented challenges for the traditional mall model, leading to the decline and closure of some properties across the country. In the 1980s and 1990s, the concept of the "mall" expanded to encompass the development of mega-malls and "lifestyle centres," which incorporated entertainment, dining, and upscale retailers. This period also saw the rise of iconic malls such as Mall of America in Minnesota as illustrated in plate

III and West Edmonton Mall in Canada, which offered not only retail options but also amusement parks, water parks, and other unique attractions.

Plate 2.3: Mall of America in Minnesota
Source: (Shoppingcenters.Com 2024)

The COVID-19 pandemic has further accelerated the transformation of shopping malls, as many retailers faced temporary closures and bankruptcy filings. This has prompted mall operators to re-evaluate their tenant mix and overall business strategies in order to stay relevant in the evolving retail landscape. Despite these challenges, some malls have managed to successfully reinvent themselves and attract consumers with innovative offerings. For example, American Dream, a mega-mall in New Jersey, features not only a wide selection of retail stores, but also a water park, indoor ski slope, and Nickelodeon Universe theme park (McKinsey, 2020). As the retail industry continues to evolve, it is likely that shopping malls in the United States will continue to adapt and transform in order to meet the changing demands of consumers.

2.2.2 The history of Shopping Malls in Europe

Shopping malls in Europe have also undergone significant evolution over the years, influenced by cultural, economic, and consumer trends. The development of shopping malls in Europe can be traced back to the late 20th century, and their evolution has been shaped by changing consumer behaviours, urban development, and technological advancements. In the 20th century, shopping centres in Europe were predominantly open-air markets and shopping arcades. The concept of the enclosed, climate-controlled shopping mall, as seen in the United States, began to gain popularity in Europe during the 1960s and 1970s.

The first modern shopping mall in Europe is often attributed to the Östermalm Centrum in Stockholm, Sweden, which opened in 1955 and adopted the American-style enclosed mall concept. Subsequently, the development of shopping centres spread to other European countries, including the United Kingdom, Germany, and France. In the following decades, shopping malls in Europe continued to evolve, with a focus on mixed-use developments that incorporated retail, dining, entertainment, and leisure amenities. Many European malls also placed a strong emphasis on architectural design and urban integration, aiming to create vibrant, pedestrian-friendly spaces within urban environments.

2.2.3 History of Shopping Malls in China

The historical development of shopping malls in China can be traced back to the economic reforms of the late 1970s and early 1980s when the country began transitioning from a centrally planned economy to a more market-oriented system. This economic transformation, along with urbanization and rising consumer demand, has driven the rapid growth and evolution of shopping malls in China. The first modern shopping mall in China is often considered the Beijing Department Store, which opened in 1955. However, it was not until the 1990s and early 2000s that the concept of enclosed, Western-style shopping malls gained popularity in China. This era saw the development of large-

scale, multi-level shopping centres with a wide range of retail, dining, entertainment, and leisure offerings. One of the early iconic shopping malls in China is the "The MIXC" in Shenzhen, which opened in 2004, marking a new era of mega shopping centres in the country. Since then, the development of shopping malls in China has been characterized by rapid expansion, with a focus on creating modern, vibrant retail destinations that cater to the diverse needs and preferences of Chinese consumers. Furthermore, the rise of e-commerce and digital technology has also influenced the development of shopping malls in China, leading to the integration of online and offline retail experiences, as well as the incorporation of innovative technologies and digital marketing strategies to enhance the overall shopping experience.

2.2.4 History of Shopping Malls in Egypt

Historically, the development of modern shopping malls in Egypt can be traced back to the latter part of the 20th century. The concept gained popularity as the Egyptian economy began opening up to foreign investment and market-oriented reforms. One of the earliest iconic shopping malls in Egypt is the City stars Mall in Cairo, which opened in 2004. It marked the beginning of a new era of modern, large-scale shopping centres in the country, offering a wide range of retail, dining, entertainment, and leisure options. The development of shopping malls in Egypt has been influenced by various factors, including urbanization, changing consumer preferences, and the growth of the middle class. These factors have led to a surge in the construction and expansion of malls across major cities such as Cairo and Alexandria. Moreover, the rise of e-commerce and digital technology has also influenced Egypt's retail sector, leading to the integration of online and offline shopping experiences in malls, as well as the adoption of innovative technologies to enhance the overall customer experience.

2.2.5 History of Shopping Malls in Nigeria

The concept of shopping malls in Nigeria began in the 1980s, influenced by the Western model of retail development. The first modern shopping mall in Nigeria was the Lagos City Mall, which was constructed in 2006 and located in Onikan, Lagos. In subsequent years, the development of shopping malls in Nigeria has significantly expanded. Major cities such as Lagos, Abuja, and Port Harcourt have seen an increase in the construction of shopping malls, offering a wide range of retail options, entertainment facilities, and dining options. One of the notable shopping malls in Nigeria is the Ikeja City Mall, which opened in 2011 and is located in the heart of Lagos. This mall has become a popular destination for shopping, dining, and entertainment. The growth of shopping malls in Nigeria has been attributed to the increasing urbanization, rising middle-class population, and changing consumer preferences. The malls have become an integral part of the retail landscape in the country, offering a modern and convenient shopping experience.

2.3 Spatial Requirements for Shopping Mall Design

Shopping mall space requirements are influenced by a number of variables, such as the mall's size, the kinds of retailers it houses, and the amount of foot traffic it is expected to get. The characteristics of the mall, including its size, location, target population, and general concept or theme, will determine the precise spatial needs (Çavka, 2023). Additionally, the mall's spatial arrangement could be impacted by regional building standards and restrictions. The following are some standard dimensions that retail centres must meet:

2.3.1 Atriums and Common Areas

Large, open spaces are needed for events, and general sitting, and gathering spots in shopping malls. Centric plazas and atriums generate a friendly, user-friendly layout by acting as a hub for foot movement (Audu, 2021). A dynamic and exciting retail experience can be created by creating adaptable spaces that can host events, concerts, and seasonal exhibits.

2.3.2 Retail Spaces

It is crucial to design distinct retail spaces for retailers, boutiques, and anchor tenants. These areas ought to be flexible enough to support a range of retail ideas, from department stores to little kiosks (Hanif et al., 2021). A mall's individual store spaces have to be planned to meet the unique requirements of every retailer. This involves having enough room for client service areas, storage, and displays.

2.3.3 Corridors and Walkways

It is imperative for a retail mall to have spacious, well-lit hallways to enable effortless navigation, particularly during busy shopping hours. Clear circulation throughout the mall depends on well-designed pathways and corridors, which should also have enough breadth to handle large crowds of people during busy hours. In order to reduce traffic and give clear sightlines to anchor establishments and centres of interest, these corridors should be planned with these features in mind (Omachi, Adedayo, Onwuka, & Adedokun, 2017).

2.3.4 Parking Areas

Enough parking space is essential to allow for the automobiles of guests. This covers both surface parking and, based on the mall's size and the anticipated number of patrons, potentially multi-level parking structures (Anifowose & Oladigbolu, 2021).

2.3.5 Entertainment and Dining Areas

Many shopping malls have spaces for dining, entertainment, and leisure. These areas must be flexible to house a range of tenants, such as cafes and restaurants, movie theatres, and entertainment centres. The entire shopping experience is improved by areas set aside for dining establishments, coffee shops, food courts, movie theatres, and recreational and entertainment pursuits (Iroham et al., 2020).

2.3.6 Service Areas

Facilities for managing waste, loading docks, and utility infrastructure are examples of behind-the-scenes services that are essential to the mall's smooth functioning. The shopping experience is made more lively and exciting by creating adaptable spaces that can include events, concerts, and seasonal displays (Hanif et al., 2021). Designated office spaces for mall management, security, and administrative staff are essential for the day-to-day operations of the mall.

2.3.7 Common Areas and Seating

For the comfort and convenience of visitors, open, welcoming spaces that include lounging places, bathrooms, and information desks are crucial. The aesthetic appeal of the mall can be improved and outdoor recreation areas can be provided by incorporating landscaped areas, perhaps with outdoor gathering places, vegetation, and water features (Aliyu, 2023).

2.4 Concept of Circulation

The term circulation refers to the movement of people through, around and between buildings and other parts of the built environment. (Esmaeilizadeh, 2021).

Circulation refers to the organised movement of people and goods within and around a building, using designated pathways and elements, with the purpose of facilitating efficient mobility (Oktaviana and Anggraeni, 2022). Within buildings, circulation spaces are spaces that are mostly used for circulation such as entrances, lobbies, corridors, stairs, landings and other spaces that permit circulation. Circulation spaces may be restricted to a specific group of people; in instances of public buildings, there may be general circulation areas and private circulation areas.

The route for Circulation should be dependable, accessible, and clear to the occupants of the building. The design of a particular space can be considered as a focal point that impacts the movement of individuals within and around the building, both inside and outside. Improper

arrangement and planning can present a challenge in this situation. The sizes of circulation spaces may be determined by factors such as the type of use, the number of people using them, the direction of travel, and others. In complex buildings such as hospitals, bus terminals, shopping malls, signages or other forms of wayfinding may be necessary to help people walk around circulation spaces (Natapov et al., 2020).

There are two categories of circulation that are relevant to shopping mall design: interior circulation, which takes place within the building, and exterior circulation, which involves movement within the surrounding landscape and other outdoor areas (Sully, 2024).

2.4.1 Internal Circulation

All floors of a building have designated walking areas that are necessary for accessing different sections of the building. These areas can be either horizontal or vertical pathways for movement (Fu et al., 2021). In the case of large-scale buildings such as shopping mall, the matter of interior circulation is a significant factor to be taken into account. This is because it directly impacts the movement of visitors through the various sections of these buildings and their ability to adapt their body to these movements. Ching (2023) defines interior circulation as the way in which we perceive the three-dimensional nature of a building by moving our bodies, taking into account time, sequence, and space.

The interior circulation within a building can be categorised into two distinct components:

1. Horizontal movement

ii. Vertical movement

2.4.1.1 Horizontal Movement

These are the designated pathways within a building that are necessary for reaching various areas on the same floor level. It can also be described as the procedure by which visitors or users

navigate through a facility on the same level using various circulation elements. The horizontal circulation elements encompass various features such as corridors, lobbies, verandahs, porches, doors, entrance foyers, and balconies (Hamieh et al., 2020).

Approach

The approach can be described as the central perspective of the interior design and the form of the entrance lobby. Crespi (2020) proposes that the arrangement of interior circulation and pathway design, along with the inclusion of a distant view before entering a building, is crucial in preparing users for the spatial experience within a building facility.

Entrances

Entrances are crucial focal points of a building, as they provide a means of access for both staff and users. These are the initial areas where individuals enter before proceeding into a building. A passage should be conspicuous and secure. Similarly, it must be easily reachable as it should be utilised by all individuals, including those with disabilities. Efforts should be made to create well-structured entrances, incorporating the recommendations provided by the National Disability Authority in 2012.

1. The use of vegetation and trimmings to depict the passage

ii. The use of simulated lighting in the hallway areas enhances visibility and ensures easy accessibility during night time.

iii. Alternative entrances should be easily accessible and should be clearly marked.

iv. Adequate space should be provided in the passageway to allow for the movement of individuals.

v. Furthermore, it considers the unrestricted mobility of individuals without any instances of collision. Outward-opening doors should be recessed to prevent collisions, especially in situations where the entrance is located in close proximity to stairs or ramps.

vi. Multiple entrances should be utilised in large-scale structures.

vii. If there is a multi-story or underground parking facility, the pathway from that area should be easily seen from the car park.

viii. Access to large buildings should be equipped with either automatic doors or revolving doors.

Reception

This is the initial point of interaction for prospective clients when entering a building. An aesthetically pleasing reception area should be meticulously designed to warmly greet individuals as they enter the building and facilitate easy movement within it. National Disability Authority (2012).

Factors to take into account are:

i. Make sure that the reception area is easily visible from the main entrance.

ii. Appropriate lighting fixtures should be utilised to ensure effective visual communication.

iii. It is necessary to use floor tiles that are firm and have a non-slip surface.

Lobbies and corridors

i. Lobbies should be allocated where they are absolutely necessary.

ii. The entrance halls of public buildings should be spacious enough to facilitate the movement of individuals.

iii. Corridors should be 2000mm wide to facilitate movement in opposite directions.

iv. Handrails should be provided in appropriate locations and designed for users comfort.

v. A wheelchair user should not be forced to turn around in a corridor as this can be inconvenient.

vi. Fire extinguishers should be installed in a recessed manner to prevent obstruction of movement.

vii. Plants must be placed in a way that they don't serve as an obstacle to the users.

viii. The passages and entryways should not be utilised for storage purposes.

2.4.1.2 Vertical Circulation

Vertical circulation refers to the process by which individuals move between different levels of a building, using designated circulation elements. The term "vertical circulation elements" refers to the walking areas and mechanical installations found in the floors of a building that are necessary for vertical access to different spaces (Natapov et al., 2020).

i. stairs,

ii. inclines,

iii. vertical transportation devices

iv. Moving staircases.

Stairs

Staircases facilitate vertical movement between different levels within a building. It consists of a series of steps with landings strategically placed at regular intervals to provide comfort to the users (Konbr & Maher, 2022).

Factors to take into account when providing stairways include the following considerations outlined by the National Disability Authority:

i. It should be readily recognisable to the users.

ii. The height of the risers should range from 150mm to 180mm, while the width of each step should be between 300mm and 450mm. This is specified in Plate iv.

iii. The minimum width of stairs should be 1200mm or greater.

iv. Sufficient vertical space should be allocated to accommodate individuals and create a sense of spaciousness. A minimum headroom of 2200m must be maintained during the entire duration of the flight and during any landing.

v. Landings should be provided at both the top and bottom of the staircase. The length of the landing should be equal to the width of the stairs.

vi. Un encased stairs should not be located near an entrance or other circulation area.

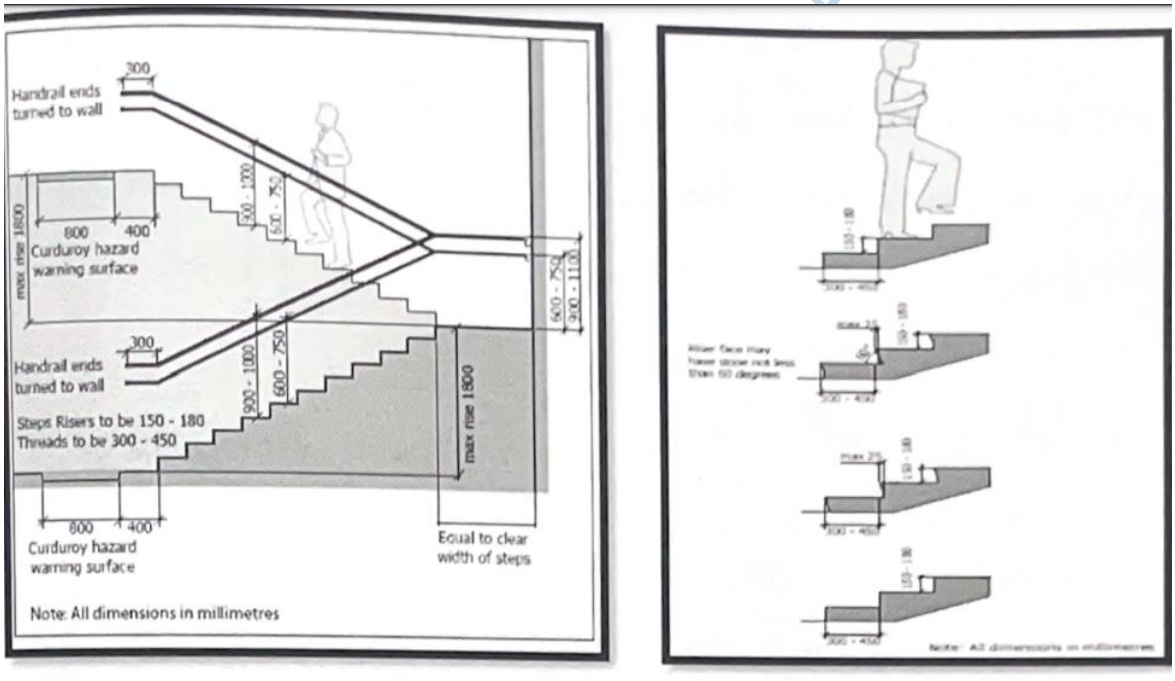

Figure 2.1: Dimensions of Internal Stairs
Source: National Disability Authority (2012)

Elevators

An elevator is a mechanical device equipped with a carriage that moves vertically along a pulley system, allowing for the transportation of people, goods or both between different levels of a building. Elevators are essential in multi-level structures to facilitate the efficient transportation of individuals and cargo. In accordance with certain construction regulations, elevators are mandatory for any building that has two or more stories and for facilitating the movement of individuals with disabilities. An elevator can be categorised as either electric or hydraulic (Al-Sharif, 2017).

Passengers Elevator

Elevators are utilised for vertical transportation of individuals within a multi-level structure. As per the National Disability Authority, the following factors should be taken into account:

i. They need to be designed in a way that is accessible and usable by everyone, regardless of their abilities or disabilities.

ii. The passenger lift must be located in close proximity to the stairs to provide an alternative means of access.

iii. The determination of size and limit should be based on factors such as building type and occupancy rate.

iv. If there are multiple lifts, they must be readily accessible to clients.

v. The internal dimensions must be 1800 by 1800mm.

vi. The interior floor of a lift should have a non-slip surface with a matte finish and similar frictional properties to the surrounding floor surfaces.

vii. Light is required within lifts.

Ramp

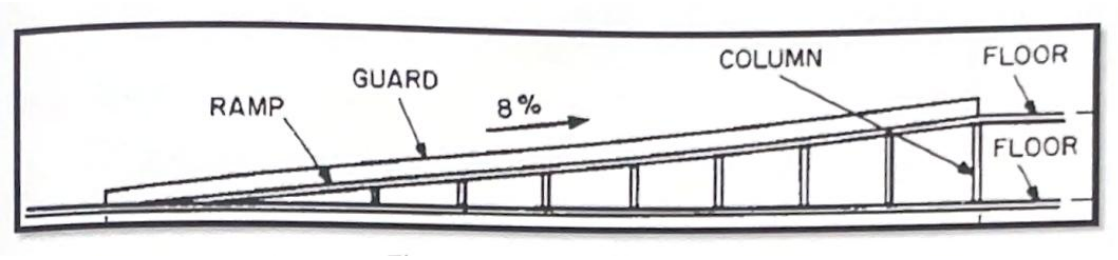

Figure 2.2: Displays a Straight Ramp
Source: (Edgett and Williams 2001)

Ramps are inclined surfaces utilised for linking different floors or levels. They are useful when a large number of individuals or vehicles need to be transported from one floor to another. Consequently, they are commonly utilised in public establishments like hotels. A ramp can have a linear configuration (Plate V), a curved shape, a serpentine design, or a pattern that intersects multiple times.

Key factors to consider when providing internal ramps include:

i. If a ramp is available, there should be a choice of stairs or lifts in close proximity.

ii. Ramps should not have a gradient exceeding 1 in 20, with a maximum rise of 450mm between landings and a corresponding maximum ramp length of 9000mm.

iii. Steep ramps pose a hazard to users, particularly those in wheelchairs.

iv. Landings should be provided at both the top and bottom of a slope and should measure 2440mm by 2440mm in order to allow wheelchair users enough space to turn around.

v. Handrails should be provided on both sides of slopes.

vi. The ramp surface should be designed to be slip-resistant.

vii. It should be equipped with lighting for easy utilisation.

viii. Signage should be provided to inform customers about their accessibility.

2.4.1.3 Principles of Internal Circulation Design

According to Shin and Lee (2019), there are three essential principles of internal circulation: conceptual orientation, way finding, and circulation. These principles can be applied in shopping mall designs to attain user satisfaction as they navigate through different areas.

i. **Conceptual orientation** refers to the connection between the different elements of circulation and how users perceive them. It involves understanding a particular circulation component and the arrangement of spaces. According to Bitgood (2009), the user's desire and past experience play a significant role in conceptual orientation.

ii. **Wayfinding**: this refers to the ability of users to navigate and locate places and spaces within the building. Items such as maps and signage are essential for this.

iii. **Circulation**: the designer ought to have the capacity to meet the prerequisites identified with circulation hence the circulation components ought to suit the space available keeping in mind the end goal is to enhance free flow of movement inside of the building.

2.4.2 External Circulation

The external circulation can be divided into two categories: pedestrian circulation and vehicular circulation.

2.4.2.1 Pedestrian Circulation

This is a crucial aspect of external circulation that should not be overlooked. It is imperative to include pedestrian pathways on the site to facilitate the movement of individuals (Obinna & Muhammad, 2018). Furthermore, it assists visitors navigating through and amidst elements, prompting them to recognise both the organic and constructed surroundings.

2.4.2.2 Vehicular Circulation

This facet of circulation oversees the transportation and parking of vehicles. The factors that influence the parking needs are as follows:

1. Arrangement of compatible amenities for use in standard parking lots.

2. Decreasing the utilisation of vehicles by employing alternative modes of transportation.

3. Ensuring the provision of secure and aesthetically pleasing pathways for pedestrians.

The inclusion of a vehicle drop-off and arrival area creates a clear distinction between areas designated for vehicular traffic and those intended for pedestrian movement. To ensure effective demarcation, it is necessary to incorporate elements such as planters and street furniture.

2.4.3 Types of Circulation Paths within Buildings

Shopping mall design can be associated with various circulation paths. These pathways illustrate the routes individuals can traverse within and in the vicinity of public areas. Ching (2020) identifies six circulation paths within buildings that can also be applicable to shopping mall design.

1. Linear circulation refers to a type of circulation where all paths follow a straight line. Nevertheless, a linear trajectory can serve as the principal structural components for a sequence of areas. This type of path has the ability to intersect with other paths, create branches, or form a loop.

2. Radial consists of linear paths that either extend from or terminate at a central common point.

3. Helical spiral is a continuous path that starts from a central point, revolves around it, and gradually moves further away.

4. Grid is composed of two sets of parallel paths that intersect at regular intervals, forming square or rectangular areas of space.

5. Network is a system of interconnected pathways that link specific locations in space.

6. Composite building typically utilises a combination of previous patterns. Key elements in any pattern include focal points, access points to rooms and corridors, and areas for vertical movement facilitated by staircases, ramps, and lifts. These nodes mark the points of movement within a building and offer chances for stopping, resting, and reorienting oneself. In order to prevent the creation of a confusing labyrinth, it is necessary to establish a hierarchical arrangement among the paths and nodes of a building by distinguishing their scale, form, length, and placement.

2.4.4 Factors influencing circulation

Shopping malls should incorporate efficient circulation patterns to ensure optimal design and enhance user comfort during movement within the spaces. Therefore, certain factors must be taken into account in order to accomplish these goals. The factors encompassed are:

1. **Building form:** It refers to the physical characteristics of a building or site, including its size and the arrangement of spaces within the building. It has an impact on how users move and circulate within the building. The duration of a user's movement between different areas within a building and their level of enjoyment during this process are influenced by the architectural structure of the building (Ahmadi, 2019). It is hypothesised that as the size of the building increases, the user will need to travel a greater distance in order to reach different areas. Spatial arrangement refers to the specific style or shape in which the spaces of a building are organised, as well as their location, which may or may not facilitate the movement of visitors within the facility.

2. **Placement of the circulation elements:** A difficulty encountered by visitors in certain expansive structures is the lack of visibility of the circulation elements, which impairs their ability to move effectively within these buildings (Ching, 2023). The circulation elements should be strategically positioned in highly visible areas to ensure effortless and anxiety-free movement for visitors. For situations such as external circulation, it is essential to establish a distinct separation between the path for vehicles and the path for pedestrians.

3. **Circulation Element Size:** The dimensions of the circulation elements, particularly in expansive structures such as convention centres, play a crucial role in managing the movement of people and vehicles within and around the facility (Akubue, 2022). A traffic flow analysis should be performed to identify elements that are sufficiently spacious to efficiently accommodate visitors. Furthermore, it is important to acknowledge that the dimensions of the elements may differ depending on their respective positions.

4. **Amount of element available:** The quantity of a specific circulation element directly impacts the flow of individuals. For instance, the number of lifts in a building should be sufficient to efficiently transport people, taking into account the time and distance that need to be covered (Siikonen, 2021). Conducting traffic analysis is necessary to determine the appropriate number of lifts to be installed, taking into consideration the size of the building.

2.4.5 Principles of users Circulation

2.4.5.1 Explicit Indications

Explicit cues are unambiguous stimuli that prompt visitors to react to specific elements in their immediate surroundings.

1. Individuals typically gravitate towards landmarks, mobile objects, auditory stimuli, and large entities. These factors are employed to guide visitors in the desired direction as intended by the designer.

2. Individuals typically gravitate towards an area with other individuals, unless it is excessively crowded, in which case a crowd may have a deterrent effect.

2.4.5.2 Implicit Indications

Circulation patterns are additionally affected by more nuanced cues:

1. Individuals typically stay on a particular type of floor surface, such as carpet or wood, unless external factors compel them to move to a different surface.

2.4.5.3 Internal Cues

Various internal cues appear to impact circulation behaviour:

1. People have a natural inclination to keep moving in a straight path unless they are acted upon by an external force that alters their direction or brings them to a halt (known as the principle of inertia).

2. If visitors have a specific objective or are searching for particular objects or areas, their goal-oriented behaviour may override any of the aforementioned factors.

2.4.6 Circulation in Shopping Malls

As to the American Planning Association (1954), circulation is an essential requirement for establishing a shopping environment that is both favourable and enabling. It is the second most important factor in design since it makes space for living and organization possible. A well-organized, logical procedure founded on sufficient and reliable information should be used in the selection, design, and development of a retail centre (Onuorah, MBAH, & Okafor, 2021). Adequate

circulation should be maintained in a shopping centre where a large number of consumers congregate to shop in order to ensure the centre's efficiency. He goes on to say that, the fundamental issues with pedestrian flow in buildings are important catalysts for architectural solutions (Ghosh, Tripathi, & Kumar, 2010). According to Knorr (2009), circulation also refers to the routes that a floor plan has; these routes are how humans experience architecture, and the way these routes are designed greatly influences whether a plan succeeds or fails. A shopping mall's circulation system accommodates the flow of customers, staff, and merchandise throughout the facility in a variety of ways (Knorr, et al., 2009). The following are some essential circulation types and shapes found in shopping mall designs.

2.4.7 Types of Circulation in Shopping Malls

The movement of customers around the mall on foot is referred to as pedestrian circulation. Primary paths, corridors, atriums, and common areas facilitate the foot traffic movement between stores, facilities, and entrances (Hahm, Yoon, & Choi, 2019). Another type is the retail circulation whose goal is to direct customers through each distinct retail section in the mall, including the arrangement of aisles, shelves, and display areas within individual stores, to promote shopping and discovery (Oteng-Ababio & Arthur, 2015). The internal routes that service staff including cleaners, maintenance professionals, and security officers use to enter and exit the mall's various regions are collectively referred to as service circulation. The flow of goods through a mall includes deliveries, supplies, and merchandise. This covers the paths taken by employees to replenish and oversee goods in retail locations, as well as delivery doors, loading docks, and storage rooms (Audu, 2021). Shopping centres may have car circulation for parking spaces, delivery truck and emergency service access points, and drop-off and pick-up locations in addition to pedestrian circulation (Hunter, Kockelman, & Djavadian, 2023).

2.4.8 Forms of Circulation in Shopping Malls

Designers may construct a shopping mall layout that efficiently directs and accommodates the many movements and activities of customers, employees, and items inside the area by comprehending and applying the various types and forms of circulation (Heragu, 2018). The straight, continuous routes that direct customers through a shopping mall, like the main hallways, walkways, and thoroughfares, are referred to as linear circulation (Schittich, 2013). In order to efficiently go from one section to another and link important places of interest inside the mall, linear circulation is frequently employed as seen in figure 2.1 and 2.2. A main concourse or central spine that connects the shopping mall's main entrance points, major anchor stores, and amenities is known as centralized circulation (Coleman, 2006). Because of this circulation pattern, the mall's layout may become more unified and organized and aid in visitor orientation. Visitors are encouraged to explore different areas of the shopping mall without running into dead ends thanks to loop circulation, which provides a continuous circuit of pathways that circle back on themselves. By fostering a sense of exploration and encouraging longer stays, this type of circulation can improve the entire experience (Park & Zhang, 2019) . A central focal point serves as the source of radial circulation, which extends outward to different areas of the shopping mall (Ching, 2023). By structuring the architecture around a central atrium, courtyard, or plaza, this type of circulation allows people to move freely and unhindered to the nearby dining, shopping, and entertainment venues.

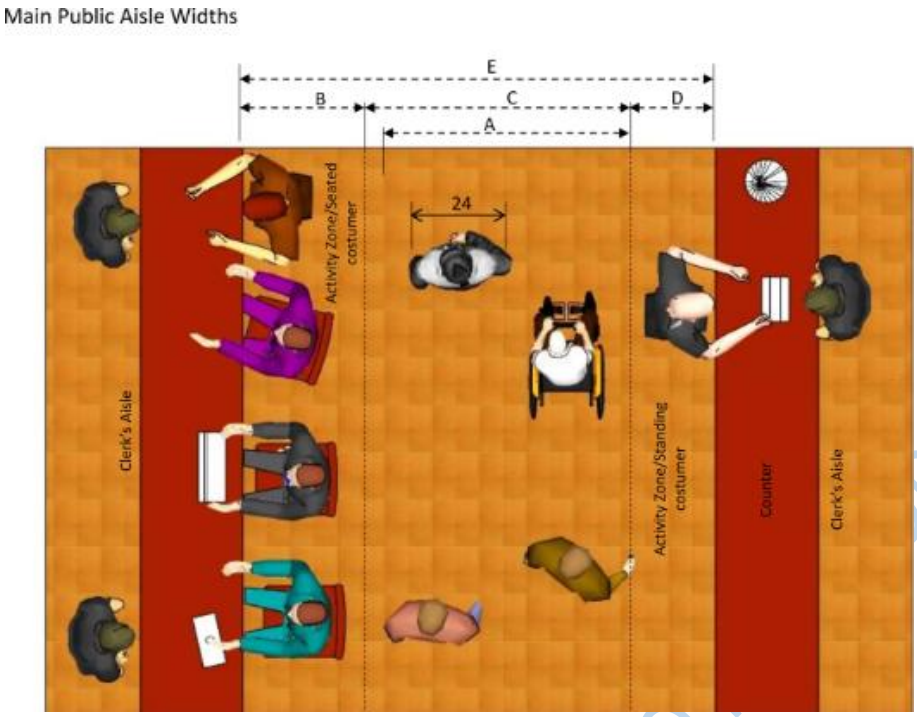

Figure 2.3: Effective Linear Circulation on the Aisles of the Shopping Mall
Source: (Sanjay Commercial Anthropometrics 2024)

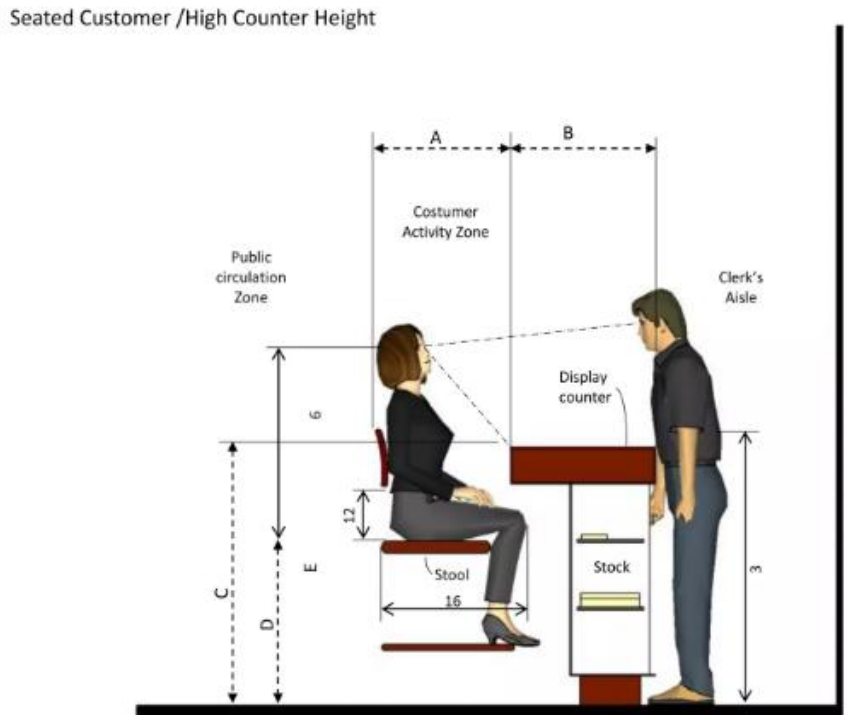

Figure 2.4: Effective Circulation around the Counter Aisle of the Shopping Mall
Source: (Sanjay Commercial Anthropometrics 2024)

2.5 Design Consideration

The current retail environment is not complete without shopping malls, which provide a distinctive blend of dining, entertainment, shopping, and social experiences (Onuorah, MBAH, & Okafor,

2021). A shopping mall's design is essential to drawing consumers in, fostering a positive shopping environment, and differentiating the establishment from the competition. The top eight design components that architects and designers take into account while building a mall are discussed below.

2.5.1 Site Design

The site design should be constructed with an integrated theme that unites all development as a whole. This theme should include the layout and arrangement of the buildings, the perimeter and parking lot layout, the landscape, drainage ditch maintenance, and various other components of the site (Animesh, n.d.). The construction of linked buildings or clusters for commercial development and multi-use buildings with several tenants should take into account the surrounding landscape, open space, and pedestrian areas. Instead of being a collection of disparate buildings, shopping complexes should be designed as separate pads because this is a very unpopular approach to offering integrated, high-quality facilities (Animesh, n.d.).

The term "pad development" describes the private areas built inside a business centre. Pad enhancements should be included into site construction in terms of parking space, traffic and pedestrian lanes, terrain, and building structure. The pads' colours, materials, and design elements should blend in with the surroundings. In addition to being built with safety, efficiency, and effectiveness in mind, local pedestrian zones including connecting lanes, access points, and intermediate spaces should also be designed to give operators valuable information. Get something and head over to the building site (Animesh, n.d.).

2.5.2 Building Design

A coordinated building design team that combines similar types, materials, and configuration details should carry out design and construction inside corporate environments. Plan highlights in every business improvement should provide a consistent subject, even when the development of

different structures and designs is not expected to be identical (Animesh, n.d.). Property enhancement should be considered as the primary goal of the plan guide standards in order to achieve an excellent design plan for a variety of business structures (Animesh, n.d.).

2.5.3 Transportation and Parking

Business expansion should be accommodated by safe vehicle mobility. In light of the layout of driving routes and crossing places, there should, depending on the extent of improvement, be a valid internal flow framework to manage efficient, secure development and stopping throughout. For more significant improvements, think about including a narrower drive passage framework in the design of a roundabout area with dual halls that allow for direct parking spot stacking (Animesh, n.d.). All modes of transportation, such as walking and public transportation, should be taken into account to enhance corporate objectives. People who are walking or using transportation are both customers and agents. People on foot and business offices associated with business objectives should be based on security, expertise, accessibility, and comfort criteria. All means of transportation should attend to the necessities of the community as well as the awkward correspondence inside the short common liberty (Animesh, n.d.). Safe vehicle landing, stacking, and disposal is an important factor that many businesses use, including pharmacies, grocery stores, movie theatres, and home improvement communities. Removal offices should be integrated into the construction of business centres with attractive landscaping, appropriate space for cars and pedestrians, and a practical area at the building entrance (Animesh, n.d.).

2.5.4 Retail and Tenant Mix

A varied mix of eateries, entertainment centres, retail stores, and other tenants should be accommodated by the architectural design to guarantee a harmony of features and a unified visual identity (Iroham, et al., 2020).

2.5.5 Corridors and Passageways

Passages and corridors must have enough ventilation and a minimum height of 2.4 meters. The internal staircase must be at least 2.0 meters wide. For high-rise structures and mixed-use buildings with more than 500 m2 of covered space, protected escape routes must be implemented (Omachi, Adedayo, Onwuka, & Adedokun, 2017).

2.5.6 Arrangement of Exits

The placement of exits must ensure that a person cannot walk more than 30 meters on the floor. For any type of commercial structure. The travel distance may be increased for fully sprinkled red buildings by 50% of the given values (Audu, 2021).

2.5.7 Integration with Surrounding Urban Context

A crucial component of a shopping mall's design is integration with the surrounding urban environment. In addition to providing a sense of place and identity, the mall should be planned to be a beneficial asset to the neighbourhood and promote a connection with the surrounding metropolitan area (Akinbode, Owoeye, & Oshikoya, 2022). Along with providing a range of transportation alternatives, such as bicycle facilities, public transportation, and pedestrian access, the mall should be constructed with the local community in mind.

2.6 Empirical Review

The empirical review is discussed based on the objectives of the study. The first part deals with the shopping mall's physical layout and characteristics. The other section discussed the strategies for enhancing circulation in shopping malls and lastly, the tenant mix standard as it deals with how spaces are allotted to various shopping tenants based on what the shopping mall needs.

2.6.1 Shopping Mall Physical Layouts

According to the Time Savers standard for all building types, there are seven different layouts for shopping mall design. The first is one magnet in a mall centre, one magnet in a mall centre with the magnet in the middle, cluster-type centres, double-strip centres with off-street parking, curb parking in a strip centre, and introverted centres are all examples of strip centres (Wiboonpote, 2017).

2.6.1.1 Strip Shaped Mall

A strip-shaped pattern consists of a row of stores that are lined up with parking in front and a service lane behind. Usually a supermarket, the anchor store is situated at one end or in the middle of a small strip centre (Venudo & Meninno, 2023). Although the names have become interchangeable, a strip centre is typically a small neighbourhood centre; however, it can also be a major centre as illustrated in Figure 2.5.

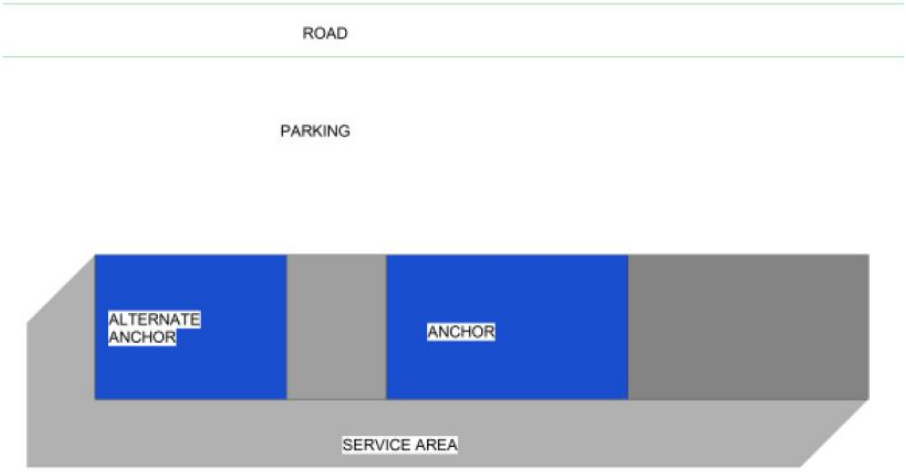

Figure 2.5: Strip Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.2 L Shaped Mall

As illustrated in Figure 2.4, a strip centre with a row of retailers is arranged at a right angle to it, producing an L with parking in front of the stores and service lanes behind them. Although anchors are often put at the ends, they can also be inserted into the nook created by the two store lines

(Heragu, 2018). The L form is frequently used for community and neighbourhood centres because it can be adjusted to fit in corners.

Figure 2.6: L Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.3 U Shaped Mall

A strip centre with two rows of retailers positioned in a U shape at right angles to the strip, parking in front of the stores and service and lanes behind. Fig. 2.7 illustrates U-shaped centres typically contain more retail space than a row of L-shaped centres, and as a result, they tend to be community-type centres as opposed to neighbourhood-type centres. They can have up to three anchors because of their size, one at each end and one in the centre, with the main anchor usually found in the centre (Zhang & Park, 2021).

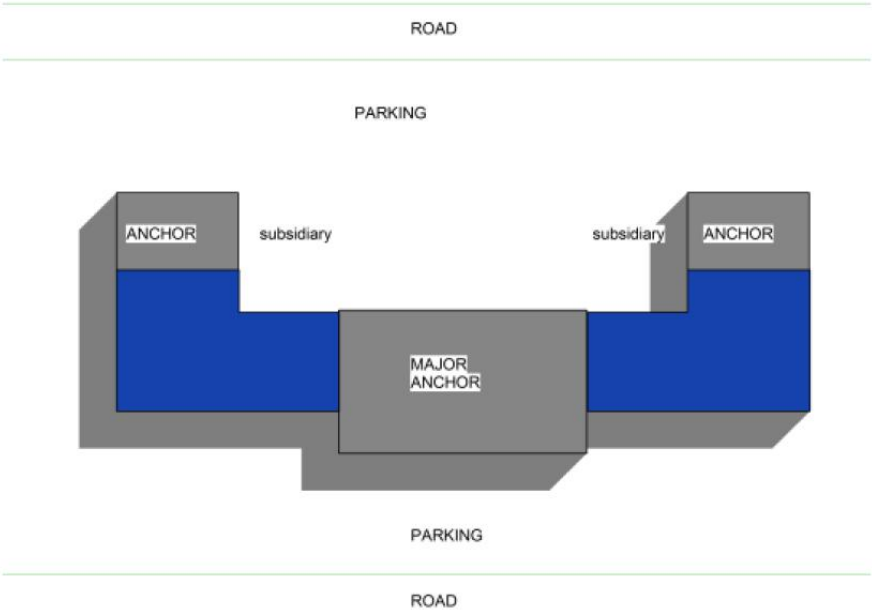

Figure 2.7: U Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.4 Cluster Shaped Mall

An early form of regional centre design: Stores are arranged in a rectangular area, with parking on as four sides of the centre and with service provided through a tunnel or shielded service bays or a combination of both. Shown in fig 2.8; Early cluster canters were built as open centres although some have since been enclosed. The design results in a series of malls. A single-anchor cluster would probably have its anchor store extending from the periphery to the centre of the cluster (Arslan & Ergener, 2023).

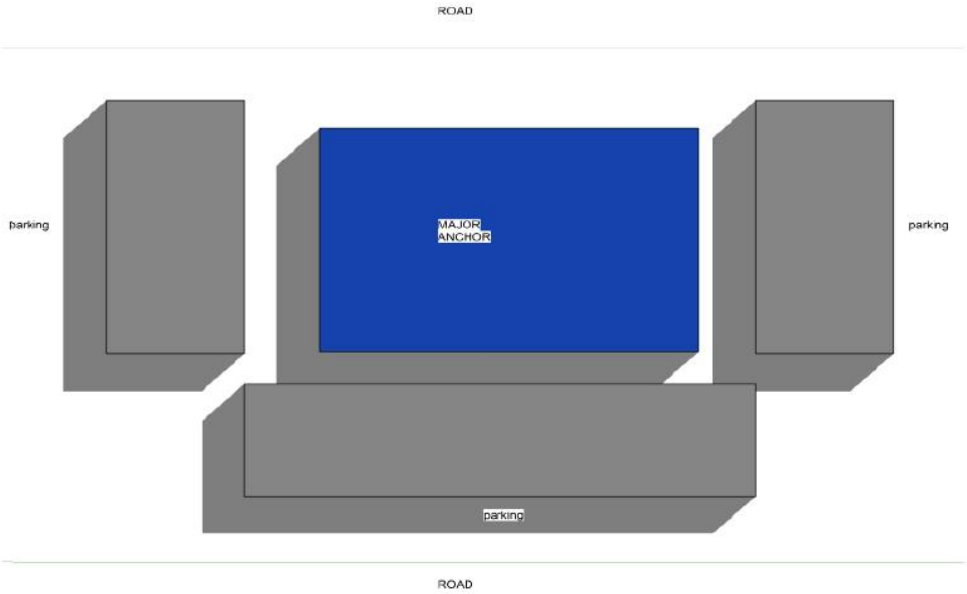

Figure 2.8: Cluster Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.5 T Shaped Malls

Figure 2.9 depicts a shopping centre built to hold three anchor stores. The T-type provides parking on both sides and offers service via protected service bays, tunnels, or a combination of the two. T centres might be closed or open (Berezko, 2014).

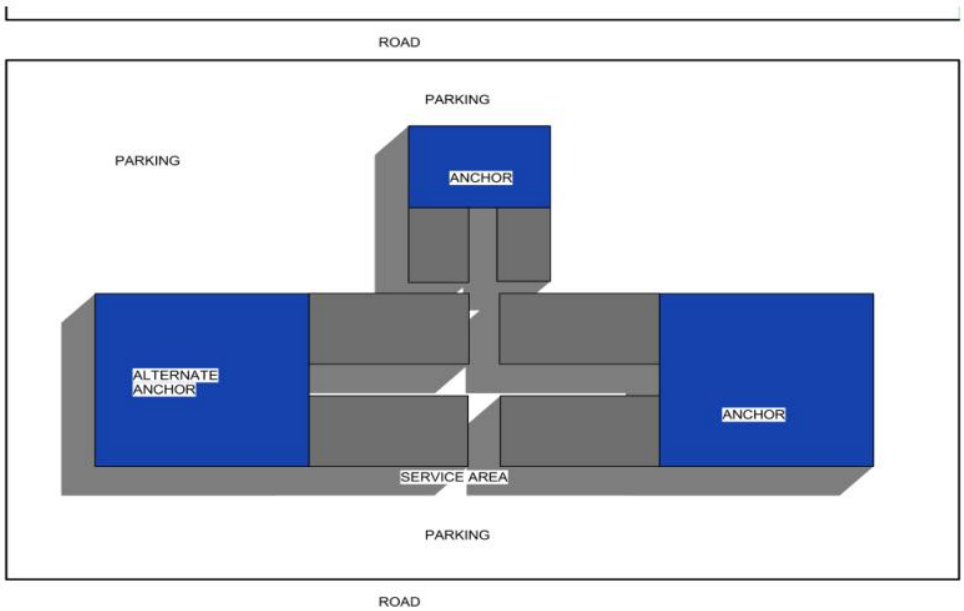

Figure 2.9: T Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.6 Triangle Shaped

It is comparable to the T in many ways, but it has the further feature of allowing visibility of every anchor store from the front, as seen in Figure 2.10. Although a triangular shape is probably going to waste some space, it might be the best option for locations that are not rectangular (Truspekova & Nurpeis, 2019). The triangle centre, which can have two levels and parking all around it, is made to hold three anchors.

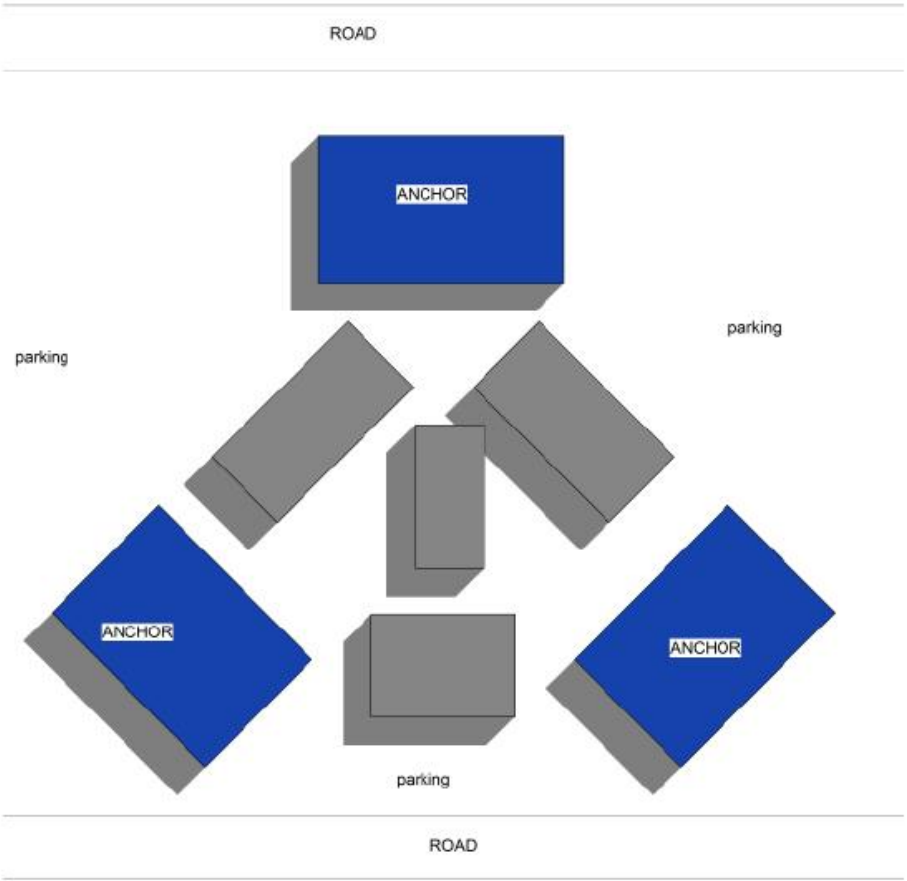

Figure 2.10: Triangle Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.7 Dumb Bell-shaped

A double row of stores arranged face-to-face along a mall, with parking on all sides and anchor stores at both ends (Arslan & Ergener, 2023). The dumbbell is made in such a way that the mall's

anchors attract customers in an attempt to maximize customer turnover. Portrayed visually in Figure 2.11.

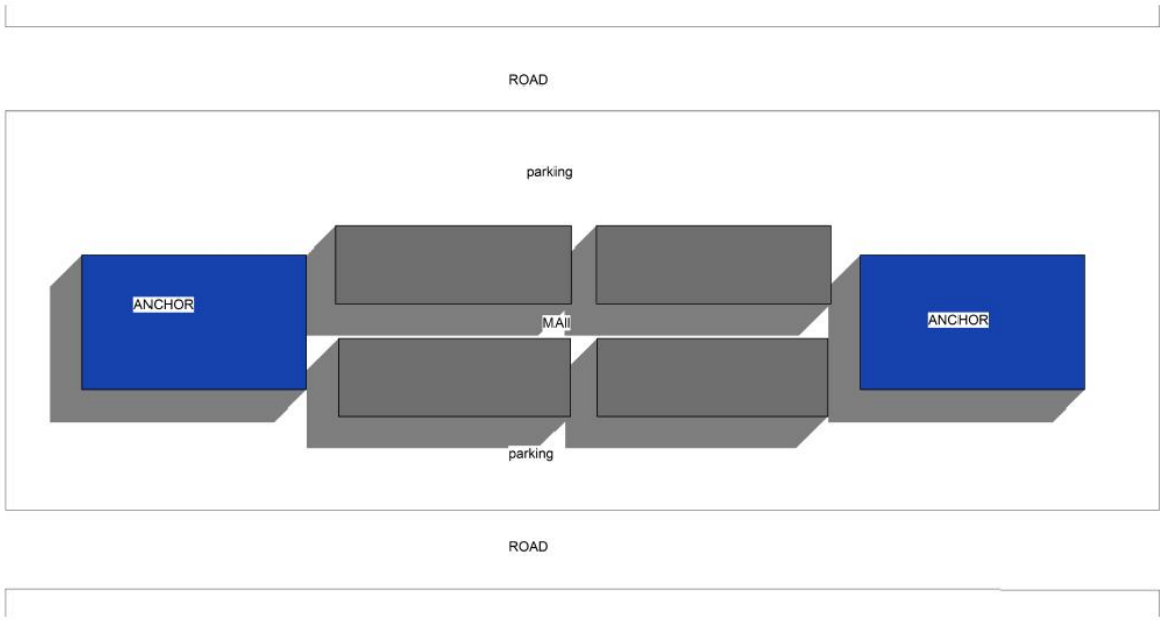

Figure 2.11: Dumb Bell-Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.1.8 Vertical Shaped

The high-rise mall, one of the more modern designs for shopping centres, features elevators and escalators to move patrons from floor to floor. Stores are often arranged around a central atrium. These kinds of centres are typically found in downtown regions or adjacent to other densely populated places (Coleman, 2006).

2.6.1.9 Double-dumbbell Shaped

A dumbbell-style centre is necessary. In order to create malls that cross in a central court, one dumbbell runs longitudinally while the other dumbbell travels latitudinal. This layout allows parking on four sides of the centre and in the u-shaped spaces that separate the major stores (Rao, 2020). Figure 2.12 depicts a double dumbbell.

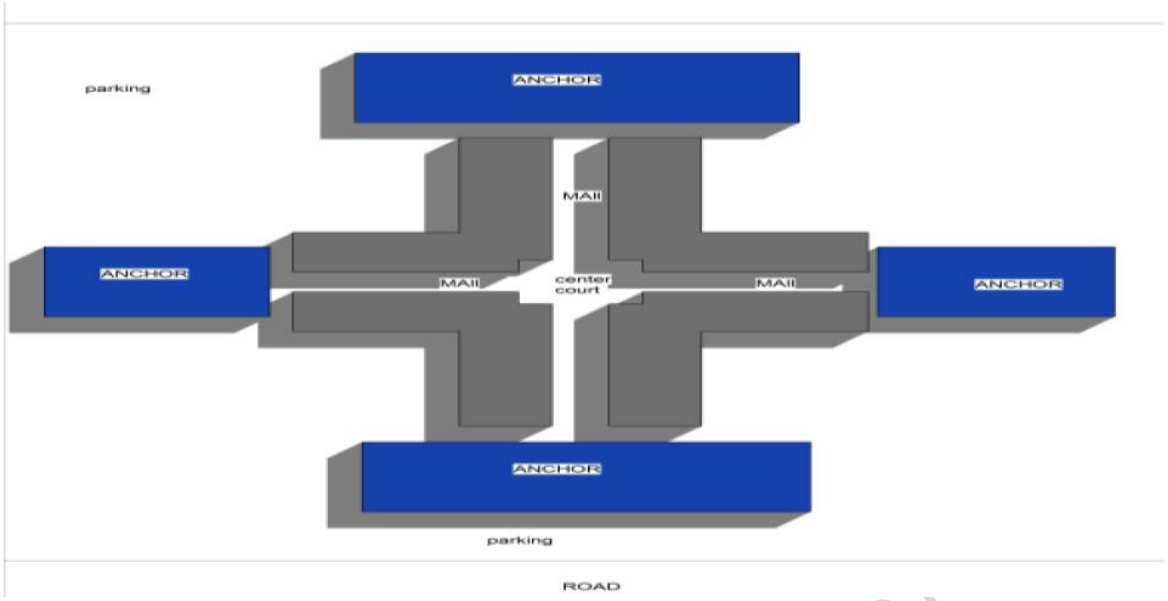

Figure 2.12: Double-Dumbbell Shaped Mall
Source: (Time Savers for Building Types 2024)

2.6.2 Strategies for Promoting Effective Circulation in Shopping Malls

A smooth and efficient flow of visitors across the space is ensured by carefully planning and taking into account several criteria while designing a shopping mall. Designers may construct a shopping mall with efficient circulation that improves the entire experience of visitors and promotes return visits by implementing these ideas (Damiete & Anthony Enwin, 2022). The following are some essential strategies for designing shopping malls with efficient circulation in mind.

2.6.2.1 Clear and Intuitive Layout

Make it easier for customers to navigate the shopping mall by designing it with clear, unambiguous pathways that lead them from one section to another. It is possible to give people an opportunity to stop, relax, and enjoy leisure activities by incorporating rest areas, seating, and other amenities along circulation paths (Meziani & Hussien, 2017). Maximizing tenant foot traffic and exposure by ensuring dining and retail areas are situated prominently and are easily accessible from primary circulation routes.

2.6.2.2 Central Circulation Spine

To aid with visitor orientation, designate a central circulation spine or major boulevard that acts as the mall's main route, linking important anchor stores, entry points, and main facilities (Ching, 2023). The mall's levels are connected and easy floor-to-floor mobility is facilitated by the efficient design of vertical circulation, which includes escalators, elevators, and staircases.

2.6.2.3 Zoning and Wayfinding

Zoning can be used to divide the shopping mall into discrete zones for dining, shopping, entertainment, and other uses. Wayfinding signage, along with maps and landmarks, can be used to help visitors find their way to the mall and reach their destinations (Davis, 2019).

2.6.2.4 Traffic Flow Analysis

To prevent bottlenecks and spread traffic, strategically locate shops, attractions, and facilities by conducting a traffic flow analysis to understand the patterns of visitor movement (Coleman, 2006). To lead customers through the mall, the design should have primary thoroughfares, side passages, and designated circulation nodes that provide clear and understandable circulation patterns.

2.6.2.5 Ample Walkways and Open Spaces

Make sure paths have enough width to handle large amounts of foot traffic and include open meeting areas to give guests a break and a place to unwind (Cervero, Guerra, & Al, 2017). Creating queue and circulation zones that can accommodate large amounts of foot traffic while maintaining a welcoming and safe environment for guests, especially during busy shopping seasons and events.

2.6.2.6 Strategic Placement of Entrances and Exits

Place entrances and exits where guests may easily enter and leave, and take into account how traffic moves through these areas both on foot and by car (Aliyu, 2023). As a result, circulation is enhanced in the shopping mall.

2.6.2.7 Service Access and Delivery Areas

To reduce interference with the primary circulation paths and guarantee seamless operations for suppliers and employees, plan for distinct service access and delivery locations. To reduce conflicts and guarantee efficient operations, distinct routes should be planned for service and pedestrian traffic, including deliveries, maintenance access, and emergency egress (Pakdil & Kurtulmuşoğlu, 2018).

2.6.2.8 Accessibility

Make the mall accessible to persons with different abilities, taking into account those who use strollers, mobility aids, or other assistive (Pakdil & Kurtulmuşoğlu, 2018). Ensuring that all elements of the mall, such as ramps, elevators, and specially allocated parking places for people with disabilities, are accessible without any barriers in accordance with accessibility laws and standards.

2.6.2.9 Security and Safety Measures

To guarantee a safe and orderly environment for guests, implement security and safety measures such as surveillance cameras, emergency exits, emergency call points, controlled access points, and crowd management techniques (Hanif, Micheal, Jasmie, Aanuoluwa, & Ifeoluwa, 2021).

2.6.2.10 Flexibility for Future Expansion

In order to facilitate the smooth integration of additional tenants and amenities, the circulation architecture should be flexible enough to enable future expansions and adjustments (Iggström & Svensson, 2019). Creating circulation areas that can adapt to alterations in foot traffic over different seasons, transient events, and potential mall expansions or reconfigurations.

2.6.2.11 Tenant Mix Standard for Shopping Malls

A diverse range of suitable (or complimentary) retail and service providers, as well as effective space allocation (number and size) and tenant placement that promotes customer interaction and retail activity, are all components of a healthy tenant mix (Nanda, Xu, & Zhang, 2021). From a broader angle, it should also contain enough public services and facilities, in terms of the required number and quality. The components of an ideal tenant mix include all the necessities that improve the standard of the mall's retail environment and meet the expectations of customers, such as amenities, excitement, convenience, and goods and services. In order to get the best possible tenant mix, Dawson (1983) outlines the two main factors that need to be taken into account when choosing tenants: the scope, quantity, and character of the mall's retailers or tenants. The locations of these stores with respect to the entrances of the mall and each other. Thus, finding the right tenant mix is essential to the shopping mall's success, which depends on several variables.

2.6.2.12 Anchor Tenants

The choice of anchor tenants should be taken into account to get the ideal tenant mix. Supermarkets and department stores, known as anchor stores, Bruwer (1997) asserts, greatly influence the character of malls. They are in charge of giving the centre the much-needed visibility it needs to attract customers. According to Ndebele (2017), anchor tenants—general grocers, typically—draw crowds to the centres in South Africa. In a similar vein, Krugell (2010) asserts that anchor tenants are essential to a shopping centre because they draw customers. According to Garg & Steyn (2015),

it is best to situate two anchor tenants at opposing ends of a mall since this encourages foot flow through the centre. According to Ndebele (2017), attracting the right anchor tenants to a shopping centre encourages smaller merchants to lease space there because they will gain from foot traffic.

2.6.3 Centre configuration

Another crucial aspect in determining the optimal tenant mix is the configuration of the centre concerning store location. The centre configuration often influences the direction of footfall through the centre. Stores should be laid out in such a manner that they encourage consumer spending while creating a convenient layout for consumers. According to Kyriazis & Cloete (2018), foot traffic through a centre is guided by tenant location and their requirements. Garg & Steyn (2015) state that spending increases if consumers walk through the entire centre. The positioning of tenants in the centre and the amount of space their stores occupy are important factors in the tenant mix (Ndebele 2017). In contrast to most authors, Ndebele (2017) states that grouping similar anchor stores, for example, makes the stores more accessible and makes the shopping experience more convenient for customers to fulfil their shopping requirements.

2.6.3.1 Balanced Tenant Mix

According to Ndebele (2017), having the right mix of renters is advantageous for tenants as well as vital for drawing more people into a centre. According to Ojuok (2010), a centre's tenant mix should consist of a range of comparable or complimentary stores. According to Ndebele (2017), a centre should ideally feature stores that are complementary to one another and enhance one another. Greenspan (2014) asserts that the stores are related to one another and cooperate to fulfil the needs of the consumer. As a result, the tenant mix is more balanced and the needs of the customers are more easily met. According to Ojuok (2010), a centre's tenant mix is balanced when the stores within it match each other's product offerings and standards of quality.

2.6.3.2 Demographics

The assessment of the consumer community's demographics is necessary to suitably serve the needs of customers approximately the retail centre. According to Garg & Steyn (2015), the centre's size and tenant mix are contingent upon the trade area it serves. According to Ndebele (2017), the target market for the centre, the purchasing power of its patrons, and the kinds of tenant stores within the centre ought to be correlated. According to Krugell (2010), a shopping centre's tenant mix should be chosen to best suit the demands of the income group that will be using the facility. In order to determine the demographics, needs, disposable income, and size of its target market, centre management must conduct in-depth retail research on the market (Ndebele 2017).

2.6.3.3 Niche Retailers

"Niche retailers" are small businesses in shopping centres that provide variety, according to Ndebele (2017). She adds that non-retail services like those provided by The Fun Company—a well-known chain of gaming rooms in South Africa—are among their offerings. According to Dalgic (2006) in the Handbook of Niche Marketing, a "niche" is a tiny market made up of clients with comparable needs. In an interview with Bizcommunity (2019), Simone Homan stated that customers are constantly looking for unique and customized experiences. Because of this, the niche market is expanding continuously to meet the needs of customers.

Chapter Three

Research Methodology

3.1 Introduction

This chapter describes the methodology used in the study of evaluating important factors for enhancing circulation and layout design in shopping malls. It offers a comprehensive defence of the methods used in the research. The techniques used, along with the procedures for gathering, analysing, and documenting data. This chapter also includes the discussion of topics including case study analysis and synthesis, research design, and research strategy.

3.2 Research Strategy

A frequent method in architecture research is the case study method, which is an analysis tool or technique that involves looking at a particular instance of the phenomenon being studied (Olugboyega, Oseghale, & Aigbavboa, 2023). To ascertain the design techniques for appropriate layout and circulation in shopping malls, case study research methodology is employed. Examining particular instances of well-designed retail centres can yield insightful information and best practices that can guide future project planning and design.

3.3 Research Design

The research design for this study will cover the selection criteria for the case studies, data type and sources, population of the study, sampling method and techniques and instrument for data collection. With the use of the case study, research design the study will be able to give an in-depth analysis on the spatial and circulation requirements for shopping mall.

3.3.1 Selection Criteria for Case Studies

Several significant factors were taken into account when choosing case studies on evaluating crucial factors for enhancing circulation and layout design in commercial buildings. First, there is the mall's size and scope, which varies from modest neighbourhood shopping centres to enormous regional malls. This makes it possible to examine and contrast a wide variety of cases. The mall's location is another factor that was taken into account. To provide a wide perspective on design solutions for shopping mall layout and circulation, case studies were chosen from several geographic locations. The next is innovation in mall design, which has a significant impact on circulation and layout. That is, case studies displaying creative layout and circulation design ideas for shopping centres. Examples of unusual architectural features, traffic patterns, and space arrangements might offer insightful information for upcoming developments.

When choosing case studies, other factors including comfort, accessibility, navigation, and general spatial quality should be taken into account. The mall's efficiency and functionality were taken into consideration as well. Case studies that showcase shopping centres that have effectively improved circulation and layout to boost usability and effectiveness. A number of factors were looked at, including good pedestrian movement, visibility of store spaces, and accessibility for all users. The final set of requirements included case studies that showed how adaptable and flexible design enabling future upgrades and alterations to the circulation and layout of shopping centres as needs change.

3.3.2 Data Type and Sources

In order to collect the numerous data used during the research process and meet the study's objective, primary and secondary data sources were analysed. The primary data sources for the case studies were images from a visual survey. Additionally, first-hand knowledge of the characteristics of a retail mall design was supplied by the case studies. One of the sources from which the primary data were collected provided the secondary data. This suggests that the type of information has previously been obtained by researchers or investigators and is available in published or unpublished form. Secondary map data (region, region, and domain) were obtained for this study, and the literature was reviewed to establish the precise theoretical framework of the investigation. The information gathered provided the framework for analysing the strategies needed to evaluate important factors in order to enhance mall layout and traffic.

3.3.3 Population of Study

This relates to the five malls that were chosen for the case studies in this research. The case studies included the following shopping centres: Ikeja City Mall in Lagos, Novare Gateway Mall in Abuja, Accra Mall in Ghana, The Boulevard Mall in the United States, and Dubai Mall respectively.

3.3.4 Sampling Method and Technique

The sampling strategy for the case study methodology is called purposeful sampling, and it involves the deliberate selection of case studies. Each case study was selected in accordance with the study's objectives so as to ensure that the results were pertinent to the investigation. Every sample of a particular size has the same chance of being chosen. Five retail centres were selected for the study using a simple deliberate sampling technique. Table 3.1 displays the locations and sample sizes.

Table 3.1: Sample size and location

S/N	Sample size	Location
1	Ikeja City Mall	Lagos
2	Novare Gateway Mall	Abuja.
3	Accra Mall	Ghana.
4	The Boulevard Mall	U.S.A.
5	Dubai Mall	Dubai.

Source: (Researcher's Field Work 2024)

3.3.5 Instruments of Data Collection

The way the case studies look on the buildings will determine how well they are evaluated. This type of data collecting involves the researcher using direct observation, recording it, and taking notes. In order to better understand the typical layout and physical characteristics of commercial shopping malls, as well as the spatial organization of these establishments, a visual survey was used in this study. This helped to achieve the first objective by capturing information in a variety of formats, including photos, sketches, and notes that were pertinent to evaluating important factors for enhancing circulation and layout design in shopping malls.

3.4 Case Study 1: Ikeja City Mall, Lagos

3.4.1 Property Description

Ikeja City Mall is situated in Alausa, close to the Lagos State government secretariat's headquarters. Built on a 28,500-square-meter plot of land, the mall was constructed by Gruppo Nigeria Investment Ltd. The shopping mall is made up of a 5-screen Silver Bird movie theatre, a ShopRite supermarket, department stores, banks, cafés, bars, restaurants, hair salons, and beauty parlours. On Wednesday, December 14, 2011, Lagos State Governor Mr. Babatunde Fashola officially opened Shoprite, a mixed-use facility. This is seen in plate IV.

Plate 3.1: Aerial View of Ikeja City Mall
Source: (Google Search, 2024)

3.4.2 General Layout of the Building

Ikeja City Mall features a ShopRite store in addition to five theatres. In addition, it has specialized spaces for banks, department stores, furniture palaces, cafes, bars, restaurants, and beauty salons. Additionally, it features good circulation as seen in plate V, with the retail stores arranged across from one another and an escalator in the middle to facilitate smooth up-and-down travel for patrons. The mall has both artificial and natural lighting systems, with a skylight in the middle allowing light to enter the building during the day. The mall makes more use of air conditioning equipment and artificial ventilation.

Plate 3.2: Shopping Outlets Interior of Ikeja City Mall
Source: (Shoppingmall.Com 2024)

3.4.3 Spatial Organisation

Based on the spatial requirements for a shopping mall in chapter 2, ikeja shopping mall was able to fulfil most of the requirements. At the carport beside the main entrance, customers and guests pack up their vehicles. From the bottom floor to the higher floor, there is a double escalator as seen in plate VI. The massive spherical lighting that fills the entire structure is seen from the main entrance lobby. Comprising a bookstore, champagne lounge, restaurants, cafes, fashion boutiques, telecom accessories store, home interior design stores, furnishings, gift shops, cinemas, dry cleaning services, pharmaceutical store, photo studio, and children's entertainment centre, Shoprite is comprised of 100 specialty shops, offices, and service providers. The shopping mall layout was a linear dumbbell pattern

Plate 3.3: Escalator in Ikeja City the Mall
Source: (Shoppingmall.com 2024)

3.4.4 Circulation Strategies

In order for a shopping mall to have effective circulation systems, there is need to apply circulation design strategies in the shopping mall. The first circulation requirement that was applied in Ikeja shopping mall was zoning. The retail centre can be zoned to create distinct areas for dining, shopping, entertainment, and other purposes. The dining facilities were all zoned in army green, as seen in plate VII below, whereas the other amenities were zoned and depicted in various colours. The shopping mall had three strategic entrances and exits to enhance circulation within the shopping mall. As seen in plate V, the shopping mall also had ample walkways to reduce congestion while customers are shopping and passing by. In addition, a central circulation spine gave room to the placement of escalators for vertical circulation within the shopping mall. Other strategies like spatial flexibility and service access was also met.

Plate 3.4: Ground Floor Zoning Ikeja City Mall
Source: (Shoppingmall.com 2024)

3.4.5 Appraisal: Entrance Observation

Figure 3.1: Ikeja City Mall Entrance
Source: (Www.Cometonigeria.Com 2024)

- The main entrance is prominent and visible from a distance.

- It is wide enough to accommodate many visitors.

- All retail shops along the walkway have visible entrances to attract customers.
- Ramps are available, and doors are wide enough to accommodate wheelchairs.
- Automatic sliding doors make entry easier for everyone, including strollers and mobility aids.
- The entrance is well-lit day and night, ensuring safety and welcoming at all times.
- There are additional entrances, giving people more ways to get into the mall. These are marked and can be easily reached from different building parts.
- Emergency exits are clearly marked and illuminated, ensuring quick and easy egress in case of an emergency.

3.4.6 Appraisal: Parking Area

Figure 3.2: Ikeja City Mall Parking Area
Source: (www.cometonigeria.com 2024)

At least 1,500 cars can park in Ikeja City Mall's convenient parking space near all entrances and exits, with overflow parking during peak times. Visitors can easily access these spaces thanks to visible parking signs. Comprehensive CCTV coverage and regular security patrols ensure safety. Well-lit, with emergency lighting for safety. The layout is efficient and easy to navigate, with family, VIP, and electric vehicle zones.

3.5 Case Study 2: Novare Gateway Mall, Abuja

3.5. 1 Property Description

A two-phase shopping centre development called Gateway Mall is situated on Airport Road in Abuja, near Lugbe. In 2017, 15,000 square meters of retail space were delivered as part of the first phase of this development by Novare Equity Partners, which attracted a variety of tenants such as Shoprite, Fun World, Pep, Genesis Deluxe Cinemas, and others. The mall will gain an additional 10,000 square meters in the second phase; however, no timetable for this expansion has been provided. As of right now, Gateway Mall is purportedly the biggest project in Novare's portfolio. Significantly bigger than the 22,000 square meter Lekki Mall in Lagos, which opened last year, and the 8,300 square meter Apo Mall (previously the Grand Towers Abuja Mall), which is situated around 18 kilometres from the Gateway Mall. The approach view of the mall is seen in plate VIII.

Plate 3.5: Approach View Novare Gateway Mall
Source: (Shoppingmall.com 2024)

3.5.2 General Layout of the Building

The two-story Novare Gateway Mall occupies roughly 15,000 square meters of ground. It has sixty stores total, including one anchor store that is occupied by ShopRite supermarket, as well as department stores for dining establishments, fashion retailers, furniture stores, banks, kids' stores, pharmacies, specialty shops, sports and fitness stores, beauty salons, technology and electronics stores, storage areas, and public restrooms. Among the major tenants at the mall are Cold Stone and Domino's Pizza. In addition, it has specialized spaces for banks, department stores, furniture palaces, cafes, bars, restaurants, and beauty salons. Additionally, i

t features good circulation, with the retail stores arranged across from one another and an escalator in the middle to facilitate smooth up-and-down travel for patrons. The mall has lighting systems that are both artificial and natural. The mall makes more use of air conditioning equipment and artificial ventilation.

3.5.3 Spatial Organisation

With two entrances and a lobby that is roughly 7.5 meters wide, the mall boasts excellent circulation. Additionally, there is a large enough parking lot to accommodate at least 500 customers. Since the department stores are situated along a pedestrian walkway, customers may observe them from an advantageous vantage point as they are arranged in a linear form facing each other along a large lobby as seen in plate IX.

3.5.4 Circulation Strategies

In order for a shopping mall to have effective circulation systems, there is need to apply circulation design strategies in the shopping mall. The first zoning circulation strategy was not applied. Department stores in Novare Gateway Mall were not designated. The sole zoned area of the mall

was the food court area, as shown in plate X. The presence of separate pathways for both customers and employees suggested that customers' access and exit from the service area were well defined. This will improve the mall's internal circulation. Additionally, three main entrances and exits were added, along with usable ramps for consumers with disabilities that have gentle slopes to help reduce traffic congestion when leaving and entering the shopping centre. As seen in plate ix, the shopping mall also had ample walkways to reduce congestion while customers are shopping and passing by. In addition, there was no central circulation spine gave room to the placement of escalators for vertical circulation within the shopping mall. Other strategies like spatial flexibility and service access was met.

Plate 3.6: Interior of Novare Gateway Mall
Source: (Shoppingmall.com 2024)

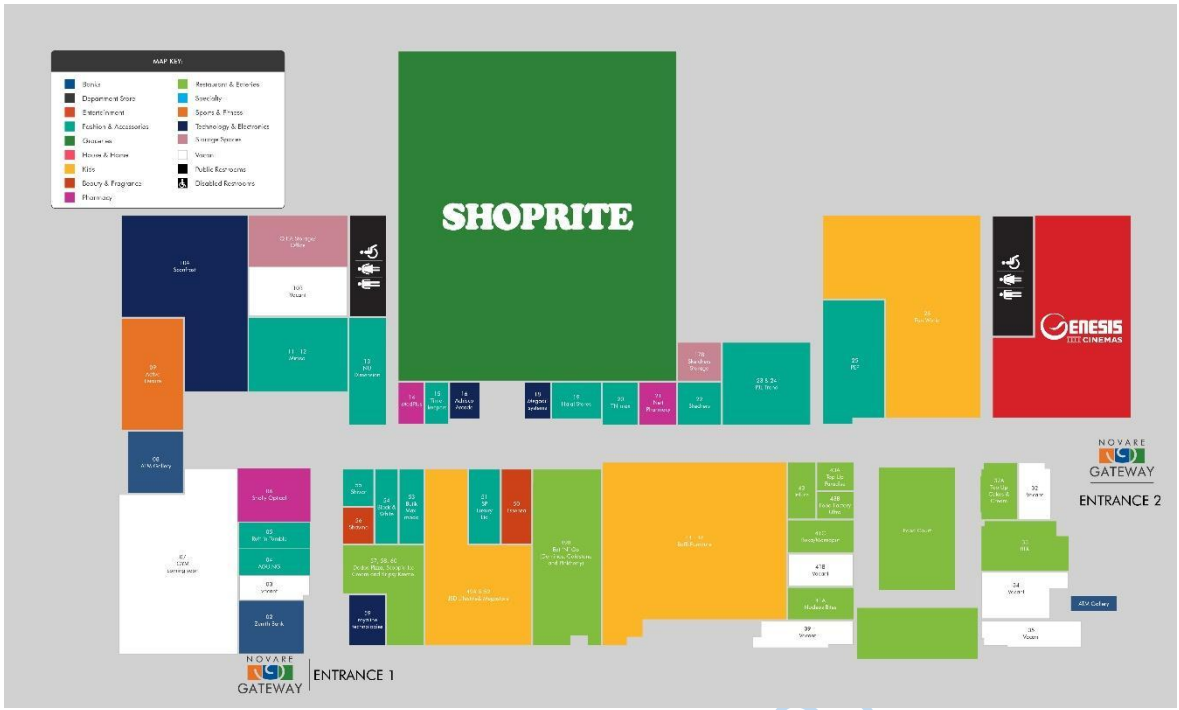

Plate 3.7: Novare Gateway Mall Zoning
Source: (Shoppingmall.com 2024)

3.5.5 `Appraisal: Entrance Observation

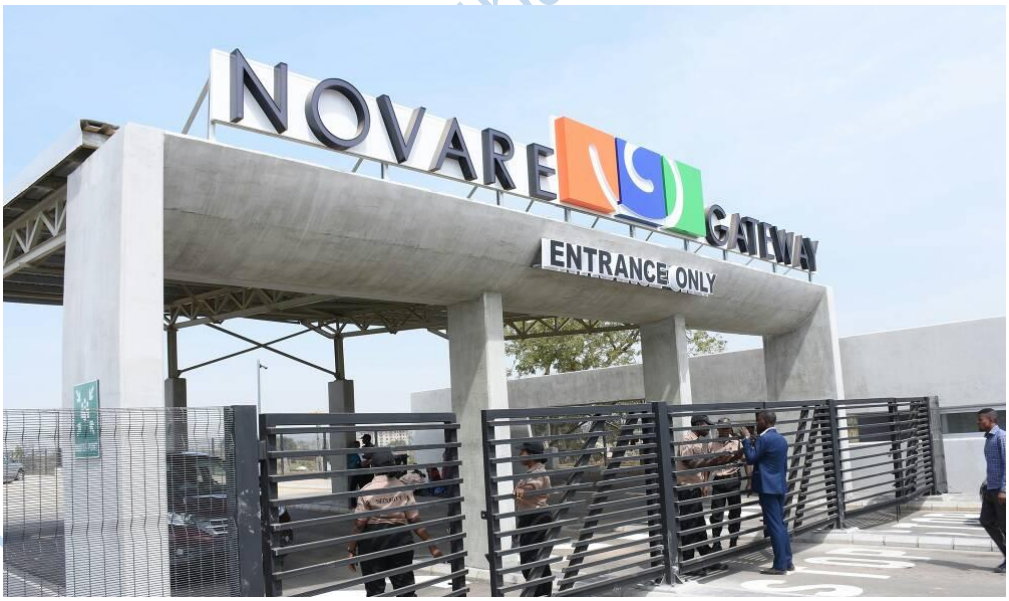

Figure 3.3: Novare Gateway Mall Entrance
Source: (www.novare-gateway.com 2024)

- There are separate entrance and exit into the site
- The entrance is highly accessible, featuring prominently located, wide entry points that accommodate a large number of visitors.

- Clearly visible signage directs visitors efficiently to various parts of the mall.
- Security is robust, with visible personnel and surveillance cameras enhancing safety.
- The entrance area is well-lit.
- The modern architectural design, coupled with well-maintained greenery and seasonal decorations, offers an aesthetically pleasing first impression.
- The area is kept clean with conveniently located waste bins.

3.5.6 Appraisal: Parking Area

Figure 3.4: Novare Gateway Mall Parking Area
Source: (www.novare-gateway.com 2024)

- Designated accessible car parking
- Size of parking spaces are not spacious enough to accommodate much cars
- Lack of soft landscape elements

3.6 Case Study 3: Accra Mall, Ghana

3.6. 1 Property Description

Accra Mall is a cutting-edge retail and shopping centre in Accra, Ghana, situated on the Tetteh Quarshie Interchange, near to the Tema Motorway. The mall, which opened on July 4, 2008, is one of the most contemporary Western-style shopping centres in West Africa, as well as Ghana's first large-scale mall. Accra Mall is currently Ghana's second largest shopping mall, with 21,384m2. The centre is positioned at a major traffic crossing in what is perhaps the city's most affluent neighbourhood as seen in plate XI. One of West Africa's most modern commercial malls, and the first large-scale shopping mall in the city of Accra, Ghana. Accra Mall is a shopping destination that offers a diverse selection of products and services from local and international brands. The eclectic mix of shoppers includes new age millennials, foreigners, and high- to middle-income professionals.

Plate 3.8: Accra Mall Approach View
Source: (Shoppingmall.com 2024)

3.6.2 General Layout of the Building

The Accra Mall is one of West Africa's most contemporary retail malls, as well as Ghana's first large-scale shopping facility. The mall is an enclosed, fully air-conditioned shopping centre as seen in plate XII. It contains approximately 900 automobile parking spaces. The mall has 65 line shops, 30% of which are managed by Ghanaian businesses, and a food court with multinational franchises. Two South African retail giants (ShopRite and Game shops) anchor the mall.

Plate 3.9: Aerial View Accra Mall
Source: (Shoppingmall.com 2024)

3.6.3 Spatial Organisation

The centre is predominantly a single level structure – with an upper-level housing the cinema complex and a small area for other retail as well as a basement area housing management offices and parking. The shopping mall has a large lobby for effective's circulation as seen plate xiii.

3.6.4 Circulation Strategies

In order for a shopping mall to have effective circulation systems, there is need to apply circulation design strategies in the shopping mall. The Accra Mall's facilities are organized into four zones. The first is the Retail Shops Zone, which houses a diverse selection of retail. Another zone is the food court zone, entertainment zone and Services zone. The presence of separate pathways for both customers and employees suggested that customers' access and exit from the service area were well

defined with three entrances and exits. As seen in plate xiii, the shopping mall also had ample walkways to reduce congestion while customers are shopping and passing by. In addition, there was no central circulation spine gave room to the placement of escalators for vertical circulation within the shopping mall.

Plate 3.10: Accra Mall Interior
Source: (shoppingmall.com 2024)

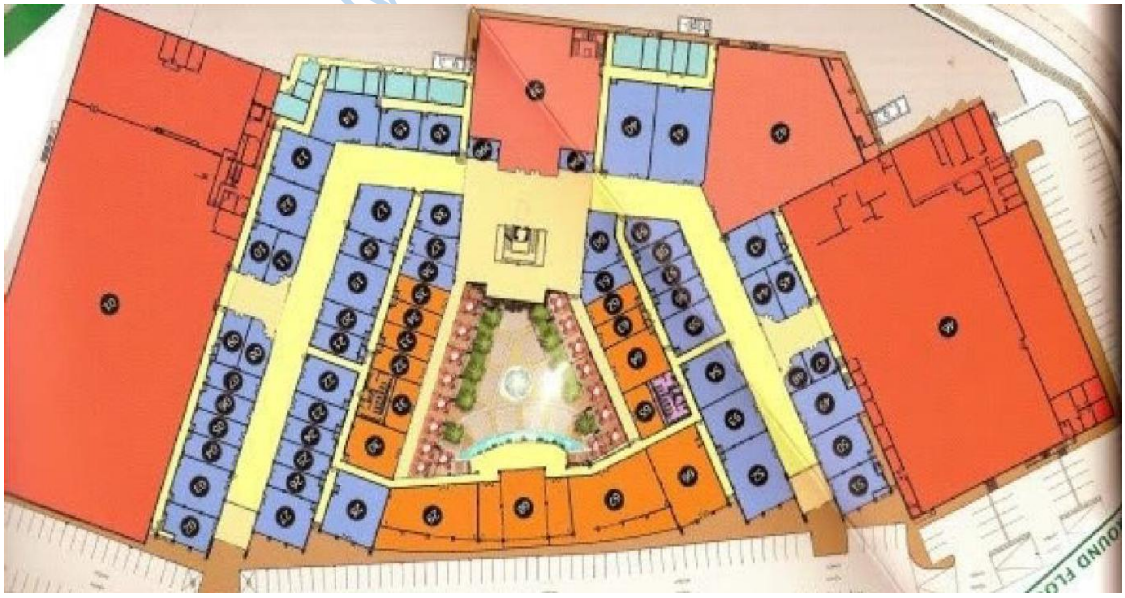

Plate 3.11: Accra Mall Floor Plan Layout
Source: (Shoppingmall.com 2024)

3.6.5 Appraisal: Entrance Observation

- The entrance is designed for high accessibility.
- The entrance is prominently located
- Wheelchair ramps and automatic sliding doors ensure easy access for individuals with disabilities and those with strollers.
- The area is brightly lit, enhancing visibility and safety at all times.

3.6.6 Appraisal: Parking Area

Figure 3.5: Accra Mall Mall Parking Area
Source: (www.novare-gateway.com 2024)

- Adequate car park with parking space for 662 cars.
- Presence of security personnel and extensive CCTV coverage ensures a high level of safety
- Adequate circulation within mall

3.7 Case Study 4: The Boulevard Mall, U.S.A

3.7. 1 Property Description

The Boulevard Mall, the first covered, climate-controlled shopping centre in the state, debuted as The Boulevard Mall on March 6, 1968, after first being named the Parkway Mall in September 1963. When it opened, there were four department stores and 26 stores. Because of its proximity to

the Las Vegas Strip, it became one of the most popular shopping destinations in the Las Vegas Valley and attracted many tourists. Plate XIV shows the approach view of the shopping mall.

Plate 3.12: Boulevard Mall Approach View
Source: (www.boulevardmall.com 2024)

3.7.2 General Layout of the Building

The Boulevard Mall is situated in Paradise, Nevada, USA, an unincorporated hamlet in the Las Vegas Valley, at 3528 S. Maryland Pkwy. It is a single-story super-regional mall with 1,180,000 sq. ft. (110,000 m2) of lease-able retail space, situated on 75 acres (30 hectares). It features 140 establishments, with 99 Ranch Market and Goodwill serving as anchors. In the Las Vegas Valley, it is the oldest mall.

Plate 3.13: The Boulevard Mall Interior View
Source: (www.boulevardmall.com 2024)

3.7.3 Spatial Organisation

The anchor stores and other important components of the mall define the Boulevard Mall's spatial layout. Boulevard Mall has a large number of inline retailers and boutiques along the main corridor and side wings in addition to anchor businesses. A food court and independent eateries are positioned thoughtfully next to the entrances and along the main corridor of the mall. Visitors may readily access food options while visiting the mall because to its placement. The Boulevard Mall's overall layout and circulation are intended to provide guests with a cosy and friendly atmosphere. Its linear design, along with the well-placed anchor stores, restaurants, entertainment venues, and services, guarantees a smooth and pleasurable shopping experience for everyone.

Plate 3.14: The Boulevard Mall Seating Area
Source: (www.bouvelardmall.com 2024)

3.7.4 Circulation Strategies

Boulevard mall in Las Vegas, Nevada, has a central corridor that runs through the middle of the complex, giving it a linear layout. This arrangement makes it easy for customers to move throughout the mall since it offers a clear and direct line of circulation. A variety of retail establishments, eateries, entertainment venues, and service facilities are thoughtfully zoned throughout the Boulevard Mall in Las Vegas, Nevada, USA. The shopping mall had a strip layout that allowed effective linear circulation throughout the shopping mall.

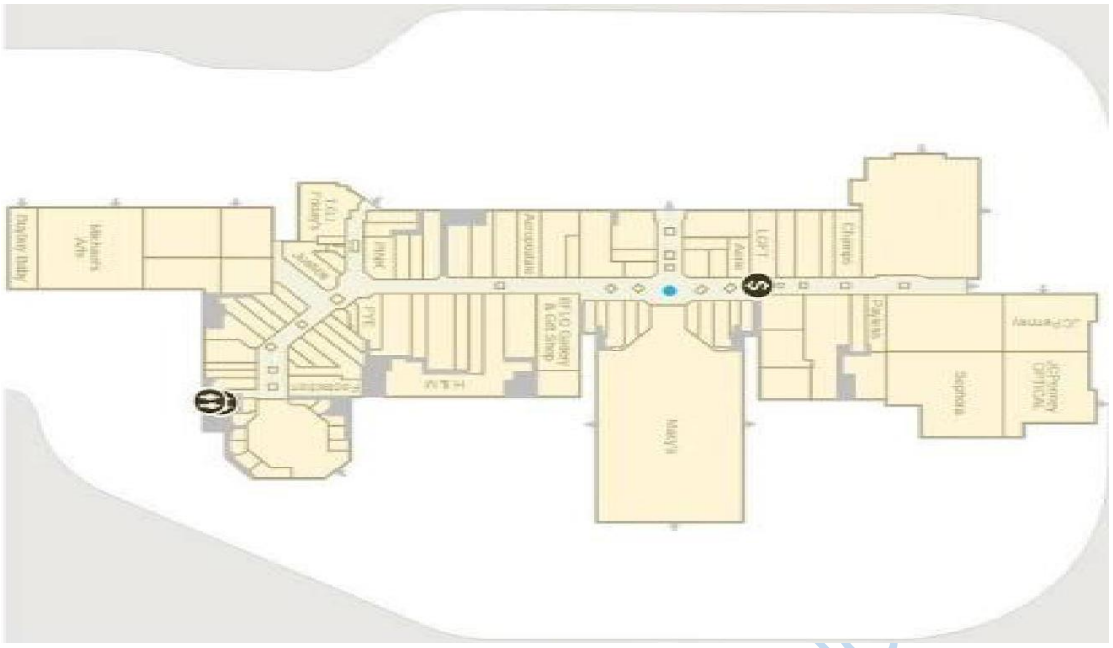

Plate 3.15: The Boulevard Mall Floor Plan
Source: (www.bouvelardmall.com 2024)

3.7.5 Appraisal: Entrance Observation

- It has multiple entrance
- The entrance offers a safe, accessible, and welcoming experience for all visitors
- Adequate circulation within mall
- Adequate ventilation
- Presence of indoor plants
- No available access for the physically challenged

3.7.6 Appraisal: Parking Area

- Adequate car park
- Clear directional signage and well-marked lanes facilitate easy navigation throughout the parking lot.

3.8 Case Study 5: Dubai Mall

3.8. 1 Property Description

Dubai Mall is a retail centre located in Dubai. It was formerly known as The Dubai Mall until 2023. It is tied with West Edmonton Mall and Fashion Island (Bangkok), both of which are older than it, to be the second-largest mall in the world by total land area and the 26th-largest retail mall globally by gross leasable area. Its retail floor area is spread across 502,000 square meters, or 5,400,000 square feet as seen in plate XVII. It is a component of the 20-billion-dollar Downtown complex, known as Downtown Dubai, which is situated in Dubai, United Arab Emirates, next to the famous Burj Khalifa. It has more than 1,200 stores. With more than 54 million visits annually, it held the title of most visited building on Earth as of 2011.

Plate 3.16: Dubai Mall Façade
Source: (www.dubaimall.com 2024)

3.8.2 General Layout of the Building

The Dubai mall is around the same size as the west Edmonton mall, with an overall internal floor area of 5.9 million square feet (550,000 m2) and leasable space of 3.77 million square feet (350,000 m2). At nearly 13 million square feet (1,200,000 m2), it is larger than more than 50 football fields.

In addition, there are 120 eateries and cafes, 22 movie theatres, and a 250-room opulent hotel. Three parking lots with over 14,000 spaces, valet parking, and a car locate ticketing system are available at the mall. The Dubai ice rink, which is Olympic-sized, is another attraction of the mall where people can skate for fun or watch ice hockey league games and the Emirates experience. Visitors will be able to pilot the largest passenger aircraft in the world over cityscapes and well-known locations using an Airbus flight simulator and stated experience. With the assistance of a trainer, they can ascend, descend, take off, and do anything they want. The shopping mall also has an underground aquarium as seen in plate XVIII.

Plate 3.17: Underground Aquarium in Dubai Mall
Source: (www.dubaimall.com2024)

3.8.3 Spatial Organisation

The Dubai Mall is set out in a way that optimizes customer flow and offers a flawless shopping experience. Escalators, elevators, and staircases, making it simple for customers to navigate and travel between its various sections, connect the mall's several levels. The Dubai Mall's central

atrium acts as a focal point and makes it simple to navigate between the several levels of the building.

3.8.4 Circulation Strategies

Visitors may easily move around and take advantage of everything the mall has to offer thanks to the numerous walkways and corridors that connect its various sections. In order to facilitate customer's circulation, the mall also has a multitude of services such rest spaces, information desks, and signs. In order to achieve effective circulation, the shopping mall was zoned into three sections. The first area is the retail section of the Dubai mall, which has a large selection of shops ranging from high-end labels to high-street apparel and everything in between. The amusement area follows and the common areas and service facilities zone are examples of other zones.

3.8.5 Appraisal: Entrance Observation

The entrance is highly visible and conspicuous to all observers. The design of the Entrance is universally inclusive. The entrance is impeccably lit, enhancing both safety and aesthetics, with emergency lighting in place. Architecturally, the entrance is striking, featuring contemporary design elements complemented by lush landscaping and seasonal decorations. Cleanliness is meticulously maintained, with ample waste disposal options.

3.8.6 Appraisal: Parking Area

- Adequate car park
- No available access for the physically challenged

3.9 Case Study Synthesis

The case study synthesis offers insights into how these malls may have structured their circulation layouts by drawing on common circulation tactics that are frequently present in large shopping

centres. The first case study, Novare Gateway Mall in Abuja, Nigeria, had clearly defined major corridors that led to anchor retailers and intersecting walkways that directed guests to a variety of retail establishments, restaurants, and entertainment facilities. Additionally, sitting arrangements, rest rooms, and directional signage may be included in Novare Gateway Mall to help customers navigate the area effectively. Ikeja City Mall is a well-known shopping destination in Lagos, Nigeria. It has central plazas or atriums that act as focal areas and connect various wings and levels via a system of escalators and corridors. The Dubai Mall is renowned for its opulent architecture and cutting-edge design. It has distinctive pathways, magnificent entrances, and themed corridors that lead to important landmarks, upscale stores, and entertainment areas. To make it easier for guests to navigate the intricate layout, Dubai Mall also incorporates cutting-edge wayfinding technologies, such as interactive maps and digital kiosks.

Boulevard Mall places a strong emphasis on an intuitive circulation design that puts ease of use and accessibility first. The mall's simple grid layout and distinct sightlines make it easy for customers to traverse between department stores, eateries, and anchor retailers. In order to promote smooth movement both inside and outside, Boulevard Mall also features parking facilities, landscaped courtyards, and outdoor promenades. Not to be overlooked is the Accra Mall, which incorporated a circulation plan that both satisfies contemporary retail preferences and pays homage to the region's unique architectural and cultural features. The mall's bustling plazas, food courts, and entertainment venues are connected by curved walkways, geometric patterns, and other elements of the circulation design.

In conclusion, meticulous planning went into the circulation patterns of the Novare Gateway Mall Abuja, Ikeja City Mall, Dubai Mall, Boulevard Mall, and Accra Mall in order to maximize exposure for stores, encourage effective traffic flow, and provide a welcoming and interesting environment for guests. These malls maximize the navigation, promote exploration, and optimize

the overall circulation experience for customers and visitors by combining architectural aspects, interior design components, and technological solutions.

Chapter Four

Site Analysis and Design Synthesis

4.1 Study Area

The capital of Oyo state, Nigeria, Ibadan, is situated around 100 miles (160 km) from the Atlantic coast atop seven hills with an average elevation of 700 feet (200 meters). At 2,649,000 as of 2021, it is the third-largest city in Nigeria in terms of population, behind Lagos and Kano, with almost 3 million living in its metropolitan region. In terms of total area, it is among the biggest cities in the nation. Ibadan was the biggest and most populated metropolis in Nigeria and the second most populous city in Africa in 1960, the year of the country's independence. According to the UN Human Settlements Program (2022), Ibadan is among the cities in sub-Saharan Africa that is growing at the highest rate. According to the IT start-ups index, it is also placed third in West Africa. With almost 6 million people living in the metropolis, it consists of thirty-three (33) Local Governments (Bruce, 2019).

With commercial routes connecting the coastal regions and neighbouring states, it is the most significant transit hub. It also has large transportation arteries connecting Lagos to the federal capital, Abuja, the northern metropolis of Kano, and other significant cities (Ibadan City Master Plan, 2017). Since the earliest days of British colonial control, Ibadan served as the administrative hub of the former Western Region, and portions of the city's historic defence walls still survive today. The Yoruba people make up the majority of the city's population, along with a number of other groups from other regions of the nation, including the Igbo, Hausa, Edo, and Ibibio.

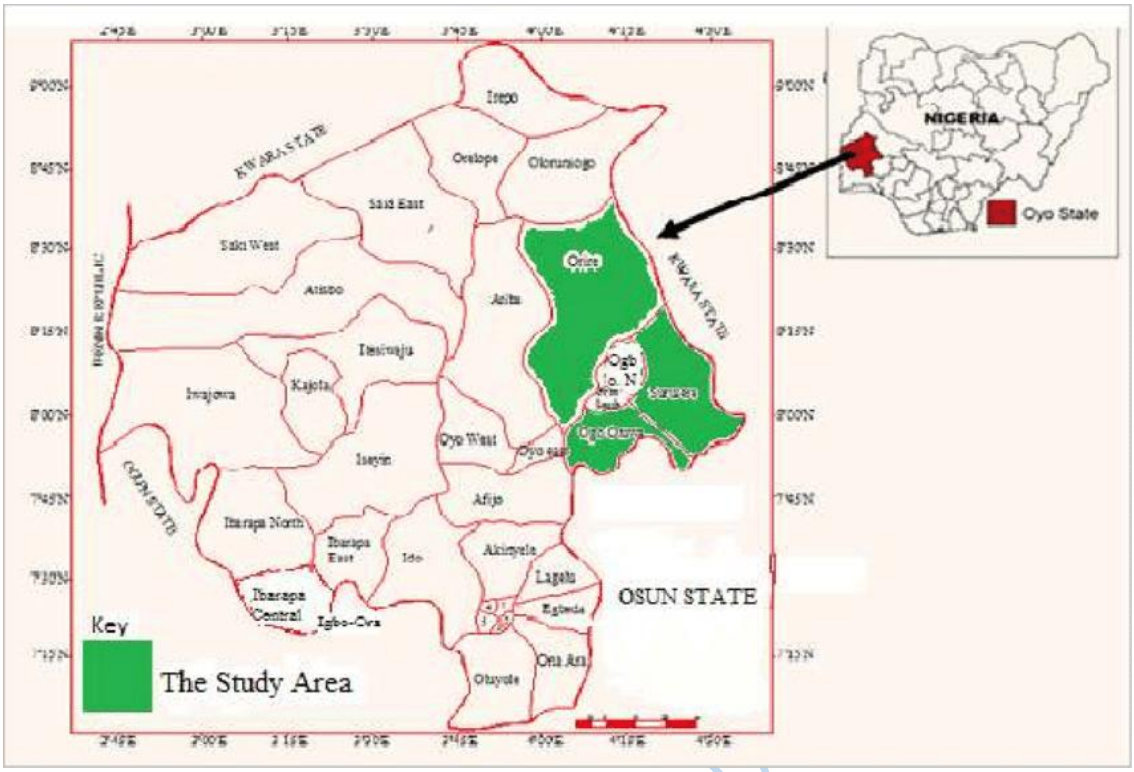

Figure 4.1: Map of Oyo State showing Ibadan Metropolis
Source: (www.researchgate.net.2024)

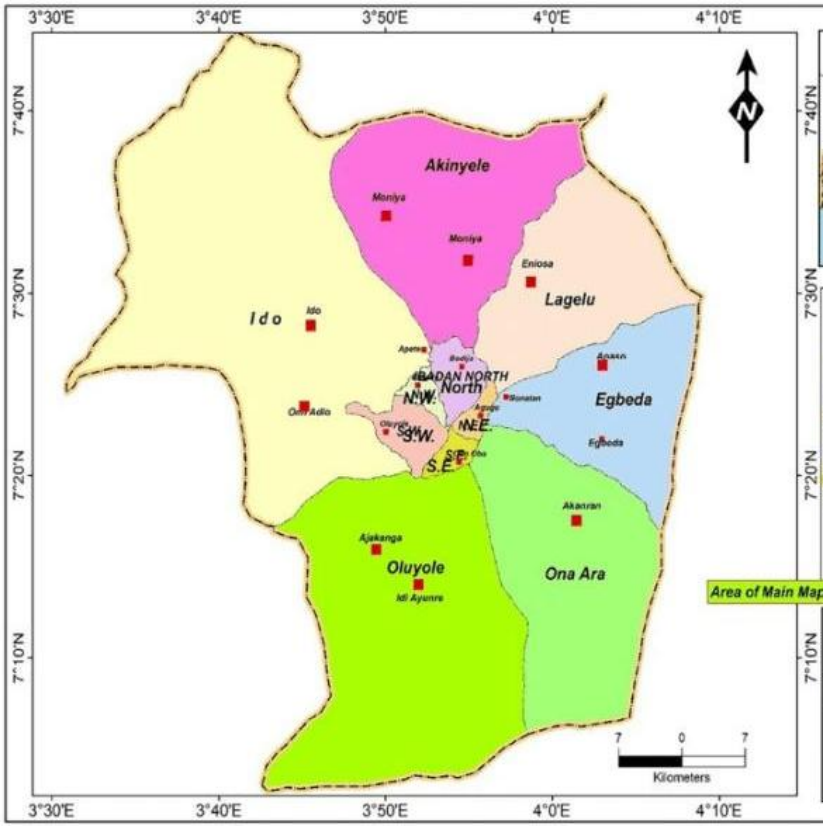

Figure 4.2: Map of Ibadan Metropolis showing Lagelu L.G.A
Source: (www.researchgate.net. 2024)

4.1.1 Site Location

In the Oyo region is where Akobo is situated. According to the crow fly, the capital of Oyo, Ibadan, is around 7.2 kilometers / 4.5 mi from Akobo. According to the crow's tail, it is roughly 431 kilometers (or 268 mi) from Akobo to Abuja, the capital of Nigeria. The town is situated in Lagelu Local Government Area's Olorunda District. With Iyana Offa serving as its capital, the Lagelu Local Government was established in 1976 and covers 416 square kilometers. It belonged to the 1961-established Ibadan East District Council. The main towns of Lupon, Lagun, Monatan, Ofa, Ejioku, Oyedeji, Kelebe, Sagbe, Elegbaada, Olowode, Wofun, Ogburo, Kutayi, Apatere, Olorunda, Ogunjawa, Ile-Igbon, Iyana Church, Odo Oba, Sukuru, and Akinsawe are among the more than 1076 towns and villages that make up the Local Government. Two (2) Local Council Development Areas, Lagelu West LCDA with its headquarters at Olorunda Abaa and Lagelu North LCDA at Oyedeji, were split off from Lagelu Local Government in January 2017.

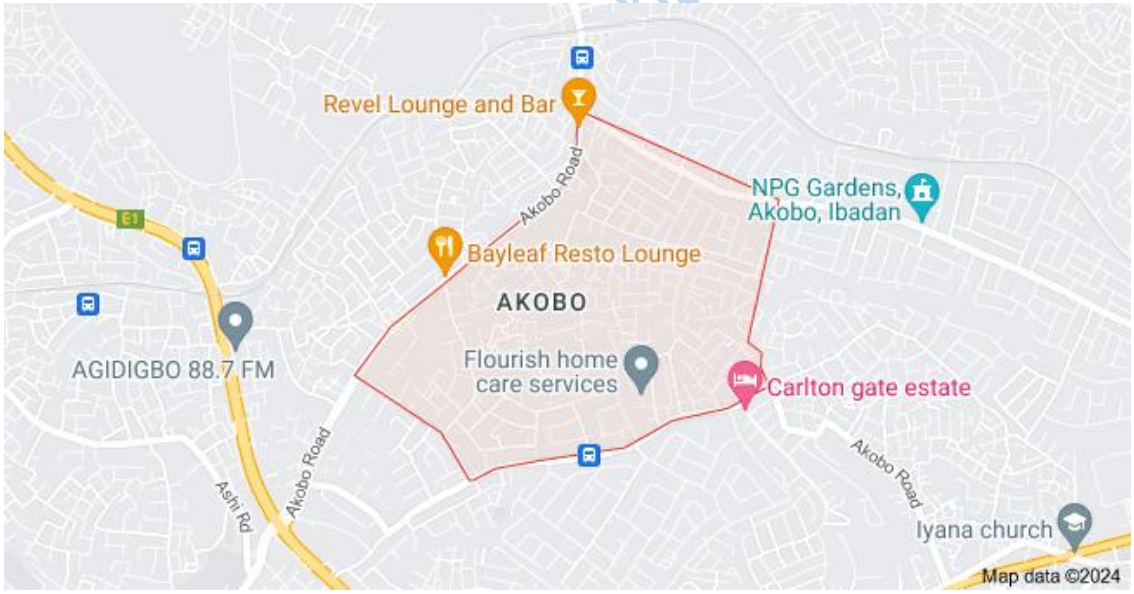

Figure 4.3: Location Map of Akobo in Lagelu L.G.A
Source: (Google map 2024)

Figure 4.4: Location of Proposed Shopping Mall in Akobo Ibadan.
Source: (www.earth.google.com.2024)

4.1.2 Site Selection Criteria

The choice of location is a difficult and important task. Ignoring it can have negative effects on the shopping mall's functionality, regardless of how well designed it is. Therefore, five main criteria were established for the purposes of this study.

4.1.3 Accessibility and Visibility

Any site selected for a shopping mall must to be conveniently accessible. A shopping mall's layout should prioritize locations that are close to one or more major roadways, in good shape, and easily accessible by public transportation, if any. One way to assess accessibility is by looking at the routes that accommodate different forms of mobility, such as cars, pedestrians, and public transportation. The suggested shopping mall satisfies the accessibility requirements, as shown in figure 4.4. Visibility for the mall is equally as vital as accessibility. When choosing a location, it is important to take into account the terrain in relation to the surrounding area because a shopping mall with high visibility from main roads or highways may draw in more customers.

4.1.4 Population Density and Growth

Population density is very important in situating a shopping mall in an area. Based on the proposed location of the shopping mall in Ibadan that has a population of over three million and the site at Akobo with prospects of expansion. It could be said that the population density was considered for the site selection criteria. The advantage of areas with high density is that it offers a large customer base and a greater likelihood of commercial success. Also the selected site has a tendency for increased population growth over time which important to ensure long-term viability of the shopping mall.

4.1.5 Infrastructural Facilities

Infrastructural facilities such as good road network, water electricity is important for the smooth running of the shopping mall. Based on the proposed location for the shopping mall, the location has basic infrastructural facilities that has already been put in place by the government. All that is need to tap into these facilities to enhance the shopping malls functions.

4.1.6 Demographics of the Study Area

The demographic data of the study area is very important when selecting the site for a shopping mall. Demographic information such as population size, income levels, household makeup, and the general lifestyle of people in that area will enable one to determine the viability of situating a large commercial building such as a shopping mall. The demographic information will also ensure that the tenant mix and retailing stores are tailored towards the preferences and lifestyle of the shoppers.

4.1.7 Parking Facilities

There is need to consider adequate parking space to ease the entry and exits to of numerous customers or shoppers coming into the shopping mall. To enhance the experience of shoppers there

is need to design a well-planned parking space to also accommodate the disabled and provide convenient access into the shopping mall.

4.2.1 Brief Analysis

Odu'a Investment Company limited is an independent board of directors of seasoned professionals with vast experience in business and human resources who continues to make forays into new, profitable ventures that will not only give returns to her shareholders' value, but also create employment opportunities for people. As an active key player in the competitive business world the organization is looking to construct a suitable shopping mall that can serve commercial purpose and serve the needs of residents for leisure and entertainment purpose. It will also do lots more by providing a comfortable space for large stores and depot for large manufacturers that would help most retailers who travel out to get goods.

4.2.2 Brief Development

In order to meet the requirement for the proposed shopping mall for Odua Investment Company Limited, there is need to derive functional spaces. These spaces are essential in the proposed design of a shopping mall. They were derived from existing case studies and design guides for shopping mall designs.

Table 4.1: Brief development for proposed shopping mall

BRIEF DEVELOPMENT			
S/N	**SPACES**	**S/N**	**SPACES**
1	Retail stores	11	Common areas/Atrium
2	Department stores	12	Parking lots
3	Food courts	13	Restrooms
4	Movie theatre	14	Information centres
5	Entertainment theatres	15	Pop-up shops

6	Grocery stores	16	Pet areas
7	Specialty stores	17	Technology areas
8	Service areas	18	Furniture stores
9	Fitness/Gym	19	Fashion shores
10	Event spaces	20	Outdoor areas

source:(Researchers Field Work 2024)

4.2.3 Design Criteria

In order to design a shopping mall to meet the expected requirements for design. There is need to consider some parameters of shopping mall design that are essential to achieve the standard requirements.

4.2.3.1 Layout and Circulation

Clear circulation throughout the mall depends on well-designed pathways and corridors, which should also have enough breadth to handle large crowds of people during busy hours. As seen in plate xxi, the proposed shopping mall circulation area that was depicted in pink colour was large enough to accommodate large crowds in the shopping mall. Hence there was due consideration for circulation in the shopping mall.

Plate 4.1: Ground Floor Plan Of the Proposed Shopping Mall

Source: (Researchers Field Work 2024)

4.2.3.2 Aesthetics

The aesthetic appeal of the building should be such that can attract both the public and shoppers into the shopping mall. Without aesthetics, the shopping mall remains a structural piece rather than an architectural piece. As seen in plate xxii, the proposed shopping malls approach view was aesthetically appealing with well-designed landscapes, building forms and vegetation.

Plate 4.2: Approach View Aesthetics
Source: (Researchers Field Work 2024)

4.2.3.3 Tenant Mix

A varied mix of eateries, entertainment centres, retail stores, and other tenants was incorporated in the architectural design to guarantee a harmony of features and a unified visual identity. The proposed shopping mall did not consist of anchor stores alone, but spaces was provided for entertainment and other specialty store. As a result, the proposed shopping malls design was all-inclusive.

4.2.3.4 Common Areas

Large, open spaces are needed for events, general sitting, and gathering spots in shopping malls. As seen in plate xxi, around the circulation areas, general sittings were provided for people to relax, socialize and communicate while shopping. Also in plate xxiii another common area that was

incorporated in the design was the recreational space to create a dynamic and exciting retail experience.

Plate 4.3: Recreational Area of the Proposed Shopping Mall
Source: (Researchers Field Work 2024)

4.2.3.5 Natural Ventilation and Lighting

Natural ventilated and lighted spaces are required in a shopping mall design. It creates a refreshing and healthy ambience within the shopping mall. The proposed shopping mall was able to achieve that through the incorporation of skylight within the shopping mall.

4.2.3.6 Accessibility and Parking

A shopping mall without good accessibility and parking cannot be suitable for shopping has congestion and traffic will become the order of the day. The proposed shopping mall was designed to be accessible to persons with different abilities, taking into account those who use strollers, mobility aids, or other assistive. Ensuring that all elements of the mall, such as ramps, elevators, and specially allocated parking places for people with disabilities, are accessible without any barriers in accordance with accessibility laws and standards as seen in plate xxiv.

Plate 4.4: Site Plan Accessibility and Parking
Source: (Researchers Field Work 2024)

4.2.4 Conceptual Development

The design concept is an essential part of any architectural design; hence, the need to consider a design concept that can suit a shopping mall design. a shopping cart was considered as a concept for the proposed shopping mall as seen in plate xxv. It is a small opened wheeled vehicle, provided by the shopping mall for shoppers to accumulate items they want to purchase. At the end of the shopping, it is usually wheeled to the counter to checkout. It comes in various sizes, and it greatest benefits is the ease it creates for shopping instead of one to carry all the items by hand. Due to the significance of a shopping cart to a shopping mall, it will be highly relatable to use its form in design. For it to stand out in design more than one cart will be combined to show how shopping brings customers together from different location into one space as seen in the conceptual development illustrated in Plate XXV

Plate 4.5: Proposed Shopping Mall Design Concept
Source: (Researchers Field Work 2024)

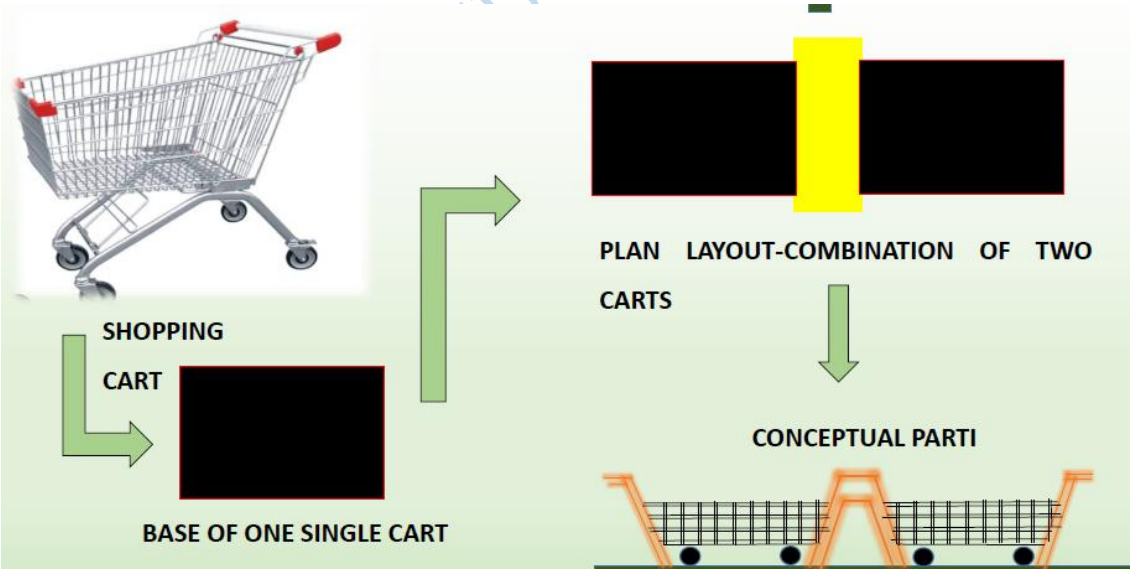

Plate 4.6: Conceptual Development for Proposed Mall
Source: (Researchers Field Work 2024)

4.2.5 Functional Relationship

This has to do with the relationship that shows how spaces in the shopping mall are connected to one another. The functional relationship will be firstly discussed based on the entrance, and horizontal and vertical circulation. The second will be discussed based on the placement of the cinema, while the fourth discussion will be based on the restaurant and shopping spaces. Lastly the functional relationship will; be discussed on the parking lot and delivery.

4.2.5.1 Entrance and Circulation

The ground floor needs to be the main access to the interior spaces. The entrance needs to be elevated to provide the building a more important aesthetic look.

4.2.5.2 Cinema Placement

The floor of the cinema should be racked for easy view. The hall is characterized to provide a seating capacity of not less than 200 people. The cinema area is planned at the last floor to satisfy the requirements for the space and the use of the people.

4.2.5.3 Restaurant and Shopping spaces

The restaurant was positioned on the ground floor close to the central area. The shops will be located on the floors enhancing the easy movement and circulation in the interior of the building.

4.2.5.4 Parking Lots and Delivery

The parking lot will be located on the site same with the delivery. The delivery will be located close to the warehouse.

4.2.6 Space Allocation

The shopping mall's spaces are distributed according to the functional activity that each space is needed for. This will lessen traffic congestion, promote customer happiness, and improve service delivery. The total number of spaces that were allocated were thirty as seen in table 4.2 below

Table 4.2: Shopping Mall Spatial Allocation

SPATIAL ALLOCATION					
S/N	**SPACES**	**DIMENSION**	**S/N**	**SPACES**	**DIMENSION**
01	Entrance porch	7m x 12m	16	Retail store (A)	6m x 6m
02	Security post	6m x 6m	17	Retail store (B)	6m x 12m
03	ATM gallery	6m x 6m	18	Retail store (C)	12m x 12m
04	Restaurant	18 x 18m	19	Admin area	12m x 18m
05	Warehouse	12m x 30m	20	Check point	3m x 6m
06	Store	3m x 7m	21	Media room	6m x 14m
07	Locker room	6m x 6m	22	Kitchen	18m x 18m
08	Delivery bay	6m x 20m	23	Server	3m x 9m
09	Lift	6m x 6m	24	Utility store	4m x 6m
10	Anchor store	23m x 41m	25	Cinema	17m x 21m
11	Conveniences	1.2m x 1.5m	26	Control room	4m x 6m
12	Arcade & games	23m x 42m	27	Exhibition area	6m x 12m
13	Exit porch	7m x 20m	28	Concourse	6m x 6m
14	Sit out area	4m x 12m	29	Parking lot	3m x 6m
15	Stair hall	6m x 6m	30	Waiting room	12m x 18m

Source: (Researchers Field Work 2024)

4.2.7 Construction Methods and Materials

The construction methods and materials will depend on the condition of the site, the soil type and strength and the number of floors the shopping mall design will get to. As a result, the following construction methods is advised to be adopted for the construction of the proposed shopping mall.

4.2.7.1 Site Preparation

This involves the removal of any debris and other obstacles on the site, cutting down of unwanted vegetation around the site. After which excavation takes place, the site is dug to the required foundation depth as specified by the engineers. The site is then graded to ensure it is levelled and compact. Either by machine or by manual method the soil can be finally compacted.

4.2.7.2 Foundation Work

The next stage is the foundation works. It begins with the setting out where positions as it relates to the floor plans are marked and pegged. Foundation works as the name implies has to do with digging trenches and beams for the foundation. This is immediately followed by pouring concrete of a desired mix into the trenches and beams. Afterwards the foundation slabs are laid.

4.2.7.3 Superstructure Construction

This stage has to do with the visible part of the shopping mall will be built, indicating the elevations above ground level and the facade. At this stage an oversite concrete work will be done which will indicate the ground floor slab after a damp proof membrane had be laid. After which forming for the ground floor takes place, to divide spaces as indicated on the ground floor plan. After forming then the laying of the blocks or bricks begins with attention to details of openings as indicated on the ground floor plans. Alongside with concrete works for beams and columns. The

same procedure goes for the subsequent floors until the roof level. Installation of stairs, lifts and escalators can then begin.

4.2.7.4 Roofing and Finishing

Depending of the roofing style. For parts that needs a concrete slab after the roof beam then it can be introduced, while other parts can be constructed with the material for roof trusses. After which the roof material is being installed. Other finishing works will continue and be completed at this stage plastering, painting, tiling, furnishing and so on.

4.2.7.5 Materials Needed

Some of the materials need for this construction are but not limited to cements, sand and gravel, reinforced steel bars, concrete blocks and bricks. Other materials include roofing materials, electrical cables, plumbing materials, glass and aluminium for façade, steel beams, steel columns, plywood and form work for concreting.

4.2.7.6 Equipment Needed

Some of the equipment's needed for this construction are but not limited to excavators, cranes, concrete mixers, pumps and generators. Other equipment's include drilling machines, saw machines, grinding machines, heavy-duty trucks and trailers.

4.2.7.7 Skilled Professionals and Labour

Skilled professionals and labour need for the effective construction of the proposed shopping mall ate the project manager, engineers (civil, electrical mechanical), architects, and quantity surveyors. The skilled and unskilled labours include the masons, carpenters, and other unskilled labourers.

4.2.8 Building Services

Building services for shopping mall construction are essential systems that allows for safe, comfortable, and effective running of the shopping mall. The following building services are needed. These services require careful planning, design, installation and maintenance to ensure excellent performance and lifecycle.

4.2.8.1 Electrical Services

This has to do with the power distribution and artificial lighting systems. The installations of electrical outlets and points, security systems like CCTV, control systems, fire alarm, and detection system. All these works are party fop the electrical services

4.2.8.2 Mechanical Services

Mechanical services are also essential in the construction of shopping malls. These services include but are not limited to the heating ventilation and air conditioning systems (HVAC), plumbing and water supply systems, sanitary and drainage systems.

4.2.8.3 Telecommunication Services

Proper installation of telecommunication systems is important, as it is essential for the smooth running of the shopping mall in the 21st century. Systems like phones and internet connection, data cables and network systems, and public address systems and background music systems all need to be installed.

4.2.8.4 Lift and Escalator Services

Due to the peculiarity of shopping mall design, there is need to incorporate lifts and escalators in it. Both general lifts and service lift should be provided within the shopping mall, escalators or moving ramps should also be installed. All these services require constant maintenance as it can lead to accidents and emergency if not well maintained.

Chapter Five

Conclusion

5.1 Project Appraisal

The proposed construction of the shopping mall that will be located in Ibadan presents an inviting investment opportunity. This opportunity aligns itself with the existing market demand, the city's development trends and the customers' choices. With careful planning, execution and risk management, this project is said to deliver sustainable economic and social benefits to Ibadan and at the same time generating profits for investors. This project appraisal report gives an assessment of the proposed shopping mall developments feasibility, viability, and potential impact, serving as an important tool for all stakeholders and decision makers involved in the project.

5.1.1 Market Analysis

Ibadan has a population of over 3 million people with various mix of residents from various socio economic backgrounds. The said population alone has provided a viable market for the proposed shopping mall. The local residents exhibits a preference for a modern shopping facility. Unlike cities like Lagos and Abuja, that had various international standard shopping mall that brings

competition to the market, the city of Ibadan just have one major shopping mall. The others are nit international standard malls but supermarket and grocery stores. Currently, the commercial sector in Ibadan is witnessing a shift towards organized shopping systems because of urbanization, increased incomes and lifestyle changes.

5.1.2 Location

The proposed site for the shopping mall is strategically located in a high traffic area with easy access from major roads and public transportation routes. The site offers adequate parking spaces and visibility, promoting its aesthetics to both shoppers and tenants. The site also has proximity to residential neighbourhoods and commercial areas, which ensures a steady flow of foot traffic and potential customers.

5.1.3 Risk Assessment

There is no project without risk; therefore, the key risk includes delays in co0nstruction, cost overruns, market competition, economic downturns and regulatory challenges. Some of the ways to mitigate such risk is to adopt strategies like contingency planning, project management foresight, lease agreements with reputable tenants, and comprehensive insurance cover.

5.1.4 Socio Economic Impact

The shopping mall will have great socio economic impact on the city of Ibadan and its environs. The construction face will generate employment opportunities for unskilled labours, contractors, suppliers, hence contributing to the economic development. The shopping mall will encourage retail activity, attract investment, and generate tax revenues for the local government, supporting infrastructural development and public services. Some of the social benefits includes improved

access to quality products, enhanced customer preferences and a modern retail environment for Ibadan residents.

5.2 Conclusion

Shopping malls are complex spaces that require thoughtful design and planning to ensure efficient and pleasant circulation for shoppers. The study of circulation design considerations in shopping mall design seeks to understand how the layout, flow, and organization of these spaces can affect the overall shopping experience and ultimately contribute to the success of the mall as a commercial and social hub. Circulation is a problem in many shopping malls today due to several factors. One issue is poor design and layout, which can lead to congestion, bottlenecks, and confusion for visitors trying to navigate the space. Inefficient circulation pathways can also affect the overall flow of foot traffic, potentially leading to overcrowding in certain areas and underutilization of others. Deductions from the case studies enabled the study to derive the spatial requirements for a shopping mall these are but not limited to retail outlets, anchor stores, cinemas, entertainment areas, common areas, and services areas. Also from the case studies and literature review, this study was able to assess critical design considerations for achieving proper layout and enhancing circulation in shopping malls. The circulation design consideration were discussed includes clear and intuitive layout, central circulation spine, zoning of similar facilities, ample walkways, strategic placements of entry and exit, provision of service access, design flexibility, accessibility, and safety measures. Therefore, the aim of the study was achieved, a shopping mall design was proposed. The design incorporated the general design requirements for a shopping mall alongside the circulation and layout requirements.

5.3 Recommendation

The aim of this study was to examine critical circulation design considerations for achieving proper layout, flow and overall shopping experiences in shopping malls. Hence, this study has the following recommendations as it relates to the study.

I. Designers should ensure the shopping malls are design to accommodate variety of activities based on the incorporated physical features.

II. The study recommends that circulation design consideration are not overlooked in the design and construction of shopping centres. There should be strategic placement of entry and exists, ample walkways, clear and intuitive part ways and other considerations that were discussed in this study.

III. Shopping malls should be designed with a form of sustainability in mind, so the construction of the proposed shopping mall will not pose a threat on the environment and future generations to come.

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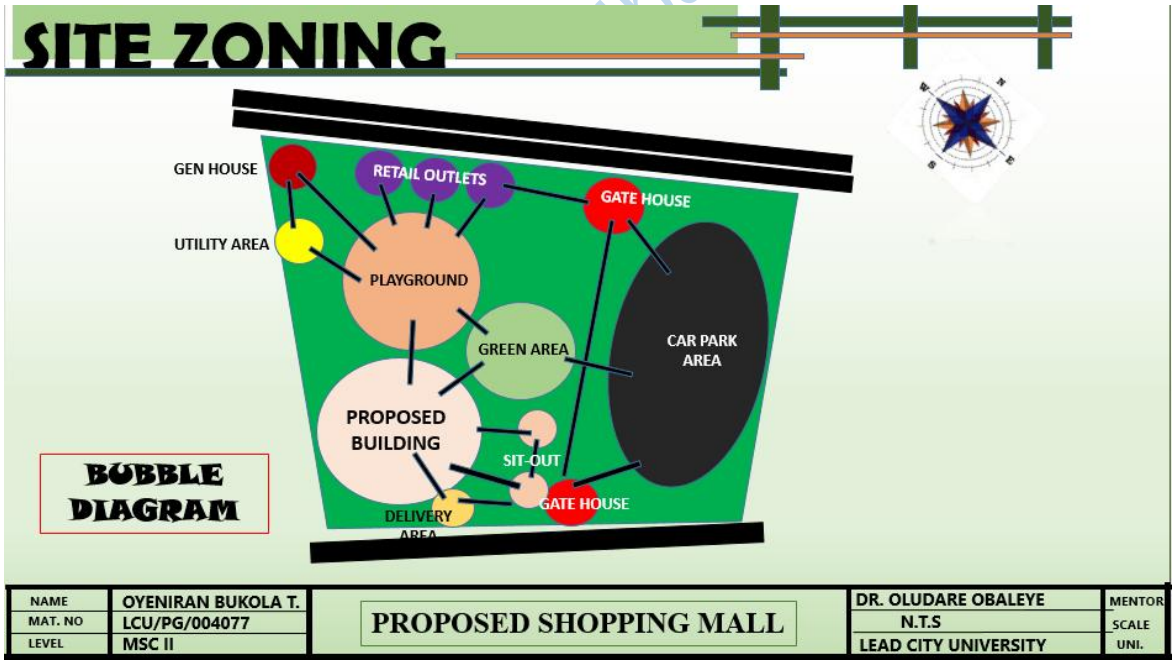
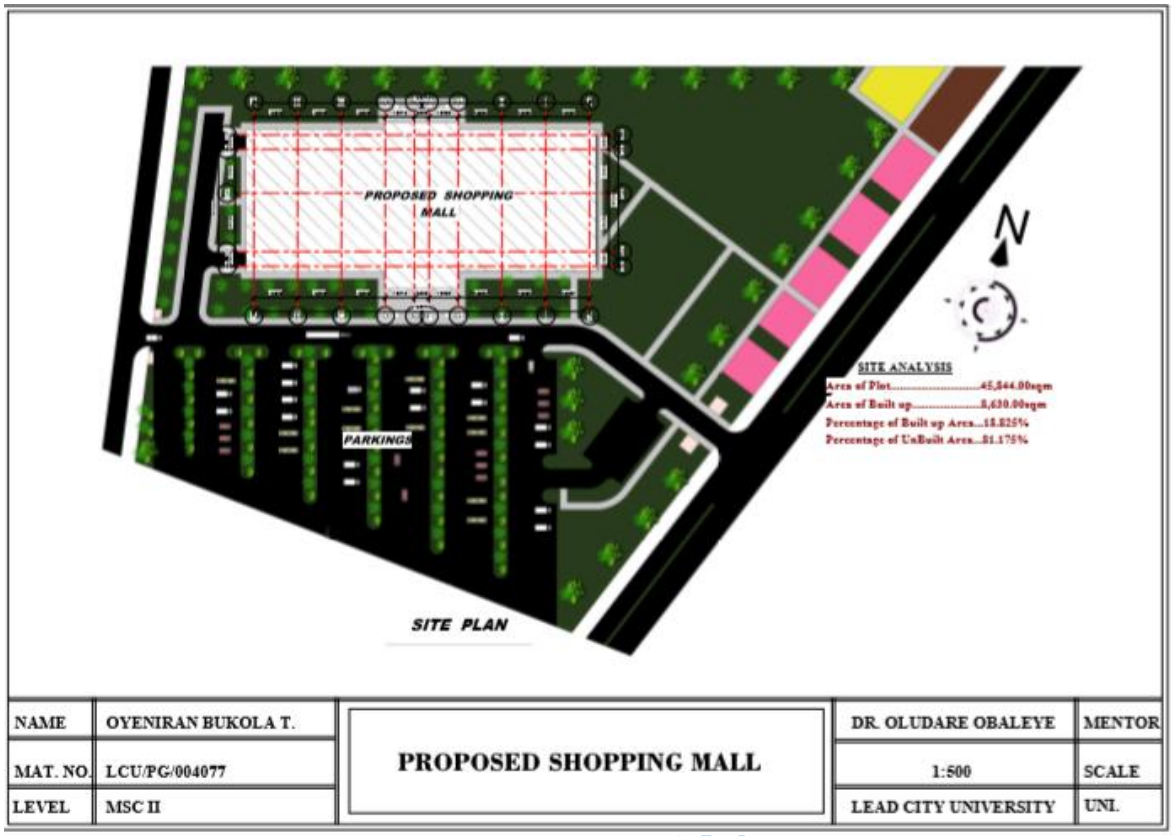
Appendixes

Appendix I: Presentation drawings



Drawing 1: Site Zoning



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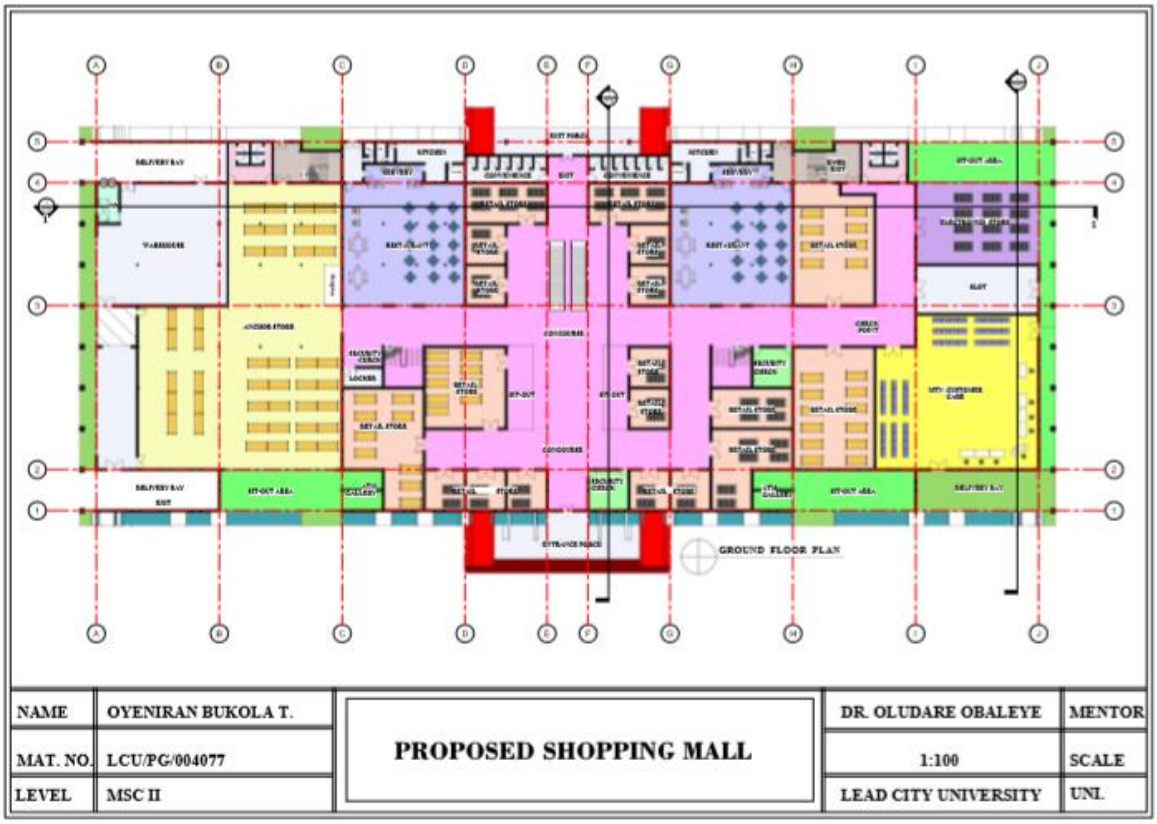
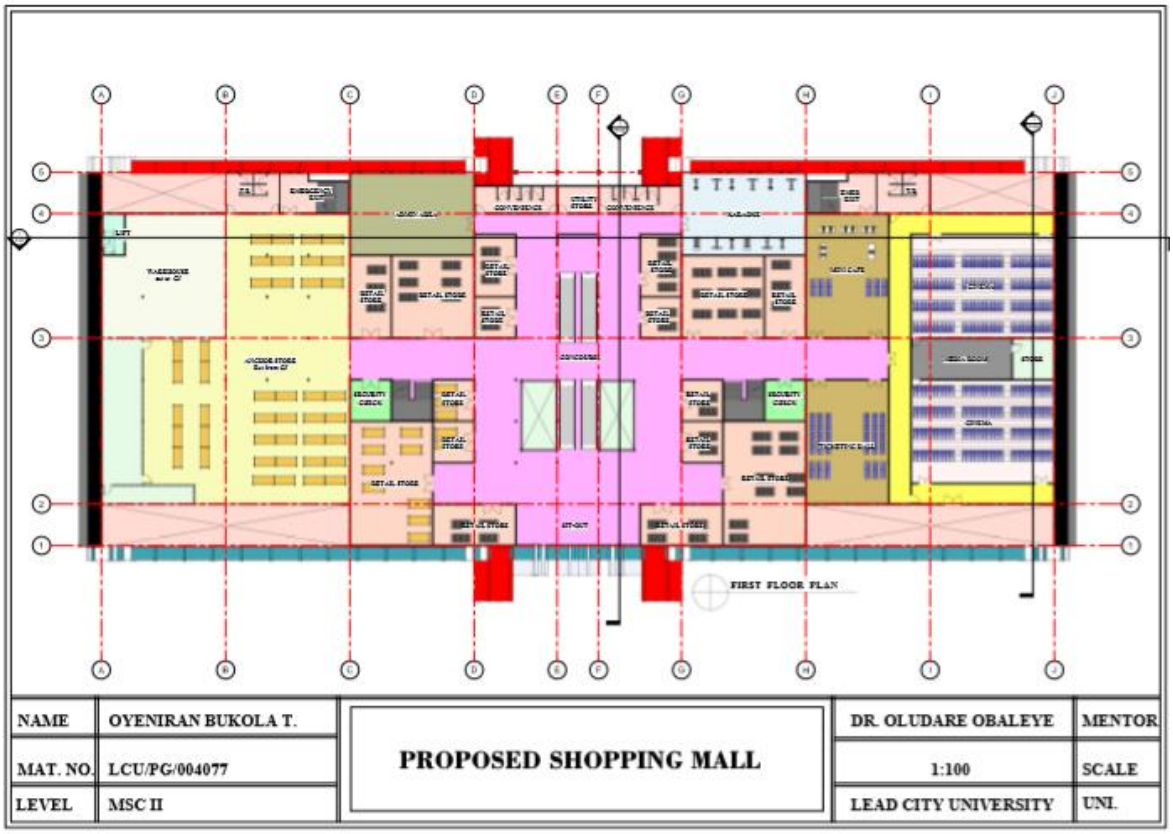
MAT. NO.	LCU/PG/004077		1:500	SCALE
LEVEL	MSC II		LEAD CITY UNIVERSITY	UNI.

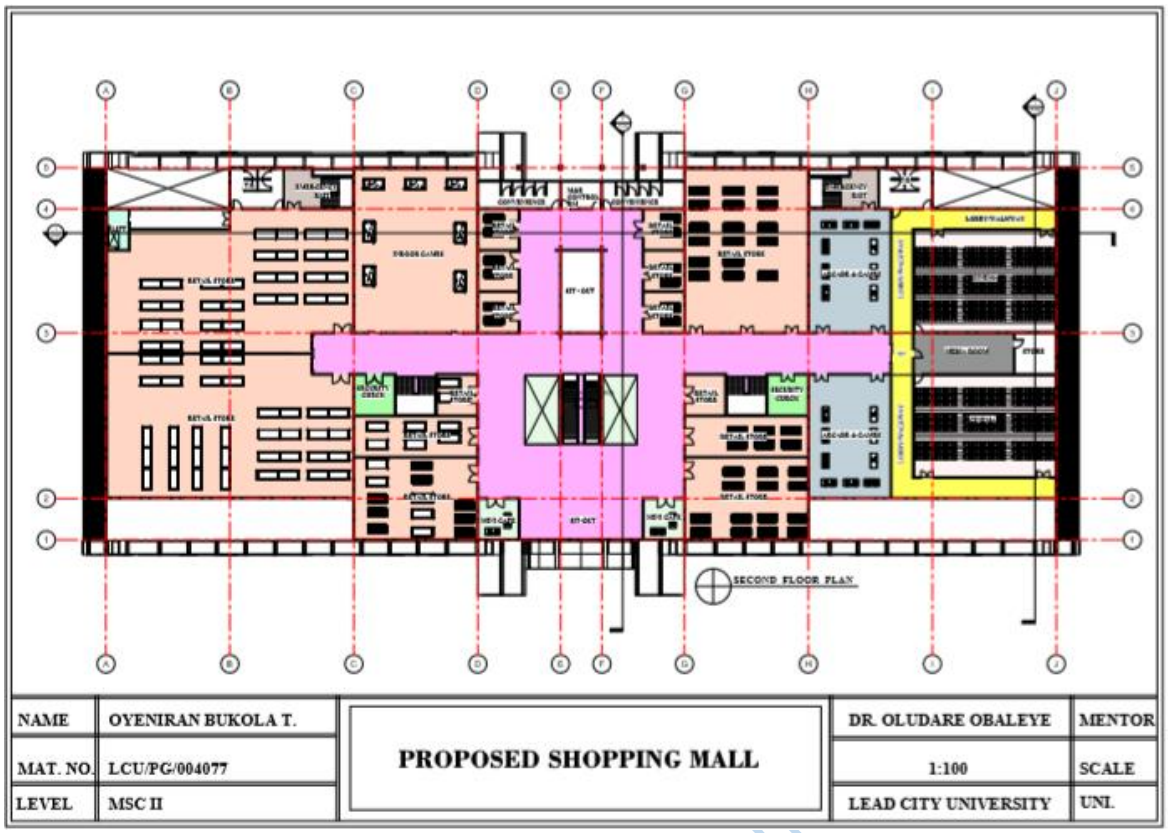
Drawing 2: Site Plan



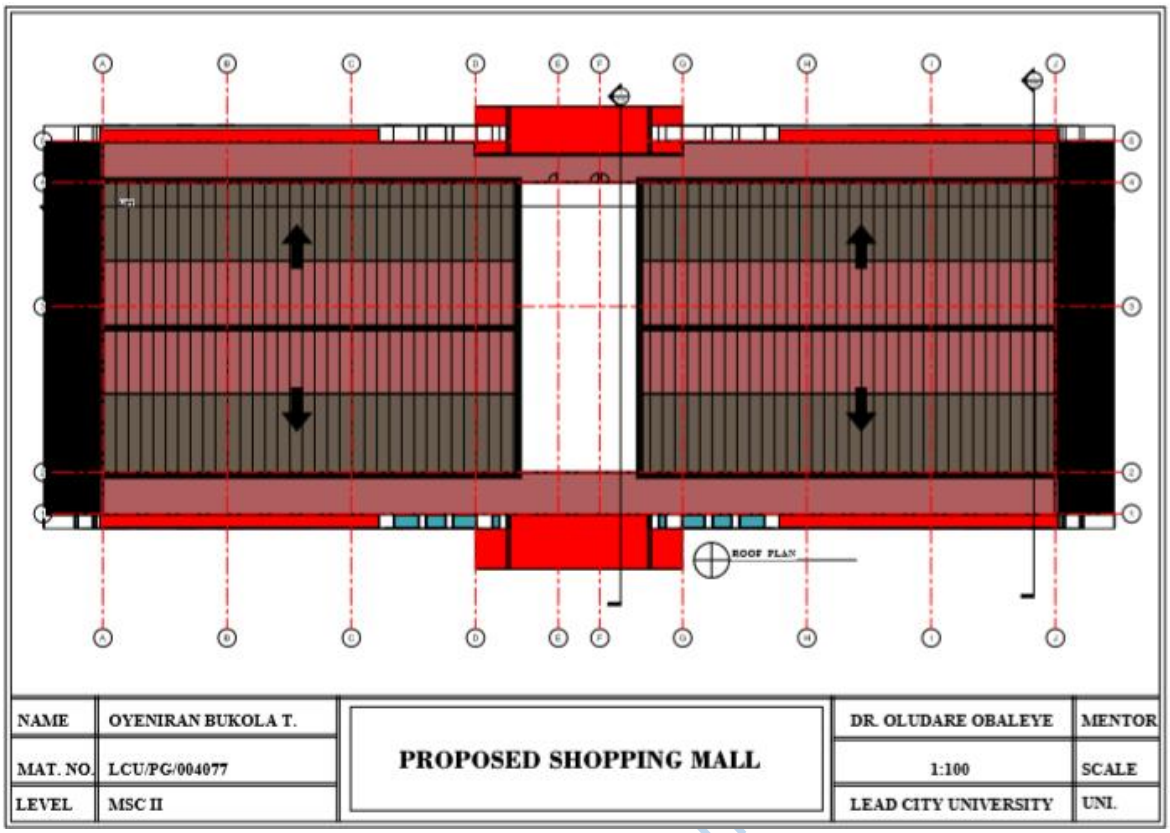
Drawing 3: Ground Floor Plan



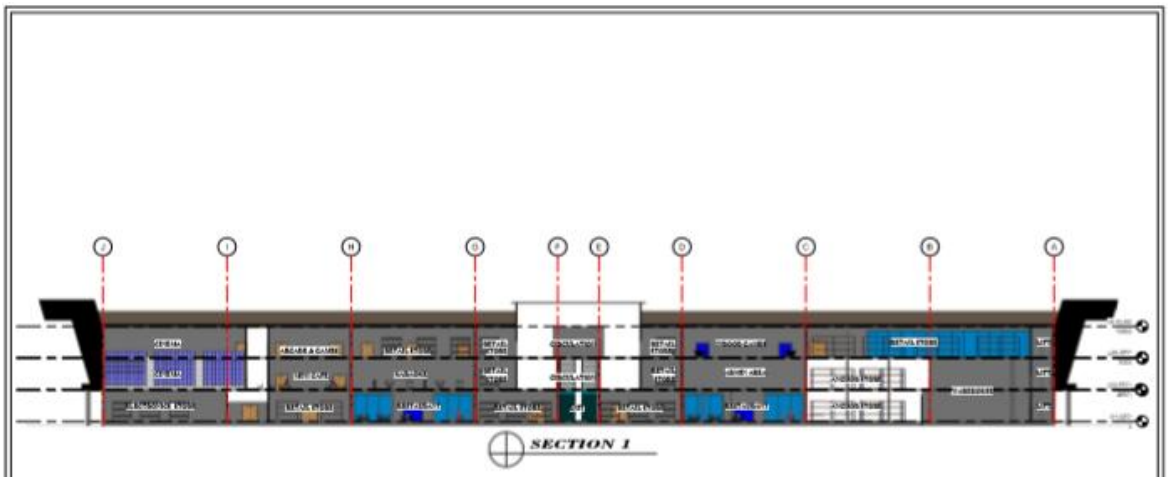
Drawing 4: First Floor Plan



Drawing 5: Second Floor Plan



Drawing 6: Roof Plan



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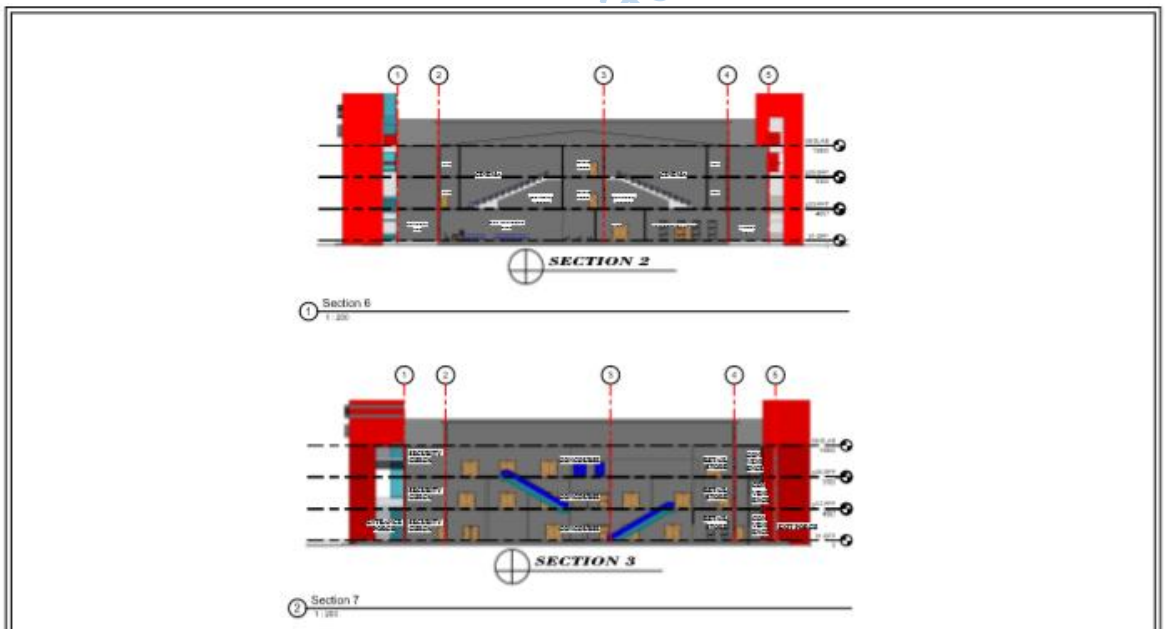

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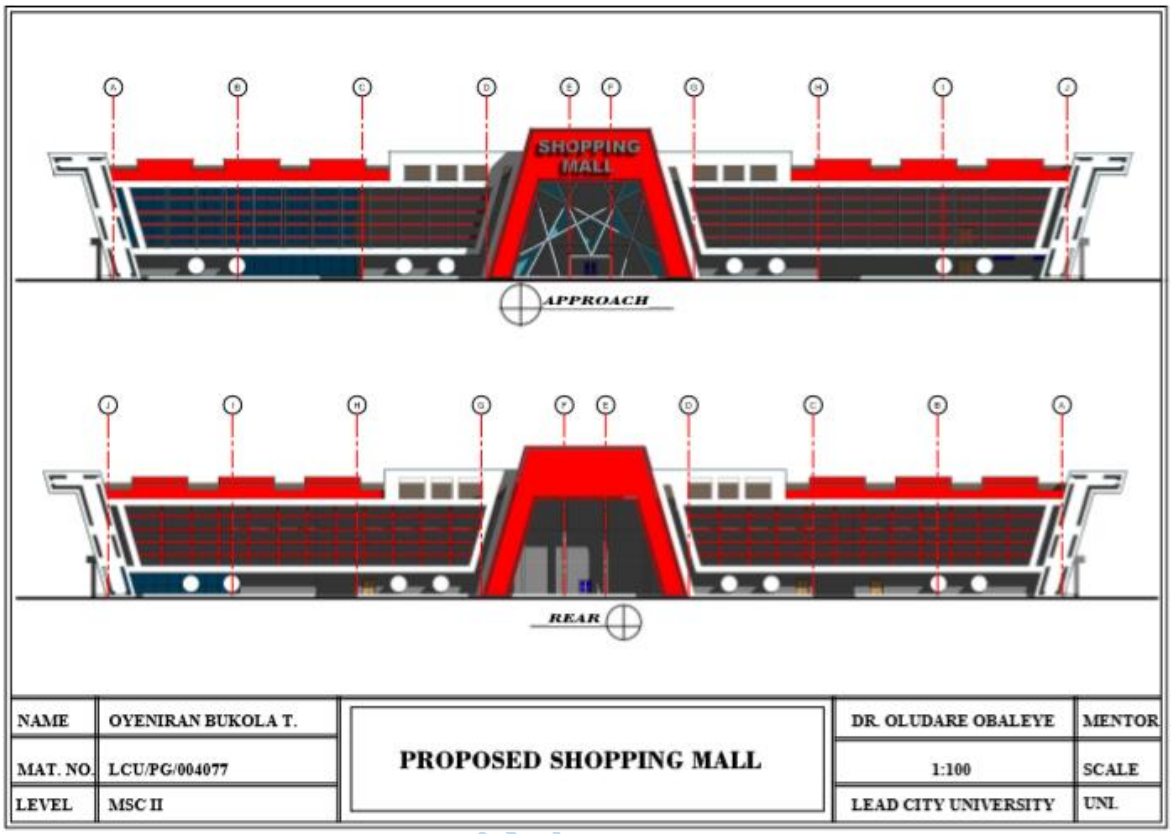
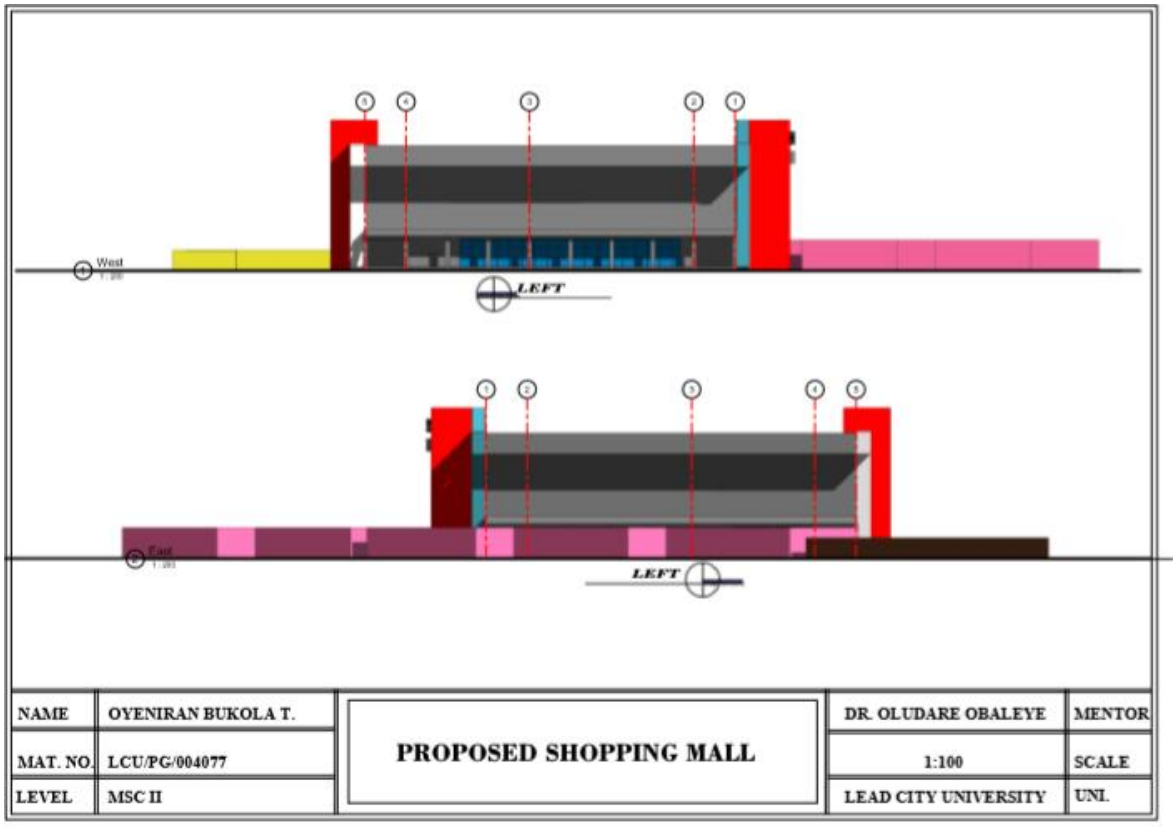
MAT. NO.	LCU/PG/004077		1:100	SCALE
LEVEL	MSC II		LEAD CITY UNIVERSITY	UNI.

Drawing 7: Sections



Drawing 8: Elevation A



Drawing 8: Elevation B

Drawing 9: Perspectives

Drawing 10: Perspectives

Drawing 11: Perspectives

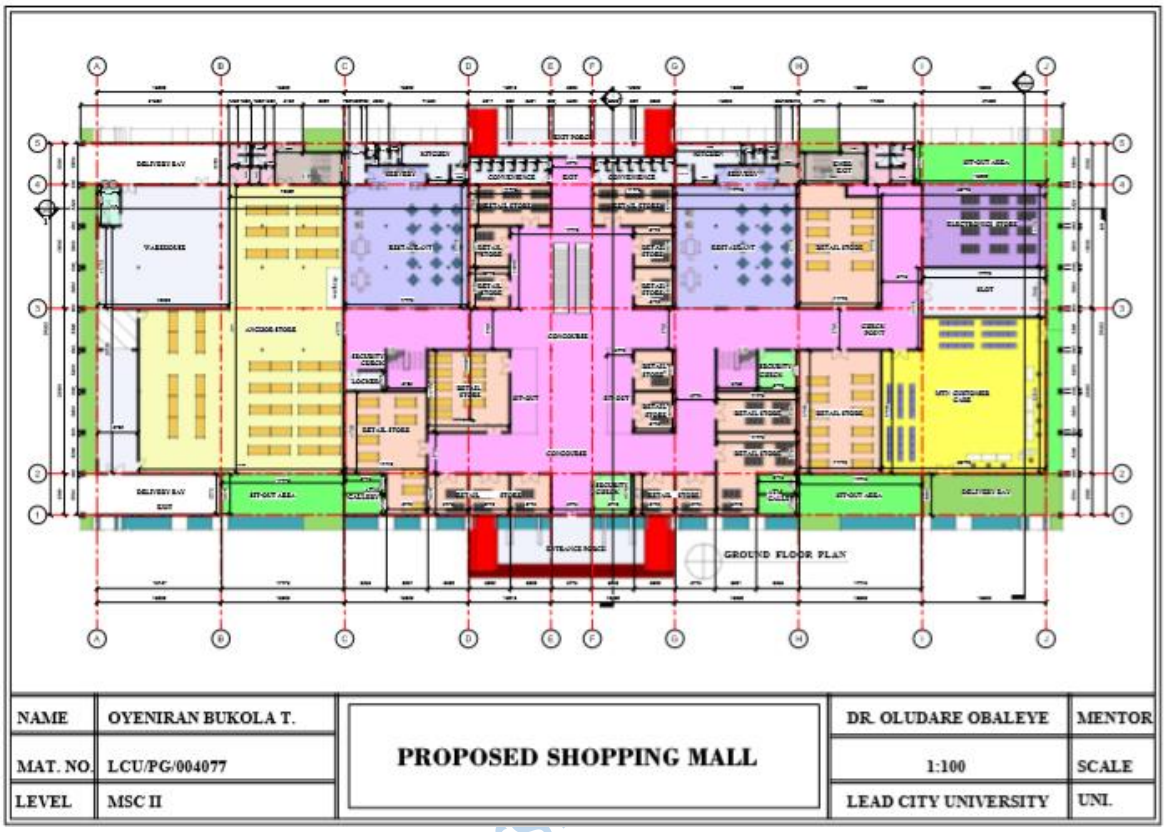
Drawing 12: Perspectives

Drawing 13: Perspectives

Drawing 14: Perspectives

Drawing 15: Perspectives

Appendix II: Working drawings



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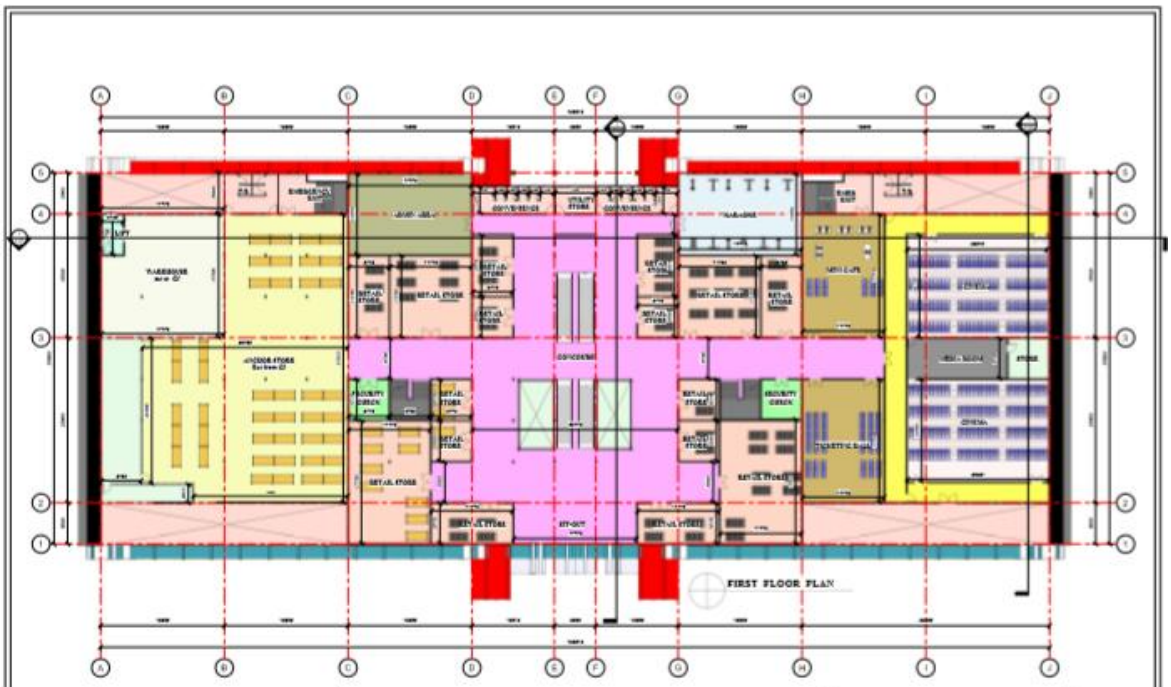

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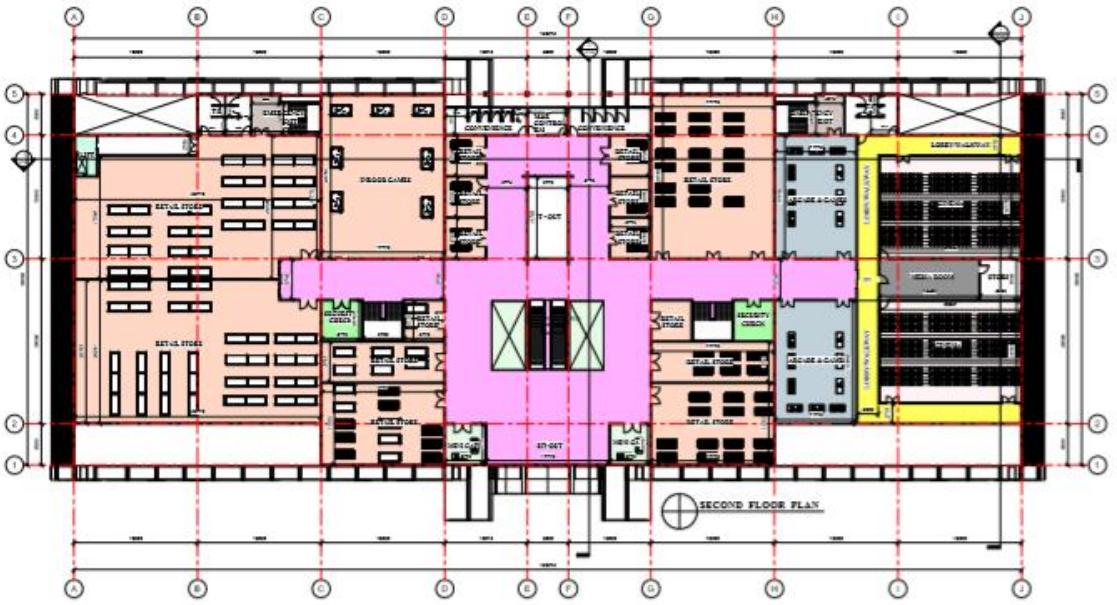

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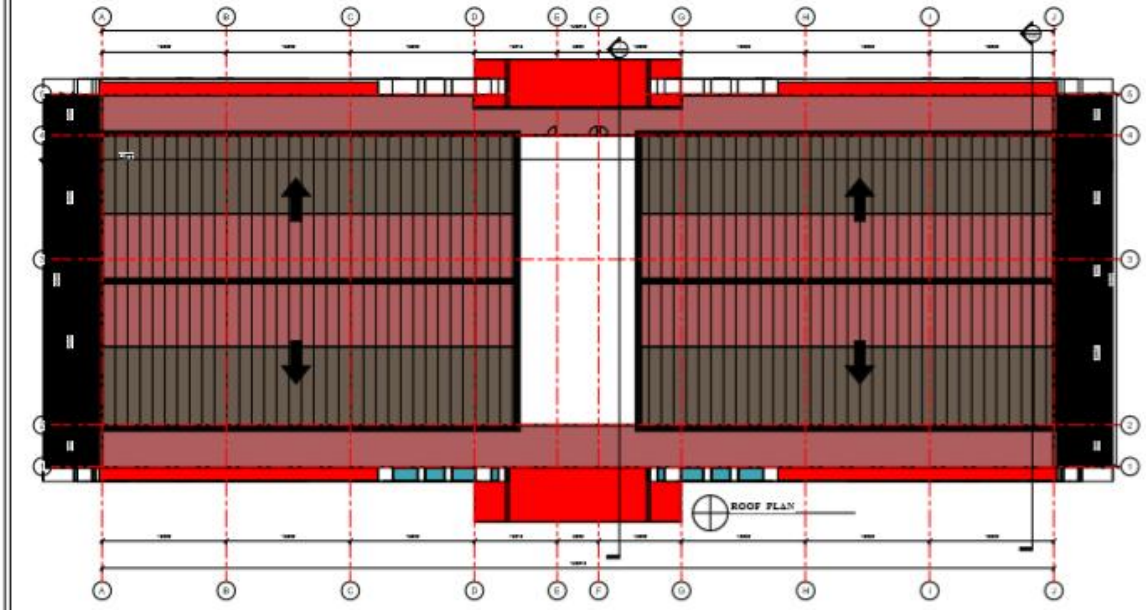
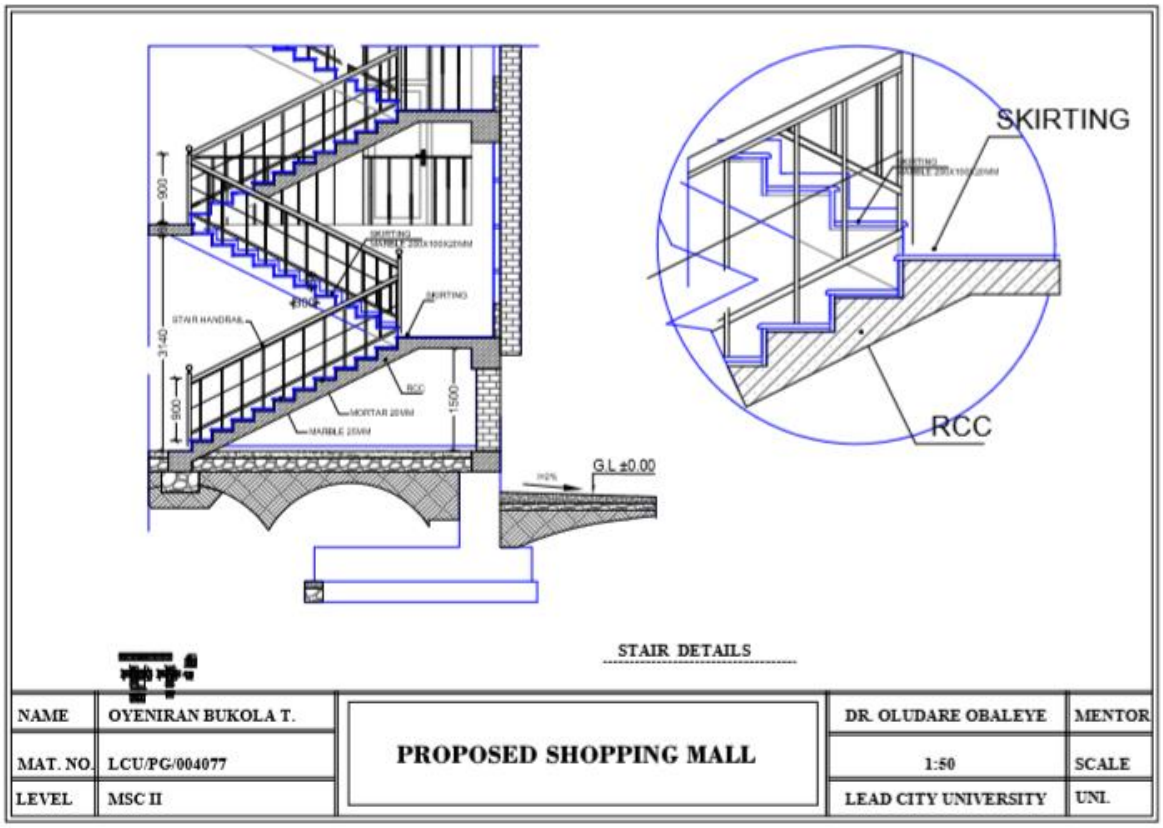
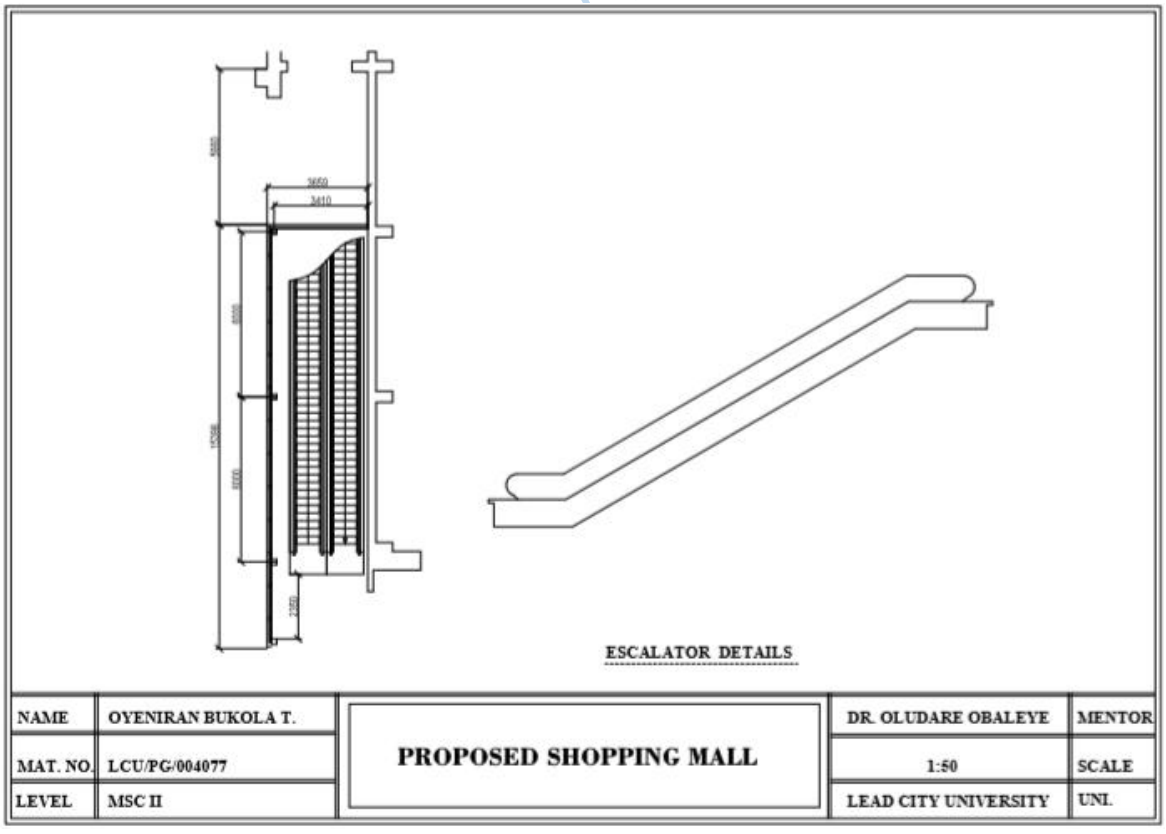


NAME	OYENIRAN BUKOLA T.	PROPOSED SHOPPING MALL	DR. OLUDARE OBALEYE	MENTOR
MAT. NO.	LCU/PG/004077		1:100	SCALE
LEVEL	MSC II		LEAD CITY UNIVERSITY	UNI.

Appendix III: Details





Bio-data

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O'Level: 1997

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Signature Date

University Compliance Certification

This is to certify that the Thesis by Bukola Titilayo OYENIRAN, with the matriculation number LCU/PG/004077 in the Department of Architecture, Faculty of Environmental Design and Management Lead City University, Ibadan, is in full compliance with the University format and style of Thesis.

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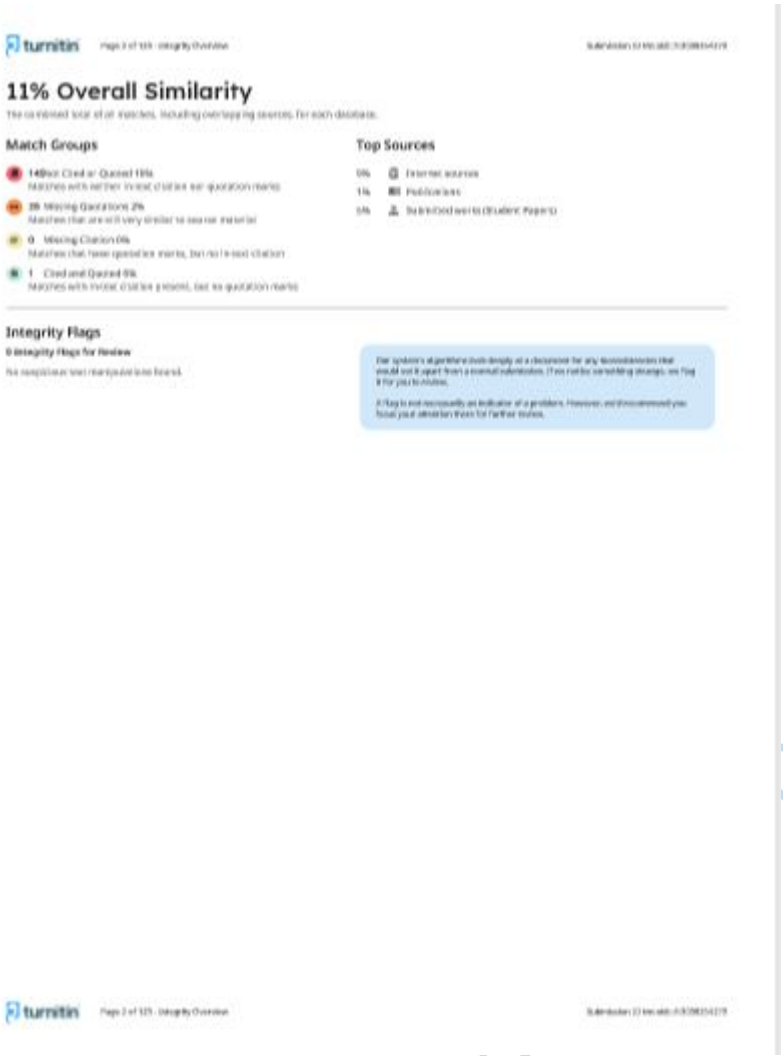

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