

**A Proposed Stadium for Oyo state  
(Psychological Effects of Green Landscape Elements on User Experience in a Community Sports  
Facility)**

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### **Certification**

This is to certify that Olajide Precious OSOLO with matriculation number LCU/PG/005086 carried out this research work titled “Psychological Effects of Green Landscape Elements on User Experience in Community sports Facility” 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 that this has not been previously submitted.

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**Date**

## **Dedication**

This research is specially dedicated to Almighty God.

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## Acknowledgement

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## Abstract

A contemporary architectural strategy that has received widespread acclaim for its aesthetic and environmental advantages is the incorporation of green landscape features into the layout of community sports facilities. More than just aesthetic appeal, these features—like gardens, native plants, water features, and open green areas—improve psychological well-being and create a sense of connectedness to the natural world, which benefits the user experience as a whole. Notwithstanding the well-established benefits of sustainable building, little is known about the precise function of green landscape elements in community sports facilities and how they affect patron happiness and wellbeing. The current study fills this gap by examining the psychological, environmental, and aesthetic impacts of integrating natural components into these institutions' architectural designs. This study used a mixed-methods approach, integrating qualitative interviews with users, architects, and urban planners to better understand how people perceive the value of green features. In sporting facilities with differing degrees of green integration, quantitative surveys evaluate psychological impact, aesthetic appreciation, and user happiness. Results are anticipated to show that establishments with thoughtfully integrated green elements offer a more pleasurable and fulfilling setting, possibly boosting patron loyalty and well-being. In order to include green components in a way that improves sustainability and usability, the study provides architects and urban planners with helpful suggestions. Using native plants to promote biodiversity, establishing open areas for community engagement, and adding water features to enhance atmosphere are among recommended best practices. These insights aim to support the development of sports centres that not only meet functional needs but also promote an ecological and user-centred approach to design. Future research should explore the long-term sustainability of green features in diverse climates and cultural contexts, broadening the applicability of these findings across various environmental and social settings.

**Keywords:** Aesthetics, Green Landscape Elements, Psychological Well-being, Sustainability, User Experience.

**Word count:** 300 words.

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## **Chapter One**

### **Introduction**

#### **1.1 Background to The Study**

The definition of landscaping is "the practice of designing, constructing, and managing outdoor spaces to enhance their aesthetic, functional, and environmental value" (Francis, 2019).

Alternatively in 2020, Chen said that "landscaping is the art and science of creating functional and aesthetically pleasing outdoor spaces that integrate with the surrounding environment" (Chen, 2020).

It is concerned with the beautifying and control of the environment through the structuring of places in accordance with basic design principles. Landscaping is an inherent aspect of our culture and plays an important role in the quality of our environment, people's economic well-being, and their physical and psychological health. It is seen as a means of preserving and improving the quality of human life by safeguarding the biosphere's health and stewarding vital resources such as air, water, land, and minerals (Adekunle, 2016).

According to Holt (2019), an increasing number of studies has indicated that frequent encounters with natural areas or green space are linked to improved health and well-being in a number of populations. People who live near parks or woodlands, for example, have greater health and quality of life indices, as do those who live in buildings with ample views of the natural environment from windows and those who frequently spend time relaxing and/or being physically active in natural places. Students at universities frequently have easy access to green spaces, which provides a variety of chances for interactions that might improve and sustain health and well-being.

However, evidence on the type and frequency of green space use, as well as the accompanying advantages bestowed on university student populations, is lacking. Higher quality of life has been found among students who view their university campus to have higher levels of "greenness" and among university students who report spending more time outside overall. While these studies provide preliminary evidence that interactions with green spaces may improve students' quality of life, more information is needed on the many types of green space use that occur in the university setting, as well as any associated health and well-being advantages (Holt, 2019).

Exposure to natural areas, for example, can be physiologically healing. This indicates that being in a natural outdoor environment can have a favorable mental health impact because of the physical processes that occur in the body. When compared to metropolitan contexts, watching and walking in forest environments can encourage reduced cortisol concentrations, pulse rates, and blood pressure, according to a Japanese study. These physiological reactions all work in opposition to the physical impacts of stress on the body and are what occur when you relax. According to a recent study, those who had access to natural settings during the COVID-19 lockdowns experienced less stress, and those who could observe nature from home experienced less psychological distress (Admin, 2022).

Previous research has shown that the mechanisms by which green space interactions could positively affect the psychological and/or physiological well-being of university students are varied. Centrally located green spaces can provide opportunities for frequent social interactions, subsequently increasing community cohesion and improving mental health outcomes. Those who use green space frequently may reap psychological benefits through a more direct pathway: work from the field of Environmental Psychology suggests that immersion in a natural environment

reduces exposure to the stimulating elements of everyday life and promotes “restoration” or recovery from the cognitive fatigue arising from daily stressors. Thus, natural environments can serve to buffer physiological and emotional stress and also to restore attention and focus (Holt, 2019).

Finally, those who use green spaces regularly for physical activity can benefit from the many positive impacts that exercise can have on mental and physical health. When physical activity is performed while one is immersed in a natural environment (“green exercise”), there may be additional, restorative benefits conferred. Given the wide array of ways in which green space use could benefit one’s health and well-being, exposure assessments need to incorporate measures of the varying types of green space interactions, and also the “dose” (frequency and duration) of exposure. Such detailed exposure data on the type and frequency of green space interactions amongst university students could help to guide the focus of campus initiatives designed to improve student well-being (Holt, 2019).

## **1.2 Statement of the Problem**

The incorporation of green landscape elements into architectural design has gained momentum, especially in community sports centers where it enhances both aesthetic and environmental quality. Elements like gardens, native flora, water features, and open spaces not only improve the visual appeal but also foster user well-being and environmental sustainability. However, despite its popularity, there is a gap in understanding the specific impact of these green features on user experiences within sports facilities. While studies have shown the general benefits of green spaces on mental health, few have isolated the effects of distinct green elements on psychological well-being, user interactions, and satisfaction in a sports facility context. Existing

research presents varying perspectives on the health impact of green spaces. Falade (1988a) highlights the importance of green space for urban aesthetic quality and livability, while Nguyen et al. (2021) and Reyes-Riveros et al. (2021) suggest that different types and qualities of green spaces affect mental health outcomes to varying degrees. Other studies, like Gascon et al. (2015), demonstrate positive associations between green spaces and subjective well-being, including reduced stress and increased happiness, particularly in urban areas. Conversely, research by Maas et al. (2006) and Houlden et al. (2018) reveals inconsistent or context-dependent effects, indicating that factors such as socioeconomic status, neighborhood amenities, and individual characteristics might play critical roles in shaping health outcomes. This knowledge gap underscores the importance of targeted research to guide architects and urban planners in designing community sports centers that effectively integrate green elements to enhance user satisfaction, promote environmental balance, and support social engagement. Identifying how specific green features contribute to the overall experience of users in sports centers can lead to design practices that are more aligned with the principles of holistic, sustainable architecture.

### **1.3 Aim and Objectives Of The Study**

The aim of this study is to examine the concept of green landscape elements in relation to user experience within the context of community sports center design. The specific objectives are as follows:

- i. To identify specific design considerations and spatial requirements in a community sports center.
- ii. To examine the psychological and social effects of green landscapes on community sports center users.

- iii. To determine the ecological benefits of adopting green features.
- iv. To assess the impact of green landscape features on the outlook of sports facility facilities.

#### **1.4 Research Questions**

- i. What are the specific design considerations and spatial requirements in a community sports center?
- ii. What are the psychological and social effects of green landscapes on community sports center user(s)?
- iii. What are the environmental benefits and long-term impacts of adopting green features?
- iv. What is the impact(s) of green landscape features on the aesthetics of sports facility facilities?

#### **1.5 Significance of the Study**

Green spaces have long been recognized for their positive impact on both the environment and human well-being. In the realm of architecture, the integration of green spaces not only enhances the aesthetic appeal of structures but also plays a crucial role in improving the overall user experience. This study will delve into the ways in which green spaces influence architectural design and user experience, exploring the incorporation of natural elements, the psychological benefits of exposure to nature, and the challenges faced in studying these impacts.

This study is relevant in several ways. It will contribute to the fields of architecture, urban planning, and environmental psychology by shedding light on the numerous advantages of incorporating green landscape features. By addressing this knowledge gap, researchers can build upon existing theories and methodologies, ultimately contributing to the overall progress of the field. Through continued exploration and analysis, we can uncover new perspectives and

approaches that may have previously been overlooked. It can also serve as a model for future architectural practices in Nigeria and beyond.

Understanding these advantages can lead to more user-friendly and sustainable sports center designs as drawing on empirical research and case studies, allows us examine how the incorporation of vegetation, natural elements, and outdoor spaces in architectural projects positively influences user satisfaction, mental health, and overall quality of life (Smith et al, 2021).

Architects may find it difficult to successfully include green spaces into their projects if they do not adopt a holistic strategy that incorporates expertise from several disciplines.

The lack of emphasis on green spaces in architectural practice leads to design solutions that overlook the potential benefits of natural elements. Buildings and urban spaces devoid of greenery often fail to address important aspects such as thermal comfort, air quality, and biophilic design principles. Therefore, resulting in designs that are less sustainable, less resilient to climate change, and less conducive to human well-being.

The absence of multidisciplinary collaboration among architects, landscape designers, and environmental scientists is a significant obstacle to closing the knowledge gap. Collaboration would allow for the sharing of knowledge and best practices, ensuring that green infrastructure is implemented in a way that maximizes its benefits for both people and the planet. The current lack of collaboration results in green spaces being treated as an afterthought rather than an integral part of the overall design. By working together, professionals in different fields can create innovative and sustainable solutions that not only enhance the aesthetic appeal of a project but also promote environmental conservation and community well-being.

The task of implementing green infrastructure is also impaired by restricted access to information, guidelines, and resources. In numerous ways, the quality of green space design has been harmed by limited access to knowledge and information. In the absence of studies on cutting-edge methods, and efficient practices, designers are left to depend on antiquated or ineffective strategies. To address knowledge disparities in green space design, stakeholders must prioritize equitable access to information and resources. This includes investing in educational programs, capacity-building initiatives, and community outreach efforts to empower residents to participate in decision-making processes.

With the growing emphasis on sustainability in the built environment, many regulatory agencies and certification programs, such as LEED (Leadership in Energy and Environmental Design), now require or incentivize the incorporation of green spaces into designs. Researching best practices and innovative strategies for integrating greenery into designs can help architects meet these requirements and achieve sustainability goals. One effective strategy for incorporating green spaces into designs is to utilize vertical gardens or green walls. These structures can help reduce the heat island effect in urban areas, improve air quality, and provide visual interest in the built environment. Additionally, incorporating rooftop gardens or green roofs can help reduce energy costs, provide insulation, and create recreational spaces for building occupants. By exploring these innovative approaches to integrating greenery into designs, architects can create more sustainable and environmentally-friendly buildings that benefit both the environment and the people who inhabit them.

This is why extensive research is needed to fully understand the impact of green infrastructure on urban development and to continue finding new ways to implement these strategies effectively. With careful planning and collaboration between architects, landscape designers, and engineers,

we can create buildings that not only meet the needs of their occupants but also contribute to the overall health and well-being of our cities. This holistic approach to sustainable design is essential in addressing the challenges of climate change and creating a more resilient and livable urban environment for generations to come.

A study done by Johnson et al (2020), Emma for the Journal of Architectural Research examines the significance of integrating green spaces into public buildings and explores the benefits, challenges, and best practices associated with this design approach.

The study underscores the significance of integrating green spaces into public buildings such as community sports centres as a means of enhancing their overall quality, functionality, and environmental performance. By adopting effective practices and innovative design strategies, architects can create buildings that prioritize the well-being of users, promote sustainability, and contribute to the creation of healthier and more vibrant communities (Johnson et al, 2020).

It mentions challenges and barriers to integrating green spaces into public buildings such as community sports centre, such as limited space, budget constraints, and maintenance requirements. This study also attempts to give insight on potential solutions to these problems.

### **1.6 Scope of the Study**

This research will look into the impact of green landscape elements on user experiences in community sports centers. It will concentrate on determining how characteristics such as gardens, plants, water elements, and open spaces influence how people perceive, interact with, and profit from these facilities. The research will look into user happiness, environmental concerns, and psychological aspects of incorporating green landscapes into sports center design. The geographical focus will be focused on community sports centers in Nigeria's urban areas, with a

combination of qualitative and quantitative methodologies used to collect varied user viewpoints and experiences.

### 1.7 Operational Definition of Terms

- i. **Green Landscape Elements:** Natural elements such as gardens, plants, water features, and open areas that are integrated into community sports centers to make them more attractive and entertaining.
- ii. **User Experience:** How people feel and think about community sports centers, particularly how they view the design and natural aspects.
- iii. **Aesthetics:** The attractiveness and visual appeal of community sports facility designs, especially how inviting green components make the place appear.
- iv. **Psychological Well-being:** How people's emotions and mental states are changed by being in community sports centers with green aspects, such as feeling relaxed or cheerful.
- v. **Landscape:** A landscape is the visible features of an area of land, its landforms, and how they integrate with natural or human-made features, often considered in terms of their aesthetic appeal.
- vi. **Landscape Elements:** An aesthetic landscape design incorporates five key elements: line, form, texture, color and scale. The perfect balance of these design features appeals to the eye and brings harmony to a space.
- vii. **Community sports centre:** A community sports center is a facility designed to provide a range of sports and recreational activities for individuals and groups within a community. These centers typically offer various amenities and services to accommodate different interests and fitness levels.

**viii. Recreation:** Recreation is an activity of leisure, leisure being discretionary time. The "need to do something for recreation" is an essential element of human biology and psychology. Recreational activities are often done for enjoyment, amusement, or pleasure and are considered to be "fun".

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## **Chapter Two**

### **Literature Review**

#### **2.1 Conceptual Review**

##### **2.1.1 Community Sports Facility**

Community sports facilities are designated areas or structures that provide space and amenities for various sports and recreational activities. These facilities are intended to serve local populations by offering venues for physical exercise, sports competitions, and recreational activities, contributing to the overall well-being and social cohesion of the community (Cohen et al., 2016).

The concept of community sports facilities dates back to ancient civilizations where communal spaces for sports and recreation were integral parts of urban planning. The ancient Greeks, for example, constructed gymnasiums and stadiums that were central to public life. The modern development of community sports facilities can be traced back to the late 19th and early 20th centuries, coinciding with the rise of organized sports and the public parks movement. The establishment of organizations like the Young Men's Christian Association (YMCA) in the 19th century played a crucial role in promoting community sports facilities in urban areas (Riess, 2014).

##### **2.1.1.1 Community Sports Facility Categories and Their Typologies**

These categories highlight the diverse range of community sports facilities available to meet the varying needs of local populations. Each type serves to promote physical activity, social interaction, and community engagement (Taylor & Toohey, 2011). Major categories include:

##### **I. Multi-Use Sports Complexes**

These facilities cater to a variety of sports, such as soccer, basketball, tennis, and swimming. They often include fields, courts, and pools in one location (Hoye et al., 2015).

- a) **Gymnasiums:** These are versatile spaces that can accommodate basketball, volleyball, badminton, and other indoor sports.
- b) **Fitness Centers:** Equipped with gym equipment for individual workouts, these centers often include areas for group fitness classes and personal training sessions.
- c) **Indoor Swimming Pools:** These facilities offer lanes for lap swimming, areas for aquatic fitness classes, and sometimes play zones for children.
- d) **Recreational Parks:** These spaces often include a mix of sports fields, playgrounds, picnic areas, and walking or biking trails.
- e) **Community Centers:** Facilities that offer a variety of indoor and outdoor sports and recreational activities, often including fitness classes, arts and crafts, and social events (Taylor & Toohey, 2011).

## II. Single-sport Facilities

These are specialized for one type of sport, such as soccer stadiums, baseball fields, or ice rinks (Houlihan, 2010).

## III. Specialized Sports Facilities

- a) **Ice Rinks:** Used for ice skating, hockey, and curling.
- b) **Equestrian Centers:** Facilities for horseback riding, including arenas and trails.
- c) **Water Sports Facilities:** Areas designed for activities like rowing, kayaking, and sailing (Taylor & Toohey, 2011).

## IV. Outdoor Sports Facilities

- a) **Sports Fields:** Open spaces dedicated to sports like soccer, rugby, cricket, and baseball. These fields can be either natural or artificial turf.
- b) **Tennis and Basketball Courts:** Outdoor courts available for individual or team sports. They can be found in public parks or as part of larger sports complexes.
- c) **Stadiums:** Large venues designed for spectator sports such as soccer, football, and athletics. They often include seating for spectators, locker rooms for players, and administrative offices (Taylor & Toohey, 2011).

### 2.1.2 Stadium

A stadium is a sizable building with an oval or circular shape that is used to hold huge crowds of people for public events like concerts and sporting activities (Kumar, 2022).

Additionally, Stadiums are outdoor or indoor locations with seating, lighting, and sound systems that offer a space for a variety of events, like sporting events, concerts, and festivals (Kim, 2020).

Also, a stadium is a public venue that holds a variety of events, such as sporting events, musical performances, and cultural gatherings. It is distinguished by its expansive seating arrangement and cutting-edge amenities (Lee, 2019).

A stadium is an indispensable component of urban structure and community development since it is a multipurpose space that can hold an assortment of events, including sporting events, concerts, and festivals (Patel, 2024) . Stadiums are fortified with pioneering technology, such as scoreboards, sound systems, and video screens, to ensure a safe and enjoyable experience for athletes, performers, and spectators, as well as design inclusion strategies for those with limited accessibility (Zhang Y. Z., 2023).

#### 2.1.2.1 History of Stadiums

The first known example of ‘the stadium’ as a concrete build, started in ancient Greece, where the word ‘stadium’ or ‘Stadion’ denoted to both the dimension of distance equal to roughly 200m on foot and the place where the race was conducted and observed by spectators. At this juncture, the understood prerequisite of ‘the stadium’ as a typology was the enabling of an audience to experience a mutually enjoyable event (Teague, 2015).



**Fig 2.1: The Archaeological remains of the Olympia Hippodrome [Greece].**

Source- (Google search)

Stadiums have a long history, notable as big public assembly places for athletic and entertainment events traced to as far back as the ancient societies. A study published in the International Journal of the History of Sport (2018) claims that the stadium used in the ancient Greek Olympic Games could comfortably accommodate thousands of people. In the same way, the Roman Empire built large stadiums, known as circuses, for chariot racing and other public events such as gladiator matches and public executions (Journal of Roman Archaeology, 2015).

According to the Journal of Medieval History (2012), jousting and other medieval sports were the main uses of stadiums through the Middle Ages. The construction of baseball and football stadiums in the United States in the late 19th century made clear the commencement of the

modern period of stadium design (Journal of Sport History, 2010). According to the Journal of Structural Engineering (2020), stadium design changed in the 20th century to accommodate the inclusion of new construction materials and technology like steel and concrete. A myriad of events may be held in one location all at the same time, thanks to the construction of multifunctional stadiums in the midst of the 20th century, as the Journal of Urban Planning and Development (2015) stated.

### **2.1.2.2 Categories of Stadiums**

Stadiums, as architectural and social landmarks, play a significant role in the cultural and economic fabric of their locations. They can be categorized based on various factors such as their primary use, structural features, and capacity. Understanding these categories helps in appreciating the diverse design and functionality that cater to different sports and events.

#### **I. By Primary Use**

##### **a) Sports-Specific Stadiums**

Sports-specific stadiums are designed primarily for a single sport, with features tailored to the requirements of that sport. These stadiums enhance the spectator experience and improve the performance conditions for athletes.

- **Football (Soccer) Stadiums:** These stadiums are characterized by their rectangular fields and stands on all four sides. The seating arrangements ensure that spectators have a clear view of the field from every angle. The design often includes features like heated pitches and retractable roofs to counter adverse weather conditions. Famous examples include Camp Nou in Barcelona and Old Trafford in Manchester (FIFA, 2019).

- **Baseball Stadiums:** Baseball stadiums feature a diamond-shaped field with distinct areas such as the infield and outfield. The asymmetrical design of the outfield is unique to each stadium, creating different playing conditions and experiences. Historic baseball stadiums like Fenway Park in Boston and Wrigley Field in Chicago are celebrated for their iconic designs and deep-rooted traditions (MLB, 2020).

## II. Multi-Purpose Stadiums

Multi-purpose stadiums are designed to host a variety of sports and events, making them versatile but sometimes less optimal for any single sport.

- **Olympic Stadiums:** These stadiums are constructed to accommodate the diverse range of sports featured in the Olympic Games. Post-Games, these venues are often adapted for different uses, such as community sports, concerts, and other large events. For instance, the London Olympic Stadium was transformed into a multi-use venue after the 2012 Games, now serving as the home for West Ham United and hosting various other events (IOC, 2021).
- **Concert and Event Stadiums:** Beyond sports, these stadiums are designed to host concerts, political rallies, and other large gatherings. They often feature flexible seating arrangements, extensive sound and lighting systems, and facilities for large-scale events. Examples include the O2 Arena in London and Madison Square Garden in New York (Robert, 2018).

## III. By Structural Features

### a) Open-Air Stadiums

Open-air stadiums lack a roof over the playing field, exposing the area to natural elements. These stadiums are typically used for sports that benefit from natural light and air, such as football and baseball. Examples: -Camp Nou: The largest stadium in Europe, located in Barcelona, Spain, known for its steep stands and intense atmosphere during FC Barcelona matches (Bale, 2003). Fenway Park: One of the oldest Major League Baseball stadiums, located in Boston, USA, known for its unique "Green Monster" left-field wall (MLB, 2020).

**b) Enclosed or Dome Stadiums**

Dome stadiums have a roof covering the entire facility, allowing for climate control and protection from the elements. These stadiums are popular in regions with extreme weather conditions, ensuring that events can proceed regardless of outside weather. Examples: -Mercedes-Benz Superdome: Located in New Orleans, USA, this stadium is known for hosting the NFL's New Orleans Saints games, concerts, and major events like the Super Bowl (Geraint, Sheard, & Vickery, 2013). Tokyo Dome: An iconic sports and entertainment venue in Tokyo, Japan, hosting baseball games, concerts, and various indoor sports events (Geraint et al., 2013).

**IV. By Capacity**

**a) Small Stadiums**

Small stadiums typically have a seating capacity of fewer than 10,000 spectators. These venues are often used by high schools or small colleges and cater to local community events. Examples: -Various high school football stadiums across the

USA, such as the Allen Eagle Stadium in Texas, which, despite being a high school stadium, boasts impressive facilities and seating capacity (Nelson, 2011).

**b) Medium-Sized Stadiums**

With capacities ranging from 10,000 to 50,000, medium-sized stadiums host minor league teams, colleges, and smaller professional sports teams. They strike a balance between being large enough for significant events and small enough to maintain a more intimate atmosphere. Examples: -Oracle Park: Home to the San Francisco Giants, this baseball stadium combines modern amenities with a picturesque setting by the San Francisco Bay, creating a unique fan experience (MLB, 2020).

**c) Large Stadiums**

Large stadiums accommodate over 50,000 spectators and are used for major league sports, international events, and large-scale concerts. These stadiums are architectural marvels, often incorporating advanced technology and design to handle massive crowds. Examples: -Wembley Stadium: Located in London, UK, it is one of the most famous stadiums in the world, known for hosting major football matches, concerts, and other large events. Its iconic arch and cutting-edge design make it a landmark. MetLife Stadium: Situated in New Jersey, USA, this stadium is home to the New York Giants and New York Jets of the NFL, featuring state-of-the-art facilities and a seating capacity of over 82,000 (Robert, 2018).

**2.1.2.3 Importance of Stadiums**

Stadiums are frequently used as locations for entertainment and cultural events including festivals, concerts, and exhibitions that support regional arts and culture. These occasions can

highlight a community's inventiveness and ingenuity, drawing tourists and enhancing the local economy. A city or country can gain international recognition and enhance tourism by hosting major athletic events in a stadium. This greater awareness has the potential to encourage cross-cultural dialogue and mutual understanding (Questions, 2023).

Furthermore, the building and upkeep of stadiums can generate employment opportunities, promoting local economic development. This has the potential to enhance a community's overall socioeconomic progress. Stadiums frequently represent a community's cultural beliefs and goals, acting as markers of pride and identity. They can contribute to a city or country's cultural legacy and feeling of place by becoming renowned landmarks (Questions, 2023).

Due in part to their effectiveness as an instrument for urban planning, stadiums are quickly emerging as some of the most significant structures that any future city may construct. Because of their immense potential as an urban planning tool, stadiums—the structures that house sports are quickly rising to the status of the most significant structures that any future city may construct (Architecture, 2023).

### **2.1.3 Landscape**

Landscape is defined as the outward appearance, physical features of landforms, water bodies, and vegetation, which are shaped by natural and human factors (Kumar et al., 2022, p. 10). Landscapes are spatial units that encompass diverse physical and biological components, such as topography, climate, soil, vegetation, water, and land use" (Zhang et al., 2023, p. 2).

Landscape can be understood as a dynamic and constantly evolving system, influenced by natural processes and human activities" (Patel et al., 2024, p. 2). The term landscape refers to the visible features of an area of land, including physical elements, land use patterns, and aesthetic

qualities" (Lee & Ahn, 2019, p. 142). Landscape is a holistic concept that integrates ecological, social, and cultural aspects of the environment, and is essential for understanding the complex relationships between human and natural systems" (Kim, 2020, p. 258).

### **2.1.3.1 Evolution of Landscaping**

Early landscaping was mainly focused on aesthetics and functionality within private gardens and estates owned by those who could afford them. These designs were influenced by cultural and historic backgrounds, such as the geometric gardens of the Renaissance or the scenic landscapes of the 18th century. The primary goal was to create visually pleasing environments that also served recreational purposes (Thayer, 1989). However, in the 20th century, landscaping began to integrate principles of ecology and sustainability. This change was driven by the recognition of the ecological impact of urbanization and the need for green spaces within cities. Modern landscaping practices now accentuate the incorporation of natural and built environments, promoting biodiversity, reducing carbon footprints, and enhancing the quality of urban life (Opdam, Luque, Nassauer, & Verburg, 2018).

Technological developments have also played an important role in the evolution of landscaping. Geographic Information Systems (GIS) and computer-aided design (CAD) have enabled more accurate and efficient planning and execution of landscape projects. These tools allow for comprehensive examination of site conditions and the creation of dynamic, adaptable designs that respond to ecological changes. Current trends in landscaping incorporate the use of native plants, the creation of multifunctional green spaces, and the integration of sustainable water management practices. The focus is increasingly on creating resilient landscapes that can adjust to dynamic climate conditions and support urban ecosystems. Future directions in landscaping

are likely to further integrate technology, sustainability, and community participation in the design process (Landscape Journal, 2024).

The evolution of landscaping is a reflection of changing societal values and technological advancements. From ornamental gardens to sustainable urban ecosystems, the field continues to adapt to meet the needs of modern society while promoting environmental stewardship.

### **2.1.3.2 Principles of Landscaping**

Landscaping is a crucial element in designing functional and visually pleasing outdoor spaces. It involves the thoughtful planning and alteration of the natural landscape to enhance its beauty and functionality. The principles of landscaping guide designers in creating balanced, harmonious, and sustainable environments. These principles include proportion, balance, contrast and harmony, color, repetition, and sustainable practices.

#### **i. Proportion**

Proportion refers to the size comparison between various elements in a landscape. Ensuring that plants, hardscapes, and other features are proportional to each other and to the overall space is essential for a cohesive design. Proper proportion creates a sense of order and helps in achieving visual appeal (Eden Lawn Care and Snow Removal, 2023).

#### **ii. Balance**

In landscape design, balance can take two forms: symmetrical balance, which creates a formal, structured appearance by mirroring elements on either side of a central axis, and asymmetrical balance, which uses different elements with equal visual mass to create a

more dynamic, informal look. Both forms of balance support the design's stability and unity (Thompson, 2000).

**iii. Contrast and Harmony**

Contrast and harmony are vital for accentuating certain elements while ensuring a unified look. Contrast can be achieved by placing diverse colors, shapes, or textures next to each other, drawing cognizance to specific features. Harmony is created by using elements that complement each other, providing a seamless and pleasing experience (Nassauer, 1995).

**iv. Color**

Color plays an important role in landscape design, influencing mood and perception. Warm colors like red and orange invoke a sense of excitement and make spaces feel more intimate, while cool colors like blue and green have a soothing effect and can make areas appear larger. Effective use of color enhances visual awareness and guides the viewer's experience through the landscape (Gobster & Westphal, 2004).

**v. Repetition**

Repetition involves using similar elements throughout the landscape to create patterns and sequences. This principle helps in achieving unity and cohesion. However, it's important not to overuse elements, as this can lead to monotony. Well-implemented repetition adds rhythm and consistency to the design (Lovell & Johnston, 2009).

**vi. Sustainable Practices**

Sustainability in landscaping involves using practices that are environmentally friendly and resource-efficient. This includes attracting beneficial insects, incorporating a variety

of plants, maintaining soil health, and utilizing organic fertilizers. Beneficial insects like bees and ladybugs help with pollination and pest control, while a diverse plant selection ensures ecological balance and visual diversity (Green Living Inspiration, 2023).

### **2.1.3.3 Elements of Landscaping**

The five main components of landscape design are as follows. These ideas serve as the cornerstone for creating your elements and are essential to success in landscape architecture. These components interact with one another to form the overall picture; they are not autonomous (Spafford, 2023). The components include colour, line, form, texture.

#### **i. Colour**

In our daily lives, color is a basic and necessary element; but, color in landscaping is incredibly intricate. Color often conveys a person's or designers' particular preference. Cooler tones, like blues, violets, and greens, tend to fade into the background, while warmer hues, like reds, oranges, and yellows, tend to move forward toward the observer. Compared to cool colors, warm colors have an effect on the eye more quickly. The visual effects of warm and cold color combinations on a landscape vary.

Color is a crucial component of hardscape and softscape design. A mood is created by the colors of the inflorescence and foliage. Therefore, it is necessary to portray the color composition in relation to the seasons at different levels and context. Therefore, in addition to the principles of color, it is important to take into account the specifics of plant species, such as bloom, fruit, leaf changes, and seasons, when seeking to build a sequence of harmony through color (Spafford, 2023).

#### **ii. Line**

Lines can be actual (real) or implied (perceived). Lines have to do with how the eye moves or flows. They can be made in a curved, horizontal, or vertical manner.

Depending on the height of the different species of trees, bushes, or groundcover in the landscape layout, lines are made vertically. The landscape plan serves as the foundation for the creation of both horizontal and curved lines. Thus, the lines that are utilized to create the landscape design determine the placement and order of the plants (Nursery, 2022).

A series is used to construct perceived lines, which provide the impression that a line is inferred. Following plant arrangement, a species' behavior may determine the design's indicated lines. The idea behind lines and how they are drawn relies on the design's goal. Lines are basic components that direct your design, whether it is as straightforward as walkways or as individualized designs (Nursery, 2022).

### **iii. Form**

Line and form are intimately associated. Form is more all-encompassing, whereas line is made with the outline or border of the plant material or items in a design. Form describes a plant's form. Plant placement involves considering form in relation to the plants' habits, which can include drooping, spreading, erect, and linear, etc. It is quite possible for plants to alter their look depending on whether they are planted in groups or individually. Trees and bushes are examples of three-dimensional objects that are related with form. Therefore, to enhance the overall appearance of your design, grouping or individual forms of different plant species can be incorporated into the composition of your design (Birla A1, 2024).

#### **iv. Scale**

Relativity is the backbone of scale. The size of an object or objects in relation to their surroundings is referred to as scale. It ultimately comes down to "does this look right?" because it is so subjective. One must view scale and proportion in their context.

There should be a sense of scale or individual components of the plants in relation to groups in the landscape design. Recognize that the trees and shrubs should balance the structure surrounding them in size. A five-foot wall, for instance, wouldn't seem appropriate next to a mansion. The photo should fit the frame. In turn, adhering to a sense of proportion and size can help the design come together harmoniously. Rather than sudden variations in size and height, a smooth transition that fosters a harmonious coexistence with the structure and landscape would be used in place of sudden changes in height and size (Birla A, 2024).

#### **v. Texture**

Texture is a small but important element in landscape design. Different plants have different textures for their leaves, twigs, branches, bark, and even for their blooms. Contrasting textures are important because they give a landscape interest. The visual distinction in texture is often attributed to the form and texture of the plant's leaves. For this reason, landscape designers should use texture to try to achieve a balance of the three types in the various locations.

Texture may be divided into three categories: coarse, medium, and fine. To balance out a coarse-leafed tree and make a soft change for the viewer's eye, the placement of a

medium-barked tree or shrub next to it is advised, creating contrasting textures to emphasize it. Avoid using the same type continually since this can result in a somewhat uninteresting appearance (Birla A1, 2024).

#### **2.1.3.4 Importance of Landscaping**

According to study, landscaping is important for human well-being, particularly in human cognitive development. For example, research have shown that views of nature improve humans' self-discipline and capacity to focus attention (Sullivan, 2018).

Furthermore, parks and recreation places are critical for physical activity, social interaction, and connection with nature, all of which are crucial for healthy living (Floyd, 2018). Well-designed parks can encourage physical activity, reduce stress, and improve overall well-being stemming from pristine, natural and serene environments that contribute them. Urban forestry methods dramatically enhance air quality, making cities more livable and sustainable (Chen, 2020). Urban trees and green spaces help to minimize air pollution, urban heat islands, and promote human health.

Public open spaces are also crucial for fostering a sense of community, social relationships, and belonging (Francis, 2019). Well-designed public places encourage social interaction, community participation, and a better sense of belonging. Urban gardens sustain different plant and animal groups, offering ecosystem services such as pollination, pest management, and climate regulation (Lerman, 2019) . Maintaining the health of ecosystems and preserving biodiversity depend heavily on urban landscaping.

Lastly, proximity to parks and green spaces increases property prices, making urban green spaces a valuable asset for urban development (Siew, 2020). Green spaces enhance urban livability, attracting businesses, residents, and visitors, and supporting local economies.

#### **2.1.4 Green Landscape**

"Green landscape" is defined as "vegetated areas, such as parks, gardens, and green spaces, that provide aesthetic, recreational, and ecological benefits." (Browning, 2018). The idea of a "green landscape" acknowledges that vegetation has many uses besides aesthetics such as storm water management, improving air quality, mitigating the effects of heat islands, preserving biodiversity, and assisting in the adaptation of climate change (Nowak, 2018).

Furthermore, it has been demonstrated that green spaces promote human health and wellbeing by offering chances for social connection, leisure, relaxation, and psychological recovery (Kaplan & Kaplan, 1989; Bowler et al., 2010). Landscaping is important for mental health and well-being, and it provides opportunities for physical activity, social interaction, and relaxation (Zhang, 2021).

Beyond only being aesthetically pleasing, green landscaping addresses major environmental issues that urban areas face. Urban planners and landscape architects may design healthier, more sustainable communities by integrating green infrastructure for stormwater management, enhancing air quality, reducing urban heat islands, protecting biodiversity, and supporting climate change adaptation (Bowler et al., 2010).

##### **2.1.4.1 Components of Green Landscape**

Any operation that alters a piece of land's visible features is referred to as landscaping, and this includes the following: Living things, including plants or animals; or gardening, which is the

practice of cultivating plants with the intention of enhancing the attractiveness of the surrounding area, Abiotic natural features include water bodies, landforms, and the elevation and form of the surrounding environment and abstract components, such the lighting and weather (Kuo, 2018).

The term "green landscaping" refers to a range of techniques that help incorporate vegetation and other natural components into the constructed environment. These elements are intended to advance biodiversity, strengthen ecological sustainability, and raise human well-being. Sustainable landscaping techniques, natural materials, and green infrastructure are important aspects of green landscaping (Aram, 2024).

**i. Natural Elements:**

- a) Trees:** Trees provide numerous benefits, including shade, air purification, carbon sequestration, and habitat for wildlife (Nowak, 2018).
- b) Shrubs and Bushes:** Shrubs and bushes add visual interest, create habitat for pollinators, and help prevent soil erosion (Lerman & Warren, 2011).
- c) Grass and Groundcover:** Grass and groundcover plants help stabilize soil, reduce heat reflection, and provide recreational spaces for humans and animals (Beard, 1973).

**ii. Green Infrastructure:**

- a) Parks and Green Spaces:** Parks and green spaces offer recreational opportunities, promote community engagement, and contribute to urban cooling and air quality improvement (Kuo, 2018).
- b) Rain Gardens and Bioswales:** Rain gardens and bioswales capture and filter stormwater runoff, reducing flooding and pollution in waterways (Dunnett & Clayden, 2007).

- c) **Green Roofs and Walls:** Green roofs and walls insulate buildings, mitigate the urban heat island effect, and provide habitat for plants and wildlife (Getter & Rowe, 2006).

**iii. Sustainable Landscaping Practices:**

- a) **Native Plantings:** Native plants are adapted to local environmental conditions, require less water and maintenance, and support native wildlife species (Tallamy, 2007).
- b) **Water-Efficient Irrigation Systems:** Drip irrigation, rainwater harvesting, and smart irrigation technologies help conserve water and reduce reliance on potable water sources (Landscape Ontario, 2013).
- c) **Permeable Paving:** Permeable paving allows rainwater to infiltrate the soil, replenishing groundwater supplies and reducing runoff pollution (Ferguson et al., 2013).

**2.1.4.2 Importance of Green Landscape**

**I. Environmental Benefits**

Urban heat island effect and other negative significances of urbanization are mitigated by green landscaping. Parks, gardens, and green roofs are examples of urban green spaces that can enhance air quality by absorbing carbon dioxide and other pollutants from the air. In order to maintain a healthy urban atmosphere, the vegetative cover in these regions is vital for filtering out pollutants and producing oxygen as a plant metabolic by-product (Aram, 2024). Additionally, green spaces facilitate rainwater absorption, reducing surface runoff and the risk of flooding. This function is particularly vital in urban areas where impermeable surfaces are prevalent. The process of evapotranspiration from green spaces

also contributes to cooling urban environments, thus reducing the demand for energy-intensive cooling systems (Buccolieri et al., 2021).

## **II. Health and Social Benefits**

The existence of green spaces in urban areas is strongly connected with enhanced physical and psychological health among residents. Access to parks and gardens boosts physical activity, which is important for cardiovascular health and general fitness. Moreover, these spaces offer a natural setting for recreation and relaxation, helping to lessen stress and anxiety (Frontiers, 2024). Several studies have made known the fact that exposure to natural environments can enhance cognitive function and emotional well-being. Urban green spaces provide a break from the “concrete jungle’s” “hustle and bustle”, fostering social connections and community solidity. These areas serve as communal spaces where people can gather, socialize, and engage in cultural and recreational activities, thereby fostering strength in the social fabric of urban communities (Aram, 2024).

## **III. Biodiversity and Ecological Sustainability**

Green landscaping caters to urban biodiversity by providing habitats for various plant and animal species. The creation and maintenance of different green spaces enhance the resilience of urban ecosystems, encouraging ecological balance. Biodiverse environments are more robust and capable of withstanding environmental strains, such as climate change and pollution (Buccolieri, 2021). Incorporating native plant species in urban landscaping not only preserves local flora but also supports pollinators and other wildlife,

contributing to the overall health of the ecosystem. Sustainable urban landscaping practices, such as the use of green roofs and vertical gardens, maximize the ecological benefits of limited urban spaces (Land, 2021).

#### **IV. Psychological effects**

A study conducted by Park in 2015 showed that forest landscapes can lead to decreased prefrontal cortex activity, which is connected with lower stress and enhanced mood states. Subjects who viewed forest environments reported feeling more "comfortable," "natural," and "soothed" as opposed to those who viewed urban landscapes (Park, 2015). This outcome suggests that integrating green landscapes in stadiums could create a more relaxing and enjoyable atmosphere for visitors, potentially enhancing their overall experience.

#### **2.1.5 Psychological Effects of Green Landscape Elements on User Experience in Stadiums**

##### **2.1.5.1 User Experience**

The multidisciplinary field of user experience is categorized by its focus on enhancing the total user experience that people have when interacting with digital products, systems, or services. It includes usability, accessibility, aesthetics, and overall user pleasure, among other aspects of user interaction. User experience is the outcome of efforts made to comprehend users' needs, behaviors, and preferences in order to provide meaningful and positive experiences for them.

There are five pillars of user experience which determine whether or not the feedback from users will be positive or negative. They are as follows:

- i. Accessibility
- ii. Usability / Ease of use
- iii. Credibility

- iv. Desirability / Sensory Appeal
- v. Usefulness (Interaction Design Foundation, 2024)

### **2.1.5.2 Effects of Green Landscape Design on User Experience in Community Sports Centre**

Green landscaping, which incorporates natural elements such as trees, bushes, and vegetation, has a tremendous impact on the user experience at community sports centers. Beyond their aesthetic appeal, green landscapes improve consumers' psychological well-being, physical health, and social relationships.

Green landscapes in community sports centers have a profound effect on users' psychological well-being, promoting feelings of relaxation, stress reduction, and connection with nature. Research has shown that exposure to green spaces has therapeutic effects, including decreased levels of anxiety, depression, and psychological distress (Ulrich, 1984). By creating visually appealing surroundings and natural retreats within sports centers, green landscaping provides users with opportunities for mental rejuvenation and emotional restoration (Kaplan, 1995). Whether enjoying a leisurely stroll through landscaped gardens, practicing yoga in a shaded grove, or simply admiring scenic views, users benefit from the calming and mood-enhancing effects of greenery. In addition to psychological benefits, green landscaping at community sports centers improves users' physical health and well-being. Access to green spaces promotes outdoor enjoyment, physical activity, and exercise participation, which leads to increased cardiovascular fitness, muscular strength, and general health (Maas et al., 2006). Sports facilities surrounded by vegetation create an appealing and inviting atmosphere for athletes, encouraging regular participation in sports and fitness activities (Barton & Pretty, 2010). Additionally, green

landscapes improve air quality, reduce pollution, and mitigate heat island effects, resulting in healthier and more sustainable surroundings for people to enjoy (Hartig et al. 2003).

These environmental advantages not only improve people's well-being, but also help to conserve natural resources and biodiversity. By adding green spaces and plants into sporting facilities, we can take a more comprehensive approach to promoting community health and sustainability. Furthermore, the presence of greenery can improve mental health and mood, giving sportsmen a tranquil and calming setting in which to prepare and compete. As we continue to promote nature's incorporation into our built surroundings, we can work toward establishing healthier, more vibrant, and resilient communities for future generations.

Green environments encourage social interaction, community cohesion, and a sense of belonging among users of community sports facilities. Parks, plazas, and green corridors are examples of shared outdoor areas that attract people of all ages and backgrounds. Greenery at community sports centers serves as a natural gathering place for sports teams, fitness groups, and leisure clubs, promoting social interactions and group activities (Biscaia et al., 2017). Whether it is playing team sports, attending outdoor events, or simply socializing with friends and family, users benefit from the sense of community and camaraderie that green landscapes foster.

### **2.1.5.3 Green Landscape Elements on User Experience in Stadiums**

The incorporation of green landscape elements within stadium design represents a dynamic approach to enhancing the psychological well-being and overall experience of spectators. This integration goes beyond mere decoration; it encompasses the strategic use of natural elements

such as vegetation, green walls, landscaped areas, and even innovative rooftop gardens to create multifaceted benefits that extend to emotional, social, and environmental dimensions.

At the core of understanding the impact of green landscapes in stadium settings lies Kaplan's Attention-Restoration Theory (1989). This theory posits that exposure to natural environments promotes psychological restoration by allowing individuals to recover from mental fatigue and improve their capacity for directed attention. In the context of stadiums, where spectators often experience heightened excitement, noise, and sensory stimulation during events, green spaces serve as vital sanctuaries that offer respite and relaxation. Imagine the contrast: amidst the concrete and steel of urban stadiums, lush greenery and well-tended lawns provide visual relief and evoke feelings of tranquility, thereby enhancing the overall enjoyment and satisfaction of attending sporting events.

Moreover, the psychological benefits of green landscapes extend to emotional well-being. Research has consistently shown that exposure to natural environments reduces stress levels, lowers blood pressure, and improves mood. Ulrich's seminal study (1984) on hospital patients revealed that those with views of nature from their windows experienced faster recovery times and required fewer pain medications compared to those with views of built environments or no views at all. Translating this research to stadium environments, where spectators gather in large numbers to share in the excitement of sports, integrating green landscapes becomes not only a matter of aesthetic enhancement but also a strategic investment in promoting mental resilience and emotional health among attendees.

Practically, the strategic placement and design of green elements within stadiums can significantly influence the spectator experience. For instance, green walls and vertical gardens

not only enhance visual appeal but also contribute to improved air quality by filtering pollutants and carbon dioxide while releasing oxygen. This environmental benefit is crucial in densely populated urban areas where stadiums are often located. Additionally, the presence of green spaces within stadiums can help mitigate the urban heat island effect by providing natural cooling and shading, thereby creating a more comfortable microclimate for spectators and reducing the need for energy-intensive cooling systems (Biscaia et al., 2017).

From a social perspective, green landscapes in stadiums foster opportunities for communal interaction and social engagement. By incorporating landscaped seating areas, garden lounges, or even accessible green spaces for recreational activities, stadiums encourage spectators to connect with each other in a relaxed and inviting environment. These spaces become hubs for pre-event gatherings, post-game celebrations, and shared moments of enjoyment, enhancing the overall sense of community and camaraderie among attendees (Tallamy, 2016).

Furthermore, the integration of green landscapes in stadium design aligns with broader environmental sustainability goals. Green roofs, for example, not only beautify the stadium skyline but also contribute to stormwater management and biodiversity conservation. By supporting local flora and fauna, stadiums can play a role in preserving regional ecosystems and promoting ecological balance within urban settings (Guhathakurta et al., 2015).

In conclusion, the psychological effects of green landscape elements on user experience in stadiums are profound and multifaceted. By embracing principles of environmental psychology, sustainable design, and community engagement, stadiums can transform into vibrant, inclusive spaces that enhance the quality of life for spectators and contribute positively to urban environments. As centers of cultural and social activity, stadiums have the unique opportunity to

integrate green landscapes creatively, thereby fostering healthier, more resilient communities and leaving a lasting impact on the well-being of attendees and the sustainability of cities.

To put it simply, overcoming implementation issues and implementing effective solutions are critical for realizing the full potential of green landscaping programs in urban and suburban settings. By overcoming regulatory barriers, improving maintenance practices, and encouraging community engagement, stakeholders can build resilient, equitable, and sustainable landscapes that improve quality of life, promote environmental stewardship, and contribute to the well-being of current and future generations.

## **2.2 Design Considerations**

Green landscape components must be integrated into buildings through careful design considerations. The design impacts accessibility, durability, and even how users interact with buildings. Design in general refers to the process of conceptualizing and planning the production of items, interactive systems, buildings, vehicles, and so on. It is user-centered, which means that the design thinking approach places the user first. It is about developing solutions for people, physical objects, or abstract systems to meet a demand or solve an issue (M, 2017).

### **2.2.1 Design Considerations for Integrating Green Landscaping into stadiums**

Integrating green landscaping into community sports centers has various advantages, including visual enhancement, environmental sustainability, and improved user experiences. However, in order to reap the full benefits, certain design elements must be carefully considered. This study discusses major design issues for adding green landscaping into community sports centers, emphasizing ideas and solutions that improve utility, accessibility, and overall effectiveness.

The following are steps taken to ensure an effective green landscape integrated design:

**i. Site Analysis and Planning**

Before adopting green landscaping, conduct a thorough site analysis to evaluate conditions, environmental considerations, and user requirements. Consider things such as site topography, soil condition, microclimate, and current vegetation. Identify opportunities and limits for green landscaping, such as planting areas, water drainage, and sunlight exposure. Use this information to create a site plan that best integrates green spaces with sports facilities, circulation paths, and amenities (Francis et al., 2012).

**ii. Research and Adoption of Native Plants**

Select native plant species that are well-suited to the local climate, soil, and ecological context. Native plants require less upkeep, water, and fertilizer than invasive species, making them more durable and resilient. Choose a diverse combination of trees, shrubs, grasses, and groundcovers to create visually appealing landscapes (Tallamy, 2016).

**iii. Irrigation and Water Management**

Use water-efficient irrigation techniques and sustainable water management practices to reduce water use and runoff. Landscaped areas and sports fields can be watered efficiently using drip irrigation, rainwater collection, and greywater recycling. Design permeable surfaces, bioswales, and rain gardens to capture, filter, and infiltrate runoff on-site. Use water-saving landscaping techniques like xeriscaping and hydrozoning to reduce irrigation requirements and enhance drought resistance (Guhathakurta et al., 2015).

**iv. Multifunctional Green Spaces**

Design multifunctional green spaces to meet varied user needs. Include passive recreational places, such as meadows, picnic areas, and nature trails, for leisure and relaxation. Incorporate active leisure areas, such as sports fields, courts, and playgrounds,

for organized sports and physical activity. Provide amenities such as sitting, shade structures, and workout stations to improve user comfort (Biscaia et al., 2017).

**v. Inclusivity and Accessibility**

Ensure green landscaping is accessible to all users, regardless of age, ability, or background. Design walkways, ramps, and entrances that satisfy accessibility standards that can accommodate wheelchairs, strollers, and mobility aids. Provide plenty of seats, rest places, and wayfinding signage to help users navigate and orient. Consider universal design principles for creating inclusive environments that embrace a variety of user groups, such as elders, children, and people with disabilities (Crawford & Godbey, 1987). Green landscaping for community sports centers necessitates careful planning, deliberate design, and sustainable maintenance approaches. Green landscapes can be created by taking into account site analysis, native plant selection, water management, multifunctional areas, accessibility, and upkeep to improve the aesthetic appeal, ecological integrity, and user experience of sports facilities. As community sports facilities expand as hubs for recreation, wellness, and community participation, incorporating green landscaping will become increasingly vital in fostering sustainability, health, and quality of life for both users and communities (Wolf & Flora, 2018).

**2.2.2 Spatial Requirements and Spatial Analysis**

Green landscaping at community sports centers not only improves their aesthetic appeal, but also helps to ensure environmental sustainability and user well-being. However, successfully integrating greenery necessitates careful consideration of spatial constraints in order to assure usefulness, accessibility, and overall effectiveness.

**i. Site Analysis and Planning:**

Before beginning the design process, undertake a detailed site analysis to understand the geographical context, site conditions, and user requirements (Francis et al., 2012). Assess site topography, soil quality, microclimate, and existing vegetation to determine whether areas are ideal for green landscaping. Consider the spatial relationships between sporting facilities, circulation lines, amenities, and landscaped spaces to promote seamless integration and efficient space utilization (Biscaia et al., 2017). Create a site design that strikes a balance between functional needs and aesthetic goals, maximizing the potential of green spaces while addressing site restrictions and opportunities.

**ii. Green Space Allocation:**

Determine the proper allotment of green space within the sports facility complex based on the site's size, programming requirements, and user preferences (Nicholson et al., 2015). Allow enough room for different types of flora, such as trees, shrubs, grassy areas, and planted beds, to create a diversified and visually appealing landscape (Tzoulas et al., 2007). Make sure that green spaces are strategically placed across the site to give visual interest, spatial continuity, and possibilities for leisure and recreation (Nicholson et al., 2015). Consider the physical hierarchy of green spaces: larger, more open areas serve as focal points, while smaller, intimate places allow for calm contemplation and social interaction.

**iii. Functional Zoning and Programming:**

Establish clear zones and programming areas within the sports center complex to accommodate different functions and activities (Crawford & Godbey, 1987). Define functional zones for sports fields, courts, seating areas, circulation paths, and landscaped spaces to ensure efficient use of space and clear circulation patterns (Francis et al., 2012).

Integrate green landscaping into functional zones to provide shade, visual relief, and ecological benefits (Biscaia et al., 2017). Incorporate flexible, multipurpose spaces that can adapt to various activities and events, enhancing the versatility and usability of green areas (Nicholson et al., 2015).

**iv. Accessibility and Circulation:**

Make green landscaping accessible to all users, including those with disabilities, seniors, and children (US Access Board, 2002). Create circulation lanes, walkways, and entrances that allow universal access that can accommodate wheelchairs, strollers, and mobility aids (Crawford & Godbey, 1987). Ensure clear wayfinding signage, sightlines, and lighting to improve navigation and orientation throughout the sports facility complex (Francis et al., 2012). Consider spatial ergonomics and human-scale design principles when creating comfortable, appealing settings that encourage social interaction and well-being (Gehl, 2010).

**v. Ecological Considerations:**

Include ecological principles in spatial planning and design to improve biodiversity, ecosystem services, and environmental sustainability (Colding et al., 2006). Set aside areas for native vegetation, wildlife habitat, and ecological restoration to promote local biodiversity and ecosystem health (Tallamy, 2009). Use green infrastructure elements like rain gardens, bioswales, and permeable surfaces to regulate stormwater runoff and improve water quality (Ahern, 2013). Consider the space requirements for sustainable maintenance activities like composting, mulching, and integrated pest control to reduce environmental impact and promote long-term ecological stewardship (Chalker-Scott, 2007).

## **2.3 Empirical Review**

### **2.3.1 Benefits of Green Landscape Elements in Stadiums**

#### **i. Stress Reduction and Emotional Recovery**

The presence of green landscape elements in stadiums can significantly reduce stress and promote emotional recovery among spectators. Studies show that natural elements like trees and plants can lower cortisol levels, the primary stress hormone, leading to relaxation and emotional well-being. Browning and Lee (2017) found that exposure to green spaces can substantially decrease stress levels and enhance emotional recovery. Similarly, Song et al. (2016) demonstrated that individuals exposed to green environments reported lower stress and quicker emotional recovery compared to those in non-green environments.

#### **ii. Enhanced Mood and Well-being**

Green spaces have a notable impact on improving mood and overall well-being. Bratman et al. (2019) observed that natural environments contribute to significant mood enhancements and reductions in symptoms of depression. Ulrich et al. (2020) supported this by showing that even short-term exposure to green environments can improve mood and emotional stability. In the context of stadiums, where the atmosphere can be intense, green spaces offer a calming effect, thereby enhancing the spectator experience and promoting well-being.

#### **iii. Cognitive Benefits**

Green landscape elements are known to enhance cognitive functions such as attention, memory, and mental clarity. Kaplan and Kaplan (2019) argue that natural environments provide restorative experiences that help replenish depleted cognitive resources. This is

particularly beneficial in stadium settings, where maintaining focus and mental engagement is essential. Berman et al. (2012) found that interaction with nature can boost cognitive performance, suggesting that green spaces in stadiums help spectators remain attentive and engaged, thereby improving their overall experience.

#### **iv. Social Interaction and Community Building**

Green spaces within stadiums serve as social hubs, facilitating interaction and community building among spectators. Wolf and Flora (2018) emphasize that green spaces promote social cohesion and a sense of belonging, enhancing the spectator experience. Jennings et al. (2019) highlight that such spaces encourage positive social interactions, contributing to a more inclusive and engaging environment. These social interactions are crucial in creating a welcoming atmosphere that enhances the overall user experience.

### **2.3.2 Challenges of Implementing Green Landscape Elements in Stadiums**

#### **i. Maintenance and Costs**

The maintenance and associated costs of green landscape elements in stadiums present significant challenges. Green spaces require regular upkeep, including watering, pruning, and pest control, which can be resource-intensive and costly. Zhou and Parves Rana (2019) highlight the financial burden of maintaining green spaces, particularly in large stadiums. Getter and Rowe (2006) also point out that the initial costs of installing green roofs and walls can be high, posing financial challenges for stadium operators.

#### **ii. Space Constraints**

Stadiums are designed to maximize seating and spectator comfort, often leaving limited space for green landscape elements. Balancing the inclusion of green spaces with the need to maintain sufficient seating and amenities presents a complex design challenge.

Fifield and Veal (2020) discuss the need for innovative design solutions to integrate greenery without compromising the primary functions of the stadium. Jim (2017) emphasizes that space constraints necessitate careful planning and creative approaches to ensure that green elements enhance rather than detract from the spectator experience.

### **iii. Climate and Environmental Factors**

The local climate and environmental conditions significantly influence the viability of green landscape elements in stadiums. Maintaining healthy green spaces can be challenging in regions with extreme temperatures or limited rainfall. Jansson and Lindgren (2018) stress the importance of considering climate factors in the planning and design of green spaces to ensure their sustainability. Chen and Jim (2008) highlight the necessity of selecting plant species that are well-suited to the local climate to reduce maintenance demands and enhance the longevity of the green spaces.

### **2.3.3 Application and Strategies for Green Landscape Elements in Stadiums**

Stadiums are high-energy environments that can be overwhelming due to the large crowds and intense activities. Integrating green spaces within these venues can offer spectators a respite, creating a more pleasant and balanced experience. For instance, landscaped areas within or around the stadium can serve as relaxation zones, helping to reduce anxiety and improve overall well-being.

A study on the psychological effects of landscape elements in urban park waterfront green spaces found that different landscape elements significantly impact psychological responses. The inclusion of natural elements, such as water features and greenery, contributed positively to the public's emotional and cognitive responses (Huang et al., 2023). Applying these findings to

stadiums suggests that similar green features can enhance the spectator experience by providing calming and restorative environments.

### **2.3.3.1 Strategies for Implementation**

#### **i. Green Roofs and Walls**

Green roofs and walls are effective strategies for incorporating green spaces into stadiums without occupying valuable ground space. These features not only improve air quality and enhance the visual appeal of the stadium but also provide insulation benefits, reducing energy costs. Zhang et al. (2021) note that green walls can also serve as sound barriers, improving the acoustic environment within the stadium. Getter and Rowe (2006) emphasize that green roofs help manage stormwater and mitigate the urban heat island effect, contributing to the sustainability of the stadium.

#### **ii. Landscaped Public Spaces**

Landscaped public spaces around the stadium can significantly enhance the user experience by providing areas for relaxation and socialization before and after events. These spaces can include gardens, water features, and seating areas, offering spectators pleasant environments to enjoy. Chen and Jim (2008) suggest that landscaped public spaces can also act as buffers, reducing the heat island effect and improving the microclimate around the stadium. Fifield and Veal (2020) discuss how these spaces can be seamlessly integrated with the stadium's architecture, enhancing both functionality and aesthetics.

#### **iii. Integration with Existing Architecture**

Integrating green elements into the existing architecture of the stadium can create a cohesive and visually appealing environment. This includes planting trees and shrubs

around seating areas, incorporating planters and hanging gardens, and designing walkways with natural elements. Jim (2017) suggests that such integration not only enhances the visual appeal but also provides the psychological benefits of greenery, contributing to a more pleasant spectator experience. Pfeiffer and Cloutier (2016) advocate for innovative design solutions that incorporate greenery in a way that complements the stadium's architecture and enhances the overall aesthetic.

#### **iv. Sustainable Practices**

Implementing sustainable practices is crucial for the long-term success of green spaces in stadiums. This includes selecting native plant species that are well-suited to the local climate, using efficient irrigation systems, and employing organic maintenance practices. Zhou and Parves Rana (2019) highlight the importance of sustainability in ensuring the viability of green spaces, while Zhang et al. (2021) emphasize that sustainable practices contribute to the overall ecological health of urban environments. These practices help reduce the environmental impact and maintenance costs, ensuring that green spaces remain vibrant and healthy.

## **Chapter Three**

### **Methodology: Case Study**

#### **3.1 Research Design**

This study focused on the incorporation of proper landscape design methods and principles in the creation of a stadium for Oyo State that promotes psychological well-being and performs all its functions. A review of the literature on the psychological effects of landscape elements and how they may be used in design was conducted via the use of journals, papers, books, and other materials. Already existing stadiums of prestigious football clubs and other states in the country were also investigated and assessed to have a better understanding of the design requirements and techniques that may inform the design of a proposed stadium.

#### **3.2 Case Study Selection Criteria**

The case studies were chosen with care based on the following criteria:

1. Stadium designs that boast the integration of proper landscape design.
2. Notable national stadiums that boast a robust architectural standing.
3. The project's scope (national/international).

#### **3.3 Aspects of Case Study Analysis**

Following selection, the case studies were evaluated on four criteria:

- i. Locational Description
- ii. Overview/general information
- iii. Design concept and building materials
- iv. Building's architectural description/features

- v. Green Landscape Features
- vi. Appraisal or Synthesis

### **3.4 Case Study Analysis**

#### **3.4.1 Case Study 1: Emirates Stadium.**

##### **3.4.1.1 Locational Description**

The Emirates Stadium, located in the United Kingdom, is situated in Holloway, a district within the London Borough of Islington. This impressive stadium, home to Arsenal Football Club, stands as one of the most modern football venues in Europe. It was designed by the renowned architectural firm Populous (formerly HOK Sport), which specializes in large-scale sports venues. Construction on the stadium began in February 2004, and it was completed in July 2006. Covering an expansive area of 17 acres (68,796.62m<sup>2</sup>), the stadium boasts a seating capacity of approximately 60,704. Its location in the vibrant city of London makes it a prominent fixture in both sporting and urban landscapes.

##### **3.4.1.2 Overview**

One and certainly a landmark in stadia, is the new Emirates Stadium, the home of Arsenal Football Club. The stadium was the catalyst for an integrated urban planning exercise to regenerate a deprived and under-utilized area close to the Highbury Stadium. The regeneration has involved building 2,500 new homes including key worker and social housing, with the Emirates Stadium as a focal point for the community, set in an urban park with the public plaza around the perimeter.

The 60,000 seat, state-of-the-art stadium features a glass plank façade at podium general access areas, steel mesh screens which overlap the exposed concrete of the vertical circulation cores, and a metallic under clad roof which seemingly floats above the seating bowl.



**Fig 3. 1: Showing the Stadium.**

Source- (<https://www.stadiumguide.com/emirates/>)

### **3.4.1.3 Design Concept and Building Materials**

The elliptical stadium plan opens up the immediate boundaries to enable a new public podium space, with two new pedestrian bridges across the rail lines to the east, which create effective links to the surrounding area and existing transport networks. The design made use of various building materials like hollow blocks, reinforced concrete, mass concrete, glass, steel roof truss, polycarbonate panel roof, wooden frames and doors, metal doors.



**Fig 3.2: Showing the Stadium's Floor Plan in Relation to Other Facilities.**

Source- (<https://eventshospitality.co.uk/venues/emirates-stadium/>)



**Fig 3.3: Showing the Interior of the Stadium During a Match.**

Source- (<https://www.stadiumguide.com/emirates/>)

#### **3.4.1.4 Description & Features**

- i. A Large stadium with a holding capacity of 60,500 to host major events.
- ii. Hospitality as a watchword as adequate spaces for VIPs are created. They are 150 in number
- iii. The upper and lower parts of the stadium feature standard seating. The stadium has two levels below ground that house its support facilities such as commercial kitchens, changing rooms and press and education centres.
- iv. The main middle tier, known as the "Club Level", is premium priced and also includes the director's box. There are 7,139 seats at this level, which are sold on licences lasting from one to four years. Immediately above the club tier there is a small circle consisting of 150 boxes of 10, 12 and 15 seats. The total number of spectators at this level is 2,222.
- v. The stadium additionally has facilities for fans with disabilities including a Guide Dog Toilet facility, a Disabled Supporters Match Day Lounge, Changing Places Toilet facilities which includes a hoist and changing table. In September 2017, Arsenal opened a sensory room at the stadium for the fans. There are 241 wheelchair accessible seats within the Emirates Stadium.

#### **3.4.1.5 Observations**

- i. Circulation areas are spacious and well-defined.
- ii. Easy accessibility measures for the disabled.
- iii. Adequate spatial allocation
- iv. Use of shading devices is apparent

- v. There is a presence of green spaces due to its association with parks in its immediate surrounding
- vi. Adequate parking spaces.

### **3.4.2 Case Study 2: Allianz Arena, Munich. Germany.**

#### **3.4.2.1 Locational Description**

Allianz Arena is located in Munich, Bavaria, Germany, specifically in the Fröttmaning area. The stadium is famous for its unique, inflatable façade that can be illuminated in different colors. Designed by the Swiss architectural firm Herzog & de Meuron, Allianz Arena is celebrated for its cutting-edge design and sustainable approach. Construction of the stadium began in 2002 and it officially opened in 2005. It covers an area of approximately 19 hectares (190,000 m<sup>2</sup>) and can seat 75,000 spectators during domestic matches. Home to FC Bayern Munich, the Allianz Arena has become an iconic structure, reflecting both the architectural innovation and footballing tradition of Munich.

#### **3.4.2.2 Overview**

The Allianz Arena, opened in 2005, was designed purely as a football stadium. The architecturally unique arena was constructed in under three years. When Germany was awarded the honor of hosting the football World Cup in 2006, it needed a whole new series of stadiums to take the strain and show itself off as a sports-loving, capable nation. The Allianz Arena was one of the most successful of this new breed. Designed by the architecture firm Herzog & de Meuron, the Allianz Arena is most famous for its color scheme and futuristic appearance. Unusually, the stadium was home to two teams: Bayern Munich and TSV 1860. Bayern plays in red, TSV in blue, so the architects devised a way in which the stadium could be transformed, glowing like a beacon in different colors from one week to the next.



**Fig 3.4: The Allianz Stadium, Munich.**

Source- (<https://www.arch2o.com/allianz-arena-football-stadium-herzog-de-meuron/>)

### **3.4.2.3 Design Concept and Building Materials**

Inside modern stadiums, growing grass is often a difficult task because of the need to cram in as many fans as possible under large, overreaching roofs, thereby restricting airflow. At the Allianz Arena, the roof is constructed from 2,784 pneumatic panels made of transparent and translucent ETFE laminate—an exceptionally good conductor of light—allowing the grass to grow normally. The three-tiered stadium is a modern, adaptable, and popular classic. Within a few months of opening day in 2005, the distinctive shape of the arena had inspired the nickname Schlauchboot—“inflatable boat.”



Fig 3.5: Section Through the Stadium Building.

Source- (<https://www.arch2o.com/allianz-arena-football-stadium-herzog-de-meuron/>)

#### 3.4.2.4 Description & Features

The construction of a spacious, open learning atmosphere in which everyone is a part of the same room and is only divided by the split floors and glass walls of the teaching rooms was one of the main goals that guided the building's design. The layout encourages the students to share knowledge and ideas and makes it easier for them to be inspired by one another. The building houses administrative offices, lecture halls, and multiple laboratories.

#### 3.4.2.5 Observations

- i. Easy accessibility
- ii. Adequate spatial allocation

- iii. Use of shading devices is apparent
- iv. There is an abundance of green spaces and open areas
- v. Adequate parking spaces divided into underground parking, ground level parking as well as multi-leveled car parks.
- vi. The structure is made of sandcrete blocks, reinforced concrete and glass and ETFE membranes fitted with LEDs that make the building façade change colours.

### **3.4.3 Case Study 3: Akwa Ibom Stadium, Uyo. Nigeria.**

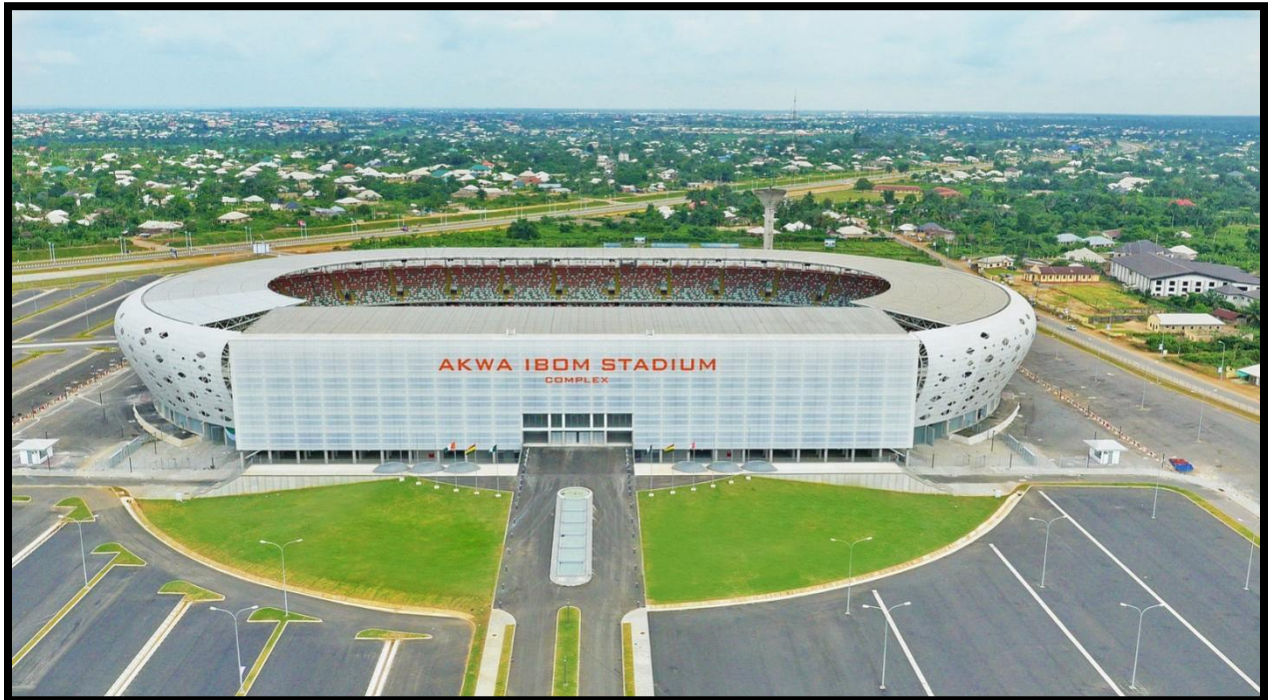
#### **3.4.3.1 Locational Description**

Located in Uyo, the capital city of Akwa Ibom State, Nigeria, the Akwa Ibom International Stadium is also known as the "Nest of Champions." The stadium was designed by Julius Berger Nigeria PLC, with collaboration from the global design firm AECOM. Situated along Goodluck Jonathan Boulevard, the stadium serves as a multipurpose sports venue, primarily hosting football matches. Its construction commenced in 2012 and was completed by 2014, standing as a significant landmark in Nigeria's sporting infrastructure. Spanning 48 hectares (480,000 m<sup>2</sup>), the stadium accommodates 30,000 spectators. It is renowned for its modern design and has hosted various international sporting events, including matches involving the Nigerian national football team.

#### **3.4.3.2 Overview**

The Akwa Ibom Stadium Complex is a world-class multifunctional stadium serving as a one-stop center for sporting events, entertainment and general recreation. It meets the requirements of the World Football Association for World Cup qualifying matches and the World Athletics

Association for national competitions. The stadium represents the first part of the Uyo Sports Park project development.



**Plate 3. 1: Aerial View of the Stadium.**

Source- (<https://www.julius-berger-int.com/en/references/akwa-ibom-stadium-in-uyo-nigeria>)

### **3.4.3.3 Design Concept and Building Materials**

The stadium represents the first part of the Uyo Sports Park project development. The Akwa Ibom Stadium is unique for its crescent-shaped steel beams, the impressive facade as well as for the extensive use of precast concrete units.





**Plate 3. 2: View of the Stadium Showing the Crescent Steel Beams.**

Source- (<https://www.julius-berger-int.com/en/references/akwa-ibom-stadium-in-uyo-nigeria>)

#### **3.4.3.4 Description & Features**

Among the special features of the Akwa Ibom Stadium are the sickle-shaped steel trusses, the impressive approximately 14,000 m<sup>2</sup> façade of prefabricated, triangular eco-friendly acrylic glass elements with differently arranged "eye-shaped" openings and the large quantity of precast concrete elements. The Stadium itself consists of:

- i. 30,000 capacity covered main bowl
- ii. Bullet Proof VVIP/VIP areas
- iii. Box office
- iv. Media facilities
- v. Two scoreboards that comprise electronic scoreboard and video facilities for replays
- vi. Floodlights
- vii. Eight-lane 400m standard track

- viii. Warm-up facility with six-lane 400m track
- ix. A standby power supply system
- x. 30 emergency exit points
- xi. 7,500-seater Grand Stand
- xii. Helipad
- xiii. Two dressing rooms
- xiv. Ambulance bay

#### **3.4.3.5 Observations**

- i. Lesser accessibility for the disabled as opposed to other stadiums in this study.
- ii. Adequate spatial allocation
- iii. Use of shading devices is apparent with the façade design.
- iv. There is an abundance of hardscapes in comparison to green spaces.

#### **3.4.4 Case Study 4: Moshood Abiola National Stadium, Abuja. Nigeria.**

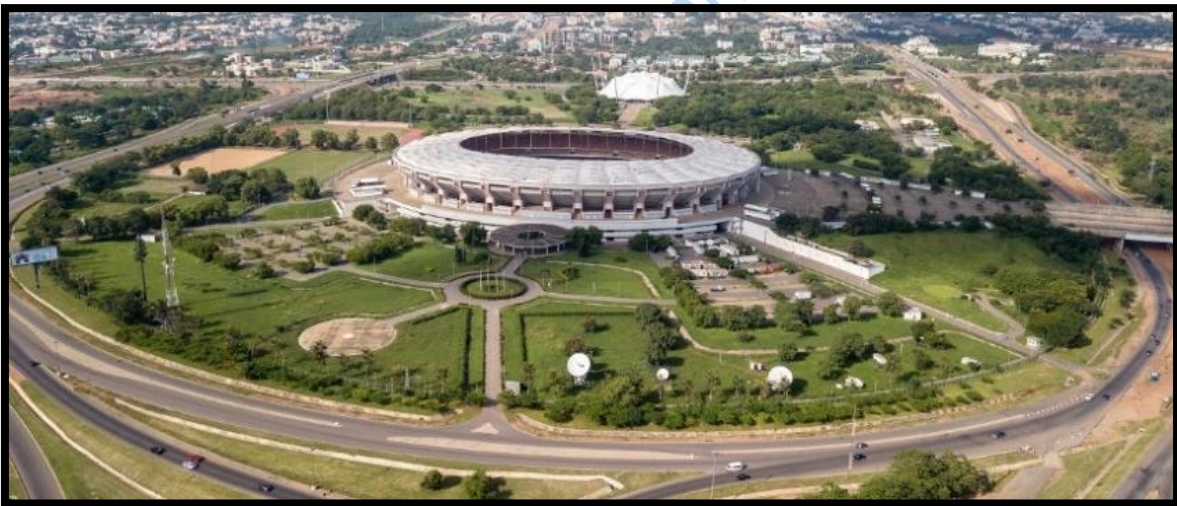
##### **3.4.4.1 Locational Description**

Moshood Abiola National Stadium, formerly known as Abuja National Stadium, is located in Abuja, the capital city of Nigeria, within the Federal Capital Territory. Positioned in the Central Business District, the stadium is a key venue for both national and international events. Designed by Schlaich Bergermann & Partner, a German firm, in partnership with Julius Berger Nigeria PLC, the stadium was built between 2000 and 2003, in time to host the 8th All Africa Games. The stadium occupies 29 hectares (290,00m<sup>2</sup>) and has a seating capacity of 60,491. It is a multi-purpose facility, primarily used for football but also suitable for other sporting and entertainment events. Its central location and modern design make it a prominent feature in Abuja's landscape.

### 3.4.4.2 Overview

The Nigerian government opened the new national stadium in 2000. It was constructed on 29 hectares to the west of Abuja. Situated on the other side of the national assembly building (which is located on the eastmost side), it is planned to be the westmost landmark of the capital's two primary avenues. Ample parking spaces are also available for the structure, which is adjoined to a much larger multi-use sports complex to the south via a series of pedestrian bridges.

When it was built, the stadium was one of Africa's biggest, most luxurious, and most expensive venues. In reality, the stadium attracted a lot of criticism because it cost 54 billion naira, or roughly \$360 million, in 2003, making it one of the most expensive in the world.



**Plate 3. 3: Aerial View of the Stadium Showing the Site Plan.**

Source- ([https://stadiumdb.com/stadiums/nga/abuja\\_national\\_stadium](https://stadiumdb.com/stadiums/nga/abuja_national_stadium))

### **3.4.4.3 Design Concept and Building Materials**

The structure of the track and field stadium is based on the spoke-and-wheel concept with an elliptic concrete compression ring and two ring cables at the inner edge of the roof. The connection of the inner ring cables with the compression ring is carried out by upper and lower radial cables in 36 axes. The upper radial cables support arches, which carry a double-curved roof cladding.

#### **Materials Used**

- Fiberglass,
- Mesh,
- Glass,
- PTFE
- Pre-cast concrete

#### **Applications**

- For tensile structures, roof, for sports fields, for stadium

### **3.4.4.4 Description & Features**

The stadium's precast and in-situ concrete components are held up by 36 towers that are secured in place by 140 drilled piles. Remarkably, the roof structure is the first of its kind in the world to use a concrete ring beam. It is an 800-ton cable construction with a 28,000 square meter

membrane. 6,300 precast components made for the spectator stands are also a feature of the complex, showcasing its creative engineering and building methods.

### **Facilities**

- i. **Main Stadium:** Able to hold specifically 60,491 spectators, it is the site of important football games and other sports events.
- ii. **Indoor Sports Hall:** This 3,000-seat venue hosts gymnastics, table tennis, handball, basketball, and volleyball.
- iii. **Olympic-sized swimming pools:** There are two available, with one for warm-ups and the other for competitions.
- iv. **Tennis Courts:** Availability of several courts available for training and tournaments.
- v. **Athletics Track:** The track used for several sports competitions.
- vi. **Football Fields:** Extra fields for practice and minor games.
- vii. **Fitness Center and Gym:** A 2,000-square-foot space equipped with exercise and weight training equipments.
- viii. **Medical Facilities:** A physiotherapy and sports medicine section.
- ix. **Media Center:** For media coverage and news conferences.
- x. **Parking:** There is plenty of space for participants and spectators.
- xi. **Additional Facilities:** Includes a velodrome, presidential suite, corporate suites, post offices, banks, scoreboards, floodlights, shops, kiosks, a helipad, and a 3,000-capacity hockey stadium.

#### **3.4.4.5 Observations**

- i. The use of in-situ and precast concrete for an increased structural stability.

- ii. There is proper landscape design around the building as well as proper site zoning.
- iii. The stadium offers multifunctionality with its ability to accommodate myriads of sporting activities.

### **3.5 Case Study Adoptions**

#### **i. Spacious and Well-Defined Circulation Areas**

- a) Ensuring open and clearly marked circulation areas to enable the unhindered movement of spectators, staff, and emergency services.
- b) Designing easily noticeable signage and wayfinding systems.

#### **ii. Accessibility Measures for the Disabled**

- a) Integration of ramps, elevators, and designated seating for disabled individuals.
- b) Ensuring accordance with international accessibility standards.

#### **iii. Adequate Spatial Allocation**

- a) Allocation of adequate space for various activities, including seating, concessions, restrooms, and emergency exits.
- b) Planning ahead for future expansions and design flexibility in the use of spaces.

#### **iv. Use of Shading Devices**

- a) Implementation of shading devices to boost comfort and reduce energy consumption.
- b) Utilization of materials and designs that offer effective sun glare and solar radiation protection and enhance the aesthetic appeal of the stadium.

#### **v. Presence of Green Spaces**

- a) Integration of green spaces in and around the stadium to enhance the environmental quality and offer recreational areas.

**vi. Adequate Parking Spaces**

- a) Provision of ample parking facilities including multi-level car parks that will cater to the parking needs of the visitors.
- b) Ensuring easy accessibility to the stadium from parking areas and contemplate on the inclusion of electric vehicle charging stations.

**vii. Multifunctionality**

- a) Designing the stadium to accommodate various sporting events and other activities such as concerts, cultural events, and exhibitions.

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## Chapter Four

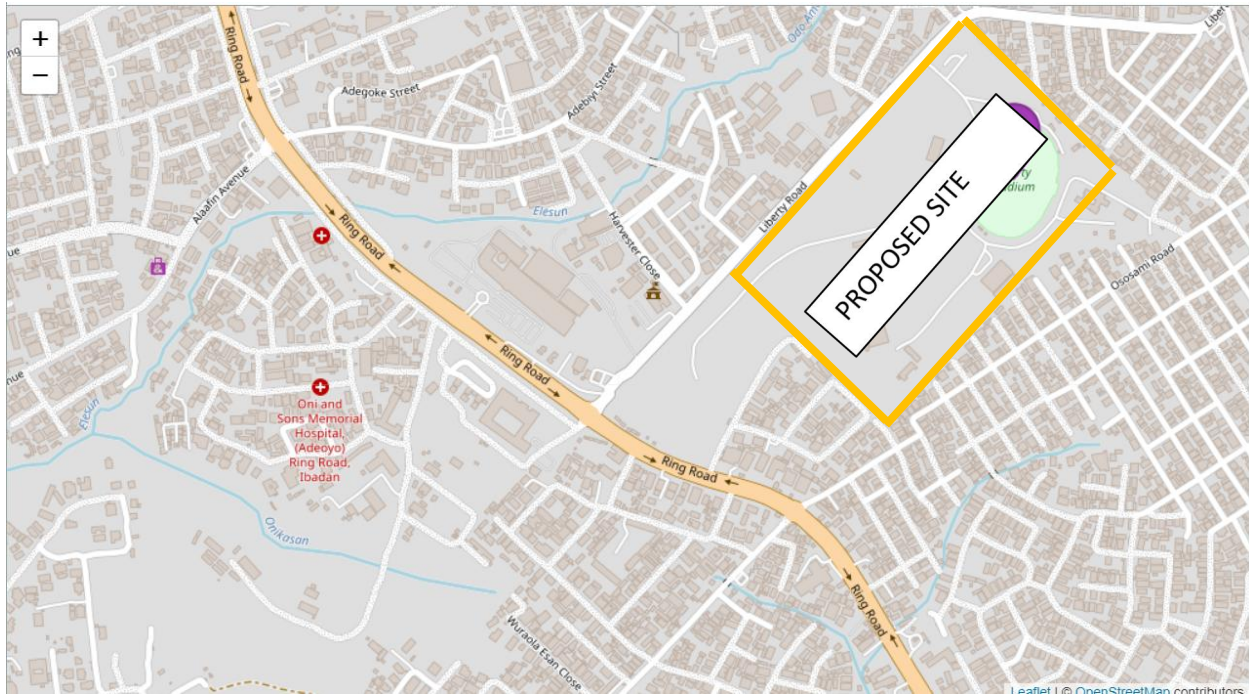
### Site Analysis and Design Synthesis

#### 4.1 The study Area

This section discusses the preliminary design proposal and the design decisions taken to arrive at the proposed stadium. The proposed design is based on the spatial requirements, case studies, and the application of landscaping elements to improve on user experience.

##### 4.1.1 Site Location and Description

The proposed building is located at geographical coordinates 7.376216 longitude and 3.878799 latitude, strategically situated along the Ring Road axis in Ibadan, Oyo State, Nigeria. The site boasts an exceptional location, situated in proximity to other privately adjoining facilities like commercial stores, hotels and more buildings that boost its ambience. Moreover, its accessibility is enhanced, as it is bordered by major roads on both the front; Ring Road and side; named Liberty Road ensuring convenient entry and exit points. This prime location leverages existing infrastructure and enhances the site's prominence as a central sports and cultural hub in Ibadan.



**Fig 4.1: Map of Liberty Stadium with the Site Highlighted.**

Source- (Field work (2024))

#### **4.1.2 Site Selection Criteria**

As this project is a redesign of an existing project, it only is right to propose the new design on the existing site. Adversely, the following criteria were considered in the selection of the site as opposed to moving:

##### **i. Accessibility:**

When choosing a location for the proposed stadium, it's important to consider easy access and then assess the proximity to major transport hubs such as highways, public transit stations, and airports to facilitate easy access for spectators and participants. The chosen site is surrounded by major roads and walkways on both the front and right sides, making it easily accessible for both vehicles and pedestrians without any obstacles.

**ii. Proximity:**

The site is in close proximity to hotels, restaurants, and other amenities to cater to visitors' needs. It is in close proximity to banks, close proximity to a court and in close proximity to a hospital in case of emergencies.

**iii. Availability of materials**

The site has an abundance of trees for timber, sand, stone and other building material that may be needed for construction, thereby reducing transportation and labour costs. Since it is a redesign of an existing facility, viable materials can be reused further reducing costs.

## **4.2 Project Analysis and Design Synthesis**

### **4.2.1 Brief Analysis**

Liberty Stadium is the pioneer stadium in Nigeria, situated in Ibadan, Oyo State, Nigeria. It has an historical context as the first stadium in Nigeria. However, the absence of a proper stadium design in the city of Ibadan to host the African Cup of Nations or the World Cup in a place where the nation's independence was declared is not ideal. Also, the stadium currently present in the state fails to meet the requirement set by FIFA to host international matches.

The proposed stadium aims to provide a comprehensive solution to the absence of the met requirements to host an international match as well as to reduce the "load" that the existing Lekan Salami stadium already shoulders. This will foster improved sporting activities, generate revenue and overall city image. The stadium design will focus on convenience, multifunctionality, green landscape integration and sustainable practices. Ultimately, this architectural design project aims to elevate the user experience and overall well-being of users and occupants within the Ibadan community.

### **4.2.2 Brief Development**

After conducting a thorough examination of four case studies that encompassed two international stadiums as well as two local stadiums, it became evident that there were notable similarities in their spatial functionalities. These studies aimed to determine the necessary planning standards and the distinct roles these spaces fulfill within a stadium.

- i. Main bowl area containing football field and other sporting facilities
- ii. Concession stands/ kiosks
- iii. Team Rooms
- iv. First Aid Rooms
- v. Conference centers
- vi. Security checkpoints
- vii. Ticketing booths
- viii. VIP area
- ix. Staff lounge.
- x. Administrative offices.
- xi. Conveniences
- xii. Stores and other ancillary facilities.

#### **4.2.3 Design Criteria**

Stadiums are crucial facilities that cater to the sporting community by offering access to sporting facilities and other adjoining facilities. They play a significant role in supporting the overall physical and mental well-being of users and occupants. It is essential to give careful attention to the layout, usability, and aesthetics of these stadiums to create a functional, safe, and visually appealing environment. Before the design process, the following design criteria were meticulously considered:

**i. Aesthetics and branding:**

Aesthetics and branding play a critical role in modern stadium architecture in order to create iconic structures. Visual attractiveness is enhanced by architectural innovations such as integrated lighting, high-tech materials, and unusual forms. The environmental impact is enhanced by sustainable measures like renewable energy and green roofing. Team logos, colors, and cultural components are all integrated into effective branding to create a powerful visual identity. Interactive digital features and multipurpose community spaces improve fan engagement. Effective designs function as community centers and cultural landmarks in addition to meeting international criteria.

**ii. Technological Integration:**

Modern stadium designs that incorporate technology improve both the viewing experience and operational effectiveness. Robust connectivity is offered by Wi-Fi and high-speed internet, and real-time material and information are displayed on big screens and digital signs. Fans may have engaged and immersive experiences with mobile applications and AR/VR technologies. Operations and crowd control are optimized by sophisticated ticketing systems and smart facility management. Modern surveillance and emergency response systems guarantee safety. By reducing their influence on the environment, sustainable techniques such as water and energy management help to establish the stadium as a progressive location.

**iii. Safety and Security:**

Ensuring the safety and security of fans and staff throughout stadium construction is of utmost importance. Monitoring and danger detection are improved by sophisticated surveillance systems, such as those with high-definition cameras and facial recognition

software. Congestion avoidance and crowd management are made possible by real-time data analytics. Rapid incident response is ensured via emergency response plans and open lines of communication. Crowd management is made easier by implementing reliable admission and exit controls, such as access control systems and e-ticketing. Prompt medical aid during emergencies is also ensured by incorporating automatic defibrillators and medical response systems. All of these precautions work together to provide a safe and effective atmosphere for all activities.

**iv. Sustainability**

The main goals of sustainability in stadium design are resource efficiency and a decrease in environmental effect. This involves powering the building with alternative energy sources like wind turbines and solar panels. Air quality and insulation are enhanced by vertical gardens and green roofs. Water conservation techniques reduce the amount of water used, such as collecting rainfall and recycling greywater. The use of sustainable building materials minimizes carbon emissions, and intelligent energy management systems maximize energy efficiency. Programs for comprehensive waste management increase recycling and decrease garbage going to landfills. Together, these procedures guarantee that the stadium runs in an environmentally friendly way.

**v. Acoustics**

Clear sound quality and an engaging audio experience are guaranteed by the use of acoustics in stadium architecture. Reverberation and echo are lessened by using the right materials, such as sound-absorbing panels. Curved surfaces and well-placed sound systems are examples of architectural elements that evenly distribute sound. Clarity is improved by advanced audio technology, such as sound-mixing systems and directional

speakers. Noise management techniques reduce interference from both internal and external sources. The design has to take crowd noise and PA system efficiency into account. When combined, these components produce the ideal acoustic atmosphere, improving the experience for both performers and audiences.

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#### 4.2.4 Conceptual Development

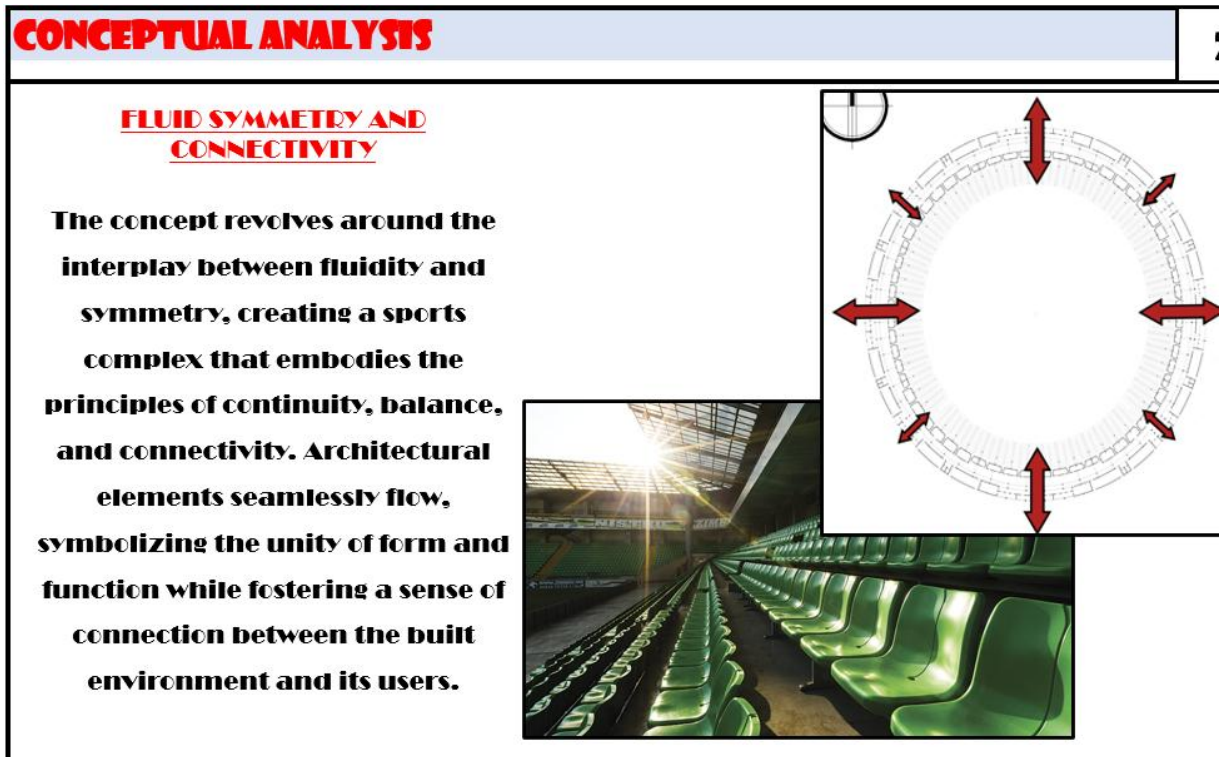


Fig 4.2: Conceptual Development.

Source- (Field work (2024))

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### 4.2.5 Functional Relationship

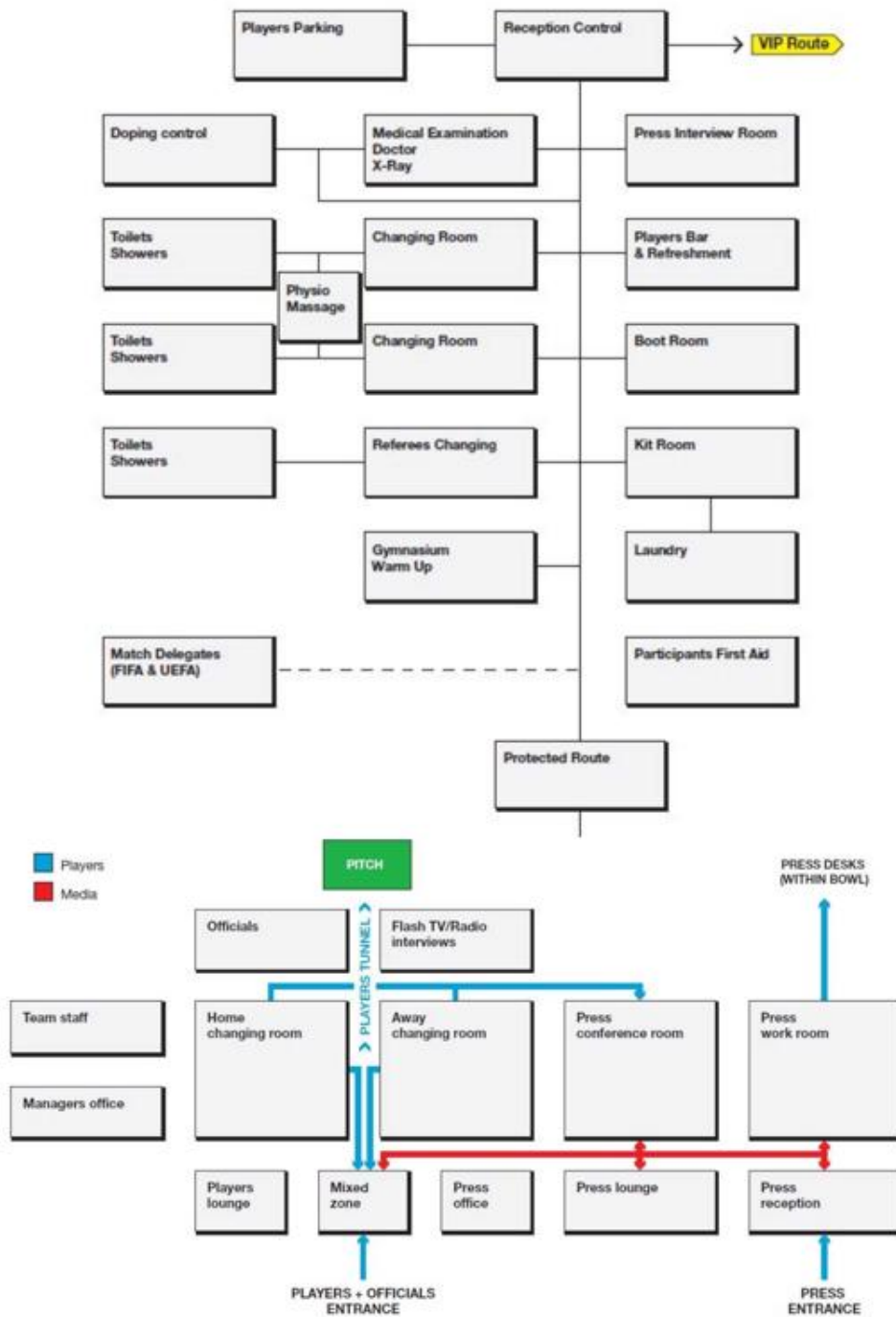


Fig 4.3: Showing the Functional Relationship Diagram for the Ground Floor Plan.

Source- (Field work (2024))

#### 4.2.6 Space Allocation/ Schedule of Accommodation

<p><b><u>MAIN BOWL</u></b></p> <p><b><u>ACTIVITY AREAS</u></b></p> <ul style="list-style-type: none"> <li>• Athletics track</li> <li>• Soccer pitch</li> <li>• Shot put</li> <li>• High jump field</li> </ul> <p><b><u>SPECTATOR SEATING</u></b></p> <ul style="list-style-type: none"> <li>• General seating</li> <li>• VIP seating</li> <li>• Commentator seating</li> </ul> <p><b><u>PLAYERS &amp; OFFICIALS</u></b></p> <ul style="list-style-type: none"> <li>• Locker rooms</li> <li>• Maintenance offices</li> <li>• Kit Room</li> <li>• Exhibition/ conference hall</li> <li>• Conveniences</li> </ul>	<p><b><u>CIRCULATION</u></b></p> <ul style="list-style-type: none"> <li>• Entry/ exit points</li> <li>• Corridors, lobbies</li> <li>• Walkways</li> <li>• Roads</li> <li>• Parking</li> </ul> <p><b><u>OFFICES</u></b></p> <ul style="list-style-type: none"> <li>• Stadium Manager</li> <li>• General Office</li> <li>• Groundsman Offices</li> <li>• Stewards' Offices</li> <li>• First Aid Room</li> <li>• Warden's Office</li> <li>• Police Lounge</li> </ul>	<p><b><u>ANCILLARY FACILITIES</u></b></p> <ul style="list-style-type: none"> <li>• Reception</li> <li>• Restaurant</li> <li>• Stores</li> <li>• Laundry</li> <li>• Convenience</li> <li>• Stairs</li> <li>• Multi-Level Car Park</li> <li>• Concession Stores</li> <li>• Maintenance Floor</li> </ul>
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**Fig 4.4: Space Allocation.**

Source- (Field work (2024))

#### 4.2.7 Construction Methods and Materials

In the design of this project, utmost consideration was given to sustainability by using eco-friendly materials and construction methods. Various factors were considered in the selection of these materials, such as aesthetics, durability, climate, availability, functionality, and compliance with regulations and bylaws.

- i. **Substructure:** The reinforced concrete used in constructing the substructure of the stadium and support system ensures a robust and stable foundation and overall building structure.

- ii. **Landscape:** To enhance the appeal of the outdoor space and promote eco-friendliness, the landscape design effectively incorporated precast concrete interlocking stones and concrete curbs.
- iii. **Shading Device:** Utilizing aluminum composite panel boards as well as PTFE membrane for covering steel substrates is an extremely effective technique to curtail heat gain and enhance energy efficiency via shading while still taking in natural light.
- iv. **Walls:** The stadium's walls consist of a combination of concrete blocks, columns, and glazed curtain wall systems. The internal partitions also feature glass to facilitate the flow of natural light and create an impression of openness.
- v. **Wall finishes:** To ensure a truly healthy indoor environment, Airlite paint is needed to be used on the interior walls. This superior paint not only enhances aesthetics, but also provides vital protection against mold, microbes, and germs, thereby significantly improving the overall well-being of all occupants within the space.
- vi. **Window:** in a bid to achieve adequate internal daylight illumination and ventilation, large casement was used in office areas.
- vii. **Lift and Stairs:** In the main entry and exit areas as well as the VIP area, reinforced concrete and steel assembled stairs were used to access the upper section of the building. Also, glazed panoramic lift was adopted to help the elderly and people with disability move from the ground floor to the upper floors.
- viii. **Floor Structural System:** due to the massive span of columns throughout the building, waffle grid floor system was adopted due to its effectiveness in such situations through the spaces under the main bowl seating area.

- ix. **Floor Finishes:** In choosing the flooring materials for the spaces in the building, sustainability as well as durability were undeniably crucial factors. The options that were ultimately selected were terrazzo finishes and interlocking tiles for the external uses due to their durability and vitrified tiles for their aesthetic qualities and durability. These materials were painstakingly chosen for their exceptional durability, low maintenance requirements, and visually appealing appearance.
- x. **Door:** The building's design incorporates various types of doors, including steel roller shutter doors, aluminum and glass doors, wooden panel doors, and fire-rated exit doors. These doors were deliberately selected to ensure optimal safety, security, and convenient accessibility throughout the shop.
- xi. **Roof:** The roof is supported by gigantic steel trusses, which in turn support a series of secondary and tertiary steel beams. The geometry results in a gently sloping octagonal bowl shape, with polycarbonate paneled roof areas designed to maximize sight lines for spectators.
- xii. **Ceiling:** Within the building, ceiling materials were strategically used in each space. Majorly, the offices and other spaces that users visit regularly possess POP false ceiling while spaces with less visits are fitted with 600mm x 600mm gypsum ceiling boards.

#### 4.2.8 Building Services

The stadium's design will incorporate mechanical, electrical, and plumbing services that prioritize functionality, efficiency, and safety. These services will be tailored to the diverse needs of visitors, staff, and protection of valuable assets like books and electronics. Each floor will be equipped with Electrical Panel false floors and ducts that house essential components for seamless power distribution and easy maintenance.

Power is supplied to the building from the existing stadium's IBEDC connection which is complemented by solar powered inverters.

A generous ceiling duct of 900mm will be incorporated to ensure optimal space utilization and simplifies maintenance procedures for various services. A discreet duct behind the main seating bowl will also conceal water supply, sewage pipes, and inspection chambers, while a panoramic lift with adjacent doors as well as ramps ensure accessibility for all individuals.

The fire suppression system, will use the FM-200 (HFC-227ea), which extinguishes Class A, B, and C fires without leaving any residue or water behind, safeguarding valuable assets and promoting sustainable practices. In addition, fire hydrants are provided at recommended distance at the car park area to cater for external fire accident.

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## **Chapter Five**

### **Conclusion and Recommendation**

#### **5.1 Project Appraisal**

The thesis focused on designing a stadium that prioritizes the enhancement of user experiences through the use of proper landscape design. Through the case study analysis, proper landscape design strategies were identified that were efficiently incorporated into the stadium design.

The use of curtain walls, as well as the use of other composite materials, building orientation, and shading devices, as well as the use of plants and natural materials were all found to be highly effective in the design of a FIFA standard stadium.

#### **5.2 Conclusion**

The psychological effects of landscape elements on user experience in a community sports center are profound and multifaceted. By integrating thoughtfully designed green spaces, water features, and natural materials, these environments can significantly enhance the well-being and satisfaction of users. Research indicates that exposure to nature and well-designed landscapes can reduce stress, improve mood, and increase overall happiness. Moreover, these elements can foster social interaction, community cohesion, and a sense of belonging, which are crucial for the success of any community sports center.

The incorporation of landscape elements not only enhances the aesthetic appeal but also contributes to the functional efficiency of the sports center. For instance, strategically placed trees and shrubs can provide shade and reduce heat, improving comfort and usability of outdoor spaces. Water features, such as fountains or ponds, can create a calming auditory environment, which further enriches the user experience.

In conclusion, the deliberate and thoughtful integration of landscape elements in the design of community sports centers can greatly enhance the psychological well-being and overall experience of users. These benefits underscore the importance of considering landscape architecture as a crucial component in the planning and development of sports facilities, ultimately contributing to healthier, happier, and more cohesive communities.

### **5.3 Recommendations**

Integrated landscape design plays a crucial role when it comes to creating a comfortable and inviting environment in stadiums. The following recommendations are proffered to stakeholders in the design industry:

#### **I. Integration of Natural Elements**

To enhance the psychological well-being of users, community sports centers should integrate a variety of natural elements such as trees, shrubs, grass, and flowers. These elements can create a soothing and visually appealing environment that promotes relaxation and reduces stress.

#### **II. Creation of Multifunctional Green Spaces**

Design green spaces that serve multiple functions, including areas for relaxation, social interaction, and physical activities. Such spaces can encourage social cohesion and provide a sense of community, which is vital for the success of the sports center.

#### **III. Incorporation of Water Features:**

Water features such as fountains, ponds, or streams should be included to enhance the auditory and visual environment. The presence of water can create a calming effect, improve mood, and increase the aesthetic appeal of the sports center.

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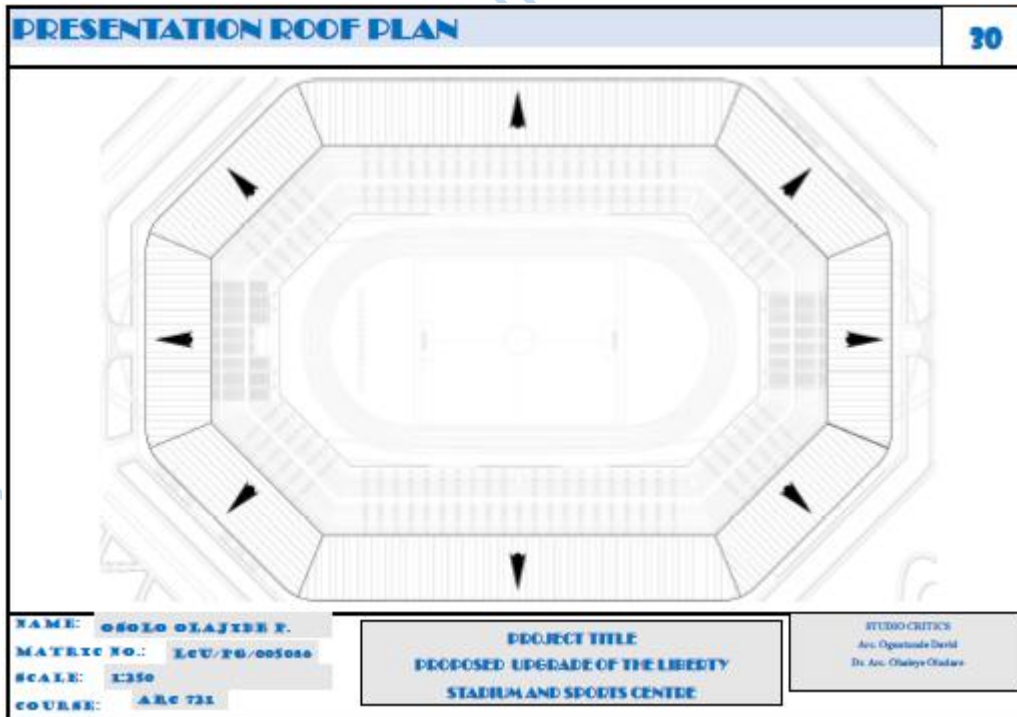
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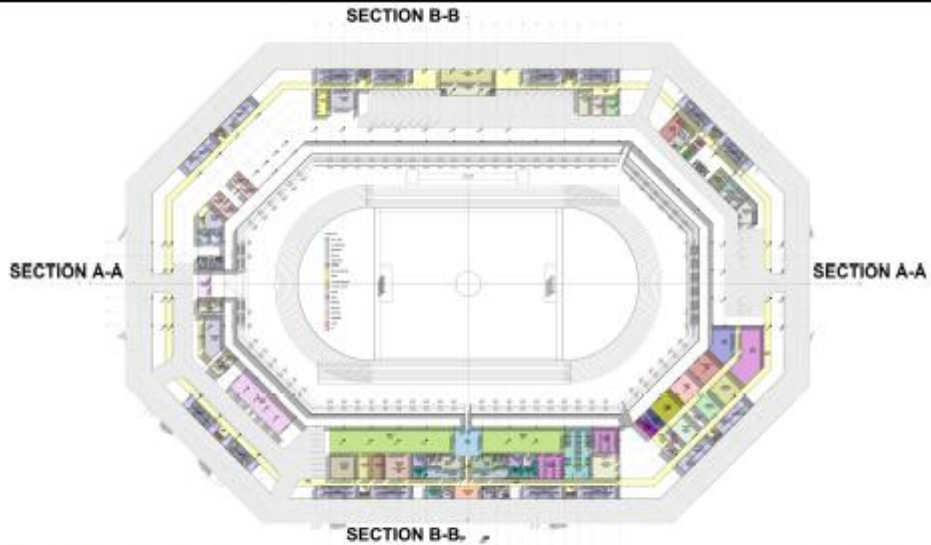
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# Appendices



**PRESENTATION GROUND FLOOR PLAN**

**31**



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MATIC NO.: LCU/FG/005000  
SCALE: 1:350  
COURSE: ARC 731

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

STUDIO CRITICS  
Arc. Ojoade David  
Dr. Arc. Obaayo Obaayo

**PRESENTATION FIRST FLOOR PLAN**

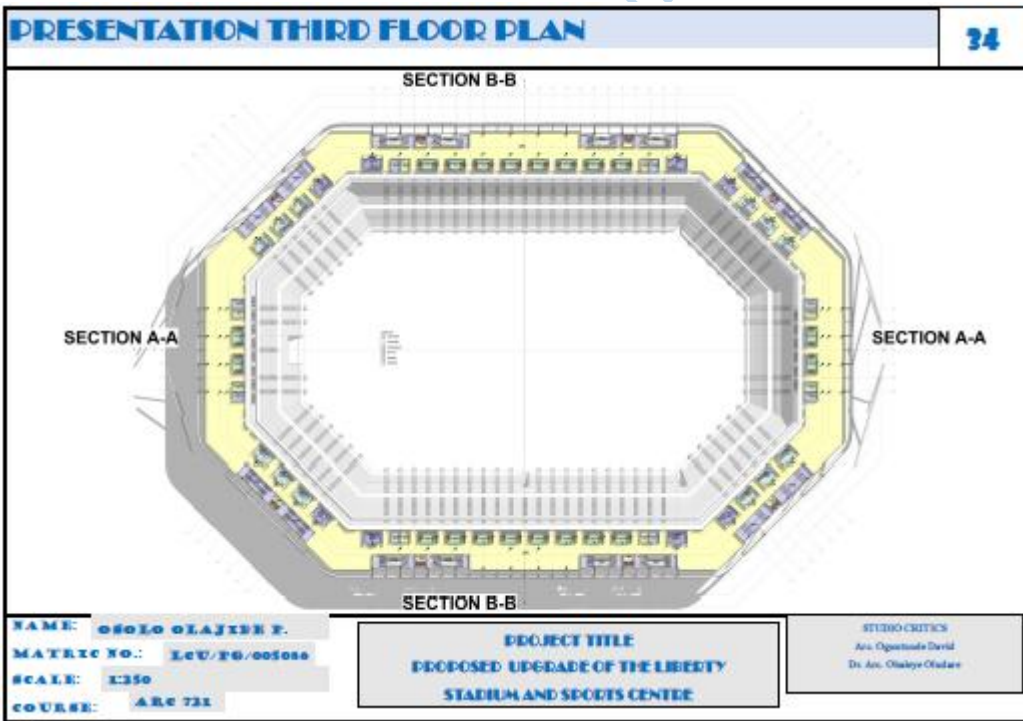
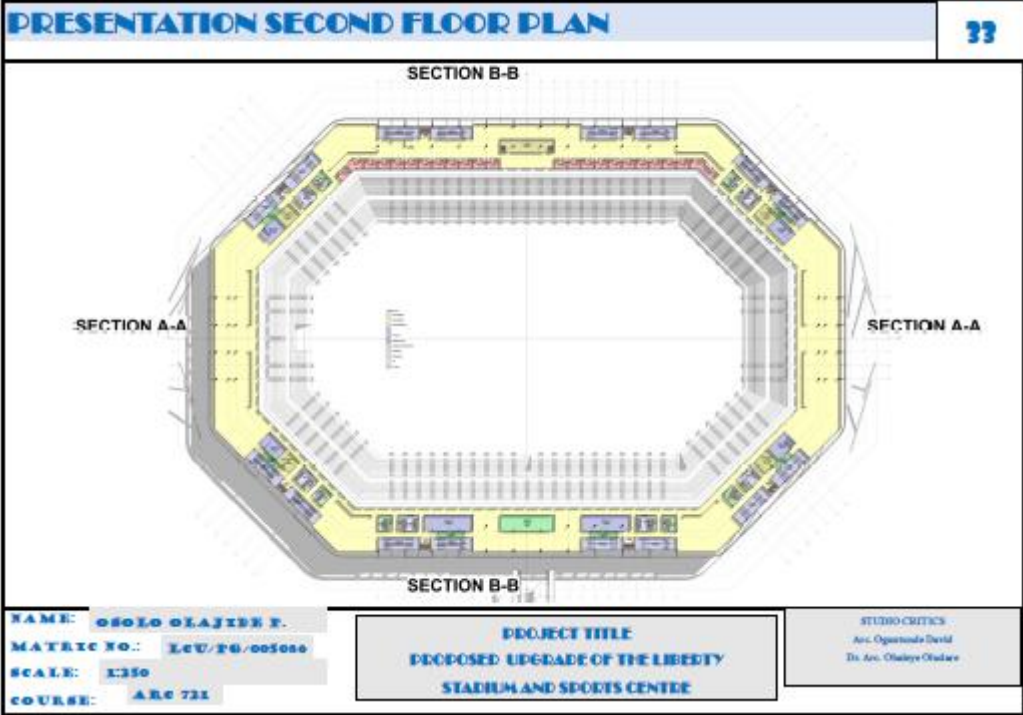
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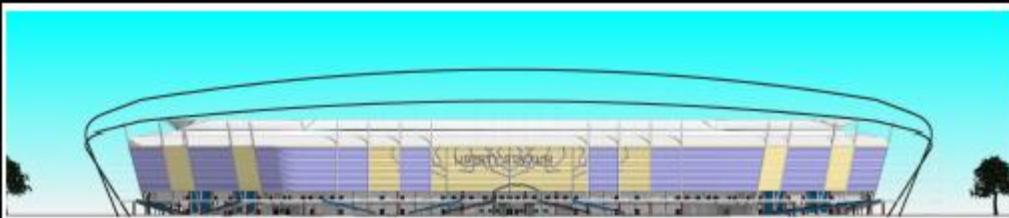
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Dr. Arc. Obaayo Obaayo



# PRESENTATION ELEVATIONS

35



FRONT ELEVATION



RIGHT ELEVATION

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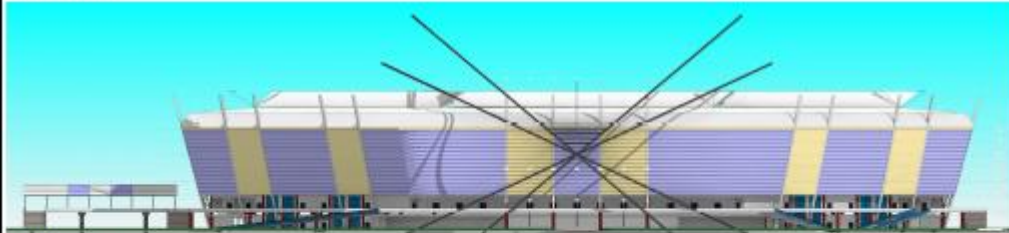
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Ars. Ogunmade David  
Ds. Ars. Olatayo Olatayo

# PRESENTATION ELEVATIONS

36



BACK ELEVATION



LEFT ELEVATION

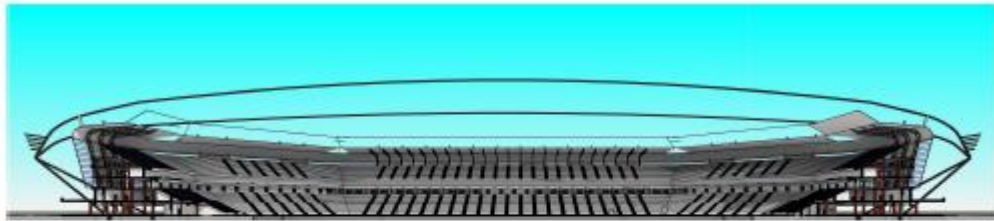
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COURSE: **ARC 731**

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**PROPOSED UPGRADE OF THE LIBERTY**  
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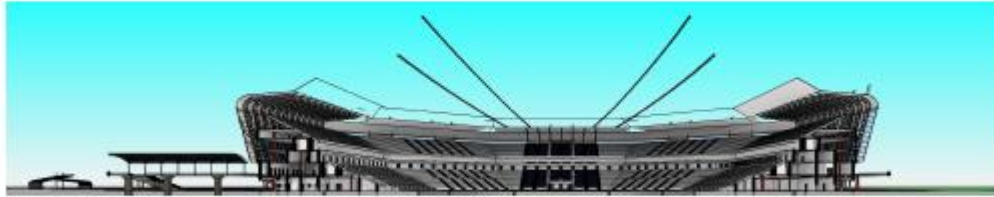
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**PRESENTATION SECTIONS**

**37**



**SECTION A-A**



**SECTION B-B**

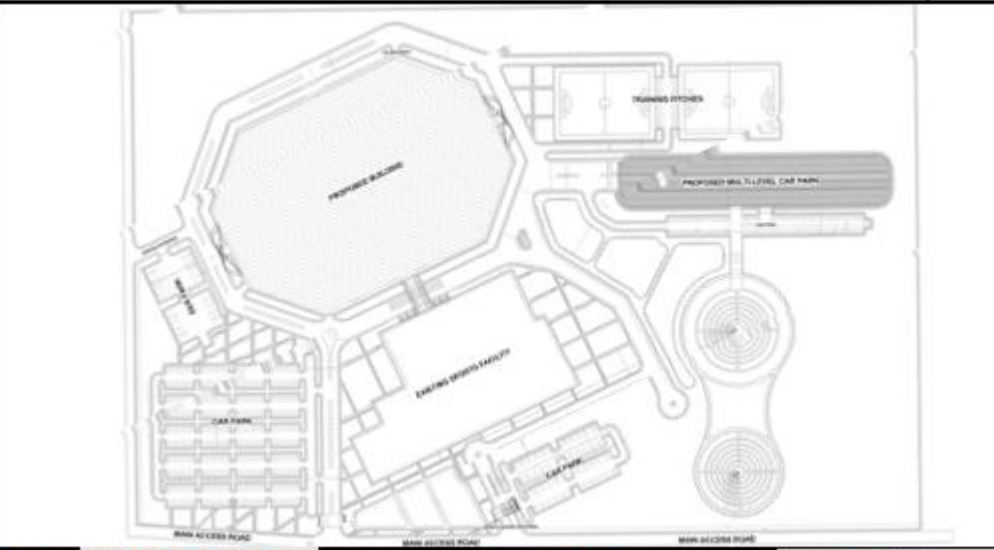
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**COURSE:** ARC 731

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Ogunlade David  
Dr. Arc. Olukeye Oluwalu

**WORKING DRAWING SITE PLAN**

**38**



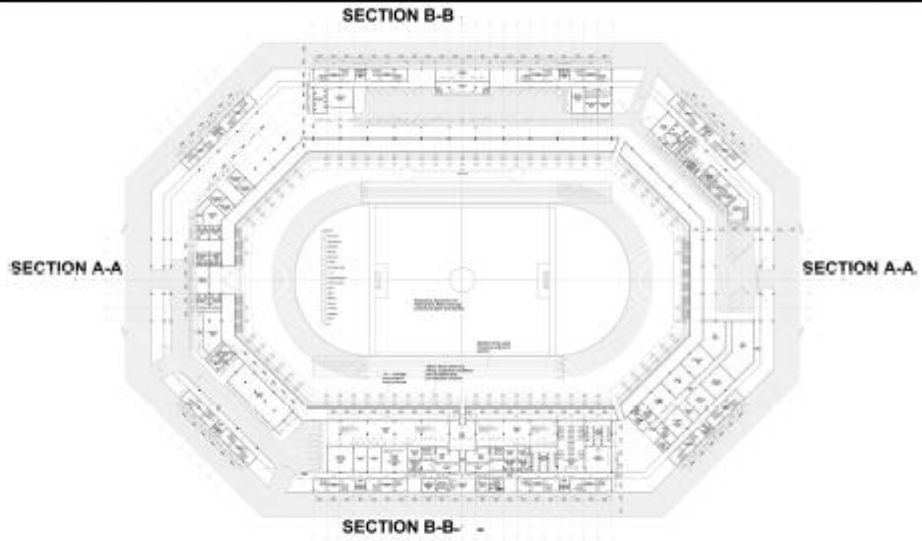
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**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Ogunlade David  
Dr. Arc. Olukeye Oluwalu

**PRESENTATION GROUND FLOOR PLAN**

**39**



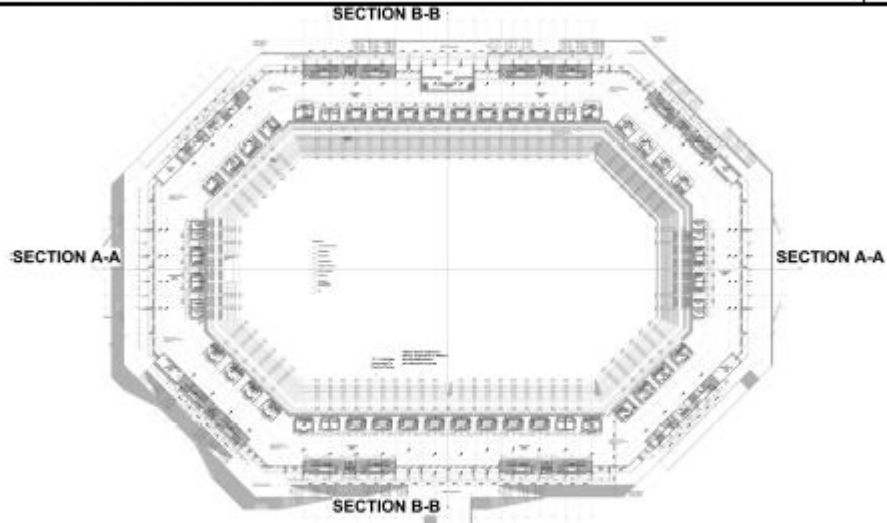
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**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Opeyemi David  
Dr. Arc. Oluayo Oluwalu

**WORKING DRAWING FIRST FLOOR PLAN**

**40**



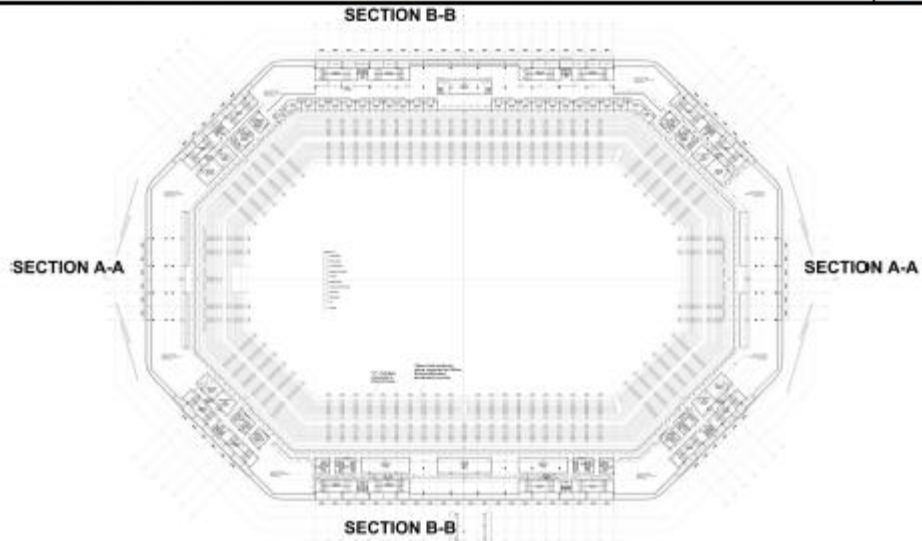
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**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Opeyemi David  
Dr. Arc. Oluayo Oluwalu

**WORKING DRAWING SECOND FLOOR PLAN**

**41**



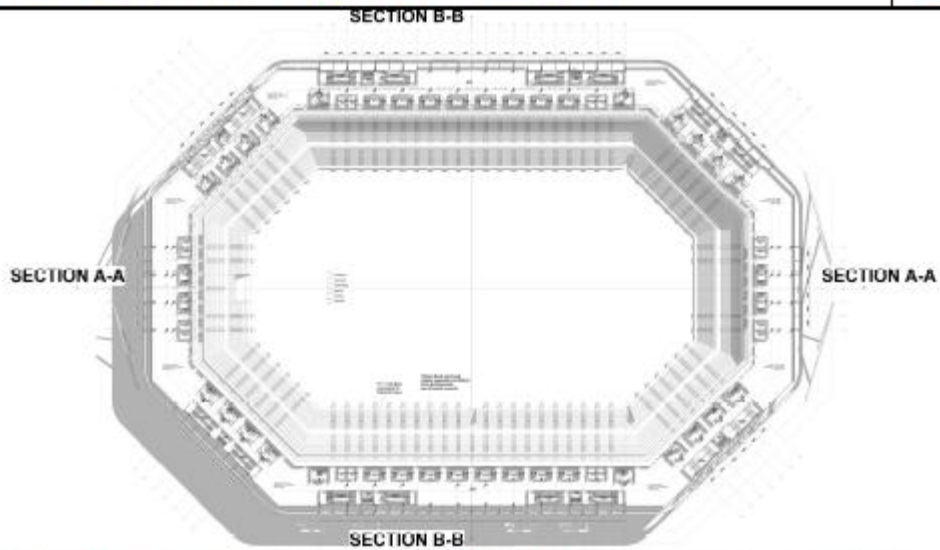
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**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Ogunlana David  
Ds. Arc. Oshaleye Oshaleye

**WORKING DRAWING THIRD FLOOR PLAN**

**42**



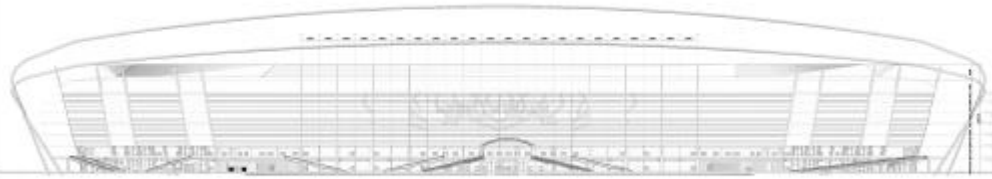
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**COURSE:** ARC 731

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**STADIUM AND SPORTS CENTRE**

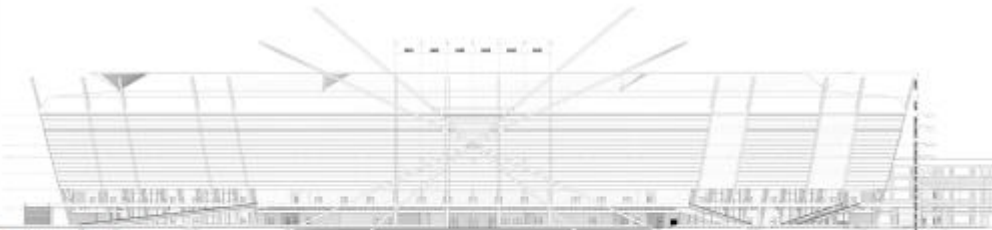
**STUDIO CRITICS**  
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Ds. Arc. Oshaleye Oshaleye

**WORKING DRAWING ELEVATIONS**

**43**



**FRONT ELEVATION**



**RIGHT ELEVATION**

**NAME:** OSOLO OLAJIDE F.  
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**COURSE:** ARC 731

**PROJECT TITLE**  
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**STADIUM AND SPORTS CENTRE**

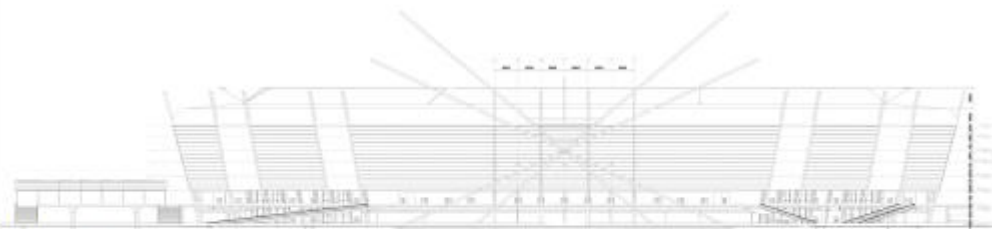
**STUDIO CRITICS**  
Arc. Ogunlana David  
Dr. Arc. Olatayo Olatun

**WORKING DRAWING ELEVATIONS**

**44**



**BACK ELEVATION**



**LEFT ELEVATION**

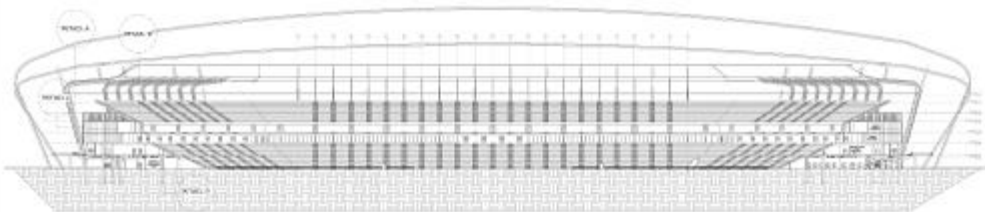
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**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

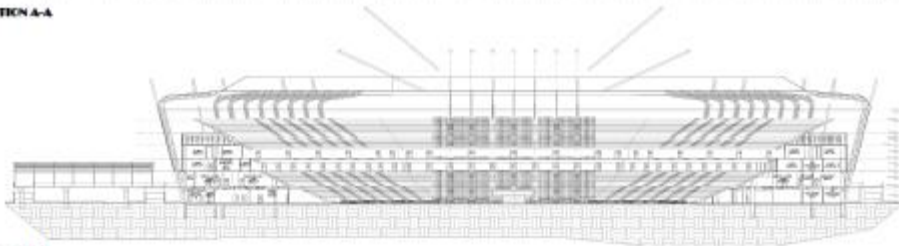
**STUDIO CRITICS**  
Arc. Ogunlana David  
Dr. Arc. Olatayo Olatun

# WORKING DRAWING SECTIONS

45



SECTION A-A



SECTION B-B

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**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

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 Dr. Arc. Olatayo Olatayo

# SCHEDULE AND DETAIL DRAWINGS

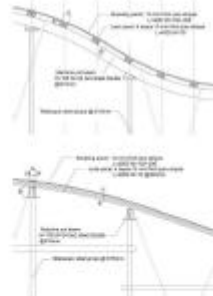
52

## <DOOR SCHEDULE>

A	B	C	D	E	F	G	H	I	J
Count	Description	Family and Type	Finish	Frame Material	Height	Type	Thickness	Width	Level
12	InfDk(12) 1810 x 2110mm		Wood	Aluminium	2110	0910 x 2110mm	12	1810	Level 5
1	M_Curtain Wall Dbl Glass: 18_Curtain Wall Dbl Glass		Glass	Wood	2440	M_Curtain Wall Dbl Glass		2304	Level 2
1	M_Single-Flush: 2742 x 2020mm 2		Wood	Wood	2700	0762 x 2020mm 2	15	756	Level 5
12	M_Single-Flush: 1815 x 2020mm 2		Wood	Wood	2022	0815 x 2020mm 2	15	810	Level 5
154	M_Single-Flush: 750MM DOOR		Wood	Wood	2100	750MM DOOR	30	750	Level 5
110	M_Single-Flush: 800MM DOOR		Wood	Wood	2700	800MM DOOR	30	800	Level 5
15	Restaurant_Kitchen_Door_1841: 1200MM DOOR		Metal	Aluminium	2400	1200MM DOOR		600	Level 5
151	Restaurant_Kitchen_Door_1841: 1900MM DOOR		Metal	Aluminium	2400	1900MM DOOR		900	Level 5
1	Restaurant_Kitchen_Door_1841: 2400MM DOOR		Wood	Aluminium	2400	2400MM DOOR		1200	BASEMENT FLOOR FOR STADIUM
4	Holding_Infk_Door_2611: 2020 ROLLER SHUTTER		Metal	Aluminium	2700	2020 ROLLER SHUTTER		1400	BASEMENT FLOOR FOR STADIUM



DETAIL A



NAME: **OSOLO OLAJIDE F.**  
 MATRIC NO.: **ECU/FG/005086**  
 SCALE: **HTS**  
 COURSE: **ARC 731**

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

STUDIO CRITICS  
 Arc. Ogunlana David  
 Dr. Arc. Olatayo Olatayo

**SCHEDULE AND DETAIL DRAWINGS**

**53**

**DETAIL A**

**NAME:** OSOLO OLAJIDE P.  
**MATRIX NO.:** LCU/PG/005086  
**SCALE:** NTS  
**COURSE:** ARC 731

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
 Ars. Ogunlade David  
 Dr. Ars. Olatayo Olatun

**SCHEDULE AND DETAIL DRAWINGS**

**54**

**DETAIL B**

**DETAIL B**

**NAME:** OSOLO OLAJIDE P.  
**MATRIX NO.:** LCU/PG/005086  
**SCALE:** NTS  
**COURSE:** ARC 731

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
 Ars. Ogunlade David  
 Dr. Ars. Olatayo Olatun



**3D VIEWS**

**59**



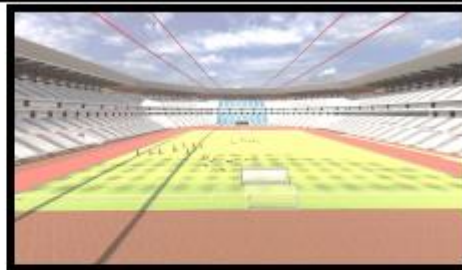
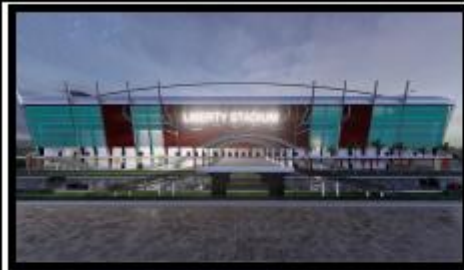
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**MATRIC NO.:** ECU/P8/005086  
**SCALE:** NTS  
**COURSE:** ARC 731

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Ogunmade David  
Dr. Arc. Olukeye Olukeye

**3D VIEWS**

**60**



**NAME:** OSOLO OLAJIDE F.  
**MATRIC NO.:** ECU/P8/005086  
**SCALE:** NTS  
**COURSE:** ARC 731

**PROJECT TITLE**  
**PROPOSED UPGRADE OF THE LIBERTY**  
**STADIUM AND SPORTS CENTRE**

**STUDIO CRITICS**  
Arc. Ogunmade David  
Dr. Arc. Olukeye Olukeye

## Bio-data

### A. Personal Data

1. Full Name: **OSOLO Olajide Precious**
2. Address: Ibadan, Nigeria
3. Email Address: olajideosolo4119@gmail.com
4. Phone Number: 08161695465
5. Date of Birth: 19/07/2001
6. Place of Birth: Nigeria
7. Nationality: Nigerian
8. Marital Status: Single
9. Name and Address of Next of Kin: Oluyoye Mosunmola, Ibadan.

## B. Educational Background

### 1. Educational Institutions Attended with Dates and Qualification:

Qualification	Institution	Date
MSc. Architecture	Lead City University, Ibadan, Oyo State.	2022- Ongoing
BSc. Architecture	Lead City University, Ibadan, Oyo State.	2018-2022
Secondary School Leaving Certificate	Oritamefa Baptist Model School, Ibadan.	2010-2016
Primary School Leaving Certificate	Brightest Star Montessori School, Ososami, Ibadan	2001- 2010

## C. Work Experience

1. Desired Choice Step Ltd. (Student Architect): January 2021 – October 2021
2. DeziignLoft (Architect): September 2024 – Present

## D. Publication –

.....  
Signature

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Date

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