

**GERIATRIC CARE FACILITY IN ENUGU METROPOLIS:
ENHANCING THERAPEUTIC ENVIRONMENTAL QUALITY AND ACCESSIBILITY**

BY

**OKONKWO-THEOPHILUS, GLORY EZICHI
GOU/U22/ARC/176**

**DEPARTMENT OF ARCHITECTURE,
FACULTY OF NATURAL SCIENCE AND ENVIRONMENTAL STUDIES, GODFREY
OKOYE UNIVERSITY, ENUGU**

JULY, 2026

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**A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE,
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE
DEGREE OF BACHELOR OF SCIENCE (B.Sc.) IN ARCHITECTURE.**

SUPERVISOR: PROF. C. B. CHUKWUALI

JULY 2026

CERTIFICATION

I certify that this project entitled "**Geriatric Care Facility in Enugu Metropolis: Enhancing Therapeutic Environmental Quality and Accessibility**" was carried out by **Okonkwo-Theophilus, Glory Ezichi (GOU/U22/ARC/176)** under my supervision in the Department of Architecture, Faculty of Natural and Environmental Sciences, Godfrey Okoye University, Enugu.

The work presented in this report is original and has not been submitted, either wholly or partly, for the award of any degree or diploma in this or any other institution.

Prof. C. B. Chukwuali
(Supervisor)

Signature

Date

External Examiner

Signature

Date

Arc. Dr. Chukwu Chinechetam
(Head of Department)

Signature

Date

DEDICATION

This project is dedicated first to **Almighty God**, whose grace, wisdom, strength, and unfailing guidance have sustained me throughout my academic journey.

It is also dedicated to my beloved parents and family for their unwavering love, encouragement, sacrifices, and continuous support, which have been the foundation of my educational pursuit.

Finally, this work is dedicated to every student of architecture and future designer whose passion is to create functional, sustainable, and innovative spaces that positively impact society.

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ABSTRACT

Geriatric care facilities are important buildings that help older people live comfortably and receive proper care. In Nigeria, many existing facilities for elderly people are poorly designed, with confusing layouts, limited accessibility, and little connection to nature. These problems reduce the quality of care, make residents less satisfied, and increase pressure on caregivers. This study therefore set out to design a geriatric care facility in Enugu Metropolis that supports health, dignity, and positive experiences for elderly users through therapeutic design, full accessibility, and effective environmental planning. The research used descriptive and qualitative methods, including literature review, case study analysis, site analysis, and design synthesis. Five case studies were examined: three local facilities in Nigeria (Federal Medical Centre Abeokuta, National Hospital Abuja, and University of Nigeria Teaching Hospital Enugu) and two international examples (Maggies Centre Lancaster and Hogewey Dementia Village Netherlands). These revealed common problems such as institutional atmosphere, poor indoor-outdoor connection, inadequate accessibility, and over-reliance on mechanical systems. They also showed the benefits of therapeutic design, biophilic elements, clear wayfinding, and home-like environments. The study area is a 2.5-hectare site behind ANAMMCO, along Emene Road in Enugu Metropolis. The site offers good road access, gentle terrain, existing vegetation, and suitable climate conditions for passive design strategies. Enugus tropical savanna climate, with distinct wet and dry seasons, requires careful attention to natural ventilation, shading, and drainage. The design concept, called "The Four-Leaf Clover," arranges four connected wings around a central courtyard garden. Each wing serves a distinct function: rest (bedrooms), heal (therapy), nourish (dining), and gather (activities). The central garden provides natural light, fresh air, and nature views to all surrounding spaces. The shape aids wayfinding, supports cross-ventilation, and creates a friendly, non-institutional appearance. The facility includes 12 respite bedrooms, therapy and wellness spaces, administrative areas, and extensive outdoor gardens. Climate-responsive features include north-south orientation, deep roof overhangs, thermal mass, solar panels, and rainwater harvesting. The study concludes that geriatric care facilities should move beyond the hospital model to become environments that support the whole person—body, mind, and spirit. By combining therapeutic design principles with universal accessibility, biophilic elements, and climate-responsive strategies, the proposed facility offers a model for elderly care architecture in Nigeria and similar developing contexts.

Keywords: Geriatric care facility, therapeutic design, biophilic design, universal design, accessibility, Enugu, aging population, climate-responsive architecture.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Geriatric care facilities are buildings that help older people live comfortably and receive proper care. These places serve many different people including elderly residents, nurses and doctors, support workers, family visitors, and other professionals. Because of this, designing a geriatric wellness and respite centre requires careful planning to ensure the building works well for healthcare, is safe, easy to use, and provides a comfortable environment for aging individuals.

Respite care means short-term care that gives family caregivers a temporary break while ensuring professional support for elderly people (Fleming et al., 2015). Unlike nursing homes where people stay permanently, respite centres provide temporary stays, day programs, and recovery services that help seniors stay independent while getting the help they need.

The physical setting where care happens plays a major role in how well elderly people feel and function. In senior care facilities, the building design; including room layouts, lighting, sounds, and access to nature; strongly affects how easily residents can move around, how well they think and remember, their emotional state, and how much they interact with others. Research by Fleming et al. (2015) showed that the environment is not just a background for care but an active factor that can either help or harm the health and independence of older adults in institutional settings.

Therapeutic design refers to creating spaces based on scientific research that specifically support healing, comfort, and better health outcomes for users (Devlin & Arneill, 2016). This approach goes beyond making buildings look nice; it uses evidence about how people respond to their surroundings to create places that actually improve wellbeing.

Modern senior care design combines knowledge from different fields including psychology, aging studies, and healthcare architecture. One important approach is biophilic design, which means bringing nature into buildings through plants, natural materials, outdoor views, and sunlight to reduce stress and improve health (Kellert & Calabrese, 2015). This is especially valuable in hot climates like Enugu, Nigeria, where buildings need to stay cool naturally without relying heavily on air conditioning due to unreliable electricity.

However, creating good senior care spaces faces real challenges. Designers must think carefully about wayfinding, how easily people can find their way around without getting confused or lost (Calkins, 2015). They must also consider universal design, which means creating spaces that work for everyone regardless of physical ability, including people using wheelchairs or walkers (World Health Organization, 2021). Studies show that many existing facilities have poor lighting and limited access to outdoor spaces, which leads to problems like increased confusion in residents with memory loss and reduced physical activity (Calkins, 2015; Ghemari et al., 2021).

In Nigeria specifically, many senior care facilities are planned without using these research-based principles. The results are often cold, hospital-like buildings with long corridors, small windows, and little connection to nature. These designs fail to address how aging affects movement, vision, and memory, making it harder for residents to stay independent and putting more pressure on caregivers (Olotu & Iyamu, 2019; Adesina & Oloke, 2019).

It is therefore necessary to explore how thoughtful design that combines healthcare needs with comfortable, home-like environments can improve geriatric wellness and respite centres.

1.2 Statement of the Problem

Senior care facilities in developing countries like Nigeria often struggle with inadequately planned physical environments. Common problems include confusing layouts, difficult access for people

with mobility challenges, impersonal institutional appearances, and lack of features that promote health and wellbeing. These issues reduce the quality of care, make residents less satisfied, and make operations less efficient.

A major design gap is that many facilities are designed without the using the results of research about what elderly people actually need. Age-friendly environments, spaces designed specifically for the physical, sensory, and thinking changes that come with aging are rare (World Health Organization, 2021). The result is buildings where residents get lost easily, feel stressed by harsh environments, and miss opportunities for social connection.

Research confirms that poor environmental design harms mental health, physical ability, and overall happiness among elderly facility users (Ghemari et al., 2021). Additionally, failure to apply universal design creates barriers that limit independence. When buildings have stairs without ramps, narrow doorways, or poor lighting, residents become more dependent on staff help, which reduces their sense of control and self-worth. Studies of Nigerian healthcare buildings document how these design gaps lower facility performance and care quality (Olotu & Iyamu, 2019; Adesina & Oloke, 2019).

Beyond these environmental problems, some facilities lack clear organization systems. Without proper zoning; the separation of different activities and user groups; and well-planned circulation routes, residents experience confusion and safety risks. These organizational problems, combined with poor environmental quality and limited access to nature, seriously affect how well the facility works, how therapeutic it feels, and how satisfied users are.

Therefore, new design approaches are needed that combine research-based therapeutic design strategies with good spatial organization, full accessibility, and natural elements to improve geriatric wellness and respite centres.

1.3 Aim and Objectives of the Study

The aim of this research is to investigate and integrate therapeutic environmental quality and accessibility principles in the planning and design of a Geriatric Care Facility in Enugu Metropolis.

To achieve the above-stated aim, the following specific objectives have been formulated:

1. To examine the healthcare, social, environmental needs of older adults in relation to geriatric care facility design.
2. To ensure dignified, efficient movement throughout the building through circulation planning that works for wheelchairs, walkers, and varying physical abilities.
3. To apply climate-responsive, sustainable design that maintains comfortable temperatures with minimal energy use.
4. To include research-informed healthcare design features that support healing, encourage social interaction, and improve user experience.

1.4 Research Questions

This study asks:

1. What environmental and spatial requirements apply to different areas within geriatric wellness and respite centres?
2. How does environmental design affect comfort, wayfinding, and healing outcomes in senior care facilities?
3. What design and operational problems exist in current senior care facilities in Nigeria?
4. How can therapeutic design, accessibility, and nature-based elements be successfully combined in senior care facility design?

1.5 Significance of the Study

This research matters for several reasons. First, it adds to architectural knowledge by highlighting the importance of research-based environmental design in geriatric care buildings. While practical operation concerns often dominate planning, the healing and social effects of design choices remain crucial to resident outcomes (Devlin & Arneill, 2016).

Second, the study provides practical design solutions for Nigerian senior care development. By addressing accessibility problems, wayfinding confusion, institutional coldness, and lack of therapeutic features, the research offers strategies to improve elderly care environments.

Third, the study promotes sustainable, climate-appropriate design, especially natural ventilation and daylighting which research shows improve energy efficiency and occupant wellbeing (Kellert & Calabrese, 2015). This is especially important in Enugu and similar Nigerian cities where power supply is unreliable and hot weather demands application of cooling solutions.

Fourth, the study supports better dignity for residents, better working conditions for caregivers, and more effective operations in senior care settings, thereby improving care quality and life quality for aging populations.

1.6 Scope and Delimitation of the Study

This study focuses on designing a geriatric wellness and respite centre in Enugu Metropolis, with special attention to therapeutic environmental quality and accessibility. The research covers main facility areas including short-stay respite rooms, physical and occupational therapy spaces, shared activity and dining areas, staff and administrative zones, plus circulation systems and accessible outdoor therapeutic gardens.

The study also examines combining universal design compliance, nature-based elements, and climate-responsive strategies to improve safety, function, healing value, and user experience.

However, the study has limits. Detailed structural engineering calculations are not included, as the focus is on architectural planning and environmental design. Medical equipment technical details and healthcare operational protocols are only discussed regarding spatial design needs, not comprehensively. The research stays within architectural design principles and does not cover detailed medical, legal, or financial management aspects of senior care facilities.

1.7 Definition of Terms

1. Architectural Design: The process of planning and creating physical spaces that are functional, aesthetically pleasing, and sustainable, including considerations of structure, lighting, ventilation, space layout, and user comfort.
2. Geriatric wellness and Respite Centre: A healthcare building providing temporary stays, recovery services, therapy programs, and wellness activities for elderly people who need short-term support or whose family caregivers need temporary relief.
3. Respite Care: Short-term professional care that temporarily takes over from family caregivers while providing qualified support and supervision for elderly individuals (Fleming et al., 2015).
4. Therapeutic Design: An architectural approach using scientific research to create spaces that actively support healing, comfort, and positive health results (Devlin & Arneill, 2016).
5. Biophilic Design: An approach that deliberately includes natural elements, organic materials, and nature views to strengthen connections between building users and the natural world (Kellert & Calabrese, 2015).
6. Universal Design: Creating buildings and environments that work for the widest possible range of people and abilities, minimizing the need for later changes or specialized adaptations (World Health Organization, 2021).

7. Wayfinding: The process of using environmental information to navigate through buildings and find destinations without getting lost (Calkins, 2015).
8. Evidence-Based Design (EBD): A decision-making approach that uses credible research findings to guide design choices toward the best possible results for healthcare environment users (Devlin & Arneill, 2016).
9. Age-Friendly Environment: A built environment specifically designed to accommodate the normal physical, sensory, and thinking changes that come with aging, supporting continued independence and social participation (World Health Organization, 2021).
10. Zoning: The organization of building spaces based on function, user groups, and privacy needs.
11. Circulation: The movement paths and flow patterns within a building that connect different spaces.

CHAPTER TWO

LITERATURE REVIEW AND CASE STUDIES

2.1 REVIEW OF RELATED LITERATURE

The role of environmental design in senior care facilities has been extensively studied due to its significant influence on resident health, care quality, and operational efficiency. Over the years, research has evolved from focusing mainly on basic safety to a more comprehensive understanding of how the physical environment affects emotional wellbeing, social connection, and cognitive preservation in aging populations. In institutional environments such as geriatric wellness and respite centres, where residents may have fragile health, limited mobility, or memory problems, the importance of thoughtful environmental design becomes even more critical.

One major area of literature focuses on therapeutic environments and dementia-friendly design. As populations age worldwide, more elderly people experience memory loss and confusion associated with conditions like Alzheimers disease. Research has increasingly emphasized the need to design spaces that support rather than frustrate people with cognitive challenges. Fleming et al. (2015) found that well-designed environments can significantly reduce agitation, improve sleep, and support independence among residents with dementia. The study further indicated that familiar home-like features, clear wayfinding cues, and access to safe outdoor spaces contribute to a more stable and pleasant daily experience for confused residents. Building on this, Calkins (2015) emphasized that accounting for the specific perceptual and navigational challenges of elderly people throughout the design process can further enhance safety and comfort in care facilities. Beyond cognitive support, therapeutic environments are also strongly associated with emotional wellbeing and social participation. Exposure to calming colours, natural materials, and comfortable furniture has been shown to reduce anxiety, encourage conversation, and increase participation in activities. In this regard, Ghemari et al. (2021) highlighted that effective environmental strategies significantly enhance quality of life by optimizing indoor conditions and

reducing institutional harshness. These findings are particularly relevant to geriatric wellness and respite centres, where residents often experience stress from being away from home and therefore require a supportive environment to feel secure and comfortable.

Another key theme evident in the literature reviewed is **biophilic design and nature connection for seniors**. Access to nature is essential for maintaining physical and mental health in aging populations. Gardens, outdoor walking paths, and indoor plants provide opportunities for gentle exercise, sensory stimulation, and relaxation. A study by Kellert and Calabrese (2015) emphasized that integrating natural elements into building design is critical for supporting resident wellbeing, especially in spaces where elderly people spend extended periods indoors. In senior care facilities, where depression and loneliness are common, poor access to nature can negatively affect mood, appetite, and sleep patterns.

Another important aspect is the **relationship between environmental design and spatial layout**. The configuration of a building significantly affects how residents move around, find their way, and feel oriented within the space. Features such as courtyards, central gathering areas, and visible landmarks are often used to improve wayfinding and social connection, especially in large or complex facilities. According to Fleming et al. (2015), proper spatial design can reduce wandering, improve meal participation, and enhance overall daily functioning among residents with memory challenges. This highlights the need for an integrated approach where environmental design is considered alongside architectural planning from the early stages of design.

Advancements in technology have also introduced the concept of **smart and assistive environmental systems**. Modern senior care facilities now incorporate sensors, emergency call systems, and automated lighting that adjust based on occupancy and time of day. These systems

help improve safety while maintaining appropriate environmental conditions for users. Intelligent building systems are becoming increasingly important in achieving both efficiency and resident comfort in care facilities (Ghemari et al., 2021). In geriatric wellness and respite centres, the use of such systems can ensure that different spaces such as bedrooms, therapy rooms, and gardens receive appropriate support based on their specific functions.

Despite these advancements, several studies highlight ongoing challenges in the implementation of effective environmental design, particularly in developing countries. Common issues include poor building orientation that traps heat, inadequate window design that limits daylight, lack of integration between indoor and outdoor spaces, and over-reliance on mechanical cooling systems. These challenges often result in uncomfortable indoor conditions, high energy costs, and reduced resident comfort (Adesina & Oloke, 2019; Olotu & Iyamu, 2019). In many public and private buildings in Nigeria, insufficient natural ventilation, poor maintenance, and lack of accessibility features have been identified as major problems affecting building performance and user satisfaction (World Health Organization, 2021).

2.2 CASE STUDIES

LOCAL CASE STUDIES

2.2.1 CASE STUDY 1: FEDERAL MEDICAL CENTRE ELDERLY CARE UNIT, ABEOKUTA

Location: Idi-Aba, Abeokuta, Ogun State

Year of Commissioning: 2016

Type: Healthcare Facility with Geriatric Services

OVERVIEW

The Federal Medical Centre in Abeokuta provides healthcare services including a dedicated unit for elderly patients. It offers medical treatment, rehabilitation, and short-term respite care for older adults with various health conditions. As a public healthcare building, it accommodates patient wards, therapy rooms, consultation spaces, and outdoor areas that support treatment processes and family visits.



MERITS

I. The elderly care unit provides a structured healthcare environment with clearly defined spaces such as wards, therapy rooms, and consultation areas, making it suitable for studying environmental design requirements in different functional zones.

II. Its design reflects basic spatial organization and controlled access, which allows for assessment of safety and wayfinding in regulated healthcare environments.

III. As a federal medical institution, it represents standard practices in public-sector healthcare architecture in Nigeria.

RELEVANCE TO STUDY

The building is directly relevant to this study as it is a primary example of a healthcare environment serving elderly users. It provides a context for examining how therapeutic design and accessibility features can be integrated in public healthcare buildings to improve functionality and resident wellbeing. The diversity of spaces within the building allows for analysis of different environmental needs across patient wards, therapy areas, and outdoor spaces.

DEMERITS

I. Dependence on stable electricity supply for cooling and artificial lighting systems, which affects performance in environments with unreliable power infrastructure.

II. Limited flexibility in spatial use and adaptation over time due to rigid ward and office layouts typical of formal healthcare buildings.

III. Insufficient incorporation of home-like or therapeutic design features that can reduce institutional feelings among elderly residents.

IV. Design constraints that restrict the integration of advanced biophilic and energy-efficient environmental systems.

V. Over-reliance on conventional hospital design approaches, which do not fully support person-centered or therapeutic care strategies.

2.2.2 CASE STUDY 2: NATIONAL HOSPITAL ABUJA, GERIATRIC CENTRE

Location: Central District, Abuja, FCT

Year of Commissioning: 2019

Type: Healthcare Facility with Specialized Elderly Care

OVERVIEW

The National Hospital Abuja includes a geriatric centre that provides specialized medical care, rehabilitation, and day programs for elderly patients. It serves as a referral facility within the Federal Capital Territory and accommodates inpatient wards, therapy spaces, consultation rooms, and administrative offices.



MERITS

- I. Modern healthcare design with some attention to patient comfort and accessibility.
- II. Presence of outdoor spaces which enhance fresh air access and environmental quality within the site.

III. Availability of parking spaces which improve accessibility and support smooth visitor circulation.

RELEVANCE TO STUDY

The building allows assessment of how environmental design influences resident comfort and care delivery in specialized elderly healthcare spaces.

DEMERITS

- I. Limited adaptability of spaces for different care models such as respite or day programs.
- II. Dependence on basic infrastructure and mechanical systems.
- III. Heavy dependence on artificial cooling and lighting systems with limited natural alternatives.

2.2.3 CASE STUDY 3: UNIVERSITY OF NIGERIA TEACHING HOSPITAL, ENUGU

Location: Ituku-Ozalla, Enugu State

Year of Commissioning: 1967 (with ongoing renovations)

Type: Teaching Hospital with General Patient Services

OVERVIEW

The University of Nigeria Teaching Hospital (UNTH) in Enugu is a major tertiary healthcare institution serving Enugu State and surrounding regions. While not specifically designed as a senior care facility, it provides general medical and surgical services to elderly patients among others. It represents the type of healthcare infrastructure available in the study area.



MERITS

- I. Large facility with varied spaces for different medical functions.
- II. Located within the study region, providing relevant climatic and cultural context.

RELEVANCE TO STUDY

The building provides context for understanding existing healthcare infrastructure in Enugu Metropolis and the gaps that a dedicated geriatric wellness and respite centre would address.

DEMERITS

- I. Not designed specifically for elderly care or therapeutic environments.
- II. Limited outdoor therapeutic spaces or biophilic features.
- III. Heavy dependence on mechanical systems with poor natural ventilation in many areas.

INTERNATIONAL CASE STUDIES

2.2.4 CASE STUDY 4: MAGGIE'S CENTRE, LANCASTER, UNITED KINGDOM

Location: Lancaster, England

Year of Commissioning: 2016

Type: Cancer Support and Wellness Centre

OVERVIEW

Maggies Centre in Lancaster is a building designed to provide emotional support, therapy, and respite for people affected by cancer, including elderly patients. The building emphasizes homelike comfort, nature connection, and psychological wellbeing. Designed by architects who specialize in therapeutic environments, it demonstrates how architecture can actively support healing and reduce stress.



MERITS

Excellent integration of natural light, garden views, and natural materials enhances emotional comfort and reduces institutional feelings. Clear zoning between private consultation rooms and

communal gathering spaces improves functionality and user experience. The design promotes calm and belonging, which are important values in care settings.

RELEVANCE TO STUDY

Maggies Centre is relevant to this study because it demonstrates effective integration of therapeutic design and biophilic elements to enhance emotional comfort, reduce stress, and support healing in care environments. Its clear zoning and connection to nature also provide a useful model for improving resident experience and staff workflow in senior care facilities, which is a key focus of this research.

DEMERITS

The use of high-quality materials and custom design increases construction and maintenance costs. The design may also be less adaptable to regions with different climatic conditions, such as tropical environments with heavy rainfall and intense heat.

2.2.5 CASE STUDY 5: HOGWEY, "DEMENTIA VILLAGE," NETHERLANDS

Location: Weesp, near Amsterdam, Netherlands

Year of Commissioning: 2009 (with ongoing developments)

Type: Specialized Dementia Care and Senior Living Facility

OVERVIEW

Hogewey is an innovative care facility designed as a village-like environment where elderly residents with dementia live in small houses grouped around shared facilities such as a restaurant, supermarket, theatre, and hairdressing. It is widely recognized for its person-centered approach, which allows residents to move freely in a safe, familiar environment while receiving professional care.



MERITS

I. Effective integration of therapeutic design into the overall architectural concept: The use of home-like houses, recognizable street layouts, and meaningful daily activities allows residents to maintain routines and dignity, which enhance quality of life and reduce medication needs. The building also demonstrates a strong relationship between environmental design and spatial organization, with clear neighbourhood zones improving wayfinding and social interaction across the village.

II. Clear zoning and circulation system within the facility: Different lifestyle groups and care needs are accommodated in distinct house styles, improving personalized care and operational efficiency. The combination of freedom and safety ensures that all residents can maintain

appropriate activity levels throughout the day, contributing to a comfortable and dignified living environment.

RELEVANCE TO STUDY

This case study demonstrates how environmental design can be integrated into senior care architecture to enhance both functionality and resident experience. The effective use of therapeutic and biophilic strategies in the facility provides a useful model for reducing institutional feelings, which is particularly important in the Nigerian context where elderly care often lacks dignity and personalization.

DEMERITS

The extensive use of open space and low-rise housing, while beneficial for resident wellbeing, requires large land areas that may be expensive or unavailable in dense urban settings. This increases the need for creative space planning in land-constrained environments.

The village concept requires significant staffing and operational resources to maintain safety and personalized care. Without proper management, the freedom given to residents may create safety concerns, particularly in facilities with limited staff or training.

2.5 SUMMARY OF CASE STUDY FINDINGS

The case studies reveal important insights into the design of senior care and therapeutic facilities. Local examples highlight common challenges such as institutional atmosphere, poor connection between indoor and outdoor spaces, inadequate accessibility features, and over-reliance on mechanical systems. These issues often result in reduced resident comfort, high energy consumption, and operational inefficiencies.

In contrast, international case studies demonstrate the benefits of integrating therapeutic design with spatial planning. Effective use of natural light, nature access, home-like features, and clear

wayfinding improve emotional comfort, support independence, and enhance overall facility performance. Additionally, clear zoning and circulation patterns improve safety and functionality. These findings emphasize the need for a design approach that combines the strengths observed in international examples with solutions tailored to the Nigerian context. For the proposed geriatric wellness and respite centre in Enugu Metropolis, this means incorporating effective biophilic and therapeutic design strategies, improving spatial organization and accessibility, and ensuring that environmental design supports both functional care requirements and emotional wellbeing of elderly users.

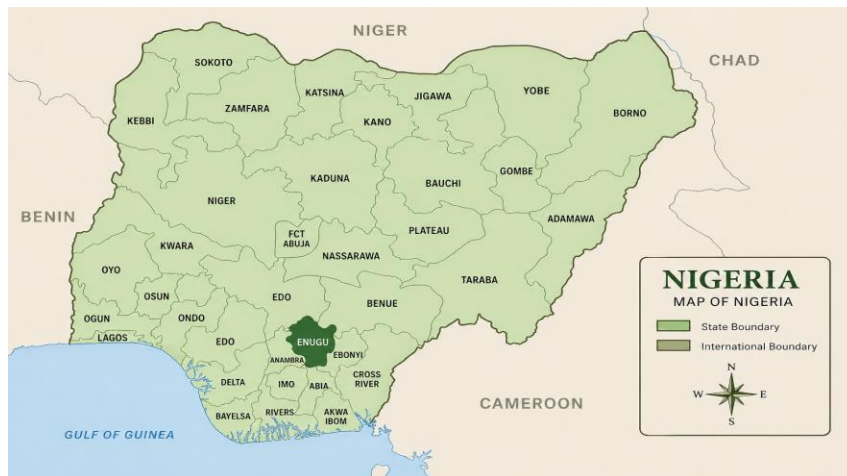
CHAPTER THREE

THE STUDY AREA

3.1 GEOGRAPHICAL LOCATION AND SETTING

Enugu is the capital city of Enugu State, located in the southeastern part of Nigeria, within the Igbo cultural heartland. It lies approximately between latitude $6^{\circ}30'N$ and $6^{\circ}35'N$ and longitude $7^{\circ}30'E$ and $7^{\circ}35'E$, placing it within a tropical savanna zone characterized by moderate humidity, distinct wet and dry seasons, and warm temperatures throughout the year. The city serves as the administrative, political, and economic headquarters of Enugu State, making it a strategic location for government infrastructure, including hospitals, universities, and institutional buildings. Over the past three decades, Enugu has experienced steady urban expansion driven by state capital development, educational institutions, and population growth.

Figure 3.1: Location of Enugu in Nigeria, Coordinates: $6^{\circ}30'N$ $7^{\circ}30'E$





Source: <https://share.google/wrHHIDC4KsBH6EtJ1>

Emene is an industrial and residential district located on the eastern outskirts of Enugu Metropolis, approximately 8 kilometres from the city centre. It is best known as the location of the **ANAMMCO** (Anambra Motor Manufacturing Company) plant, Nigerias first vehicle assembly factory, established in 1977. The area has evolved from a purely industrial zone into a mixed-use district with residential estates, commercial activities, and expanding infrastructure. The site for this project is located **behind ANAMMCO**, on the northern side of the Emene Road axis, within a transitional zone between industrial activity and emerging residential development. From an urban structure perspective, Emene exhibits a semi-planned layout, with the industrial core (ANAMMCO factory and associated warehouses) surrounded by residential zones, commercial strips, and developing institutional areas. The site behind ANAMMCO offers a relatively quiet environment compared to the main industrial frontage, with gentle terrain, scattered vegetation, and potential for controlled development. Key access routes include the

Emene Road, which connects directly to the Enugu-Port Harcourt Expressway, providing regional accessibility.

The specific site coordinates are approximately **latitude 6°32'N and longitude 7°33'E**, situated on a gently sloping parcel of land with north-east to south-west orientation. The site covers approximately **2.5 hectares** of undeveloped land, bordered by light industrial warehousing to the south, emerging residential plots to the north and east, and the main Emene Road to the west. This location provides both accessibility for families and staff, and sufficient separation from heavy industrial noise and pollution to create a calm environment suitable for elderly care.

3.2 SITE SELECTION CRITERIA

The selection of a suitable site for a geriatric respite and wellness centre is very important because it directly influences accessibility, safety, therapeutic value, and environmental performance, particularly in relation to climate response and biophilic design. For the proposed facility behind ANAMMCO in Emene, several criteria were considered to ensure that the facility responds effectively to both user needs and environmental conditions.

One of the primary criteria is **accessibility**. A geriatric care facility serves a wide range of users, including elderly residents, family caregivers, healthcare staff, therapists, and visitors. Therefore, the site must be easily accessible through a well-connected road network. The Emene Road location provides direct connection to the Enugu-Port Harcourt Expressway, linking to the city centre, University of Nigeria Teaching Hospital Ituku-Ozalla (approximately 12 km), and ESUT Teaching Hospital Parklane (approximately 8 km). Good accessibility reduces travel stress for frail elderly residents and ensures smooth movement of ambulances, staff, and family visitors, which is essential for care delivery efficiency.

Another important factor considered is **safety and zoning compatibility**. Geriatric care facilities require a high level of safety due to the vulnerable nature of elderly residents, many of whom have mobility limitations, memory problems, or chronic health conditions. The selected site is located in a transitional zone where industrial activity is light and residential development is increasing, meaning incompatible heavy industrial operations are minimal. The site is also sufficiently set back from the main road to reduce traffic danger and noise, while remaining visible and reachable. This supports the segregation of resident, staff, and visitor movement paths, which is a key objective of the proposed design.

Environmental suitability, particularly in relation to natural ventilation, daylighting, and outdoor therapeutic space, is also a key consideration. This includes adequate site openness, minimal obstruction from surrounding high structures, and the potential for optimal building orientation. A site that allows a **north-south building orientation** is preferred, as it supports better daylight control and reduces heat gain in tropical climates like Enugu. The gently sloping terrain behind ANAMMCO allows for this orientation while also enabling gravity drainage and reduced earthworks.

In addition, **land availability and expansion potential** are essential criteria. Geriatric care facilities are typically long-term healthcare infrastructures that may require future expansion due to increasing demand for elderly care services. Nigerias population is aging, and Enugu State has seen growing awareness of the need for specialized senior care. Therefore, the selected site should have sufficient land area to accommodate additional respite rooms, therapy spaces, gardens, and parking without compromising spatial quality or access to nature. The 2.5-hectare parcel provides this flexibility.

Another key consideration is **topography and drainage conditions**. Enugu experiences distinct rainy seasons from April to October, with annual rainfall between 1,500 and 2,000 mm. The site behind ANAMMCO has a **gentle slope of approximately 3–5 degrees** toward the north-east, providing good natural drainage. The soil is predominantly **sandy loam with lateritic subsoil**, which offers adequate structural support for single-storey and low-rise construction but requires proper drainage design to prevent erosion during heavy rainfall. Poor drainage can also indirectly affect therapeutic outdoor spaces by limiting usable garden areas and creating slip hazards for elderly users.

Finally, **integration with surrounding land use** is important. The site should complement existing and planned developments such as healthcare facilities, residential estates, and community services. The proximity to ANAMMCO provides established road infrastructure and utility access, while the emerging residential character of the area supports community integration and family visitation. The factors above collectively ensure that the site supports both the functional requirements of a geriatric care facility and the environmental objectives of effective therapeutic design, climate responsiveness, and user wellbeing.

3.3 BRIEF HISTORY OF THE STUDY AREA

Enugu evolved from a traditional Igbo settlement into the administrative and industrial capital of Enugu State. The name "Enugu" means "top of the hill" in Igbo, referring to the Udi Plateau escarpment that dominates the city's northern landscape. Prior to becoming a state capital, Enugu functioned primarily as a coal mining town and railway hub within the former Eastern Region. Its growth was initially driven by the discovery of coal in 1909, which made it one of Nigeria's earliest industrial centres.

A significant turning point in the history of Enugu occurred in **1991**, when Enugu State was created from the former Anambra State. Following this political restructuring, Enugu was designated as the state capital, which marked the beginning of accelerated urban transformation. This change led to the establishment of major government institutions, including administrative offices, university campuses, and healthcare facilities. The designation of Enugu as a capital city significantly increased its political, educational, and economic importance, attracting public investment and infrastructural development.

Emene's history is closely tied to industrial development. The establishment of **ANAMMCO** in **1977** by the Nigerian government in partnership with Daimler-Benz of Germany transformed Emene from a rural village into an industrial zone. The factory produced commercial vehicles and employed thousands of workers, creating a settlement pattern of workers housing, supporting businesses, and transport infrastructure. However, by the 1990s, industrial activity declined due to economic challenges, leaving large parcels of underutilized land and changing the areas character.

Emene has since transitioned into a mixed-use district with the industrial core surrounded by residential development, educational institutions (including the Enugu State University of Science and Technology campus), and expanding commercial activity. Key infrastructure such as the **Emene Road, Enugu-Port Harcourt Expressway**, and planned ring roads support increased mobility. However, urban expansion has remained partially uncoordinated, leading to mixed development patterns where planned zones coexist with informal residential growth.

Healthcare-wise, the establishment of the **University of Nigeria Teaching Hospital (UNTH)** in Ituku-Ozalla, the **ESUT Teaching Hospital** at Parklane, and various private hospitals in Enugu formed part of the broader effort to strengthen healthcare delivery in the state. However,

specialized geriatric care facilities have remained largely absent. The few existing elderly care services are typically attached to general hospitals or provided informally by families and religious organizations. There is no dedicated geriatric respite and wellness centre in Enugu Metropolis designed specifically for the therapeutic, environmental, and social needs of aging populations.

In recent years, there has been growing recognition of the need to address Nigerias aging population. According to the **National Population Commission (2022)**, the proportion of Nigerians aged 60 and above is increasing, and the **World Health Organization (2021)** has emphasized the need for age-friendly health services and environments. The proposed geriatric respite and wellness centre in this study responds directly to this gap by addressing the absence of specialized elderly care infrastructure in Enugu, particularly in relation to therapeutic environmental design, accessibility, climate responsiveness, and dignified aging.

3.4 PHYSIOGRAPHY, CLIMATE, AND VEGETATION

The two main seasons in Enugu are the rainy season and the dry season, due to its location in the hot humid zone, close to the equator. They are influenced by trade winds that affect the regions precipitation patterns.

The Dry Season, which lasts for several months, is characterized by dry, dusty conditions due to the North-East Trade Winds.

The Rainy Season, which extends for most of the year, the region receives heavy rainfall because of the moisture-laden southwest winds from the Atlantic.

A. VEGETATION

Climate and topography Enugu support the growth of two major vegetation types: woodlands and tall grass savannahs, which are common in drier areas, and rain forests, which need ample rainfall throughout the year.

In humid, tropical regions, a unique type of weathering occurs when basalt rock is subjected to these conditions, resulting in the formation of a dense, porous, iron-rich soil known as laterite.

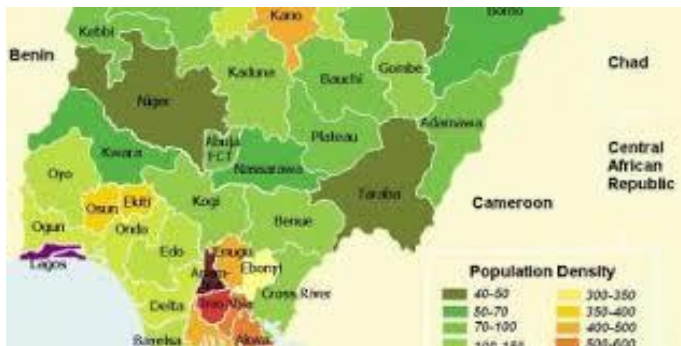


Figure 3:3: Map of Nigeria showing vegetation zones

Source: Ministry of Lands and Survey, (2011).

At the proposed project site, this type of soil is also present, which could have implications for the projects development and planning.

B. WINDS

In Nigeria, and specifically in Enugu, two dominant wind systems exert a significant influence on the regions weather and climate.

These winds are the North-East Trade Winds, which are drier and bring dust from the Sahara Desert. And Southwest Monsoon Winds from the Atlantic, which contribute to the heavy rainfall during the rainy season.

(Note: The image includes a bar chart labeled "Wind force" showing data from Jan to Dec.)

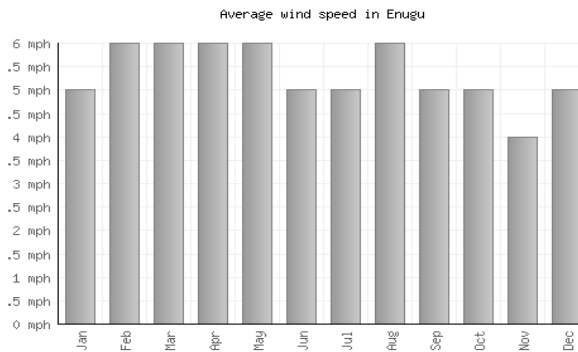


Figure 3:4: showing the plan of the library

The Mean Wind Force in Enugu State.

Source: Department of metrological services. Ibadan

C. RAINFALL

Enugus location in the hot humid zone experiences rainfall throughout the year, with monthly mean rainfall ranging from a low of 4.83mm to a high of 317mm. While the months of January and December are characterized by minimal rainfall, every month of the year. The peak of the rainy season typically reaches its highest intensity in either July or September, with a short-lived break in rainfall occurring in August, commonly referred to as the August break.

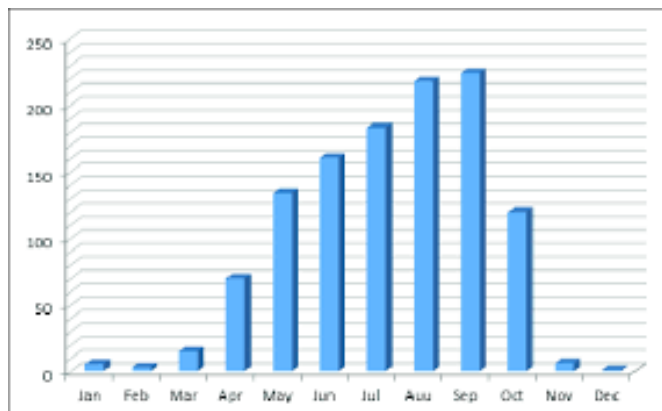


Figure 3:5 Mean monthly rainfall for Enugu State

Source: department of meteorological service Ibadan

D. SUNRISE AND SUNSET DATA

Enugu, Nigeria

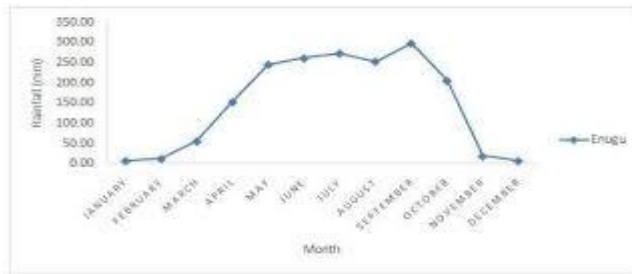


Figure 3:6

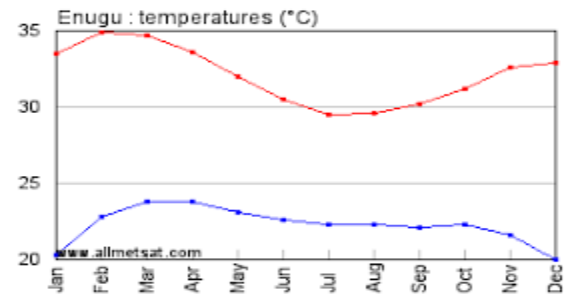


Figure 3.7

E. CLIMATIC ANALYSIS

i. WIND

The site is influenced by two dominant winds: the northeast trade winds and the southwest monsoon winds.

These winds blow seasonally, with the southwest monsoon winds being more prevalent. To take advantage of these prevailing winds, the building should be oriented accordingly.

ii. SUN PATH

The rotation of the earth on its axis from west to east causes the sun to appear to move from east to west across the sky.

As a result, the sun rises in the east in the morning, bringing mild sunlight, while the sun sets in the west in the evening, casting harsh, scorching rays. A thorough understanding of this phenomenon is crucial for architects and designers as it allows them to orient the building on the site in a way that maximizes the benefits of natural sunlight while minimizing the harsh effects of direct sunlight.

iii. NOISE SOURCE(S)

The primary source of noise pollution on the site is the road traffic and other noise-generating activities in the surrounding area.

While there may be some noise coming from the expressway on the eastern axis and from vehicles within the layout, the presence of the stream and the vegetation around the site will act as a natural buffer, dampening the noise to some extent. This highlights the importance of careful planning and design, taking into account the surrounding environment and natural features to mitigate the impact of noise pollution on the site.

3.5 POPULATION, CULTURE, AND ECONOMIC DEVELOPMENT

Enugu has experienced significant population growth over the past few decades, largely driven by its status as the capital of Enugu State and its role as a regional educational and healthcare hub. The concentration of government institutions, university campuses (University of Nigeria, Enugu State University of Science and Technology, Godfrey Okoye University, Caritas University, Coal City University, etc), and commercial activities has attracted migrants from within and outside the state, resulting in steady urban population expansion. The **2022 national census estimates** place Enugu Metropolitan area at approximately **1.2 million people**, with continued growth projected.

This growth has increased pressure on urban infrastructure, including transportation networks, housing, and public buildings such as hospitals and care facilities. The rising population also contributes to higher demand for healthcare services, including specialized care for the elderly. According to **World Health Organization (2021)** projections, the proportion of Nigerians aged 60 and above will increase significantly over the coming decades, making the adequacy and quality of geriatric care infrastructure an important urban necessity.

Enugu is predominantly inhabited by the **Igbo people**, whose traditions and social structures influence aspects of community life, settlement patterns, and social interaction. The Igbo culture places strong emphasis on **family care for the elderly**, with traditional expectations that children will support aging parents in multigenerational households. However, urbanization, migration, and changing economic realities have strained this tradition, increasing the need for formal respite and wellness services that support families while maintaining cultural dignity.

The city reflects a blend of traditional cultural identity and modern urban development, as seen in the coexistence of indigenous neighbourhoods and contemporary institutional layouts. Social behaviour in the city places importance on **communal interaction, respect for elders, and civic participation**, which is reflected in the use of public institutions such as churches, markets, and community halls. This cultural context reinforces the need for accessible, culturally sensitive, and well-organized geriatric care facilities that accommodate diverse categories of users with dignity and familiarity.

Enugu serves as one of the major urban centres in southeastern Nigeria, with its economy driven by public administration, education, commerce, small-scale manufacturing, and service industries. The presence of state government institutions and universities plays a major role in employment generation and economic activity within the city. **Emene specifically** retains industrial character through ANAMMCO and associated warehousing, but has increasingly diversified into residential and service activities.

However, despite this growth, there remains a need for improved healthcare infrastructure that supports the aging population. Increasing life expectancy, higher prevalence of chronic conditions such as diabetes and hypertension, and expanding awareness of elderly rights require care facilities that are not only functional but also therapeutically effective and environmentally

supportive. This reinforces the need for a modern geriatric respite and wellness centre that can accommodate present and future demands while ensuring comfort, accessibility, safety, and operational efficiency for all users.

The **ANAMMCO site** specifically offers economic advantages: existing road infrastructure reduces development costs, the industrial history means utility connections (power, water) are nearby, and the transitioning land use suggests potential for property value appreciation. The availability of underutilized land behind the factory allows for purpose-built design without the constraints of retrofitting existing structures, enabling full implementation of therapeutic design principles, universal accessibility, and climate-responsive strategies from the ground up.

CHAPTER FOUR

RESEARCH METHODOLOGY

This chapter outlines the processes undertaken in conducting research on architectural design of a geriatric care facility in Enugu Metropolis. The chapter provides information on the approach taken in research, data gathering methods, choice of case studies, and analysis of information relevant to this study. This methodology was selected to guarantee that the study offers reliable information in designing a facility that actually works for elderly people, their families, and staff.

4.1 Research Design

The research adopted both descriptive and qualitative research methods. Descriptive research was used to analyze current geriatric facilities, spatial arrangements, and design features present in existing care buildings. Qualitative research method was also adopted to analyze the needs of elderly users, the requirements of design, and other architectural considerations influencing the design of care environments.

This research design is appropriate for the purpose as it helped collect information concerning architectural planning, user experience, spatial arrangement, and environmental considerations associated with geriatric care facilities.

4.2 Data Needs and Sources

The sources of data used for this study are both primary and secondary.

Primary data were collected via direct observation, field visits, photography, and interactions during field trips to certain healthcare facilities including the Federal Medical Centre Abeokuta elderly care unit and the University of Nigeria Teaching Hospital Enugu. The field trips helped to get firsthand experience of spatial organization, circulation, natural light, ventilation, and how elderly patients move through and use these buildings.

Secondary data were gathered through various textbooks, journals, internet articles, and literature review on therapeutic design, biophilic design, universal accessibility, and geriatric care architecture.

4.3 Methods and Instruments of Data Collection

Data collection played a key role in the present research in relation to gathering information useful in designing a geriatric care facility. The following are the methods and tools used for collecting information on care spaces, users needs, and environmental features.

Systematic Survey

Systematic survey includes data obtained directly from healthcare staff, caregivers, and elderly care professionals through interviews and structured questionnaires.

Observation Method

Observation refers to visiting healthcare facilities and studying their space layout, circulation, lighting, ventilation, accessibility features, and outdoor areas.

Case Study Analysis

Analysis of selected case studies for various care facilities to learn about their architectural designs, therapeutic features, and how they support elderly users.

Photography

Use of photos while conducting site surveys on important architectural components such as ramps, handrails, door widths, window sizes, and garden spaces.

Literature Review

Review of published research on elderly care environments, dementia-friendly design, biophilic elements, and climate-responsive architecture in tropical regions.

The instruments for data collection used include questionnaires, note booklets, cameras, measuring tape, and internet-enabled gadgets.

4.4 Selection of Case Studies

Five case studies were selected for detailed analysis. Three local cases (Federal Medical Centre Abeokuta, National Hospital Abuja geriatric centre, and University of Nigeria Teaching Hospital Enugu) were chosen to understand the Nigerian healthcare context and existing gaps. Two international cases (Maggies Centre Lancaster and Hogewey Dementia Village Netherlands) were selected to learn from advanced therapeutic design practices.

Selection criteria included:

- Relevance to geriatric or therapeutic care
- Availability of design documentation and photographs
- Geographic diversity
- Variation in design approach and scale

4.5 Method of Data Analysis

The collected data was analyzed employing descriptive and comparative techniques. This involved comparing information gathered from the literature review and case studies to reveal commonalities, differences, advantages, and disadvantages regarding the designs of geriatric care spaces.

The analysis considered various architectural elements such as space planning, circulation flow, accessibility, adaptability, sustainability, nature connection, and environmental comfort. The

results derived from the analysis informed the formulation of design principles and suggestions for the proposed geriatric care facility in Enugu Metropolis.

4.6 Ethical Considerations

This research does not involve human subjects in sensitive situations. All sources are properly cited and acknowledged. Site visits were conducted with permission from relevant authorities and with respect for private property and patient privacy. The design proposal is original and developed specifically for this study.

CHAPTER FIVE

DESIGN SYNTHESIS AND DEVELOPMENT

5.1 Design Brief

The proposed geriatric care facility has been developed as a purpose-built centre meant to cater to the health, comfort, and dignity of elderly people in Enugu Metropolis. The idea behind the design is to enable older adults, whether they come for short-term respite, day programs, or rehabilitation, to receive quality care in a place that feels more like home than hospital. Family members bringing their aging parents should feel confident that their loved ones are in good hands, while staff should find the building easy to work in. The proposed design for this building would be mostly single-storey with some low-rise sections, and would be arranged in such a way that there is easy flow of movement, clear sight lines for supervision, comfortable environment, and room for future expansions. Much focus is laid on natural ventilation, connection to gardens, accessible routes everywhere, and spaces that can adapt as needs change.

This design is aimed at creating a unique architectural identity for elderly care in Enugu through functional planning, warm aesthetic quality, and environmentally sound strategies that do not depend heavily on electricity.

5.2 Design Requirements for Activities and Planning Data

Requirements for planning and designing the proposed geriatric care facility can be drawn from the activities that will take place in this centre. The activities that will happen at the facility include resting and sleeping, receiving nursing care, doing physical therapy, eating meals, socializing with others, administrative work, and family visits among others.

For the above activities to be carried out properly, the facility needs adequate space to cater for respite bedrooms, therapy rooms, dining areas, activity halls, administrative offices, staff support areas, and outdoor gardens. The above spaces should be properly planned following accepted architectural principles, ergonomics for elderly bodies, and safety standards for fragile users.

The circulation system within the facility should be organized efficiently and should allow free flow of people from one functional area to another without conflict between quiet resting places and noisy activity areas. Lighting, ventilation, sound control, security systems, and emergency evacuation are equally important.

Besides, the care component of the facility needs special accommodation for medical supplies, equipment storage, laundry facilities, backup power, and water storage.

5.3 Schedule of Accommodation

Resident Care Areas

- Entrance Lobby
- Reception and Waiting Area
- Short-Stay Respite Bedrooms (Single)
- Bedroom Ensuite Bathrooms
- Respite Living Rooms
- Dining Hall
- Kitchen and Food Preparation
- Laundry Room

Therapy and Wellness Areas

- Physical Therapy Gym
- Occupational Therapy Room

- Consultation/Treatment Rooms
- Multi-Purpose Activity Hall

Administrative Areas

- Centre Managers Office
- Social Worker/Care Coordinator Office
- Administrative Offices
- Staff Room
- Staff Overnight Rooms
- Conference/Meeting Room

Support Facilities

- General Storage
- Medical Equipment Store
- Plant Room (Generator, Solar, Electrical)
- Borehole and Water Storage
- Waste Management Area
- Security Post

External Facilities

- Parking Area (Staff, Visitors, Ambulance)
- Central Courtyard Garden
- Sensory Garden
- Walking Paths
- Covered Outdoor Seating
- Reminiscence Garden

- Exercise Courtyard
- Service Yard

5.4 Special Considerations

Flexibility, nature connection, climate response, accessibility, and user comfort are some of the considerations that need extra thought in the process of designing the proposed geriatric care facility. This is because elderly care has moved beyond the old hospital model into environments that support independence, healing, and dignity.

Moreover, natural lighting and ventilation through courtyards, large windows, and careful building positioning should be considered in order to ensure that the facility is not only environmentally sustainable but also comfortable when power goes off.

Access for people with physical challenges is yet another area where careful planning needs to be done as far as facility design is concerned. In this respect, ramps, wide corridors, accessible toilets, grab bars, and barrier-free routes are necessary inclusions in any geriatric facility design.

Security, too, is an important aspect in which the design should take into account controlled points of access, wander management for confused residents, emergency call systems, and staff monitoring.

Sustainability, on the other hand, includes environmentally responsible designs, use of durable local materials, and technologies that work even with unreliable infrastructure.

5.5 Site Inventory and Analysis

The selected area for the construction of the geriatric care facility is behind ANAMMCO, along Emene Road in Enugu Metropolis, Enugu State, Nigeria.

The selected site covers approximately 2.5 hectares of land. This size gives enough room to plan efficiently and properly zone activities on the site, including the building footprint, parking, gardens, and space for future expansion.

The selected area has relatively stable ground with gentle slope, which is good for institutional development. The land allows the buildings to be oriented properly and drain effectively. This will reduce chances of soil erosion and pooling of surface water during the rainy season. Existing trees on the site, including some mature mango and neem, can be kept and added to for landscaping and shade.

Another significant strength associated with the site is that it is accessible. The area connects with Emene Road which leads to the Enugu-Port Harcourt Expressway, making transportation by vehicles convenient. The location allows effective circulation while also having space for parking lots, service paths, and emergency access.

In terms of climate, the area experiences the tropical savanna conditions that are common to Enugu State. This means temperature levels are relatively high while there are also distinct rainy and dry seasons. As such, considerations must be taken into account when designing the building, including deep roof overhangs, cross-ventilation, and shaded outdoor spaces.

The surrounding environment comprises of mixed industrial and residential areas. As a result, the facility will serve as an important addition to the community while providing a calm space for elderly care away from the busy city centre.

In general, it can be stated that the chosen location is appropriate for the geriatric care facility due to several reasons. Firstly, it is accessible from major roads and near existing hospitals. Furthermore, there is sufficient land area for constructing the facility itself along with having a suitable climate for passive design strategies.

5.6 Data Analysis and Presentation

The data gathered through the literature review, case studies and site analysis were thoroughly analyzed in order to determine the key factors that should guide the design of the proposed geriatric care facility in Enugu Metropolis. As a result of the analysis, it was determined that modern elderly care facilities are no longer built only for the purpose of housing sick old people. They are supportive environments that combine healthcare functions with home-like comfort, nature access, and opportunities for social engagement.

It was established through the literature review that one of the most critical features of modern geriatric design is the therapeutic environment. The spaces should have the potential to reduce stress, support independence, and adapt to users with varying abilities. Such an aspect of the problem determined the decision to create multiple functional zones within the proposed facility design, such as respite bedrooms, therapy areas, dining spaces, activity halls, and administrative offices.

Nature connection is also essential for elderly care facilities according to the review. Gardens, outdoor walking paths, indoor plants, and views of greenery are not luxuries but necessities for maintaining mental health and physical activity. Thus, the proposed design provides for extensive outdoor spaces, courtyard gardens, and window placement that brings nature into every room.

The findings from case studies also had significant impact on the design proposal. The National Hospital Abuja Geriatric Centre demonstrated that some attention to patient comfort and outdoor space is possible even in formal institutional settings. UNTH Enugu provided local context for understanding existing healthcare infrastructure gaps. Maggie's Centre Lancaster showed how therapeutic design and biophilic elements can transform care environments into places of healing rather than stress. Hogewey Dementia Village proved that familiar, home-like settings with freedom of movement can improve quality of life even for people with serious memory loss.

From the site analysis, it is clear that the chosen site behind ANAMMCO offers sufficient space and favorable environmental setting for the proposed development. The dimensions of the chosen site (approximately 2.5 hectares) will make site planning, landscaping, parking arrangements, pedestrian access and expansion much easier. From climatic analysis, it is recommended that the design adopted should be one that encourages passive environmental strategies such as north-south orientation, natural ventilation, daylighting, and garden development.

With these in mind, the proposed design for the facility incorporates a single-storey courtyard plan, whose central garden is the point from which all functional spaces emerge, and thus makes movement intuitive. The "Healing Compound" concept, which has been developed as a modern interpretation of the traditional Igbo obi, was adopted because it represents community, protection, and connection to nature.

In all, the analysis has proved that the geriatric care facility integrates the ideas found in the literature with the lessons drawn from the case studies and the physical features of the site to offer an architectural response that is therapeutic, accessible, sustainable, and easy to use for Enugu's elderly population now and in the future.

5.6 Design Concept and Design Proposal

Design Concept: The Four-Leaf Clover

The four-leaf clover is known as a symbol of good luck, but for this project it represents something more practical: four equal parts coming together around a centre to form a whole. Each leaf is different yet connected, and together they create balance. This fits a care facility where resting, healing, eating, and socializing must work together to support the whole person.

The concept translated into four connected wings arranged around a central courtyard garden. Each wing is a distinct zone, linked by covered walkways running around the garden. A resident can walk from bedroom to dining hall to therapy room without losing sight of the garden or getting confused about direction.

The central courtyard is the heart of the building. Everything grows from it and returns to it. The garden gives natural light to surrounding rooms, provides fresh air pathways, and gives residents something green to look at from their windows. Research shows that seeing nature from indoors reduces stress and improves mood among elderly people (Kellert & Calabrese, 2015).

The four-leaf shape also helps with Enugus climate. Gaps between wings create breeze pathways. Outer walls face different directions so some get morning sun, some afternoon shade. Deep roof overhangs shade windows, reducing need for air conditioning.

The shape itself aids wayfinding. Arriving at the entrance, a visitor sees the garden straight ahead. Left leads to bedrooms, right to therapy, straight ahead to dining. No long identical corridors. No confusing junctions. The building itself becomes a navigation tool.

The Centre

The courtyard garden contains looping walking paths, benches under trees, a water feature, and raised garden beds. It is visible from every corridor and room. The garden cools incoming air, absorbs rainwater runoff, and filters dust from the nearby industrial area.

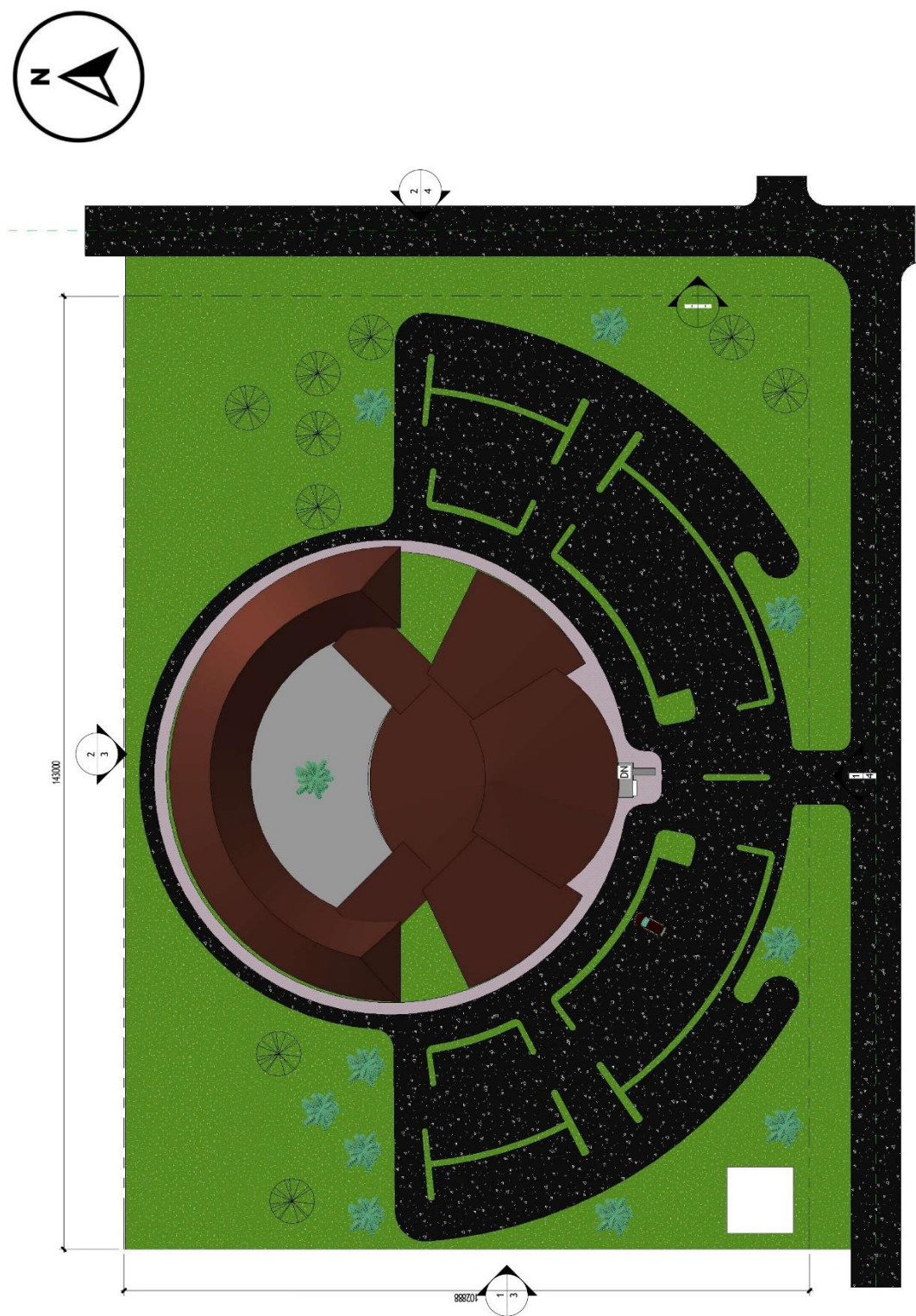
Why This Works

The clover gives equal importance to all four aspects of daily life. A resident cannot be healthy if they only sleep and never exercise, or only eat and never talk to anyone.

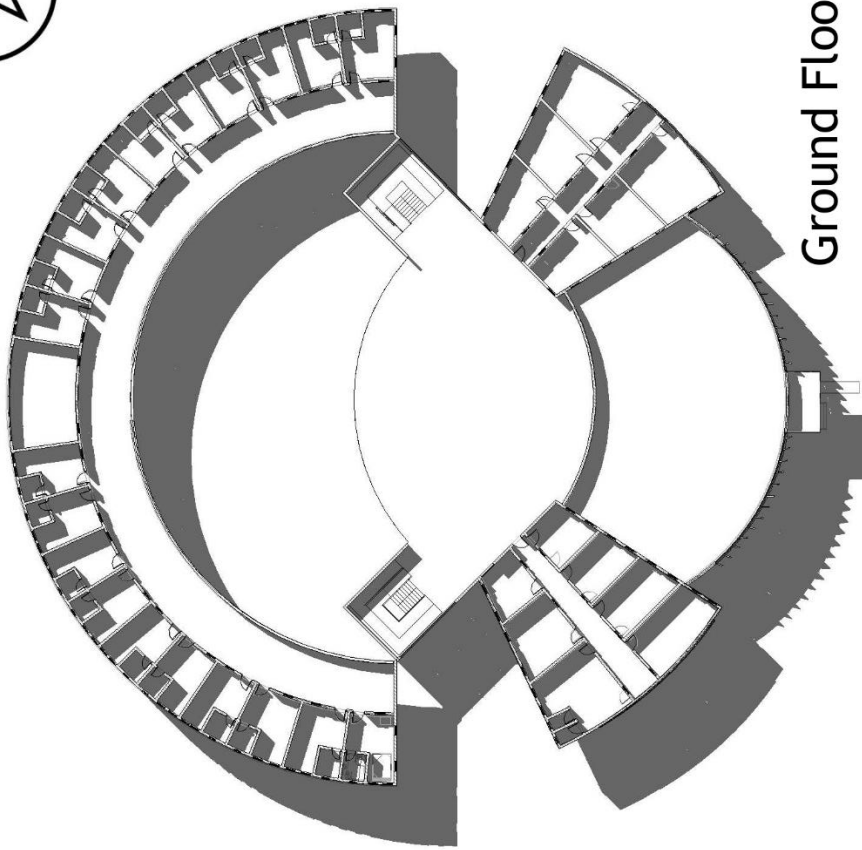
Gaps between wings create outdoor rooms with different plants and uses. One gap sunny with herbs for sensory stimulation. Another shaded and quiet for meditation.

The clover looks friendly, not institutional. Families see a low building surrounded by green. Residents see plants and sky from their windows. Staff have natural light, fresh air, and clear sight lines.

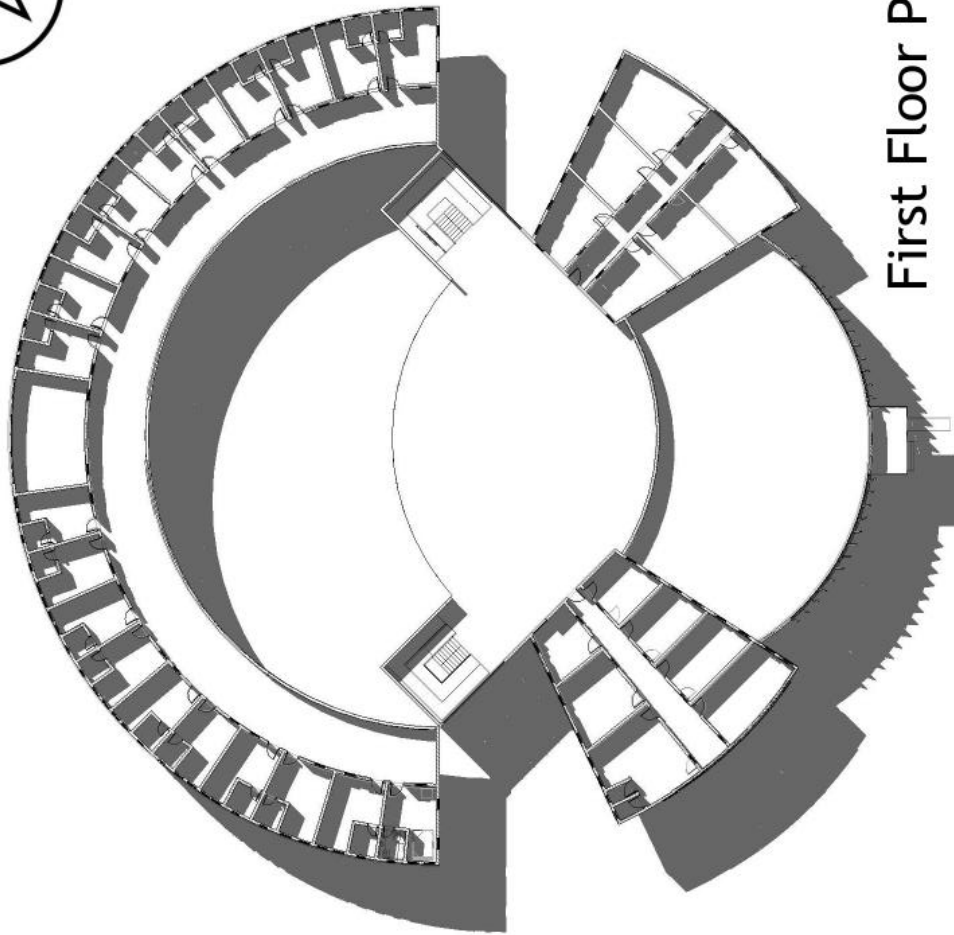
The Four-Leaf Clover concept creates a facility that is therapeutic by design, accessible by form, sustainable by orientation, and dignified by appearance.



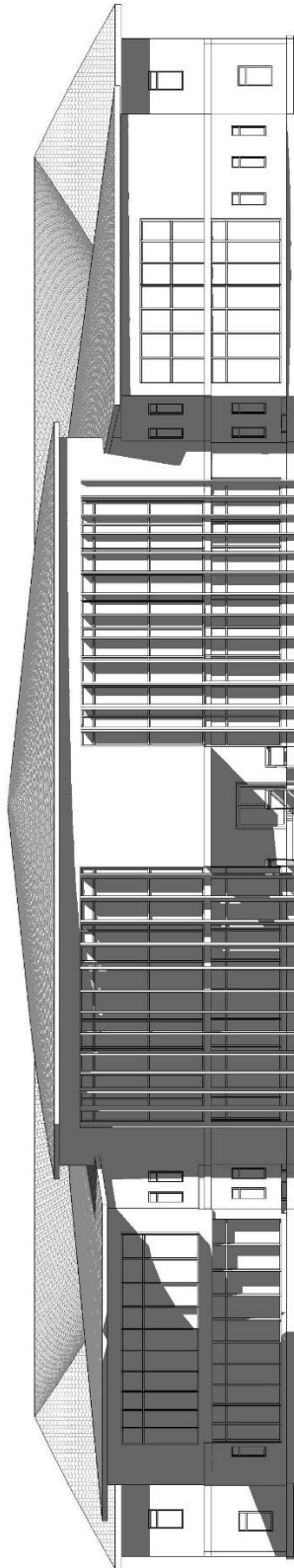
Site Plan

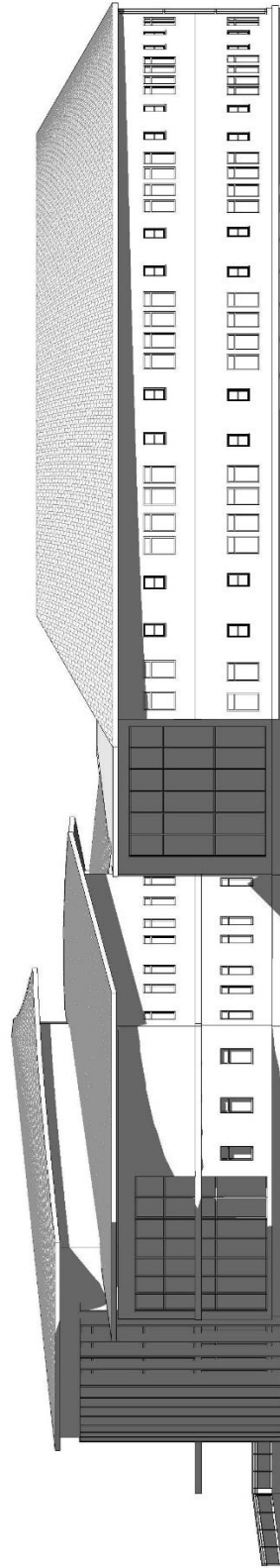


Ground Floor Plan

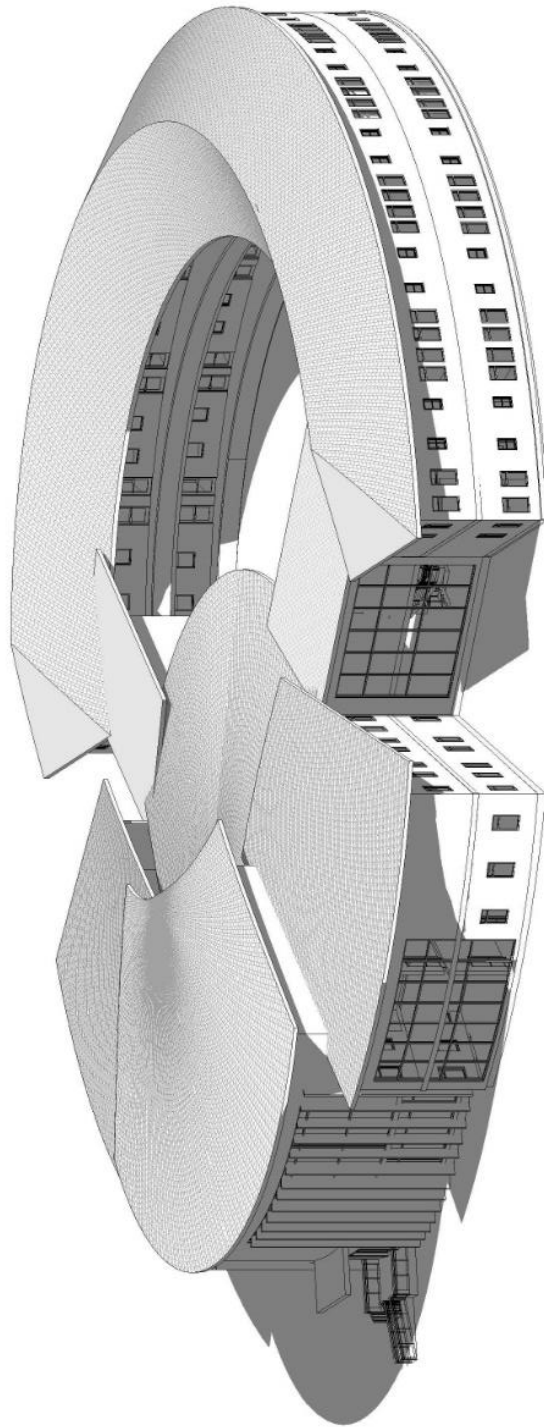


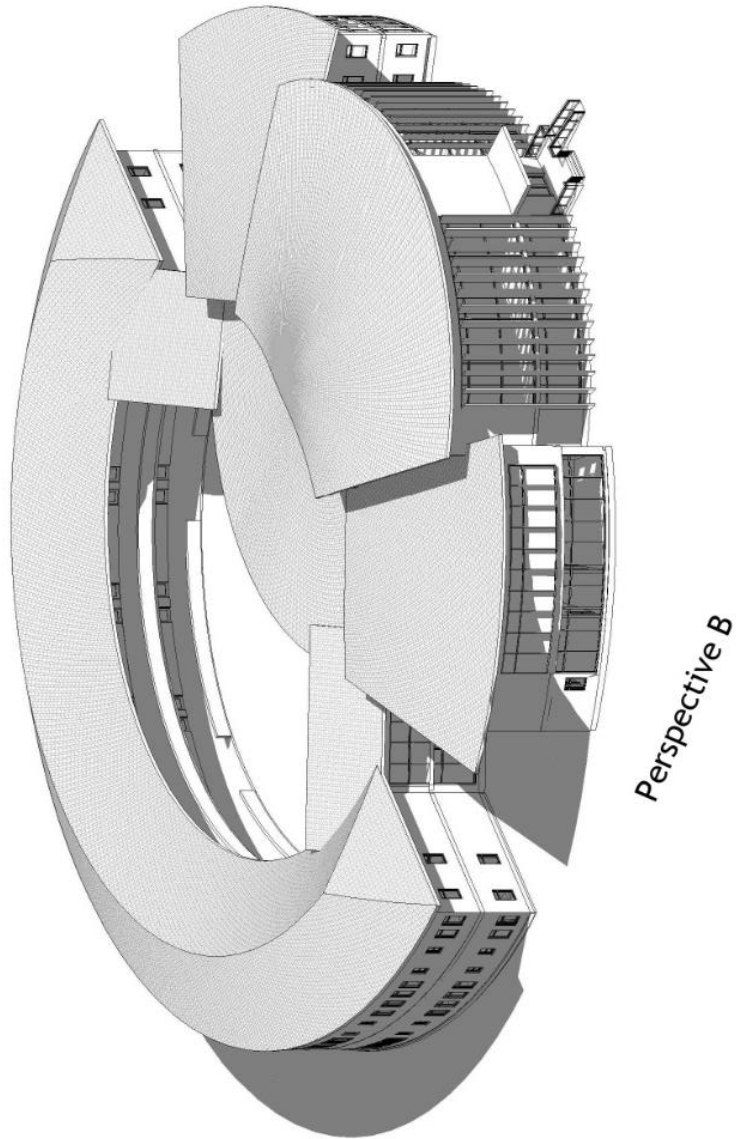
First Floor Plan

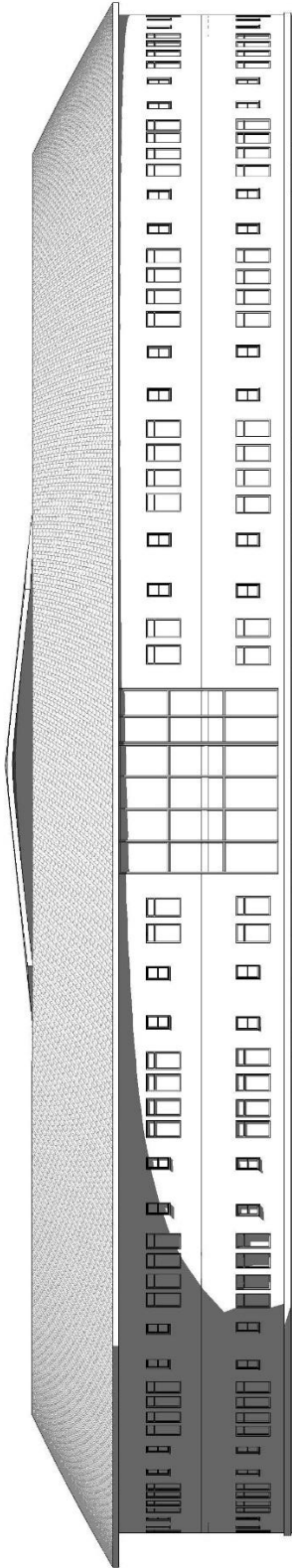




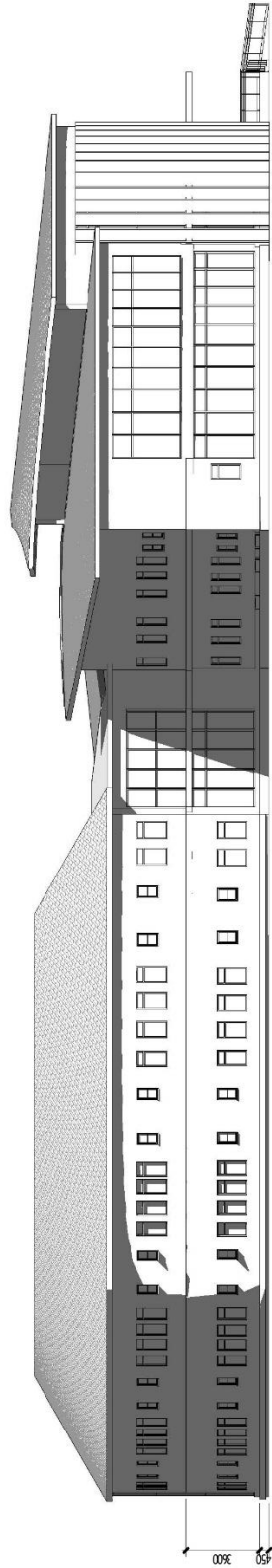
West Elevation







South Elevation



East Elevation



CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings and Main Issues

It is important to mention that the present study dealt with the architectural design of a geriatric care facility in Enugu Metropolis. This topic was selected based on the growing need for proper buildings where elderly people can receive care, therapy, and support while keeping their dignity. The study looked at the weaknesses of existing elderly care spaces in Nigeria and the need for environments that actually help old people feel better rather than worse.

A review of the literature on the subject indicated that current trends in healthcare design have moved beyond the old hospital model into spaces that support healing, independence, and emotional wellbeing. Some of the key concepts identified through reviewing the literature included therapeutic design, biophilic elements, universal accessibility, good wayfinding, climate responsiveness, and proper zoning. It is worth mentioning that evidence-based design played an important role when developing care environments for elderly users.

The case studies provided significant insights into care facility design practices. The case study of Federal Medical Centre Abeokuta elderly care unit, National Hospital Abuja geriatric centre, University of Nigeria Teaching Hospital Enugu, Maggie's Centre Lancaster, and Hogewey Dementia Village showed that proper spatial organization, connection to nature, comfortable environment, and home-like atmosphere are important in the success of geriatric care buildings. The site analysis results showed that the selected site behind ANAMMCO is suitable for the project in terms of size, accessibility for families and staff, and prospects for developing gardens and expanding structures in the future.

On the basis of the obtained data, it is suggested to construct a single-storey geriatric care facility on the selected site using the concept called "The Four-Leaf Clover." This concept is based on the shape of a clover that creates four connected wings around a central garden.

The proposed solution incorporates all the necessary spaces including respite bedrooms, therapy areas, dining hall, activity spaces, administrative offices, and outdoor gardens within one building in order to encourage resident wellbeing and staff efficiency.

6.2 Conclusion

It can therefore be concluded from this study that geriatric care facilities should not only focus on providing beds and medical equipment but should transform into environments that support the whole person, body, mind, and spirit. Changes in how societies view aging have made it necessary for architecture to respond to the real needs of elderly people, not just the convenience of caregivers.

From the findings of this research study, it is clear that care facility architecture has a critical impact on improving the health and happiness of elderly residents. By incorporating proper space planning, therapeutic features, accessible routes, and climate-responsive design strategies, care quality can be improved.

The geriatric care facility for Enugu Metropolis as proposed above creates an architecture that is suitable for the times due to its incorporation of nature connection and functionally designed warm spaces. The facility design fosters such features as accessibility, adaptability, sustainability, and comfort for the users, and its distinctiveness is brought about by its symbolism which depicts the four aspects of daily wellbeing. It can therefore be anticipated that the facility will greatly improve elderly care in the region.

6.3 Recommendations

Recommendations based on the results of this study include the following:

1. The establishment of modern geriatric care facilities that combine healthcare services with home-like environments is highly encouraged for Nigerian cities and communities.
2. Building designs should incorporate flexibility so that future changes in care needs and resident numbers can easily be accommodated.
3. Accessibility features such as ramps, wide corridors, grab bars, level thresholds, and clear signage should be considered from the beginning of design, not added later.
4. Environmental considerations such as natural ventilation, daylighting, shaded outdoor spaces, and native planting should be employed during the building of care facilities.
5. Geriatric care facilities should not only focus on bedrooms but should also establish spaces for therapy, social eating, gardening, and family visits among other practices.
6. Maintenance policies should be put in place for both the physical facilities and medical equipment installed in these facilities.
7. Future projects of geriatric care facilities should emphasize resident-focused designs that prioritize dignity, independence, and connection to nature.

6.4 Contribution to Knowledge

This research is important in contributing to knowledge on how the architecture of care buildings can respond to the evolving needs of aging populations in developing countries. This research presents a holistic perspective of geriatric facility design that considers therapeutic environment, accessibility, climate response, and nature connection all in one architectural proposal.

In addition, the research is important in adding to the body of architectural knowledge through the creation of a conceptual design inspired by the four-leaf clover. The concept highlights how

familiar, meaningful shapes can be used in creating buildings for healthcare purposes while at the same time being responsive to environmental needs and cultural identity.

Finally, the research will act as a source of information to future researchers and architects who will undertake architectural designs of geriatric care facilities in Nigerian cities and other developing contexts.

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