

**Proposed Ultra-Modern Cultural Center for Abia State
(Design Consideration for Ultramodern Cultural Center)**

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(M.Sc.) Architecture

Certification

This is to certify that Jeremiah Ndubisi NWAOBI with matriculation number LCU/PG/002825 carried out this research work titled “Design Consideration for Ultramodern Cultural Center” in the Department of Architecture, Faculty of Environmental Design and Management, Lead City University, Ibadan, Oyo state, for the award of Master Degree (M.Sc.) in Architecture and that this has not been previously submitted.

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Dedication

I dedicate this work to God Almighty, who is my creator, my steadfast supporter, and my wellspring of insight, understanding, and wisdom. Throughout this program, He has been my source of strength, and I have only been able to fly on His wings. A particular sense of thanks goes out to my devoted parents, Emillia and Samson Nwaobi, whose words of support and push for perseverance continue to reverberate in my ears. Additionally, I dedicate this thesis to my brothers George Berkhout and Ruben Nwaobi, who have never let me down and have helped me the entire time. I will always be grateful for all they did, especially for supporting me and helping me build my talents during my academic year. I dedicate this work to my supervisor, Dr. (Arc.) Ayanleke, Oluwatosin, and Arc. Aseyan Babajide, for their encouragement and support during the whole Msc program. You two have consistently been my biggest supporters. I also dedicate my work to my wife, Akuchi Nwaobi, who has supported and encouraged me throughout the process and ensured that I put up the effort necessary to complete what I have begun. You all have my undying affection, which is indescribable. I pray for your well-being.

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Abstract

The issue for the architect while creating a cultural center is figuring out how to effectively convey the important cultural and traditional aspects of a community. In order to create cultural centers, architects had to identify, adapt, develop, and eventually convey both concrete and intangible cultural and traditional elements. To build a facility that is not only aesthetically spectacular but also practical and significant to the community it serves, many different considerations must be carefully taken into account. This study explores the essential design components and factors for an ultra-modern cultural center. To propose agreeable answers to various tropical construction and energy difficulties, an analysis of the integrated pertinent energy efficiency aspects is emerging. In this context, all parties involved, notably the architects and designers, must take responsibility. The aim of the study is to investigate strategies that can be used to achieve lighting and ventilation in a cultural center. To provide a comfortable environment that complies with indoor environmental quality (IEQ) standards, cultural centers must be created as part of the built environment with adequate ventilation and effective natural lighting. For people to feel comfortable within a structure, the design must combine environmentally friendly architecture and engineering. This research will examine two factors that affect indoor environmental quality: ventilation and "natural lighting" Architecture serves a wide range of purposes in the built environment, even in historical and cultural structures where explicit efforts are made to promote comfort and spatial ergonomics. Daylight and natural ventilation are vital resources that are easily accessible and unlikely to become scarce in the near future. In addition to perhaps serving as a tool for critiquing and assessing upcoming works, the results of this research should give architects and other designers a knowledge of the methods employed in conveying cultural center.

Keywords: Cultural Center, Day lighting, Natural Ventilation, Design, Consideration

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Chapter One

Introduction

1.1 Background of study

Architecture may be seen as a representation of the customs and legacy of the civilization that built it, ensuring the ongoing transfer of knowledge to succeeding generations. (Hassan, 2020). Architecture, according to emmons (2012) may witness to society values and culture while also acting as a healing and reaffirming force. Consequently, architects may contribute to the preservation and protection of cultural heritage by designing structures like cultural centers, which act as the embodiment and vehicle for the visual expression of social customs and traditions. New hybrids of art, architecture, and several other fields that have an influence on human civilization have been produced by the ongoing evolution of culture. Sometimes these hybrids demand a paradigm change or at least raise issues with our cultural ideas or ideologies. The majority of Nigeria's public buildings are starting to lose their indigenous architecture as a result of technical advancement and industrialization within their respective cultural contexts. Therefore, by creating structures like cultural centers that serve as the embodiment and vehicle for visually portraying social cultures and traditions, architects may contribute to the preservation and protection of cultural heritage. Therefore, the challenge facing the architect is to identify the most effective ways to convey cultural identity in a form that is understandable. Evidently, residents of residential projects do not necessarily use public places like the planned cultural center all year round. Effective design techniques must be used in this situation to improve community engagement with the area so that it can maintain itself for the duration of the development. The notion behind the contribution that culture may make to the growth of the individual and the community at large has been the focus of information from the academic and social spheres, as well as from various intergovernmental and civil society organizations, for a considerable amount of

time. We should point out that, until recently, the subject of conserving cultures was solely a concern for "cultural minorities" as one of the barriers to culture inclusion in progress. The terms culture and development haven't always been used in the same sentence or in the same context. This study, "Abia state cultural center; design consideration for ultramodern cultural center," is part of a growing body of research that examines the various strategies that architects and designers can use to design cultural centers that will ultimately promote human and community development. The planned cultural center would offer a multipurpose space that will express and incorporate the national culture. The main auditorium, gallery spaces for various art exhibitions divided into temporary and permanent, a library where you could go look up a good book and just read for fun, and other premises made up of four main volumes that each have different functions but are still dependent upon one another serve as a focal point for the community and visitors interested in culture and the arts. Nigerian culture, which dates back more than 2,000 years, has brought together more than 250 different ethnic groups and several tribes. Nigeria is a country with several distinctive traditional cultures, each with clearly defined spatial and chronological boundaries. The proposed location for the cultural center is in the center of Umuahia, between recently constructed government house, and it is situated in a community that is intended to expand in all directions. As a result, the research examines a few chosen cultural centers from across the globe with the goal of discovering the strategies employed by architects to represent cultural identity, ranging from idea development to building methods and materials.

1.2 Statement of problem

Design culture continues to place a stronger focus on having a comprehensive grasp of design objects and how they relate to the many players involved in their creation, use, and reproduction. One of the

sectors that is now moving the fastest is modern design. Design and architecture have been influenced by the widespread extinction of culture as a result of western influence. Due to cultural diversity, a rich history, and a wide variety of fine arts and crafts produced throughout the nation, people are seeking more satisfaction and spiritual significance in the present home décor style as living conditions gradually improve. (Momade, 2022). There is still much to be done because less attention is paid to how they are perceived and the impression they give to the architecture, despite the enormous time and resources that scholars and researchers have invested in trying to rediscover and preserve our cultural heritage and identity through architecture and other means. The majority of significant events in Umuahia, including social gatherings, cultural events, and even traditional festivals, take place in public areas like the state stadium, schools, sports fields, polo fields, and other open grounds. This is a result of the absence of pre-established locations for cultural activities, such as cultural centers that are sufficient and well-equipped to manage huge crowds and a great variety of cultural events while also meeting modern demands throughout the state. The part that cultural identification and community involvement play in the spread of culture, the creation of a sense of belonging to a specific region or locality, and the phenomenon of expression is a subject that needs in-depth research. The majority of modern cultural centers hardly express their cultural identities, which renders them lacking in sense of place. A thorough investigation is needed into the phenomenon of expression of cultural identity as well as the role it plays in the transmission of culture and the development of a sense of belonging to a particular region or locality. Constructing a location or a structure to house all cultural performances in order to preserve, advance, and spread culture while keeping in mind the need to adapt to changing social norms. The diversity of Umuahia's natural and cultural landscape cannot be matched, only its rich history can. Cultural and historical policies, however, are rarely discussed. There are numerous ways in which this lack of interest might manifest. Like other African cities, Umuahia is devoid of

reputable cultural institutions. Umuahia needs a modern cultural center because it is surprising that one of the most important sites for the preservation of ecological and cultural diversity has received so little attention.

Additionally, this study highlights the necessity for a plan for a cultural center that preserves and represents the state's cultural identity and will suit modern social and special demands as well as the way of life of Abia state's citizens.

1.3 Aim and objectives

The aim of the study is to investigate strategies that can be used to achieve lighting and ventilation in a cultural center.

1.3.1 Objectives

1. To investigate architectural strategies that can be used to achieve good lighting in a cultural center
2. To identify architectural strategies that can be used in the design of a well ventilated cultural center
3. To propose the design of an efficient cultural center in Abia State.

1.4 Research questions

1. How can the cultural center foster a welcoming environment for the community?
2. How can the layout and spatial organization of a cultural center enhance the visitor experience?
3. What are the techniques use to lessen negative environmental effects on the project?
4. What are the environmental sustainability considerations that should be taken into account in the design of a cultural center?
5. How can the design of a cultural center facilitate cultural exchange and interaction between different cultural groups?

1.5 Significance of the study

One of the solutions to the social issue of the degradation/wasted talents of traditional activities and cultural activities in general may be seen as the necessity to rediscover and conserve the cultural history of the people that make up the Nigerian country. Cultural centers can be thought of as tools for fostering, preserving, and deepening a feeling of community and raising awareness of the locality's rich cultural legacy, the loss of which is sadly regretted.

Every aspect of a country's development, from the economic to the social to the environmental to the artistic, is greatly influenced by architecture. It gives people and their activities, as well as their social identities and status, a place to stay. It aims to operate within the national, environmental, and sociocultural contexts. Here, architecture is used to help with the problem of promoting and disseminating culture in Umuahia and throughout the country. The study aids in elucidating the relationship between cultural identity and architectural design for the benefit of cultural center architects and designers. Since cultural centers must reflect the distinctive characteristics of the area (a sense of place) and be specific to the area for which they are designed. However, we must retrace our steps and rely on development's invisible forces. As the demand for a place for the practice and culmination of cultural activities within the province of Umuahia increases, there is a need for a cultural center that will make use of the readily available materials while maintaining the identity of the area while taking into consideration the perception it will give. The government and UNESCO will gain from taking this study into account as they fight to preserve and guarantee that culture is not debased.

1.6 Scope of the study

While architectural design is an art in itself, the true magic happens when form marries function. This is where the scope of this study emerges, the study focuses on the design considerations of a cultural center, interaction between cultural identity and a cultural center's architecture. The facets of cultural identity that influence and how they influence a cultural center's design. It aims to comprehend the contemporary conflict between modernity and a return to one's roots, as well as the impression that this inclusion conveys. The study was restricted to the key components of cultural identification and the impact they have when utilized to evoke a feeling of place and a sense of belonging to a certain area. The research concentrated on how natural lighting and ventilation would be utilized in the modern design of cultural center to communicate feeling of place. This will be accomplished by conducting an extensive study of the Umuahia region's culture, including its material culture, festivals, and traditional sports and pastimes. The study begins by going through and analyzing current initiatives to portray cultural element in the design consideration of an ultramodern cultural center. It then moved on to comprehend the scope and significance of the phenomena of modern architecture expressing cultural identity by incorporating components from traditional material. However, the study demonstrates the idea of a cultural center in relation to the architecture and layout of a cultural center via the lens of the Umuahia experience. It also focuses on how cultural identity is changing and how it has an impact on the architecture and design of Umuahia's cultural center.

1.7 Definition of terms

The definitions of the following words are crucial because they are utilized throughout this thesis.

1. Cultural center: according to Wikipedia cultural center is an organization, building or complex that promotes culture and arts. They can be neighborhood community arts organization, private facilities, government-sponsored, or activist-run. According to chat gpt a cultural center or cultural center is an

organization, building or complex that promotes culture and arts. Cultural centers can be neighborhood community arts organizations, private facilities, government-sponsored, or activist-run.

2. Design strategy: is a discipline which helps firms determine what to make and do, why do it and how to innovate contextually, both immediately and over the long term. This process involves the interplay between design and business strategy. While not always required, design strategy often uses social research methods to help ground the results and mitigate the risk of any course of action.
3. Design: according to wiki, in very general terms, design is the realization of a concept, idea or theory into a drawing, plan, specification, model, and so on that ultimately allows a series objectives to be achieved or resolved. In terms of construction, design is the process of creating a solution to a project brief and then preparing instructions allowing that solution to be constructed.
4. Cultural heritage: cultural heritage includes artefacts, monuments, a group of buildings and sites, museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance.
5. Conservation is the methodical management of the environment for the benefit of humankind's standard of existence.
6. History is the study of the past, particularly as it pertains to people (from the Greek *historia*, meaning "inquiry, knowledge acquired by investigation").

Chapter Two

Literature Review

2.1 Conceptual review

Culture has historically been seen as a complex problem and a politically and socially touchy subject, thus it has now almost universally (clinched) been misused. Culture has long been a point of contention in both the political and social realms. As people's lifestyles vary, the globe is varied. Tourism emerged from the desire of many individuals to explore other cultures. The notion of culture and tourism is greatly influenced by architecture. (Lemieux, 2019.). These society models place culture in different places. Some see culture as a component of the social sphere, which is consequently given the name socio-cultural sphere. Other ideas include culture as a thread that connects each level. (Grinell, 2020). According to the oxford advance learning dictionary (2023) define cultural center as a public building or site for the exhibition or promotion of arts and culture. Consequently, a cultural center is an area where people congregate to enjoy or participate in cultural activities, sometimes with a special cultural classification that is exclusive to a given ethnicity or regional culture (www.wikipedia.com). Since cultural centers are important in displaying the way of life of the local populace, they have an influence on the tourist attractions of towns and regions. Community's art and cultural centers are inextricably linked. Both locals and visitors from outside the area are often drawn to a fantastic art and cultural center that captures the people's way of life. Any cultural center's capacity to convey tales serves as its main draw. This implies that architectural storytelling must be incorporated into the design of cultural center in order for visitors to the area to encounter a narrative at

each stop along the way. (O. J. Ediael, 2022) . The user experience is now taken into account in addition to other architectural needs in space planning and development since architectural spaces have expanded to encompass more than simply spatial and architectural requirements. The visual pictures a user is exposed to while they move through a constructed environment are referred to as the architectural promenade by le Corbusier. (O. J. Ediael, 2022). According to Kristina laurel Stenlund, there are several ways to interpret the phrase "cultural center" (Kulturhus in Swedish), one of which refers to the cultural center as a home or structure where various cultural activities are held. A cultural center, in Stenlund's definition, is a public facility that houses various cultural events or has a number of cultural amenities such a music hall, library, theater, art gallery, as well as eateries and coffee shops that serve as gathering places for people. The cultural center serves as a venue for the general public to participate in cultural events and to gain cultural experiences (Pfeifere, 2022; Stenlund, 2010) . According to the Finnish scholar Tomas Järvinen, cultural centers are places where people may engage in a variety of cultural activities. This versatility sets them apart from cultural venues that are only utilized for one activity (Järvinen, 2021) . The terms "arts" and "culture" are used differently in English-speaking and non-English-speaking countries, respectively, and Bogen notes that this should be taken into consideration when defining and categorizing cultural centers. (Pfeifere, 2022) . This strategy emphasizes how cultural centers' operations are closely tied to society even if they are primarily cultural organizations. Cultural centers frequently address sectors outside of the traditional cultural sector, such as child and youth care, education, social services, urban development, and the environment, in addition to performing cultural duties. Sociocultural hubs provide services to the neighborhood, community, and region. (Pfeifere, 2022) . Their locations and technical facilities offer practicing and production options for music and theatrical groups, as well as studios for artists and other professionals. They are associations, initiatives, and groups that are politically, socially, or

culturally engaged. They provide a public forum for conversation and interaction (Inkei, 2016.; Pfeifere, 2022). However, as Inkei notes, there is no agreement on this strategy of grouping all cultural centers under the general term "socio-culture" because many cultural centers do not associate themselves with this term for a variety of reasons (Inkei, 2016.; Pfeifere, 2022)

2.1.1 Types of cultural center

Promoting cultural values among the people in a community is a cultural center's goal. Its design is built on large areas where various cultural expressions may flourish and animate the local population's cultural life. (UNESCO, Culture and Development, 2012)

There are two different types depending on the structure:

➤ An institution or nation cultural center

These are substantial structures that often include an auditorium with a stage for theatrical performances or movie screenings, a library, a Video the que, a computer lab, rooms for academic activities or workshops, a language laboratory, galleries, and occasionally memorials or long-term exhibits. (UNESCO, Culture and Development, 2012)

➤ Community cultural hub or cultural residence

These are often smaller areas that are seen in public buildings. They have a library, a space for workshops and minor cultural performances, as well as a hall for transient exhibitions. Since this is the only venue available to them to promote cultural activities, they are very important for the community, especially in rural regions. (UNESCO, Culture and Development, 2012).

2.1.2 Importance of cultural center

The arts, history, religion, and traditions of other civilizations are promoted by cultural centers, which improve our society. Building performing arts institutions, museums, places of worship, history centers,

and libraries are investments made in this enrichment by communities, municipalities, and universities. Every cultural center work on aims to provide visitors with an outstanding experience by collaborating with the client to discover aesthetically pleasing, practical solutions. It might be difficult to build cultural institutions architecturally since they need to have a lot of open space and certain loading characteristics. An illustration is the minimum use of columns to allow clear views of a stage or pulpit, which places heavy concentrated stresses on the foundation. Rigging systems used to raise and place lights are necessary when creating performing arts venues with a proscenium stage. The design of connections can be significantly complicated by the inclusion of music, video, scenery, special effects, and related elements. Communities have started asking architects and engineers for assistance in the last few decades to preserve the historic designs of their existing cultural institutions while also taking advantage of the chance to apply modern trends as well as safety and accessibility standards. Structures offers options for carrying out these adjustments while maintaining the architectural purpose by drawing on our expertise in historic materials and building techniques as well as strategies from our vast adaptive reuse portfolio.

The cultural center goes under various names, including socio-cultural centers, community centers, social centers, youth centers, creative centers, etc. In light of this, what are cultural centers and why are they crucial for the societal value of culture? (Derado, 2022).

Cultural centers come in a variety of shapes, but they can all be identified by their openness and diverse nature; consider them to be easily accessible locations for a wide range of socio-cultural events that address various cultural and social requirements. Cultural centers are locations where the "high," "popular," and "alternative" in culture respond to the requirements of the "social." these locations can also include dancing lessons, sporting events, creative workshops, and speeches about wellbeing. By

virtue of their diversity and openness, cultural centers foster interactions between people with "different levels of ability and experience," bridging many gaps that might otherwise exist, such as those between "amateurs and professionals, young and old, cultural diversities and multiculturalism," and demonstrating an integrative nature. (Derado, 2022).

Cultural centers' efforts to include private and business interests into a larger public framework, their frequent dependence on public-civil partnerships, and diverse participatory governance models are all examples of its integrative character. Their organizational structures may be viewed as partnerships that link people and activities while promoting collaboration and mobility, enhancing local environments and building communities. (Derado, 2022). In a society that demands increasing levels of collaboration, integration, and effort to develop social and cultural understanding, cultural centers might be especially crucial. They can encourage sociability, create social and cultural bridges, and assist involvement in shared cultural activities. They can also help communication about culture and society. (Derado, 2022) . However cultural center could be of beneficiary to the community and government through the following aspect:

1. Cultural development projects would attract international investments, contribute to a nation's foreign exchange earnings and create economic development.
2. It also creates opportunities for employment in the service sector of the economy, associated with culture. These service industries include transportation services, such as airlines, cruise ships and taxicabs; hospitality services.
3. Culture is a diverse industry that has the potential to support other economic activities.
4. Culture development leads to economic growth and poverty can be effectively reduced by economic growth.

5. Culture is labor intensive and community infrastructure can be provided by culture and small scale opportunities can be created.

6. In educational sector, the main focus of the tour or leisure activity includes visiting another country or region to learn about the culture.

2.1.3 Design specifications for a cultural center

When it comes to providing a successful meeting space where people can learn about and enjoy the cultural traditions of a specific group or community, a cultural center's design is a crucial element. A cultural center should be built in accordance with a number of guidelines in order to satisfy the demands of the neighborhood it serves.

The first criterion is to build a facility that can accommodate every person in the neighborhood it serves. This calls for the center to be handicap accessible and to have adequate room to accommodate a range of events, including lectures, exhibitions, performances, and workshops. In order to make guests feel welcome and inspired, the area should also be cozy and appealing. (Stoval, 2023). Secondly a design must represent the community's cultural identity as the second condition. The employment of conventional materials, hues, and ornaments, as well as the exhibition of artwork and relics, can accomplish this. Through activities and exhibitions, the design should also provide visitors with the chance to learn more about the culture.

The third criterion is to design a facility that is fully furnished with the amenities and services required. This contains the appropriate av equipment, a sound system, and other technologies to offer the guests a pleasant and pleasurable experience. It also includes enough lighting and suitable seats. (Stoval, 2023) The fourth criterion is to make sure that everyone who visits the facility is safe and secure. This includes measures to guarantee that all parts of the facility are well-lit and monitored, as well as a

sufficient security system. In order for everyone who visits the cultural center to feel at ease and welcomed, it should also be able to hold a significant number of people at once. A vital necessity for cultural facilities is to guarantee the security and safety of visitors. This entails putting in place a strong security system and taking steps to monitor and illuminate every section of the building. A significant number of visitors should be able to be accommodated in cultural facilities, guaranteeing their comfort and creating a friendly atmosphere.

2.1.4 Spaces needed in a cultural center design

There are a few important sections that are often included while developing a cultural center to support different activities and functions. Following are a few typical areas seen in designs for cultural centers:

1. Display areas:

Exhibition Galleries: Displaying artwork and cultural relics takes up valuable space at cultural institutions. Rendell claims that exhibition galleries play a significant role in cultural centers because they offer specialized facilities for exhibiting and interpreting creative and cultural works. (Rendell, 2006). The preparation of the exhibition's display space and the collaborative production process that will be on show have the potential to play a significant role in maintaining and promoting the region's cultural legacy in the new era of the creative economy. As a result, the design of the exhibition space will be admired by the general public and the media, particularly if the display area is located inside a historic cultural center building or cultural heritage structure. Exhibitions, especially those held in structures with a rich cultural history, have a significant impact on the growth, collaboration, and sustainability of local art, craft, and design that effect tourism development. In order to be more advanced and sustainable in the future, the exhibition has the ability to integrate numerous creative economic sub-sectors and engage historic cultural heritage structures (Endahyani, 2020).

2 Performance Space:

Theaters, auditoriums, and concert halls are essential for holding live performances of performing arts, such as dance, music, and drama. In cultural centers, performance spaces are crucial because they provide as settings for artistic expression, live performances, and community involvement. There are different kinds of theaters, and each one has an impact on the traditional activity that is done there. In order to effectively use that which fits the needs of the type of traditional theater performance, they must thus be properly examined (Tukur, 2011).

3 Education and Workshops Space:

Dedicated areas for educational events, workshops, and classes that let visitors learn about and interact with different art forms are frequently included in cultural centers. The importance of education welfare spaces at cultural institutions is highlighted by Kim, (2019) which claims that these spaces "provide opportunities for artistic development, learning, and community engagement.

4 Multifunctional Spaces:

Lectures, conferences, celebrations, and community events may all be accommodated in multipurpose spaces, which are adaptable venues. However according to cityzenbarcelona, (2022) emphasize workspace where many professional tasks can be completed is known as a multipurpose room. In other words, it is a setting that adjusts to the various demands of the individual using it.

5 Library

Libraries or resource centers that offer access to books, archives, and online resources about culture, the arts, and history are frequently found at cultural centers. Libraries are essential components of civilization because they serve as entryways to information and culture. Each library's materials and

services are fundamental in fostering learning opportunities and promoting literacy and education, all of which contribute to helping to create new ideas that are essential to developing a creative and inventive society. Additionally, libraries aid in maintaining an accurate record of the information developed and gathered by earlier generations. Without libraries, it would be challenging to expand human knowledge and study, as well as safeguard accumulated knowledge and cultural legacy for next generations. (Jullia, 2022).

6 Restaurants, cafes, and social spaces:

Cultural institutions may include cafés, restaurants, or gathering places where patrons may unwind, mingle, and promote a feeling of community. These social spaces within cultural institutions foster visitor contact, conversation, and cultural exchange. Culture and food are entwined. Some food and drink preparation, serving, and sharing procedures can seem straightforward, but they frequently have significant social and cultural connotations. Recipes and dietary customs can be utilized to pass on information to the following generation. Making and consuming certain delicacies during a celebration can strengthen social ties (Lush, 2022).

Table 2. 1: a framework for categorizing the roles of cultural institutions

Dimension	Functions
Art/Culture	<ul style="list-style-type: none"> • Making arts and cultural services accessible. • Producing and disseminating diverse cultural and artistic works (exhibitions, performances, concerts, etc.) • Offering communities a range of cultural participation opportunities, including amateur art projects. • Protecting cultural heritage, regional customs, and ethnic culture.

	<ul style="list-style-type: none"> • Gathering and disseminating cultural data.
Education	<ul style="list-style-type: none"> • Offering cultural education and informal education. • Educating children and young people through the arts. • Providing chances for lifelong learning. • Offering education or participation activities including workshops, courses, debates, and lectures.
Leisure/Recreation	<ul style="list-style-type: none"> • Granting access to or a location for leisure activities. • Planning entertainment events. • Planning leisure-time activities.
Social	<ul style="list-style-type: none"> • Offering integration-related activities. • Promoting cross-cultural communication. • Increasing community involvement, community labor, and volunteerism. • Supporting active citizenship via cultural and creative endeavors.

Source: (Pfeifere, 2022)

2.2 Design consideration

2.2.1 Ventilation and daylighting in cultural center

Giving excellent ventilation & natural lighting for the interior spaces top priority is a basic requirement for a commercial building design in the modern day. The necessary amount of natural lighting and ventilation enters our home through the outside design features like the windows, skylights, and other openings with controlled natural light entrance. An efficient design can lower the need for artificial

lighting and air conditioning, which helps to save energy by lowering energy consumption. (Iyer, 2020)

The individual site characteristics must be taken into account while choosing the apertures' size, shape, orientation, and location during the design process. The site orientation, building footprint, the surrounding area, etc., are a few examples of the efficient criteria that control these. The needed orientation and position of the aperture for ideal lighting and ventilation may not be found in the current urban setting with the crowded surroundings. We may need to expand the window size or the area of wall openings in addition to designing suitable shade components in order to achieve the same. (Iyer, 2020).

2.2.2 Natural lighting

Regardless of the weather, the main goal of both natural and artificial lighting is to offer adequate and comfortable visibility for indoor and outdoor activities throughout the day. Daylighting is the process of introducing natural light into an enclosed space in order to lower the energy consumption of the building's artificial light sources. Our interior activities can be carried out efficiently by the quantity and quality of lighting, especially at night, which is crucial for raising output and enhancing quality of life. According to Nneka Obianuju one of the greatest obstacles to meeting the United Nations sustainable development objectives is that artificial lighting accounts for up to 40% of yearly building energy consumption, according to a variety of publications. (Nneka Obianuju Onubogu, 2021).

Radiance is one of the most popular lighting simulation programs on the market and is included in the Iesve package (Radiance IES Ltd., consulted on January 16th, 2023). In order to predict the dispersion of visible radiation in lit situations, it was developed as a research tool. With one or more light sensors

in a room with a chosen sky and defined dynamic parameters, radiation calculation cores may simulate and evaluate a variety of daylight characteristics.

2.2.3 Use of natural light

Appropriate daylighting design enhances illumination quality and lowers energy expenditures. Daylight is an unrenowned natural resource. It may minimize energy use, improve health, and promote work performance. (Abraham Nathan Zourea, 2023).

The effectiveness of a building's illumination has a big impact on how well it works. In order to do their activities safely and comfortably, inhabitants require lighting that offers sufficient vision without creating discomfort or distraction (Dambo, 2021). Users can complete work with adequate natural light, which also influences whether artificial lighting will be required at particular times of the day. Calculating the daylight factor can be used to evaluate the amount of daylighting in a building. Because natural light is a free, renewable resource, it must be used as effectively as possible in sustainable building techniques. A naturally illuminated and cost-effective structure can be created with the use of daylighting, shading, and lighting control techniques. (Dambo, 2021). The most popular types of natural lighting for interior design is the passive daylighting system. Passive daylighting is a technique that involves both gathering light from the sun using stationary, non-moving, and non-tracking systems (such windows, sliding glass doors, most skylights, and light tubes, clerestory, atrium) and reflecting the light further inside using items like light shelves. (<https://en.wikipedia.org/wiki/Daylighting>). Systems for passive daylighting include skylights, roof windows, louvers, skylights, sloping glazing, soda bottle solar lights, windows, light reflectors and shelves, and saw tooth roofs. (C. Ciugudeanu and D. Beu, 2016.) Techniques for passive lighting can

significantly improve a cultural center's visual appeal and energy efficiency. Here are some applications for passive lighting:

1. Skylights and clerestory windows

Adding skylights and clerestory windows to your structure to let natural light flow throughout the interior. These above vents may distribute sunshine evenly and diffusely, minimizing the need for artificial lighting during the day. They might be placed purposefully to draw attention to particular spaces or architectural details inside the cultural institution.

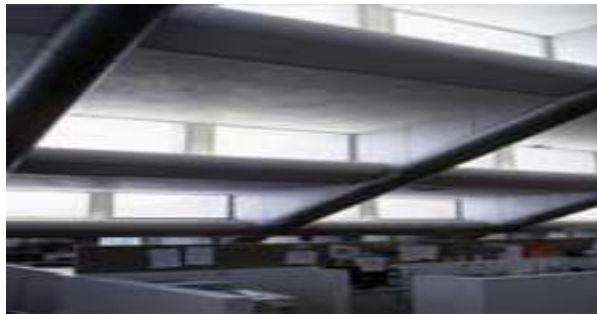


Figure 2.1: Clerestory Windows

Source: <https://en.wikipedia.org/wiki/Daylighting>



Figure 2.2: Skylights above lay lights

Source: <https://en.wikipedia.org/wiki/Daylighting>

2. Light tubes or solar tubes

These tubular daylighting systems, sometimes referred to as sol tubes or sun tunnels, collect sunlight from the roof and direct it into interior rooms. Light tubes can offer natural light to hallways, smaller rooms, or spaces with restricted access to windows. They can be successful in places where typical windows or skylights are not practical.

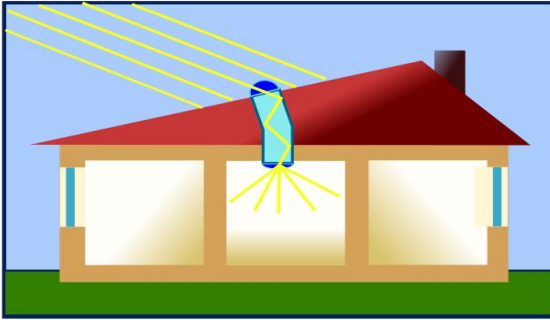


Figure 2.3: Left: Diagram of a light tube.

Source: <https://en.wikipedia.org/wiki/Daylighting>

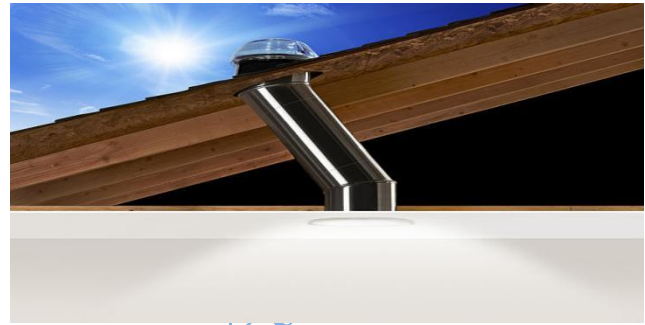


Figure 2.4: Right: Tubular daylighting devices harvest sunlight and transmit it through a highly reflective tube into an interior space at the ceiling level.

Source: <https://en.wikipedia.org/wiki/>

3. Light shelves and reflective surfaces

Light shelves are horizontal surfaces positioned above eye level, designed to bounce sunlight off their surfaces and spread it more equally throughout the area. They may bounce sunlight off their surfaces and disseminate it deeper into the space. It can also be helpful to use reflecting materials, such as bright-colored walls or ceilings, to increase the dispersion of natural light.

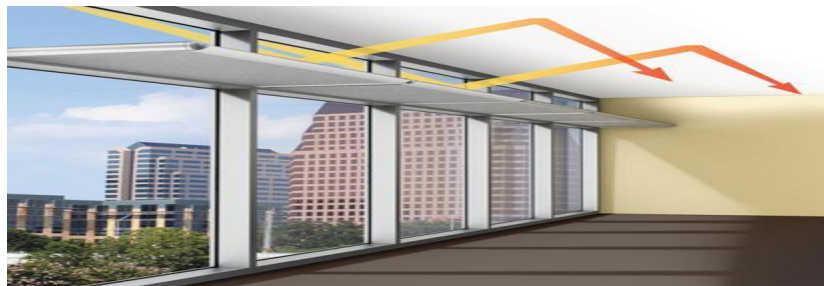


Figure 2.5: Diagram of a Light Shelves and Reflective Surfaces.

Source: https://www.designingbuildings.co.uk/wiki/Light_shelf

4. Window

The most popular approach to let light into a space is through windows. Due to their vertical position, they selectively allow sunlight and dilute daylight depending on the season and time of day. Consequently, depending on the temperature and latitude, windows with different orientations must typically be paired to generate the ideal mix of light for the building. (<https://en.wikipedia.org/wiki/Daylighting>) Windows have two purposes in daylighting practice: allowing daylighting into the building and offering views outside. (Michael Kent, 2022).



Figure 2.6: picture Of a convetional window

Source: <https://en.wikipedia.org/wiki/Daylighting>

5. Open floor designs and transparent partitions

Open floor designs and transparent partitions may let the natural light flow through cultural center spaces. Install movable indoor blinds or drapes to control glare and daylight levels. Energy savings, a more aesthetically beautiful and engaging visual experience, and a connection to the natural

surroundings are all advantages of passive lighting in cultural facilities. A space may be made both useful and visually appealing for visitors with the help of proper design and incorporation of various passive lighting solutions.



Figure 2.7: Open Floor designs and transparent Partitions

Source: (Glass, 2020)



Figure 2.8: Open Floor designs and transparent Partitions

Source (Glass, 2020)

6. Atrium

An atrium is a sizable open area inside a structure. By using daylight that is let in through a glass roof or wall, it is frequently used to light a central circulation or public area. Although some daylight is provided by atria to nearby workspaces, it is typically insufficient and does not travel very far. (Lighting, 2009) The atrium is a crucial component of commercial structures, and its lively, generous daylight space has made it a popular trend in contemporary commercial architectural design that is well-liked by customers and clients (Julitta Yunus 1, 2010).



Figure 2.9: Picture of an Atrium **Source:** (Liu, 2023)

Figure 2.10: Picture of an Atrium **Source:** (Liu, 2023)

2.2.4 Natural ventilation

Natural ventilation is the process of moving air through an enclosed space both inward and outward without the use of mechanical equipment. Natural ventilation is always the best option for a space, provided that it is possible to provide the necessary air quantity, quality, and consistency of management to fulfill the area's needs. (Dambo, 2021) Effective natural ventilation requires precise coordination between the air circulation system and the architecture. This pertains to the interaction between the architectural form, the environment of the site at a specific place, and internal arrangement. Natural ventilation offers building occupants fresh air while saving money and using less energy. In order to provide outdoor air to a building's interior for ventilation and cooling without the need of mechanical systems, it is classified as using passive techniques. (Dambo, 2021). Building ventilation is necessary to preserve air quality, which benefits the inhabitants' health and comfort. Without ventilation, it's possible for carbon dioxide, water vapor, organic pollutants, smoking, fumes, and gases to degrade the quality of the air by increasing humidity, dust, and odors, as well as lowering the proportion of oxygen in the air, making the building less pleasant to work or live in. Although it is acknowledged that indoor air quality can only be as good as outside air quality and that in some circumstances filtration may be required, well-designed natural ventilation offers numerous advantages, not least of which are financial and environmental. Other times, the ventilation solution for the building may come from mechanical systems or hybrid systems that blend natural and mechanical systems. (Directorate, 2022).

2.3 Review of empirical Studies

2.3.1 Strategies to archive natural lighting in cultural center

The goal of passive daylight design is to use design tactics that benefit from regional environmental and climatic factors. The reduction of a building's energy usage is frequently one of the main goals of passive design. Lighting, acoustics, heating/cooling, and ventilation are just a few of the specialized design disciplines that may use passive design principles. In passive design techniques, more than one specialized design field is typically involved. For instance, a passive temperature management method may have effects on lighting, ventilation, and structural design. The integrated design approach mentioned above, which brings together all of the specialized disciplines that contribute to the overall design of a building or project, is typically necessary for good passive design. ((DSNZ), 2020)

Location, form, and orientation of the building, internal layout and finishes, window design, exterior shading of the structure, and passive ventilation design are all significant components of passive daylight design. To achieve appropriate daylighting, cozy temperatures, decent indoor air quality, good acoustics, and a high level of energy efficiency, each of these components should work in concert with the others. ((DSNZ), 2020). If windows are given on two or more sides, this method can be employed for bigger rooms up to 12–14 m deep or smaller rooms up to 6–8 m deep. Where possible, vertical clerestory/light well roof lighting should be considered for spaces deeper than 12–14 m. Building design elements can help or hinder the fulfillment of passive design objectives.

Table 2.2 below highlights building design elements that in particular influence passive lighting management.

Table 2. 2: important design elements that determine how well passive lighting control works.

Success factors	Problem issues
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Design of the site considering daylight.	Site design is not favorable for day lighting plans.
Deep plan structures with side lighting and roof lights or shallow plan structures	Deep-plan construction design
Several walls with windows	Windows only on one wall
High ceilings	Low ceilings
Windows with a good distribution and design	Windows that are poorly dispersed and designed
Light internal finishes	Dark internal finishes
Allows for more dependence on daylighting by allowing for flexible light switching and dimming in designated locations	Lack of flexibility due to grouping and switching of lighting across different zones

Source: The Designing Schools in New Zealand DSNZ, (2020).

These techniques or strategies can aid in maximizing daylighting in structures, producing well-lit, cozy areas while using less energy.

- Balance between heat gain and loss: in addition to installing windows or skylights, it's crucial to give careful thought to the location and size of openings in order to achieve the best possible harmony between natural light and heat gain or loss.
- Glare control: it's critical to employ shading tools like blinds, shades, or louvers to reduce excessive glare. The quantity of direct sunlight that enters the area can be altered by these.
- Variations in daylight: using different amounts of daylight when designing places may provide a lively and aesthetically appealing atmosphere. This can be accomplished by distributing daylight more evenly across the area utilizing light shelves, light tubes, or reflecting surfaces.
- Systems for passive daylighting: using passive daylighting techniques, natural light is captured

And distributed throughout a structure. Light wells, light pipes, or light shelves can be used to reroute and disperse daylight to achieve this.

- Reflecting surfaces: making use of reflecting surfaces like mirrors, gloss finishes, and bright hues
May assist improve the amount of natural light that enters interior spaces
- Techniques for diffusing light: to diffuse natural light, reduce glare and produce a softer, more
Equal dispersion of light, utilize techniques like tinting, frosting, and fritting.
- Preserving outdoor vistas: creating areas with access to outdoor views improves the visual
experience and fosters a sense of connectedness with the surrounding natural world.
- Utilizing natural light as much as possible can help you use less electric lighting, which will save
you money on energy costs.
- Reduce solar heat gain: well-designed shading elements, such as outside sunshades or window
awnings with reflecting surfaces pointing downward, can achieve this while still allowing light to
enter the space.

2.3.2 Ventilation requirement

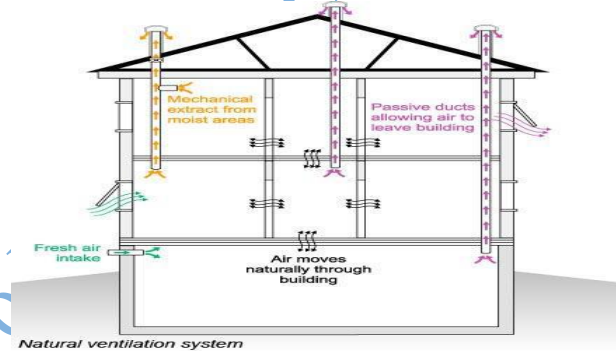
Varying regions of the world have varying ventilation standards that must be satisfied by buildings. A basic guideline is that the ventilation in a building must be adjusted to the level of moisture and pollutants present in the rooms. (Sandberg, 2021) It is forbidden to pollute at levels that might endanger your health. Depending on the purpose of the space and how many people reside there, various sorts of rooms may need various forms of ventilation. The pollutant load from materials, processes, and animals must also be taken into account, as well as furniture and equipment. (Sandberg, 2021)

In order to maintain the required amounts of CO_2 , the building's air quality must be kept above a certain minimum level. To do this, fresh outside air must be brought into the building on a regular basis. The comfort requirement must be met by creating an ideal thermal environment to improve heat loss from the body, decrease discomfort from wet skin, and maintain the temperature of the indoor space. (Krishna, 2013).

2.3.3 The process of natural ventilation

In order to situate a building in the best possible way to provide for appropriate ventilation from prevailing winds, research is conducted during the preconstruction stage of a project. In order to permit open air access, a building must also include certain architectural components. The graphic below, for instance, depicts the construction of upper clerestory windows in order to offer workplaces with free air access.

Below, for instance, depicts the construction of upper clerestory windows in order to offer workplaces



with free air access. (Dambo, 2021)

Figure 2.11: Natural ventilation system

All structures have some level of air leakage. However, draughts can be created and the uncontrolled infiltration of air through a building's structure can have a negative impact on the building's overall energy efficiency. It is feasible to decrease this invading air to lower levels by using better building techniques, which can increase energy efficiency. Certain construction methods may have little impact on air leakage, allowing the uncontrolled entering air to be taken into account in the building's ventilation system. When using low fabric insulation rates (less than 5m³/h/m²) in the energy assessment, there will need to be a corresponding increase in the designed ventilation provision to compensate for the lower levels of infiltrating air. An alternate ventilation strategy should be used since the regions of trickle ventilation illustrated might not be enough to preserve air quality.

2.3.4 Use of passive strategy to archive ventilation

Over the past 50 years, natural ventilation in buildings has been the topic of much research. Despite the creation of several descriptive experimental and numerical studies for airflow estimate coupled with heat transfer, to help in such an understanding, the mechanics of such a physical problem still have not been fully understood. Regarding occupant comfort requirements, a variety of factors determine how well natural ventilation solutions are implemented, which in turn affects how much energy is used by the building. The inhabitants' conduct, wisdom, and tolerance are crucial among these variables. Natural ventilation is still a topic of study today due to its advantages in terms of cooling and air renewal (Austin, 2022).

Without depending on mechanical systems, passive ventilation techniques may be employed to provide natural ventilation in buildings. Several popular passive techniques that may be used to create efficient ventilation include:

- Windows and openings: strategically positioned windows and openings may promote natural ventilation in structures. It is possible to create cross-ventilation by placing windows on opposing sides of a structure or room to promote airflow. Windows enable the entry of natural light into a structure, which minimizes the demand for artificial lighting throughout the day. Additionally, they offer options for ventilation, views of the outside, and a connection to the surroundings. Windows may enhance a building's thermal performance by enabling passive solar heating and cooling when they are appropriately built. (Sharma, 2023) . When constructing windows for passive performance, it's important to take into account a number of variables, such as orientation, size, shading, glazing type, and frame material. In order to optimize passive solar heating during the winter, windows should be placed on the building's sunniest sides. During the summer, shade mechanisms can be utilized to reduce overheating. High-performance glass and frame materials can also help windows function better thermally and lessen heat absorption or loss.
- Installation of ventilation shafts or chimneys can produce the stack effect, in which heated air rises and is replaced by cooler air that enters through lower openings. Airflow and ventilation may be made easier by this natural convection.
- Ventilation louver is a component of the ventilation system, which works to lessen the buildup of dirt, excessive temperatures, and offensive odors inside the structure. Louver helps to create air that is both safe and clean for humans and machines to breathe. (Pebsteel, 2022) . Controlling and directing airflow can be accomplished by installing movable louvers or vents in windows, walls, or roofs. Depending on the climate, the direction of the wind, or the requirements for indoor comfort, these may be changed to improve ventilation.
- Passive cooling techniques: using passive cooling methods, such as reflecting surfaces, insulation, and shading devices, can assist minimize the need for mechanical cooling systems. It is possible to maintain a suitable indoor temperature by avoiding heat gain, which lessens the need for ventilation to

provide cooling. Buildings may benefit more from natural energies like wind and thermal stimulants to improve the conditions inside by using passive design, which makes them more climatically flexible. (Dhafer Al-Shamkhee, 2022).

- Natural ventilation systems: by using passive ventilation systems, such as wind towers or wind catchers, a building may better utilize the power of the wind to move air and increase ventilation. Natural ventilation rates are directly influenced by a number of factors, including wind speed, building orientation, window to wall ratio, space volume, and window opening fraction. As a result, these factors may also have an impact on how well viruses spread through the air and how likely it is that a building will become infected.

In a building, ventilation has a critical function in two key areas: energy consumption and interior air quality (comfort and minimum air renewal rate). In this regard, it is desired that natural ventilation effectively offer a minimum air renewal rate to keep the air stale out of the room, eliminating the usage of artificial ventilation, and ultimately leading to minimizing energy consumption (H. Zheng, 2019).

The latter is based on the ambient circumstances outside. When using a fully autonomous system, particularly with a model predictive control algorithm, promising findings showed larger energy savings of between 17% and 80% (Y. Chen, 2019).

2.3.5 Importance of cultural center on the community

By building a feeling of community, supporting cultural diversity, and offering educational and creative opportunities, cultural centers play an important role in the community. The following main points underline the significance of cultural centers for the community:

- Preservation and promotion of culture: cultural centers act as venues for safeguarding and promoting a community's rich cultural history. They promote traditional music, dance, crafts, and other

cultural manifestations, making sure that they are transmitted to subsequent generations. Communities' identity and cohesiveness are influenced by their culture. In the linked world of today, it is also one of our most effective tools for changing society and fostering new ideas. (UNESCO, Cultural heritage: 7 successes of UNESCO's preservation work, 2023)

- Social cohesion and community engagement: the social cohesion and community engagement are promoted by cultural institutions because they bring individuals of all backgrounds together. They give people a place to interact, exchange stories, and form bonds while fostering respect and awareness of other cultural perspectives. According to (Ramirez, 2020), a coherent culture for health equality is one in which everyone strives both individually and collectively to make sure that everyone has an equal chance for health and wealth as well as equitable access to the fundamental resources needed to achieve these goals. (Ramirez, 2020). To create a society that is more equal, social cohesiveness is essential. (Weis, 2021)

The making study included suggestions for how art activities might keep boosting social cohesion, including: create and share power via local ownership

Link individuals despite differences

Embrace all segments of the community

Maintain a regular presence in the neighborhood

Align with the aims of community transformation

It's crucial to educate people about the factors that prevent a unified culture in addition to using art to empower the community. (Weis, 2021)

- Education and learning: cultural centers provide seminars, workshops, and educational activities to help members of the community gain knowledge about other people's cultures, customs, and

history. These initiatives foster tolerance, increase cultural knowledge, and support lifelong learning.

- Artistic expression and creativity: culture-based creativity contributes to social cohesiveness, lifestyle creation, consumer enrichment, community confidence, and well-being promotion. (KEA, 2009) A creative atmosphere is fundamentally shaped by education and learning. In educational settings like schools, colleges, and universities, as well as in lifelong learning, art and culture may inspire people's imagination and creativity. Cultural institutions give performers and artists a stage on which to display their skills and originality. They plan shows, plays, concerts, and other artistic activities that enhance the community's cultural environment and encourage creative expression.
- Economic impact: by bringing in visitors, tourists, and culture aficionados, cultural facilities boost the local economy. They promote local companies, encourage cultural tourism, and open up job prospects in the cultural and artistic industries.
- Community development: cultural facilities can act as impetuses for neighborhood growth. Through cultural activities, they work in partnership with neighborhood groups, institutions, and schools to solve social problems, advance social justice, and amplify the voices of underrepresented communities.

In order to create the methodologies and address the issues in this research, the empirical study will elaborate the pertinent prior studies that are associated with those employed in it.

(Pfeifere, 2022) wrote a study on the issues of defining and classifying cultural centers. He went on to define cultural centers as multifunctional, interdisciplinary institutions that offer access to culture and a variety of cultural services, encourage citizen participation in culture, provide opportunities for lifelong learning, among other things.

Researchers generally identify three parameters that characterize most cultural centers (regardless of their legal form), according to his findings from the literature: multi functionality (offer and functions); socio-cultural aspect and orientation towards the local community; and having a building/technical equipment. The primary objective of a cultural center, according to unesco (2012) in their article culture and development, is to promote cultural values among the local populace. Its structure is situated on expansive grounds where a variety of cultural manifestations enrich and enhance the cultural life of the local populace. It goes on to discuss the various sorts of cultural institutions, pointing out that there are two: cultural centers (national or university) and community cultural centers or cultural houses. The cultural center (university or country) where define as a substantial structures that often include an auditorium with a stage for theatrical performances or movie screenings, a library, a video the que, a computer lab, rooms for academic workshops or activities, a language laboratory, galleries, and occasionally memorials or long-term exhibits. The community cultural center or cultural house was refer to as a basic spaces, typically found in public areas, and include a hall for temporary exhibitions and an area for workshops and small cultural presentations for the community, particularly for rural areas where this is the only venue available for promotion. As stated by Stoval, Alejandro in response to the query, "what are the specifications for cultural centers' design" he wrote that a cultural center is a structure set aside for holding cultural events including performances, plays, and exhibitions. When developing the facility, the needs of the users should be taken into consideration. Depending on how the center will be used, the design requirements may alter. The design of the cultural center should include art and artwork from the culture it represents in order to create a warm and inviting ambiance. This could include sculptures, interactive installations, and conventional wall art. In order to establish a visual connection, the design should also make use of materials and textures that are representative of the local community. With regard to ventilation and natural lighting according to Iyer,

Surag Visvanathan, a contemporary commercial building design must prioritize good ventilation and natural lighting for the interior areas. Through exterior design elements such as windows, skylights, and other apertures with regulated natural light entrance, the required quantity of natural lighting and ventilation enters our home. The demand for artificial lighting and air conditioning may be reduced by an efficient design, which contributes to energy conservation by reducing energy usage.

Chapter Three

Methodology

3.1 Case Study

A case study may use a variety of data sources, including observations, interviews, and documents. Case study research aims to produce new ideas or insights as well as a thorough and nuanced grasp of the case subject (Coombs, 2022). To gather the essential data for this article, both qualitative and quantitative methodological approaches is used. In order to determine the design consideration strategies to be used in cultural center design, the qualitative method involved conducting a thorough review of the pertinent literature. Meanwhile, the qualitative method involved direct user interviews and questions from the current user of the facility and visitors of the chosen cultural centers in Nigeria to look into how the lighting and ventilation strategies had been integrated into the centers. In order to solve an issue that is similar to one that has already been addressed, it is crucial to do a thorough investigation.

The producing approaches will include the two primary and secondary data sources that are available to researchers.

The study's primary data comes from direct sources like:

Site visits for observation and becoming acquainted with the amenities that are already there.

Taking pictures of the current facilities and creating schematics of them for illustration.

Case studies that look at different kinds of existing buildings. It helps with the description of particular features particular to a certain group of items and their settings. It emphasizes generic characteristics and attributes, spatial coherence, and the usage of locations. And the secondary data includes, an encyclopedia of research that is recognized globally.

Policy papers, using the internet to gather additional information and data and utilizing already-published content from journals, books, periodicals, and other sources.

3.2 Case study one

3.2.1 Cultural Center, Ibadan

Anyone passing up Mokola hill, where the cultural center is located, would notice the towering and expansive structure known as the cultural center, Ibadan.

It was said to have been conceived to complement the festac '77 project, with the vision to bring foreign visitors and artistes in the country for festac '77 to Ibadan to showcase the then ancient town. It was designed by renowned architect, Professor Demas Nwoko, and built in 1977 on a sprawling site on one of the seven hills that make up Ibadan land. (Tribune, 2019) . The Ibadan cultural center is a vibrant hub for the celebration of Oyo culture and traditions. It offers a range of activities such as art exhibitions, traditional music performances, and traditional dance classes. It also serves as a platform

for cultural exchange and education. The Ibadan cultural center is open to all, and entry is free. It is an important part of Ibadan’s heritage and history, and is a great way to learn more about the city and its culture. Visitors to the center can also shop for unique souvenirs and artworks, connect with local artists, and take part in community events such as storytelling sessions and workshops. The Ibadan cultural center is a place to learn, connect and appreciate Ibadan’s rich culture and traditions. It serves as a hub for celebration and education, providing a platform for local artists to showcase their work and engage with visitors, and for visitors to gain insight into the city's history and culture. It also serves as a bridge between the past and the present, with the opportunity to interact with experienced storytellers, local artisans, and other members of the community. The center is breathtaking due to the elaborate patterns that decorate its walls and the wooden and metal art shown at various locations throughout the structure. It was designed to be a popular worldwide tourist destination that could support Oyo state with sizable domestic earnings. The cultural center used to compete with the top venues throughout Nigeria, but not any longer—not even in fantasies. The center has suffered greatly from a lack of upkeep and effective administration as a result of inadequate financing or collaborations.

3.2.2 Findings and discussion

This section gathered data on the several ventilation and daylighting strategies that can be used to incorporate lighting and ventilation features into the cultural center buildings.

Table 3. 1: frequency survey questionnaire on ventilation and lighting

S/n	How would you agree to the following?	Respondent	1 Never Disagree (%)	2 Rarely Disagree (%)	3 Sometim es Undecide d (%)	4 Often Agree (%)	5 Always Strongly agree (%)

1	What is your level of satisfaction with the natural ventilation in the cultural center?	40	1	8	15	7	9
2	Do you feel that the natural ventilation in the cultural center is sufficient?	40	7	12	5	8	8
3	Have you noticed any issues with the natural ventilation in the cultural center?	40	3	5	5	8	19
4	Do you think the natural ventilation in the cultural center could be improved? If yes, how?	40	13	2	4	7	14
5	How would you rate the overall comfort level in the cultural center?	40	0	3	7	9	21
6	Do you feel that the natural ventilation contribute to a pleasant atmosphere in the cultural center?	40	8	3	5	6	18
7	Have you noticed any impact on energy consumption due to the natural ventilation and daylighting strategies in the cultural center?	40	0	2	9	11	18
8	Are there any specific areas in the cultural center where	40	1	4	10	9	16

	you feel the natural ventilation or daylighting is particularly effective or lacking?						
9	Do you think the natural ventilation and daylighting strategies in the cultural center meet the needs of different user groups (e.g. Performers, audience, and staff)?	40	12	5	10	5	8

3.2.3 Data presentation and results discussion

Table 3.1 displays the various replies from related users of the cultural institutions. The results from the various users indicate the necessity of including thermal comfort in the construction of a cultural facility. The Ibadan cultural center was found to be insufficient in terms of facilities, ventilation, and lighting. These elements are essential for the structure to function at its best, yet because of a serious flaw, users find it difficult to make the best use of them.

Table 3. 2: frequency survey questionnaire on ventilation and lighting

S/n	Daylighting features	No of responded	Strongly disagree (%)	Disagree (%)	Undecided (%)	Agree (%)	Strongly agree (%)
1	Using atrium more to increase daylight and ventilation	40	0	4	6	21	9

2	Using solar-blocking windows	40	2	7	19	4	8
3	Using windows with top lighting in the exhibit halls	40	0	6	4	19	11
4	Minimizing the use of artificial lighting	40	4	8	6	8	14
5	Using photovoltaic (pv) systems that require less energy	40	6	8	7	11	8
6	Using carbon dioxide-sensitive lighting	40	8	4	8	13	7

As shown in table 3.2, the respondents' view of the cultural center's usage of atrium spaces to let more light into the interior spaces is that: 0% strongly disagree, 4% disagree, 6% express unsure, 21% agree, and 9% highly agree. The outcome shows that the respondent is in favor of adding more atrium to the building to enable better integration of daylighting into the interiors. The respondents' opinions on using windows with sun-blocking glass to prevent solar radiation from entering exhibition halls are as follows: 7% disagree, 19% are unsure, 4% support the idea, and 8% strongly support it. The respondent's opposition to the use of anti-solar glass windows indicates that daytime energy-efficiency features must be used. A result of 0% strongly disagree, 6% disagree, 4% disagree, 19% agree, and 11% strongly agree with the employment of top light windows in exhibition halls to allow more natural lighting into the space. The proportion of agreement also shows that the cultural center's design needs to be implemented. The findings of the respondents' responses on whether or not the cultural center is minimally dependent on artificial lighting systems are as follows: 4% strongly disagree, 8% disagree, 6% unsure, 8% agree, and 14% highly agree. Respondents' perceptions on the use of energy-efficient photovoltaic panels in the museum to provide alternative energy for the cultural center in the absence

of natural lighting are as follows: 8% disagree, 7% unsure, 11% agree, and 8% highly agree. The fact that no respondents disagreed highlights the significance of including photovoltaic panels in the plan to offer an alternate source of artificial light. Responses to the question of whether sensitive lighting fixtures should be used to accomplish effective energy control range from 8% strongly disagree, 4% disagree, 8% uncertain, 13% agree, and 7% highly agree. The current state cultural center, according to the respondents, is terribly underequipped in terms of lighting, ventilation, and landscape features.



Figure 3.1: View of the Main office entrance of Cultural center, Ibadan

Source: Researcher's Field work



Figure 3.2: View of the Main Entrance of Cultural center, Ibadan

Source: Researcher's Field work

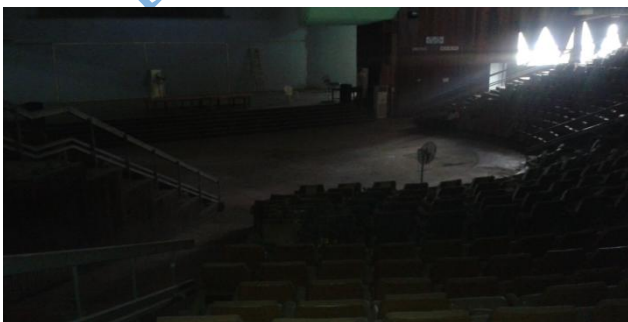


Figure 3.3: View of the Conference hall of the Cultural center, Ibadan

Source: google.com



Figure 3.4: Aerial view of Cultural center, Ibadan

Source: Researcher's Field work

3.3 Case study Two: National Theater Iganmu Lagos

The national theatre features a main auditorium, a conference/banquet hall, exhibition rooms, two movie theaters, and a VIP lounge. Rooftop gardens are also present. An auditorium and a foldable stage have always been part of the main hall, which can accommodate 5,000 people. The hall can accommodate 3,500 people when it's proscenium. The theater's fixed movie screen may be lowered using a remote control and is located at the hall's ceiling. The set comprises a double cyclorama, a background, and three rows of curtains for generating silhouette effects. It is also easily adaptable to any directional ideas. For conferences and banquets of a high degree, the conference/banquet hall is specifically constructed and furnished. 1,500 people can sit in it. Additionally, it contains an eight-language simultaneous interpretation facility and a proscenium stage. Large corporate shows may be accommodated in the exhibition hall, which also has lighting and audio capabilities for a variety of activities. A total of 700 people can be seated in each of the national theatre's two cinema halls. Each cinema auditorium features a conventional proscenium stage, a standard 16mm and 35mm projector, high-quality sound equipment, and modern lighting for stage shows. The complex, which is regarded as both an architectural marvel and a significant cultural landmark, is roughly 23,000 square meters in size and rises more than 31 meters above the ground. Nigerian arts and culture were preserved, shown, and promoted through the establishment of the multifunctional national theatre. The palace of culture and sports in Bulgaria's Varna was used as inspiration for the monument's design. On April 24, 1973, the principal contractors for the complex's development, a Bulgarian firm named Technoexportsroy,

and the parties involved in the contract for its construction were formally introduced. However, the goal of the complex's construction went beyond providing a suitable location for the 2nd world black and African festival of arts and culture (festac '77), which Nigeria successfully hosted in January and February of 1977 and for which the national theatre provided more than sufficient venues. The spectacular structure embodies every quality that makes for a national cultural monument in Nigeria, both in terms of design and construction. It has a military-style hat-like exterior.

3.3.1 Services offered

- Outside bar and eatery
- Compact museum
- Retail stores
- Offices

3.3.2 Findings: physical aspect

The primary objective of the research is to evaluate the physical features of the structure, such as the types of openings and the interior materials used. The assessment of the lighting and ventilation approach technique used in the building on daylighting and ventilation is done within the context of the cultural center. The indoor surrounds of the national theater's physical state was investigated. The evaluation is based on a close examination of the ventilation and lighting in exhibition and conference halls. The information gleaned about the physical elements of daylighting and ventilation in the conference hall, with a focus on lighting design and implementation as well as its relationship to other environmental aspects, is supplemented and confirmed by information obtained from staff, contractors, and visitors about the building. Building orientation, window design, access to view.



Figure 3.5: Side view of National Theater, Iganmu Lagos



Figure 3.6: Side view of National Theater, Iganmu Lagos Source: Researcher's Field work



Figure 3.7: Lobby of the National Theater, Iganmu Lagos Source: Researcher's Field work



Figure 3.8: Picture shows the cinema hall of the National Theater. Source: Researcher's Field work.



Figure 3.9: Picture showing private lounge. Source: Researcher's Field work.

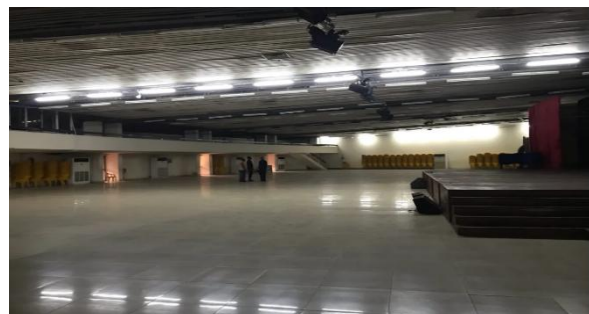


Figure 3.10: Picture shows the exhibition hall. Source: Researcher's Field work.

Figure 21 shows an exhibition hall with artificial lighting and ventilation. It was determined that the show lacked sufficient natural lighting and ventilation. Even though at the time of these assessments, the national theater was undergoing renovations and strictly prohibited from visits and photo opportunities, these factors are crucial components to the design of a cultural center's ability to function at its maximum potential. As a result, users find it challenging to make the most of the facility. Figure 19 shows the theater, which exhibits comparable lighting and ventilation problems that are acceptable given the movie hall's architecture. The private lounge, which is entirely dependent on artificial ventilation and illumination, is depicted in figures 20. The conference room, which likewise has a problem with natural lighting and ventilation and only depends on artificial lighting and ventilation, is shown in figure 21 along with the lobby in figure 18. The atrium at the top of the roof is supplied to throw lighting into some space, but it didn't capture some important portions of the structure, it was claimed during the physical interview with the workers.

3.4 Case Study Three: The Millennium Tower And Cultural Center

Location: Central District Abuja, Nigeria

Architect: Manfred Nicoletti

Client: federal government of Nigeria

One of the numerous construction projects in Abuja, the capital of Nigeria, is the millennium tower and cultural center project, which is slated to be the country's highest structure when completed. The tower, which is a component of the Nigeria national complex that also comprises the Nigeria cultural center and municipal building, was created by Manfred Nicoletti. The 110-meter-high belvedere (viewing platform) and rotating panoramic restaurant are carried by three concrete cylinders that are supported by the 170-meter-tall millennium tower component, which symbolizes for the strength and

unity of the Nigerian state. It will dominate Abuja's skyline, and its strong laser spot lights are intended to be visible from more than 50 kilometers away from the city center.

Between the national mosque and the national Christian center lies this still-under-construction facility in Abuja's core business center. By saline Nigeria limited, the building is being constructed.

3.4.1 Facilities provided

- Meeting rooms
- Museums
- Restaurants
- Offices
- Restaurant
- Fitness centers
- Hotels
- Swimming pool
- 1,200 seating capacity auditorium

3.4.2 Deduction/findings from case study

- Effective site zoning and planning of the facility
- Adequate provision of parking lots and exits for users
- Generous entrances and hall ways
- Application and use of sustainable building materials.
- Energy efficiency wasn't taken into consideration during the design of the building.

3.5 Case study Four: The Sydney Opera House

Location: Sydney, Australia

Architect: Jorn Utzon

Date built: 1973

Australia's Sydney is home to the Sydney opera house, a multi-venue performing arts complex. It is a masterpiece of 20th-century architecture and is situated on Sydney harbor's shoreline. It is recognized as one of the world's most recognizable and well-known structures. (Maher, 2021)

The building was officially inaugurated by Queen Elizabeth ii on October 20, 1973 after being designed by Danish architect Jorn Utzon but built by an Australian architectural team led by peter hall. The structure's gestation period began when Utzon was chosen as the winner of an international design competition in 1957.

The building covers 1.8 hectares (4.4 acres) and is 183 meters (600 feet) long and 120 meters (394 feet) wide at its widest point. It is supported on 588 concrete piers sunk as much as 25 meters (82 feet) below sea level. The highest roof of the facility is made of a series of large precast concrete "shells" that are each made of sections of a sphere of 75.2 meters (246 ft 8.6 in) radius. (https://en.wikipedia.org/wiki/Sydney_Opera_House, 2023)

3.5.1 Facilities

There are several performance spaces at the Sydney opera house, including:

- Concert hall
- Joan Sutherland theatre
- Drama theater
- Playhouse
- Studio

- Utzon room recording studio
- Outdoor forecourt

Additionally, the building has a recording studio as well as retail stores, cafés, restaurants, and bars such the opera bar and opera kitchen.

3.5.2 Deductions/findings

Larger seating capacity: the new opera house's larger seating capacity made it possible for more people to attend performances. A better acoustical environment was created by the Sydney opera house's architecture, which increased the sound quality during performances.

Architectural landmark: the Sydney opera house is renowned for its inventive use of sail-shaped shells, making it an iconic architectural landmark. It is one of the most photographed structures in the world. Natural forms and shapes were used in the Sydney opera house's construction as a result of the design's influence from nature.

The brittleness and poor toughness of the materials employed, which can make handling difficult, is one of the design's significant mechanical and physical drawbacks. The Sydney opera house also has other drawbacks such as, maintenance issues: the Sydney opera house's distinctive architecture creates maintenance issues that need for specific knowledge and resources.

Cost: from a financial standpoint, the Sydney opera house design's high construction and maintenance costs might be seen as a drawback.

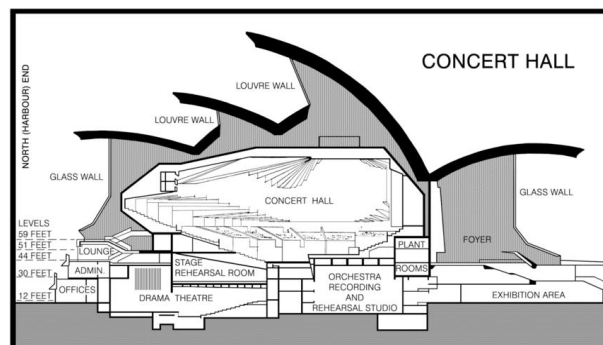


Figure 3.11: Aerial view of Sydney Opera house

Source: https://en.wikipedia.org/wiki/Sydney_Opera_House.

Figure 3.12: Section through Sydney Opera house. Source:

<https://www.researchgate.net/publication/3>

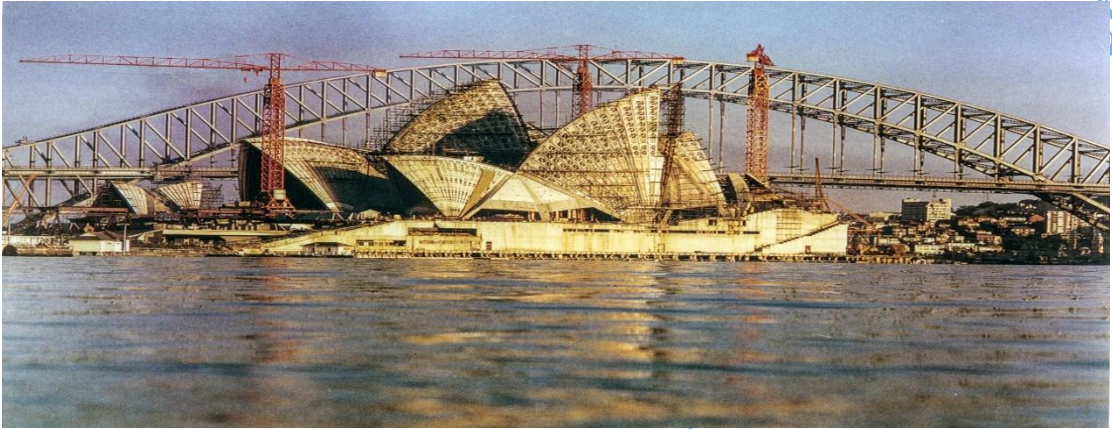


Figure 3.13: Section through Sydney Opera house. Source: (Utzon, 2022)

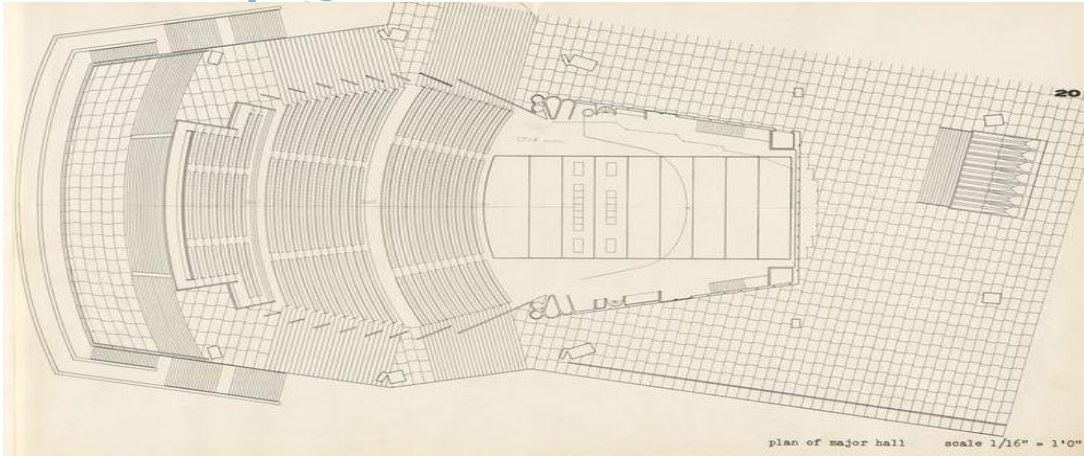


Figure 3.14: Plan of the Major Hall, Sydney Opera house Source:

<https://www.alamy.com/stock-photo-first-floor-plan-sydney-opera-house->



Figure 3.15: Floor Plan of the Sydney Opera house Source:

<https://www.alamy.com/stock-photo-first-floor-plan-sydney-opera-house-57092163.html>

3.6 Case Study Five: The Bishan Cultural And Art Center

Architect: tang Hua architects and associates

Location: shonqing, china

Project year: 2016

Style: contemporary architecture

Area: 37736.51 sq. M

3.6.1 Discussion

The Bishan cultural and art center is located in Shongqing, China. It is a significant public service complex situated in the north of the Central Park Lake and the west of the civic square. The center is one of the earliest projects in the Bishan area. Using architectural language, the center's design pays homage to Bishan's historical persona. The facility has a 37,736 square meter footprint. It is a contemporary, spotless complex that ties the past and present together. The facility has a distinctive public area that depicts the development of the surrounding terrain. It is renowned for its cutting-edge architecture and design. Some significant features of the facility are the main entrance, large steps, east and west elevations, and the theater entrance. Overall, the Bishan cultural and art center in Shongqing, China, is a significant cultural monument that combines modern design with connections to the past.

3.6.2 Findings

The Bishan cultural and art center's abstract interpretation of the old description of "Bishan"—which translates as "mountains made of jade"—reflects the surrounding environment's topography.

3.6.3 Services provided

There are two elevators and emergency stairs in the smaller blocks, elevators and emergency staircases on all sides of the entry and exit in the block with the auditorium, and ample restrooms on each floor.

3.6.4 Crystal or spider web facades

Crystal or spider web facades are made of various combinations of glass, metal plates, and aluminum mesh. These facades are positioned to face the northeast of all three buildings.

Triangular planes produce the Chinese design known as "ice crack," which also symbolizes the vast number of spider webs that can be seen in the Shonqing Mountains' woods. Such space may also form an eye-catching "crystal" in the "inner space."

3.6.5 Lighting analysis

The crystal or spider web façade's natural lighting is coming from the north and east.

The façade's pattern interacts with the space inside the center.

The foyer and lounge sections are located inside these façades.

In addition to natural illumination, artificial lighting is given within the building and in the auditorium.

Because the entire structure is built of glass, the multipurpose halls and other office spaces located in the northwestern direction get natural daylight during the day.

3.6.6 Ventilation and air circulation analysis

To encourage circulation throughout the center, the architectural plan includes open areas, atriums, and strategically positioned ventilation systems. This lessens the need for mechanical ventilation systems while maintaining a comfortable and fresh interior atmosphere.

3.6.7 Circulation Analysis

The architect exploited the contours of the entire site to create staircases that link the building's many floors. To create the impression of ascending a mountain, each block features a variety of entrances and exits in addition to several staircases. The center's circulation design makes sure that visitors may find straightforward routes through it. The entire user experience is improved by well-marked paths and signs that make it simple for guests to reach various spaces, exhibits, and amenities.

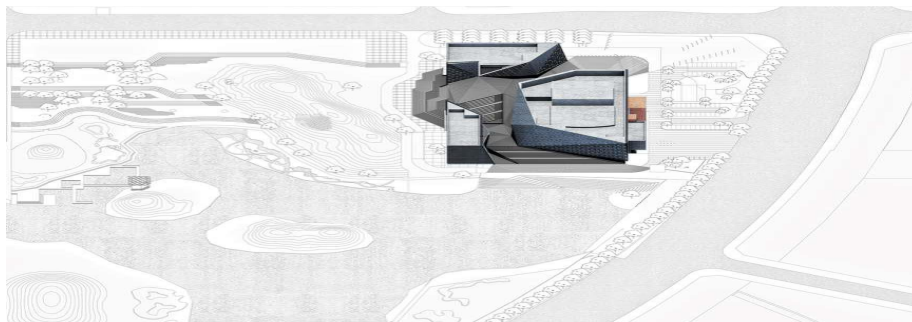


Figure 3.16: Arial view of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com/878885/bishan-cultural-and-art-center-tanghua-architect-and-associates>

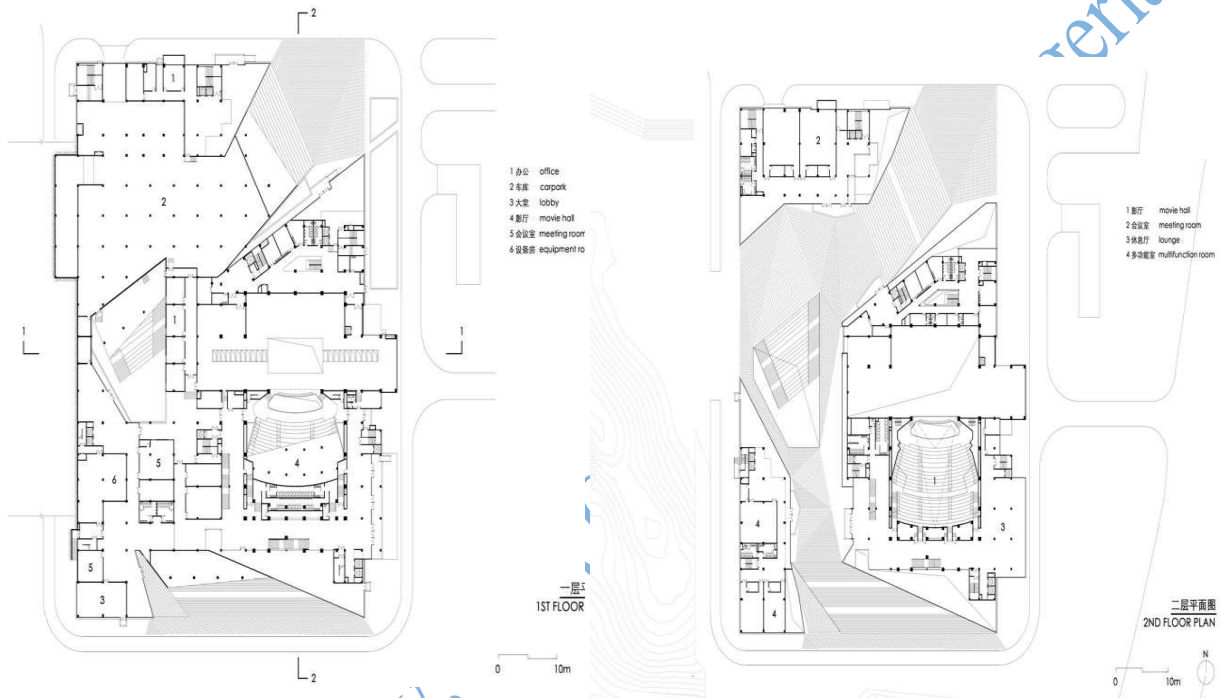


Figure 3.17: First Floor Plan of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com>

Figure 3.18: Second Floor Plan of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com>

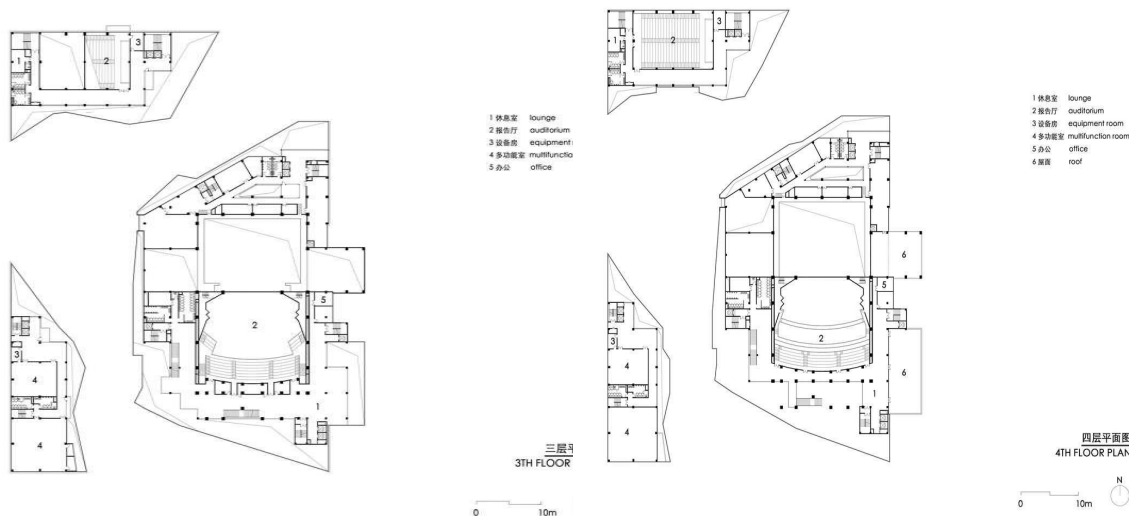


Figure 3.19: Third Floor Plan of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com>

Figure 3.20: Fourth Floor Plan of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com>

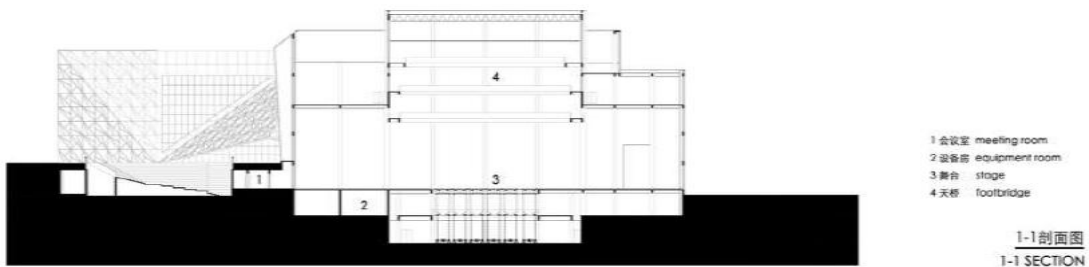


Figure 3.21: Sectional View of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com>

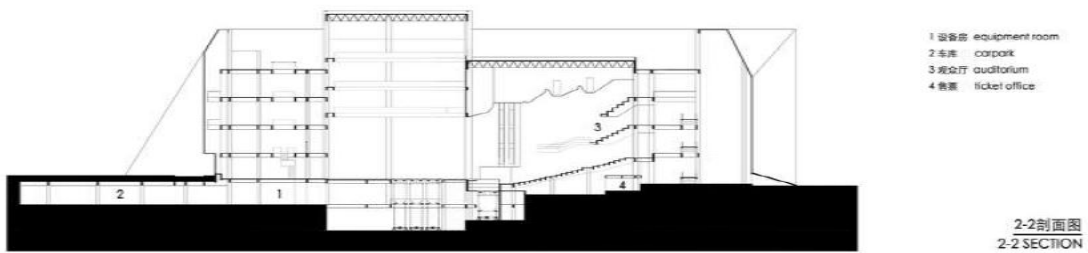


Figure 3.22: Elevation View of the Bishan Cultural and Art Center

Source: <https://www.archdaily.com>

Chapter Four

Site Analysis and Design Synthesis

4.1 Study Area

In southeast Nigeria, Umuahia serves as the state capital of Abia. In between Port Harcourt, to the south, and Enugu city, to the north, is where Umuahia is situated on the train line. The 2006 Nigerian census shows that Umuahia has a population of 359,230. Igbo people are the natives of Umuahia.

Umuahia is well known for being a railroad and agricultural market hub, which draws buyers and sellers from adjacent towns to sell their goods, including yams, cassava, corn (maize), taro, citrus fruits, and palm oil and kernels. (Britannica, 2022), Businesses including a brewery and a palm oil processing factory contribute to the economy of the region. In umudike, Nigeria, close by the town lies the national root crops research institute. In addition, umuahia is home to a number of universities, such as trinity college (theological), government college umuahia, holy rosary girls secondary school, and medical facilities including the federal medical center, Umuahia (formerly queen Elizabeth hospital). (Nwankwo, O., & N., 2019)

Umuahia is divided into two local government areas (lga), Umuahia north and Umuahia south. Clans, which are the building blocks of both lgas, are composed of villages. The Ubakala, Olokoro, and Umuopara clans are the three largest clans in the south. Umuahia south's old umuahia is made up of a few of the communities/villages in the region. Apumiri in Ubakala is where the local government council's headquarters are. Ibeku and Ohuhu make up the northern region. Ibeku serves as the location of its local government council headquarters.

4.1.1 Site analysis

A site analysis procedure for architecture will include factors including site location, size, geography, zoning, traffic conditions, and climate. The research must also take into account any potential developments or changes to the area around the property, such as a road designation changes, cultural norms shifting, or other substantial construction changes developments in the neighborhood. (First In, 2022). It is crucial that, when conducting a site analysis, we make every effort to conduct as much research as we can and gather any information that relates to the site and our design. A badly done site analysis might result in a subpar design since the designer won't have all the facts at hand to respond to and come up with solutions. You can never have too much site knowledge. (First In, 2022). The idea, criteria, and site analysis for site selection are introduced in this part. The context and needs determine the criterion for site selection. (Tamara Bajaber, 2022). Additionally, the location is chosen based on a set of criteria that takes views, accessibility, user demands, and environmental adaptability into account. (Tamara Bajaber, 2022).

4.1.2 Climate

The climate of umuahia is categorized as tropical. In umuahia, there is heavy rainfall for the most of the year. Only a brief dry season exists. The Köppen-geiger climatic classification for this area is am. The average annual temperature in umuahia is 26.0 °c. Here, rainfall typically totals 2153 mm. With an average of 15 mm, December has the least amount of precipitation. With an average of 322 mm, September is the month with the most precipitation. March is the warmest month of the year, with an average temperature of 27.5 °c. The typical temperature in august is 24.5 °c. It is the year's coldest average temperature. (Umuahia climate: Average Temperature, weather by month, Retrieved 2021)

4.1.3 Clouds in umuahia,

There is a noticeable yearly seasonal change in the average amount of sky that is covered by clouds. (Spark, Retrieved 2023). The clearer season in umuahia begins about November 24 and lasts for 2.6 months, ending around February (Spark, Retrieved 2023).

With the sky staying clear, mostly clear, or partly cloudy 41% of the time in umuahia, December is the clearest month of the year. (Spark, Retrieved 2023).

There is an increase in cloud cover for 9.4 months, from February 10 to November 24. (Spark, Retrieved 2023). The sky is overcast or largely cloudy 85% of the time on average in umuahia, making April the cloudiest month.

4.1.4 Precipitation

A day is deemed wet if there is at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of rainy days varies greatly throughout the year in umuahia. Every day has a better than 44% probability of raining from March 28 to November 8 (the rainier season). The wettest month in umuahia is September, which has an average of 25.0 days with at least 0.04 inches of precipitation. The dry season lasts about 4.6 months, from November 8 to March 28. January has the fewest rainy days in umuahia, with an average of just 1.4 days with at least 0.04 inches of precipitation. ("Umuahia Weather, Retrieved 2023)

4.1.5 Rainfall

In umuahia, there are frequently extreme seasonal differences in monthly rainfall.

There are 10 rainy months from February 1 to December 12 with a median 31-day rainfall of at least 0.5 inches. The wettest month in umuahia is September, which averages 10.6 inches of precipitation.

The dry spell for the year lasts for 1.7 months, from December 12 to February 1. The month with the

least amount of rain in umuahia is January, with an average rainfall of about 0.3 inches. (https://en.wikipedia.org/wiki/Umuahia#cite_note-:8-20, 2023)

4.1.6 Site location

Sites 1 and 2 are depicted, respectively, in figures 4.1 and 4.2. Site 1 shown in figure 4.1 lies in the southeast, close to the new government building in Umuahia, Abia state. There are entry points to the location from Okwuta road. Moreover, direct access to the site is also possible through customary court. Sites were chosen based on factors such as views, accessibility, user demands, and site surroundings. The site's entire area is around 26,926.47 m². A locality in Abia state is called Okwuta. The communities of Ihie-Ndume and Avonkwu are close by to Okwuta. Additionally, it is around 65 meters from the location to the villages of Ihie-Ndume and avonkwu.



Figure 4.1: Site Location 1 Okwuta Road Umuahia Abia State. Source: Google Earth 2023

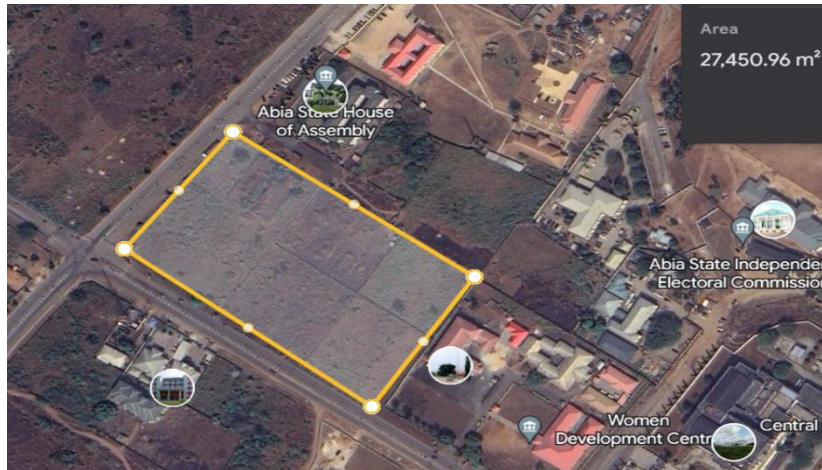


Figure 4.2 : Site Location 1 Okwuta Road Umuahia Abia State. Source: Google Earth 2023

Figure 4.2 depicts site 2 is situated on Ndume Otuka bypass road. There are two main roads that go to the site: the first is Ndume Otuka bypass road, and the second is Ogorube road. The choice was made based on the area's liveliness, accessibility, and views. The site's total square meters is about 27,450.

4.1.7 Site selection criteria

The following elements were taken into account when choosing the proposed site since the cultural center is anticipated to serve Abia state and its surroundings:

Four.1.7.1 Availability

The site for the construction of a cultural center should be adjacent to the major road to enhance people's safety upon arrival and leave. In an emergency, it should be easy to access and exit the location at any moment.

Four.1.7.2 Closeness to cultural amenities

A venue meant to hold cultural events should be adjacent to cultural amenities in order to give the most pleasant setting feasible. This is done in an effort to draw attention to the facility and pique interest in it. Facilities that promote cultural activities are ideally situated near to one another.

Four.1.7.3 Residential areas' close proximity

The location should also be close to a residential area with families. In order for the facility to serve as the setting for the climax of the people's cultural activities. The site of the cultural center should thus be close to a residential neighborhood.

Four.1.7.4 The vicinity of leisure facilities (attractions)

The locations closest to one another are the greatest for leisure activities. To bring attention to it while blending in, one of these amenities, a cultural center, should be put next to recreational areas.

Four.1.7.5 Closeness to landmarks

Buildings designed to hold cultural events should be situated close to well-known landmarks so that they are simple to find. Additionally, this will result in more money being spent at such locations by both residents and visitors.

4.1.8 Size of the location, potential for growth, appropriateness, and availability

Cultural events are known to draw big groups of people due to the many activities that are done at each event. Therefore, ample indoor and outdoor space is needed, along with acceptable and accessible area for potential future expansion.

Four.1.8.1 Land use compliance

Planning authorities generally zone land for particular building types based on the sorts of activities that the structure or facility intended to support. Therefore, it is crucial to respect the land-use degree while choosing a place for a planned cultural center.

Four.1.8.2 Landscaping features

The region is covered in trees, grass, and coal tar, and some of the trees will be used for beautification and shade purposes.

The danger of noise pollution from the major road in front of the site exists, but it will be lessened by establishing a buffer zone between the road and the site. A well planted area will lessen any potential acoustic problems.

During the course of this investigation, the following important findings regarding the appropriateness of the site to be used for this planned development were made and are given below: the finest location was chosen because it complies with the following crucial standards set forth for the development of the proposed facility.

- The site's location is safe and secure.
- There is convenient on-site or adjacent parking.
- The whole cost of the site development, which includes land development costs, building or remodeling expenditures, and associated charges, won't be exorbitant.
- Proximity to other establishments, eateries, and tourist destinations.
- Possibilities and opportunity for future expansion.
- It is easy to get there from both within and outside the core business center.
- Access to the area is simple for both walkers and users of public transportation.

- Both properties are owned by the Abia state federal ministry of culture and tourism.

4.1.9 Summary development

The center must meet the primary criteria of having iconic architecture that conveys the cultural uniqueness of the Abia people while also luring travelers from all over the country and internationally. Visitors should be able to recognize the center and feel admiration for the totality of Abia's regional cultural character. It must also be able to accommodate all regional cultural events as well as some national traditions. Small conferences, banquets, festivals, performances, lectures, local arts and crafts, exhibition galleries, museums, traditional wrestling, and boxing should all have designated locations.

The center would be arranged into three (3) categories;

- General/public section
- Administrative section
- Research and training section

The following is a list of the spaces that will be available at the proposed cultural center.

- General/public section
 - i. Restaurant
 - ii. Waiting area
 - iii. Recreational area
 - iv. Reception
 - v. Performance hall
 - vi. Gallery
 - vii. Booking area

- viii. Store
- ix. Toilets
- x. Retail stores
- xi. Back stage
- xii. Circulation area
- xiii. Changing room
- xiv. Exhibition hall
- xv. Conference hall
- Administrative section
 - i. Administrative office
 - ii. Budget & procurement unit
 - iii. Director culture office
 - iv. Director tourism office
 - v. Director human resource office
 - vi. Secretary office
 - vii. Account office
 - viii. Research documentation
 - ix. Corp affair office
- Research and training section
 - i. Cultural research library
 - ii. Art and craft workshop
 - iii. Aso-ofi workshop
 - iv. Art and ceramic study

- v. Cultural research institute

4.1.10 Design principles

Design principles are notions that are implemented into the architecture (the overall concept) of a structure or system to achieve certain results.

In a word, the principles of architecture design are the artificial and technological approaches we use to create beautiful architectural designs, homes, and interiors. They help architects accomplish their aims or aesthetic goals. This speaks to the approved criteria that were applied while deciding or judging this design. It involves significant factors that must be taken into account to produce an efficient and successful design. The development of the planned center will be guided by the major design ideas listed below.

- Functionality
- Naturally lit and ventilation
- Architectural style

4.2 Design criteria

4.2.1 Planning a site

Enhancing the protection of people, property, and activities is the core purpose of site planning. An analysis identifying threats and hazards should be done prior to planning in order to enable decision-making on the ways to reduce vulnerability and risk.

4.2.2 Architectural acoustics

Architectural acoustics includes planning a building's interior such that sound waves reflect off it in a way that maximizes clarity, amplifies sound in places where it makes sense to do so, and lowers noise levels in places where it makes sense to do so. (BigRentz, 2021)

In order to ensure that sounds are transferred properly and efficiently, architectural acoustics are crucial. The geometry of the space and the building materials, especially their sound-absorbing or boosting properties, must be taken into account while doing this. Additionally, mechanical systems may be involved: mechanical devices such as fans, motors, and others can produce sounds that obstruct conversation and serve as unwelcome diversions. In order to efficiently disperse and manage sound, architects create buildings with the right surfaces, forms, and mechanical systems.

4.2.3 Building orientation

In order to maximize the site's prevailing wind and achieve free air flow and indoor thermal comfort, the building would be oriented along an east-west axis. Because of this, the building's office spaces and other habitable areas would be arranged linearly parallel to the north-south axis, while supporting areas would be placed perpendicular to the east-west axis with the help of a shading device on the western side of the structure.

4.2.4 Circulation

The design of the movement pattern of the people into, through and out of the site is shaped by the design of its access, circulation and parking layouts.

4.2.5 Lighting

Every structure has a lighting system, which is highly significant. Because the occupancy may be complicated and dynamic, any illumination must fulfill each resident's particular, often competing visual demands. Additionally, a lot of places are used continuously, sometimes even seven days a week, making proper illumination necessary. Daylighting is essential to architectural design because it provides variation, a feeling of time, and a link to the outside world. Oddly enough, the administrative building should be built to reduce distractions, therefore windows are typically tinted or transparent and artificial lighting is essential. This helps power the device, which also requires a stability and backup power generation system. It's important to remember that an interior's day lighting is still of utmost importance.

4.2.6 Reusability

Reusing items and resources used in construction has the ability to significantly minimize a building's environmental impact.

4.2.7 The material type

Architectural material selection involves more than just picking the strongest, most affordable, or noticeable materials. The process of choosing materials is one that involves many preconditions, choices, and factors to be taken into account.

4.2.8 Insulation

A high-quality finishing material with strong acoustic qualities must be selected for the outer walls. The location has to be groomed and tree plantings created in order to keep the area cool. Internally, the division of functions with respect to noise will be made. When appropriate, transitions from a noisy to a quiet space will be made using sound-insulating materials to lessen noise inside the building. These

components include carpet, PVC tiles, and terrazzo floors. In order to improve environmental aesthetics, protect against solar radiation, and absorb background noise, a landscape is necessary. Therefore, this design will make considerable use of trees, bushes, and grasses rather than utilizing concrete, which is a hard surface.

4.3 Design consideration

There are a number of crucial factors to take into account when creating a cultural center in order to produce a facility that is both practical and effective. Here are some ideas for a cultural center's design:

1. Context and location analysis

Recognize the historical, cultural, and local context of the location.

Examine the local surroundings, societal structure, and architectural trends.

Take into account how the cultural center interacts with its surroundings.

2. Adaptability and flexibility

Create areas that can handle a range of tasks and uses.

Include adaptable seating configurations, moveable dividers, and variable layouts.

Provide room for future extension or space modifications to accommodate evolving demands.

3. Inclusivity and accessibility

Make sure the layout is usable by individuals of all abilities.

Add elevators, ramps, and sufficient signs for simple movement.

Think about the requirements of various user groups and offer inclusive amenities.

4. Efficiency and sustainability in energy

Utilize sustainable design concepts to reduce your negative influence on the environment.

Use energy-saving heating, cooling, and lighting solutions.

Utilize sustainable materials and renewable energy sources.

5. Cultural expression and identity

Allow the design to express the community's cultural identity and core beliefs.

Use regionally produced materials, artisans, and architectural features.

Establish locales that honor and advance cultural expression and history.

6. Technology integration

Include contemporary audiovisual, acoustic, and lighting technology.

Incorporate interactive installations and digital displays for better visitor experiences.

Provide infrastructure and connectivity to facilitate digital performances and exhibitions.

7. User engagement and experience

Create areas that draw people in and hold their attention.

Make space for involvement, engagement, and immersive experiences.

Think about how people move across the room, their sightlines, and how the spaces are connected visually.

8. Security and safety

Make sure that all safety and building codes are followed.

Implement suitable visitor and artwork security measures.

Create emergency escape plans and mechanisms.

Note: each cultural center is distinct, thus these factors may change depending on the project's particular aims, environment, and requirements. To build a design that satisfies the requirements of the community and improves cultural experiences, it is imperative to work together with stakeholders, architects, and designers.

4.3.1 Conceptual development

The fundamental notion created as the first phase is the architectural concept. It directs and keeps the project in place. Some people may even describe it as the project's overall identity. The job of an architect is to skillfully portray the concept in the design using a variety of aspects, regardless of how abstract it could be. In most cases, the finest sources for architectural conceptions are the location and the design brief. A thorough site investigation will be conducted to learn about the region's climate, culture, history, and even vegetation. To fully understand the relevance of the design on the micro and macro scales, read the design brief several times.

When designing the cultural center, the following fundamental ideas were taken into account:

- The local context (the immediate and indirect area that the plan targets in terms of its cultural, artistic, social, urban, political, and economic aspects) was taken into consideration when developing the plan's contents. The paper was created with a knowledge of the local identity and peculiarities.

- Using citizen involvement approaches as a relevant element for the design of the plan, integrating the public with the cultural creative community and in the definition and development of the cultural center.
- Describe the long-term viability of the cultural center, including its programming, financial, and long-term viability.
- Develop a local, regional, national, and worldwide network for the promotion of art and culture while integrating the geographical vision of the cultural services to be offered.
- The essential infrastructure has to be identified, including the types of spaces required, their locations, methods of access, and other elements.

4.3.2 Functional relationship

The functional/spatial criteria are the ideal benchmarks, based on which the required spaces and other architectural components may be employed, in terms of size, quality, standard, and features. A sense of unity between the various activities and an increase in building efficiency may be achieved by understanding how different areas within a development interact with one another and by ensuring some consistency in the flow of functions within each area.

4.3.3 Schedule of accommodation and space allocation

Due thought was paid to every function of the cultural center as well as the unique activity intended for each room. Maximum space criteria from reference data books were used to determine the necessary space. The table below illustrates how much space is needed for this project.

4.3.4 Space program for the design

Table 4. 1: space program table.

S/n	Space	No of unit	Area (sq.)
1.	Entrance porch	1	192
2.	Reception	1	21
3.	Security post	3	23.76
4.	Waiting area	1	13.5
5.	Administrative office	1	40.18
6.	Store	1	7.92
7.	Performance hall	1	638.88
8.	Art & craft workshop	1	502.64
9.	Control room	1	38.64
10.	Changing room	2	15.84
11.	Conference hall	2	318.72
12.	Aso-ofi workshop	1	173.24
13.	Music & cultural dance class	1	173.24
14.	Booking	1	39.36
15.	General toilet 1	2	78.72
16.	Stage	1	104
17.	Retail shops	4	134.4
18.	General toilet 2	2	78.72
19.	Restaurant	1	520
20.	Kitchen	1	28
21.	Account office	1	48

22.	Conference hall	2	336
23.	Directors office	3	167.4
24.	Secretary office	3	45.36
25.	General office	1	35.96
26.	Store	1	37.72
27.	Budget & procurement unit	1	38.88
28.	Research documentation office	1	56.16
29.	Cultural research library	1	45.12
30.	Orientation and cultural affairs dept.	1	117.37
31.	Administrative and human resource	1	45.36
32.	Gallery	1	125.44
33.	Museum	1	121.52

Source: Researcher field work

4.3.5 Construction methods and materials

There are a number of things to take into account when choosing a building technique for a potential cultural center, including the architectural design, budget, schedule, and sustainability objectives. It's crucial to remember that the selection of the building technique will be influenced by a number of variables, including regional laws, site circumstances, architectural vision, and project needs. The ideal building strategy for the planned cultural center will be chosen with the assistance of architects, engineers, and construction experts.

The planned site's soil composition will play a significant role in the building concerns that must be investigated to ensure that the project can be built. The planned location, however, has a gently sloping

topography, adequate drainage, and a good safe load bearing capability; as a result, extra strengthening and treatment of the soil prior to building may not be required, unless the geological experts request it. Construction may start at any moment without the necessity for site clearing since the site surface is evenly completed with coal tar. It is crucial to encourage groundwater flow in order to maintain the water table at a specific depth below the surface in order to:

- Enhance soil stability.
- Prevent the earth from flooding.
- Keeping underground buildings like basements or ground levels dry.
- Reducing the humidity levels in the vicinity of the building.

4.3.6 **Sub-structure**

The bulk of the building's weight is carried by this area, which is in direct touch with the ground. The kind of load that the proposed design will exert on the ground determines how stable the proposed structure will be to a considerable extent. The strip foundation will be used as the project's foundation type, and the depth will be decided by a team effort between structural engineers and geological specialists. The architect's permission will be required for recommendations about the depth and foundation type in order to achieve a cohesive strategy that is in every way consistent with the suggested design.

4.3.7 **Super structure**

A superstructure is an increase in height over a baseline of an existing building. It may be used to describe a variety of physical constructions, including buildings, bridges, and ships. The superstructure of a building is made up of columns, beams, slabs, finishes, doors, windows, roofs, and other parts that are built above ground level. The substructure, on the other hand, refers to the portion of the structure

that is buried beneath the surface of the earth, including the foundations, footings, and other parts that were constructed below ground level. The superstructure and substructure work together to form the building's overall structure.

in order to recommend the best types of materials to be used to realize the concept while taking into account cost, structural stability, maintenance, and buildability, explicit care and consideration needed to be explored due to the complexity of the proposed structure. However the building of the ultramodern cultural center will use the following superstructure component for this project.

Wall: all of the interior walls, which essentially served as party walls, were built from sand Crete block walls, with reinforced concrete columns at either end to support the structure. The proposal's curved shape made it necessary to include ring beams that were suitably strengthened to form a ring design that is intended to hold the structure together as a whole.

Sand Crete hollow blocks of 150 mm and reinforced concrete floors are to be used to build the construction. Expansion joints, however, will be added at intervals of 20 to 25 meters in order to prevent buckling or cracking that could happen as a result of temperature changes and other causes.

Floor: a floor is a component of a superstructure that creates a flat living area and divides a building's levels. People can move about on floors, set up furniture, and store a lot of things. Therefore due to the project's intricate design and the necessity to minimize the load produced by the structure, a floor slab of 150mm pre-stressed concrete will be employed.

4.3.8 Roof

The interior of a home is shielded from the outside elements by a roof, which is a protective covering for a structure constructed of tiles, metal sheets, or a slab. (maramani.com, 2023)

The kind of material selected for a roof can have an impact on the building's appearance, upkeep, sound and heat insulation, and more. As a homeowner may utilize them to place solar panels and acquire access to renewable energy, roofs can aid in energy efficiency. The roofing material, on the other hand, will be prefabricated aluminum panels, while the roof's framework will be built of steel. To acquire the construction schedule first and reduce the amount of rejected panels created while combining roof parts, installation must be done correctly. Due to their excellent acoustics, aluminum panels were specifically recommended due to their benefits for intricately shaped buildings and ease of installation. To lessen heat radiation from the roof slab, three layers of bituminous felt with sawdust and sand have to be applied. Curved skylight sheets with horizontal alignment will be utilized as the roof material to cover the atrium. This is done to ensure that the building receives enough light and to prevent rainwater from penetrating the structure and, in the long term, increasing the amount of light that enters the interior of the building.

4.4 Material selection

The choice of building materials for a cultural center should be well thought out because it may affect the users' security, safety, and health. Choosing construction materials should essentially take into account the structural structure of the materials, their features, useful attributes, and fire characteristics, as well as their limits when combined with other materials, cost of installation, maintenance, environmental considerations, and aesthetics. The chosen materials for the wall, roof, floor, and ceiling must, nevertheless, adhere to the following specifications.

- The materials have to be very tensile.
- They ought to be robust.
- The materials should be easy to install, particularly in the workshops.

- The floor covering should be able to withstand vibration caused by large machinery being used in the workshops, such as in a generator room.
- The substance should have a low combustibility.
- Materials, particularly those used with metal, should have minimal expansion properties.
- The content ought to be of a good caliber. Building with eco-friendly and non-toxic materials is also recommended.

4.4.1 Criteria for finish and material selection

a) Functional standards

- Main objective: suitability to fundamental goal.
- Secondary goal: who are some likely but maybe unexpected users? For the specific component? Issues with health and safety might be quite important.

b) Visual and spatial standards

- Truth in materials: a fundamental design principle since the crafts movement that states that materials should not be imitated but rather used in line with their own inherent qualities. This ideology emphasizes clarity when employing surface or structural materials, saying that one should not copy the other. For example, surface tiles shouldn't pretend to be brick, and imitation structures shouldn't be made using non-structural materials.
- Conformity to the design idea.
- Spatial implications (how will material affect how size and form of space are perceived).

c) Economic standards

- Initial cost: it may be more for organic materials like stone and lower for artificial ones like vinyl.
- Life-cycle cost: should the installation be planned for a short- or long-term lifespan?

- Cost of upkeep: is commercial carpet maintenance a problem?
- d) Environmental standards
- Environmental health
 - Sustainability

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Chapter Five

Conclusion

5.1 Summary of findings

African territories represent the true essence of African cultural identity, and enhancing their cultural values would strengthen their cultural component and unquestionably improve the quality of life for their residents. However, these cultural resources face significant problems related to human growth. Interest in the world's cultural heritage is steadily decreasing, and this trend poses a serious challenge to the conservation of our cultural values. The degradation of traditional activities and cultural activities in general in Nigeria can be addressed by fostering a feeling of community and raising awareness of the locality's rich cultural legacy. Architecture helps people and their activities to stay and has a great influence on a country's development. This study helps to elucidate the relationship between cultural identity and architectural design for the benefit of cultural center architects and designers. There will be significant advantages to a well-built setting with the right architectural idea for the projected development. It can improve everyone's visit to the cultural center, from the very old to the extremely young, year after year. According to studies, interacting with the past and taking in its lessons might boost one's mental capacity and feeling of uniqueness. As a result, both rural and urban residents' general development and production are increased. Cultural centers are often multipurpose complexes, thus the direction and accessibility of users is crucial to the center's smooth operation. Culture development leads to economic growth, poverty can be effectively reduced by economic growth, and community infrastructure can be provided by culture.

5.2 Conclusion

This thesis has clarified the significance of the creation of cultural centers as a method of fostering cultural preservation, community involvement, and socioeconomic development. The effectiveness of the development of cultural centers depends on a number of important factors that have been addressed in this thesis. The center's accessibility, visibility, and cultural setting are significantly influenced by the location that is selected. It must be carefully chosen to appeal to the target market, represent the regional culture, and blend in with the neighborhood.

The architectural arrangement and architecture of the cultural center should be carefully planned to allow for a range of activities, to offer practical places for exhibitions, performances, workshops, and cultural events, and to foster a welcoming and inclusive atmosphere.

Community involvement: the local community's active engagement and involvement in the cultural center's design, decision-making, and operation promotes a feeling of ownership and ensures that the facility satisfies the needs and goals of the neighborhood it serves.

The long-term sustainability and profitability of cultural institutions depend on adequate and sustainable funding mechanisms, such as public and private partnerships, grants, sponsorships, and revenue-generating activities. Cultural centers may successfully encourage cultural expression, community involvement, and socioeconomic growth by taking these variables into account and implementing them into the planning process.

5.3 Recommendation

The Sydney opera house in Sydney offers a chance to reevaluate the architecture of cultural centers in compliance with worldwide best practice guidelines. In particular, it offers a chance to think about how better public space design might promote more community involvement and user engagement while

minimizing the need for duplicating facilities or locations. The following suggestions are required for this planned center to operate at its best:

1. A cultural center's design should satisfy a number of criteria, including being handicap accessible, having adequate room to accommodate a range of events, representing the community's cultural identity, and being fully furnished with the amenities and services required. The fourth criterion is to make sure that everyone who visits the facility feels safe and secure.
2. A strong security system is essential for cultural facilities to guarantee the safety of visitors and create a friendly atmosphere.
3. In every design, accessibility is really essential. Patronizes must not be confused by the access in any manner. To assist individuals who are visiting for the first time, appropriate notifications must be made if the entry and departure are different. Additionally, the building entrance needs to be well-celebrated to provide directions for entry to both current and potential users.
4. A commercial building design in the modern day must have excellent ventilation and natural lighting for the interior spaces. This helps to save energy by lowering energy consumption.
5. The site orientation, building footprint, surrounding area, etc., must be taken into account while choosing the apertures' size, shape, orientation, and location during the design process.
6. To achieve the best possible harmony between natural light and heat gain or loss, it's crucial to give careful thought to the location and size of openings, employ shading tools like blinds, shades, or louvers, and use different amounts of daylight when designing places.
7. Building techniques can be improved to decrease air leakage, which can increase energy efficiency. However, when using low fabric insulation rates, a corresponding increase in the designed ventilation provision is required to compensate for the lower levels of infiltrating air.

8. In order to maintain efficient administration and fast awareness of the events in the facility, security cameras should be strategically placed to monitor the movements of individuals into and out of the building.
9. The structure and any auxiliary facilities must be able to successfully carry out their tasks and must be both hospitable and appealing to those who utilize them.
10. Maintaining the planned center is a crucial part of the built environment that must be carefully considered in order to maintain its sustainability. For the construction to last a long time and be durable, regular maintenance should be carried out.

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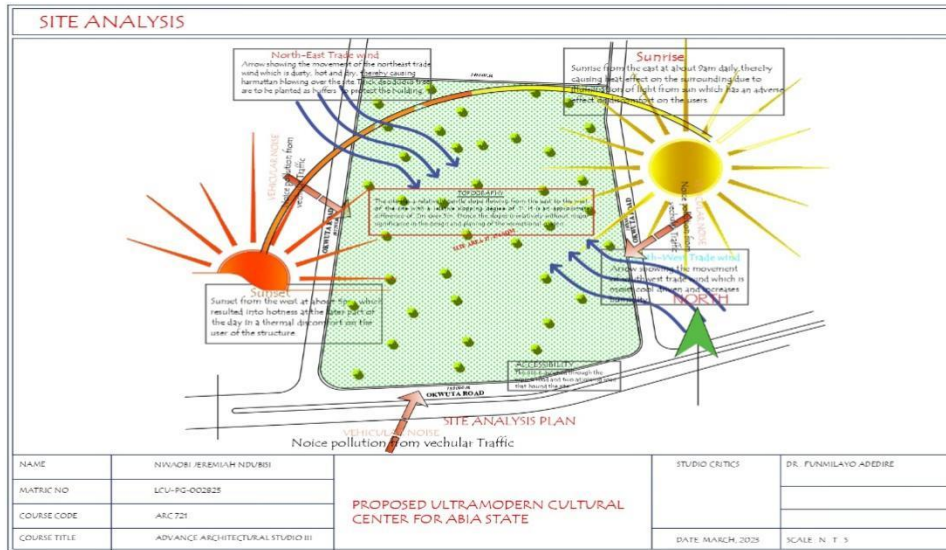
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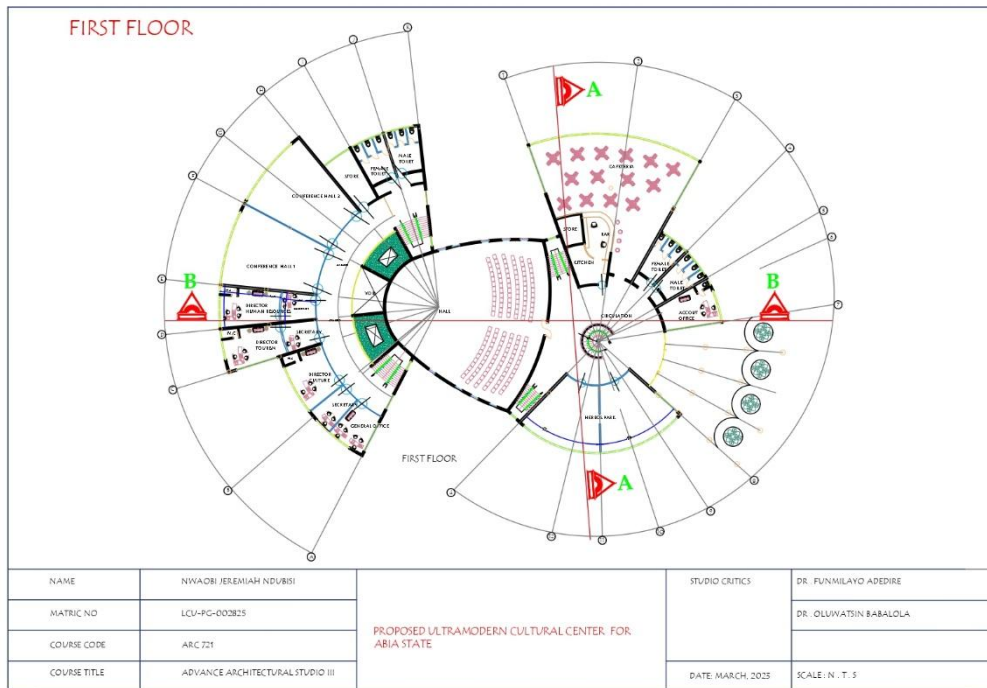
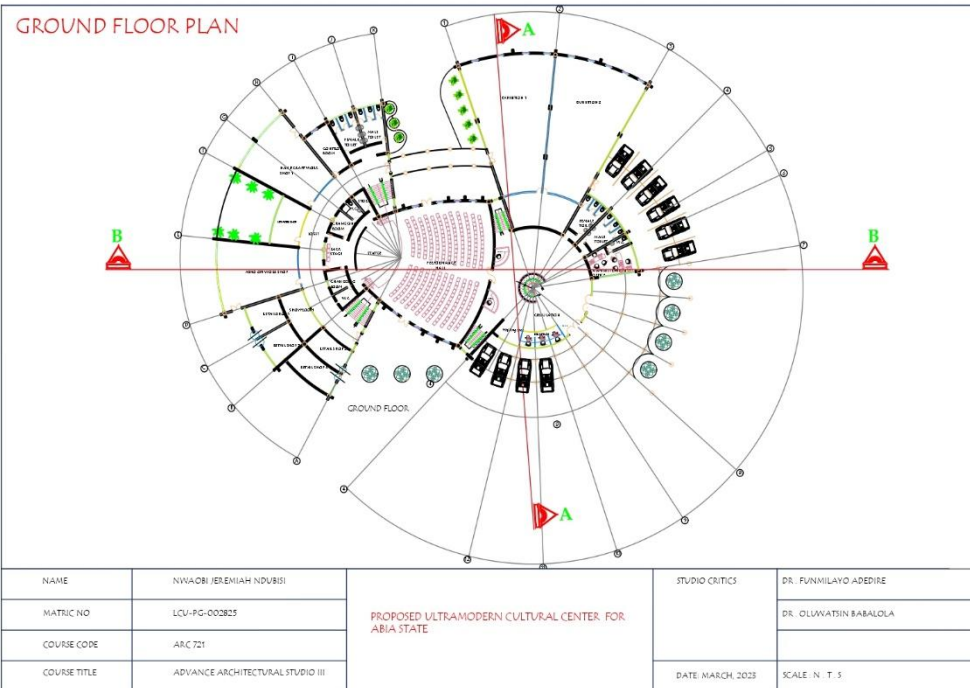
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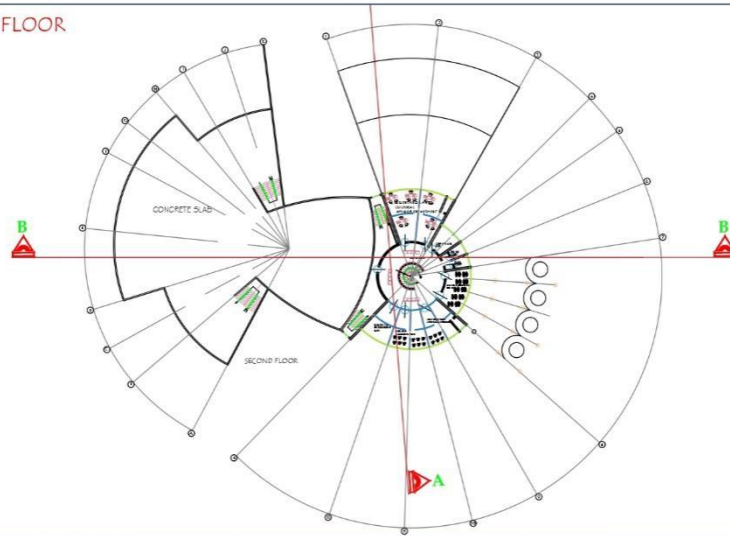
Appendix I

Presentation drawings





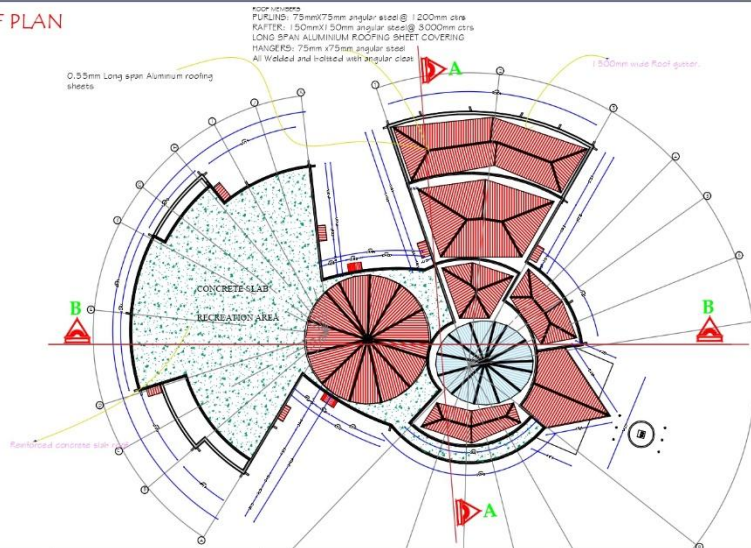
SECOND FLOOR



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MATRIC NO	LCU-PG-002825			DR. OLUWATIN BABALOLA
COURSE CODE	ARC 721			
COURSE TITLE	ADVANCE ARCHITECTURAL STUDIO III		DATE: MARCH, 2023	SCALE: N. T. S

pa

ROOF PLAN



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COURSE CODE	ARC 721			
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RIGHT ELEVATION

RIGHT SIDE ELEVATION

REAR ELEVATION

NAME	NWAOSI JEREMIAH NDUBISI	PROPOSED ULTRAMODERN CULTURAL CENTER FOR ABIA STATE	STUDIO CRITICS	DR. FUNMILAYO ADEDIRE
MATRIC NO	LCU-PG-002825		DR. OLUWATSIIN BARALOLA	
COURSE CODE	ARC 721			
COURSE TITLE	ADVANCE ARCHITECTURAL STUDIO III		DATE: MARCH, 2023	SCALE: 1:1.5

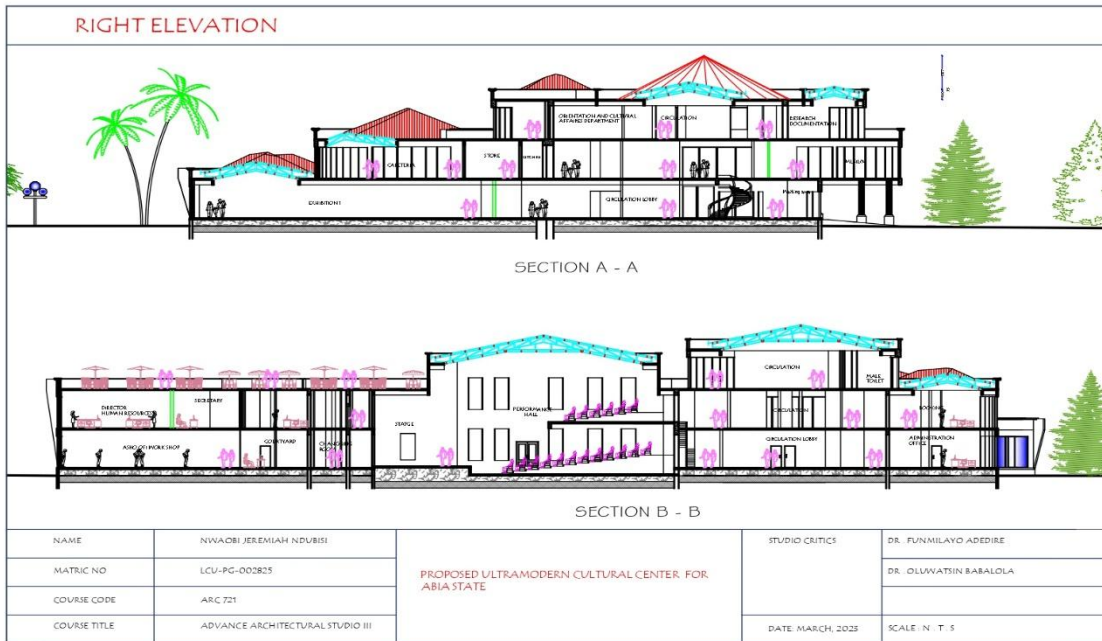


APPROACH ELEVATION

APPROACH ELEVATION

LEFT SIDE ELEVATION

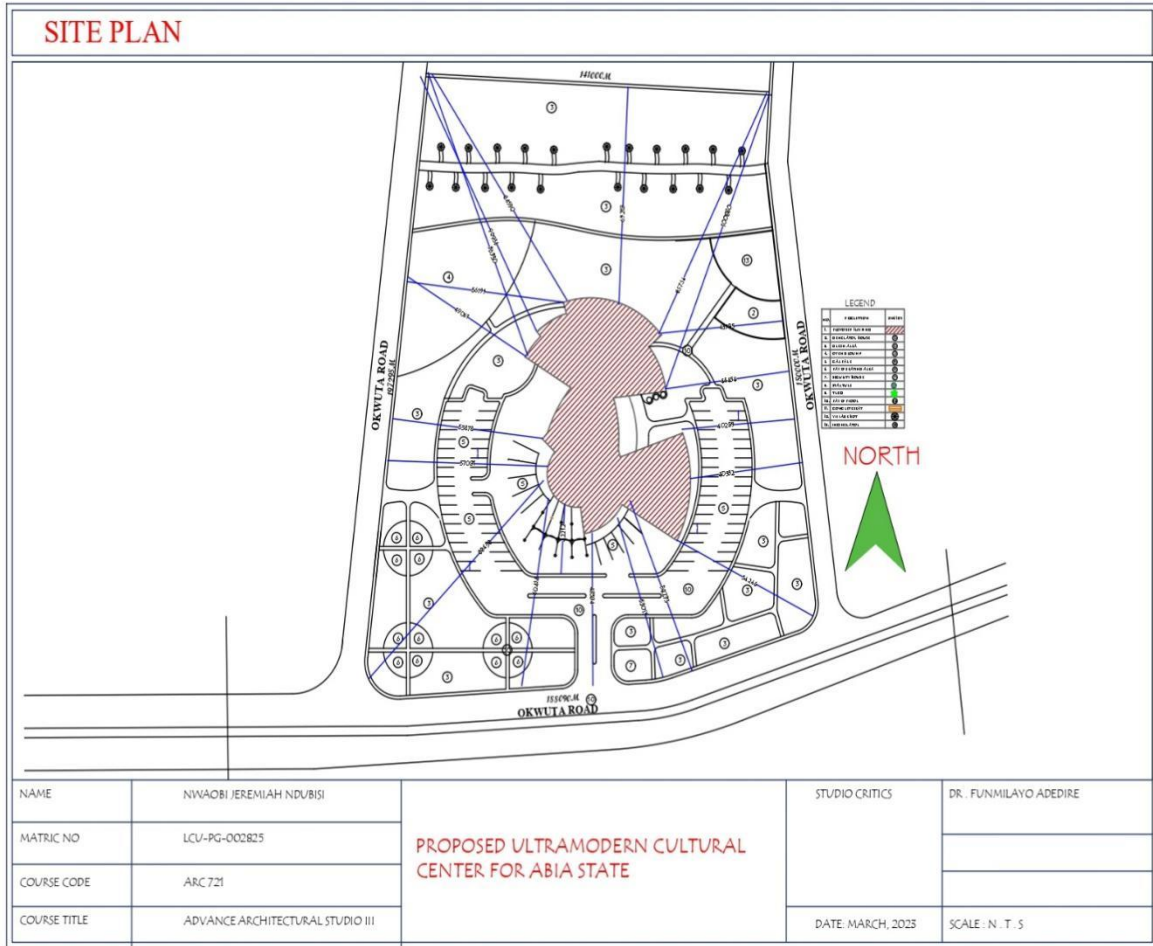
NAME	NWAOSI JEREMIAH NDUBISI	PROPOSED ULTRAMODERN CULTURAL CENTER FOR ABIA STATE	STUDIO CRITICS	DR. FUNMILAYO ADEDIRE
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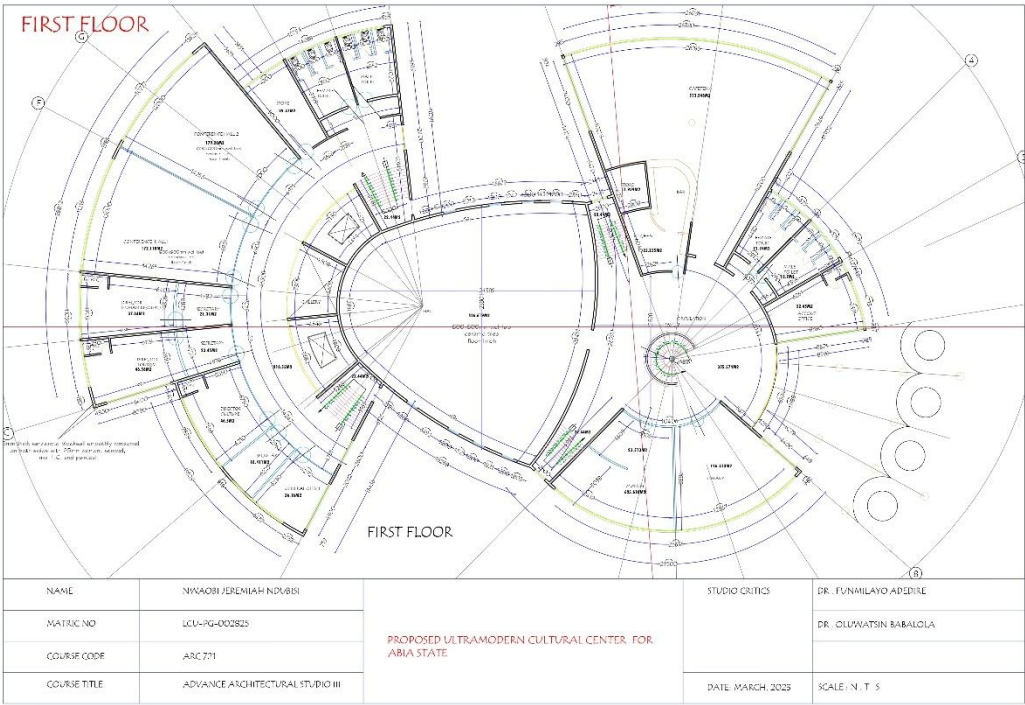
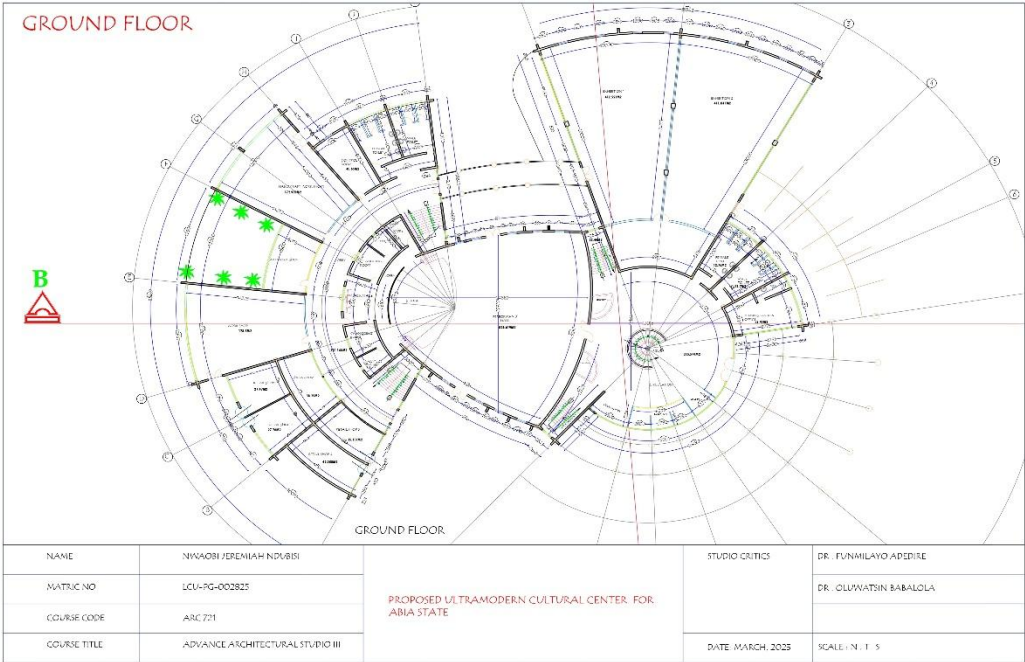


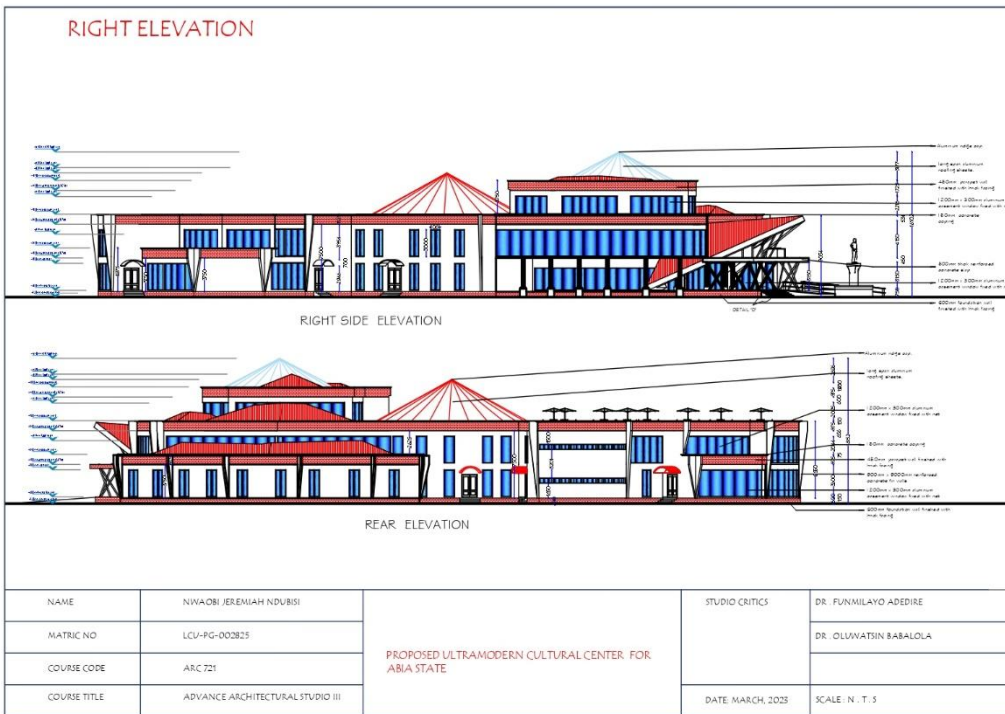
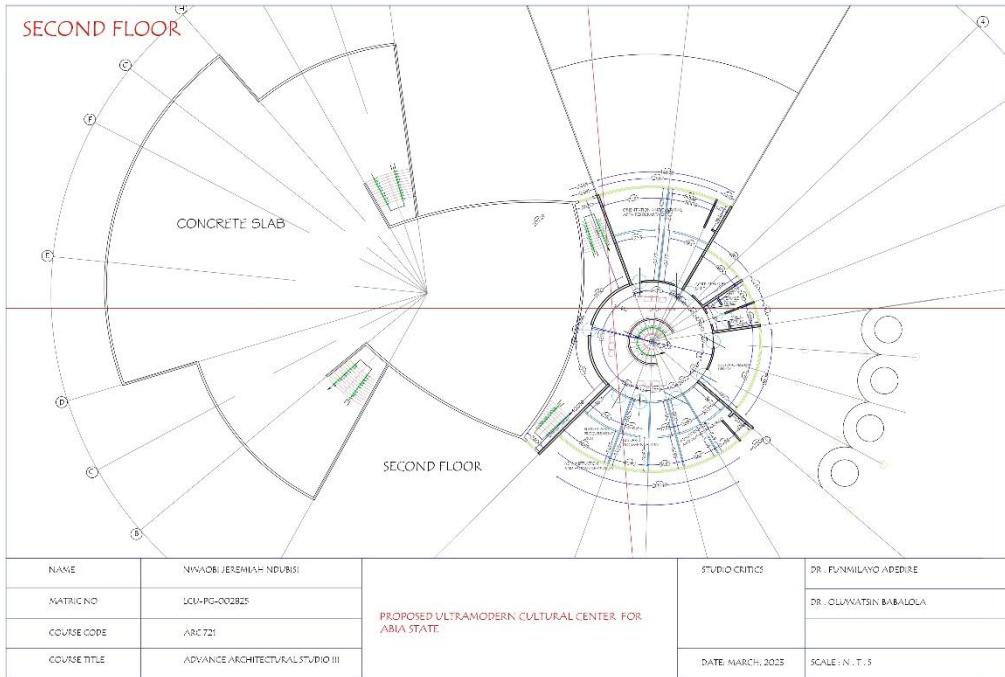
Appendix II

Working drawing



Do Not





APPROACH ELEVATION

APPROACH ELEVATION

LEFT SIDE ELEVATION

LEFT SIDE ELEVATION

NAME	NWADEBI JEREMIAH NDUBISI	PROPOSED ULTRAMODERN CULTURAL CENTER FOR ABIA STATE	STUDIO CRITICS	DR. FUNMILAYO ADEDIRI
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D.

SECTION WORKING DRAWING

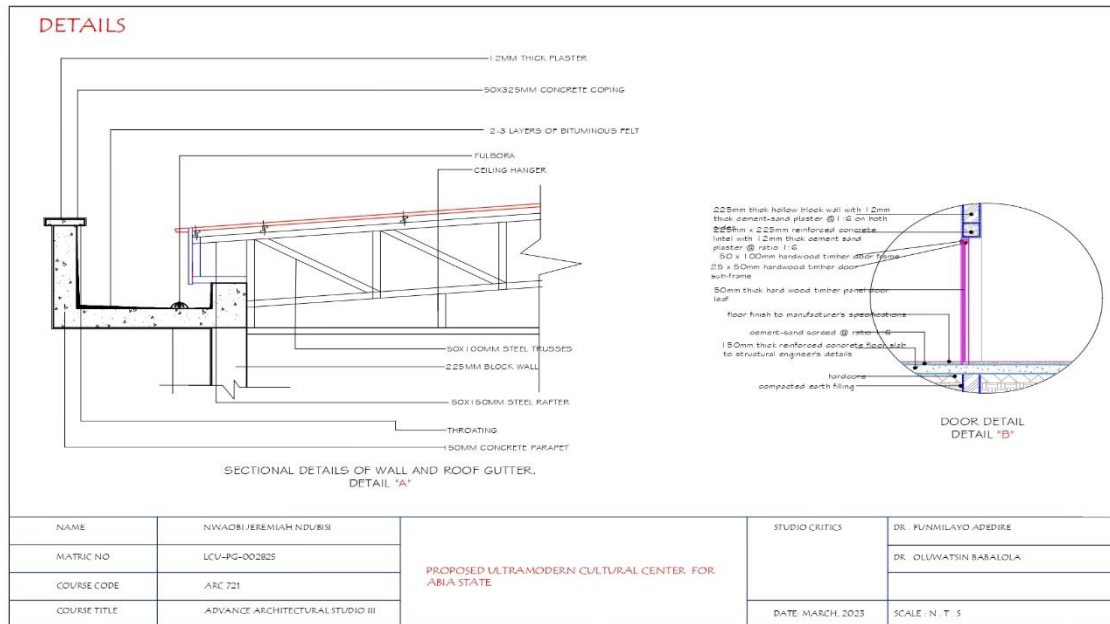
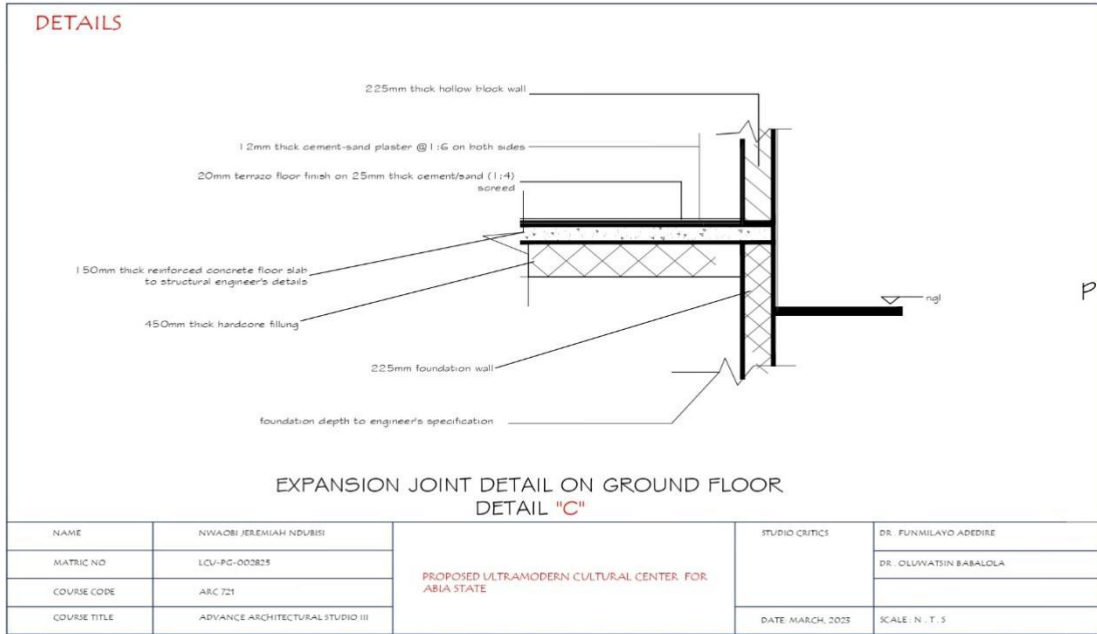
SECTION A - A

SECTION B - B

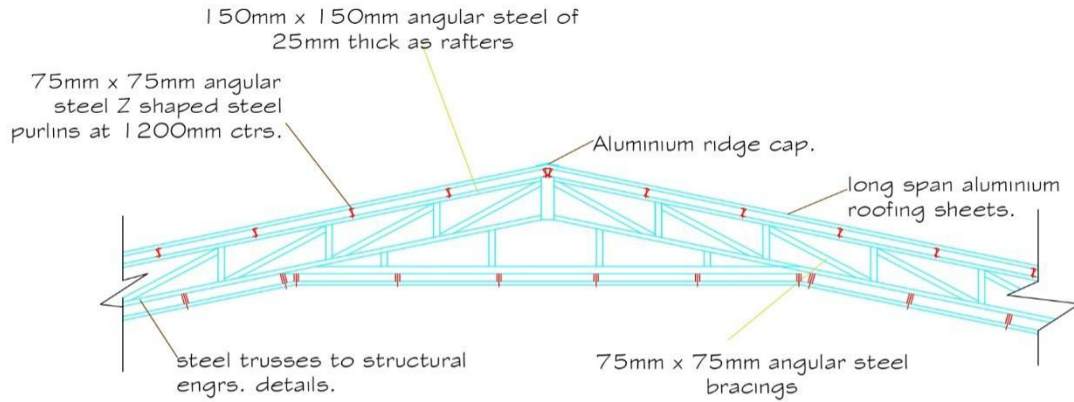
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COURSE CODE	ARC 721			
COURSE TITLE	ADVANCE ARCHITECTURAL STUDIO III		DATE: MARCH, 2023	SCALE: 1/1 : 5

Appendix III

Detail Drawings



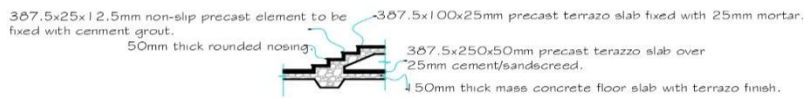
DETAILS



DETAIL @ "E"

NAME	NWAOBI JEREMIAH NDUBISI	PROPOSED ULTRAMODERN CULTURAL CENTER FOR ABIA STATE	STUDIO CRITICS	DR. FUNMILAYO ADEDIRE
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COURSE CODE	ARC 721			
COURSE TITLE	ADVANCE ARCHITECTURAL STUDIO III		DATE: MARCH, 2023	SCALE: N. T. 3

DETAILS



DETAIL AT STAIRS/GROUND FLOOR SLAB CONNETION. DETAIL "D"

150mm x 150mm angular steel of 25mm thick welded/ bolted together and braced vertically and diagonally respectively



NAME	NWAOBI JEREMIAH NDUBISI	PROPOSED ULTRAMODERN CULTURAL CENTER FOR ABIA STATE	STUDIO CRITICS	DR. FUNMILAYO ADEDIRE
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COURSE CODE	ARC 721			
COURSE TITLE	ADVANCE ARCHITECTURAL STUDIO III		DATE: MARCH, 2023	SCALE: N. T. 3

Biodata

A. Personal Data

1. Full Name: NWAOBI Jeremiah Ndubisi
2. Address: 29, Prince Kayode Odedina Crescent Riverview Estate Isheri, Lagos.
3. Email Adress: jeremiahnwaobi@gmail.com
4. Phone Number: 08160593737
5. Date of Birth: 5th July 1988
6. Place of Birth: Ibadan, Oyo state
7. Nationality: Nigerian
8. Marital Status: Married
9. Name and Address of Next of Kin: NWAOBI Ruben 5 pine avenue alalubosa gra Ibadan.

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B. Educational Background

Qualification	Institution	Date
1. MSc Architecture	Lead City University, Ibadan, Oyo State.	2021 – Date (Ongoing)
2. BSc. Architecture (First Class Degree Honour)	Lead City University, Ibadan, Oyo State.	2017-2021
3. National Diploma	Abraham Adesanya Polytechnic, Ijebu Igbo, Ogun State.	2014 - 2016
4. Secondary School Certificate	Urban-Day Senior secondary school, Jericho, Ibadan Oyo State.	2003 - 2009
5. Primary School leaving Certificate	Saviour's Apostolic schl Ekotedo Ibadan	1997 - 2003

C. Awards and Fellowships:

6. Pro – Chancellors community Service Certificate Lead City University
7. Award of Recognition Department of Architecture Lead City University
8. Award of Distinction Field of skills and Dreams VTA Lagos State

D. Work Experience: With Dates

Blueprint Construct and engineering services limited.

Job title	Description	Date
Project Supervisor	Examines construction and demolition plans to determine need for requisite and pertinent permits to meet regulatory guidelines. Prepared blueprints using computer-aided design programs such as AutoCad and Revit Cad.	Feb 2020 Till date

	<p>Completed appraisals of site conditions and submitted surveys for review.</p> <p>Facilitated client involvement in design processes with direct contact and support.</p>	
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E. Publication:

Assessment of ventilation and lighting strategies in selected cultural center, Nigeria

¹Jeremiah Ndubisi NWAOBI and ²Oluwatosin BABALOLA

¹jeremiahnwaobi@gmail.com : +2348177996626

^{1,2}Department of Architecture, Lead City University, Ibadan, Nigeria

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