ARCHITECTURAL EVALUATION OF STUDENTS' HALLS OF RESIDENCE AT THE UNIVERSITY OF BENIN

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A RESEARCH DISSERTATION SUBMITTED TO THE
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DECLARATION

This is to declare that I, ODIASE BENNETT OSHIOFE student of the Department of Architecture, University of Benin with MAT.NO: ENV2103357 conducted the research on this project topic: **"ARCHITECTURAL EVALUATION OF STUDENTS' HALLS OF RESIDENCE AT THE UNIVERSITY OF BENIN"**, under the supervision of ARC. (MRS) G.E.O IFADA and that all the information provided in this report was taken from the proper factual sources of information. All academic material used in this work and its sources has been duly acknowledged.

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Signature Date

CERTIFICATION

This is to certify that this study titled **"ARCHITECTURAL EVALUATION OF STUDENTS' HALLS OF RESIDENCE AT THE UNIVERSITY OF BENIN"** was carried out by ODIASE BENNETT OSHIOFE, with Matric Number **ENV2103357** under my supervision and meets the regulation governing the award of the Bachelor degree in Architecture of the University of Benin, Benin City, Edo State, Nigeria. We certify that it has not been submitted for the Bachelor's degree in this or any other university and is approved for its contribution to knowledge and literary presentation.

ARC. (MRS) G.E.O. IFADA	**DR. (ARC.) OKAFOR IWU**
Project Supervisor	**Head of Department**
Date	**Date**

DEDICATION

I dedicate this work to God, my constant source of strength and to my parents, Mr. Augustine Odiase and Mrs. Odiase Caroline and my big brother Mr. Victor Odiase for their endless love, sacrifices, support, and encouragement throughout my academic journey. This work is a reflection of your prayers and guidance.

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All praise, glory, and thanksgiving be to God Almighty, whose grace, wisdom, and strength sustained me throughout the course of this research and my entire academic journey. His unfailing mercy, guidance, and divine support remained my constant source of hope, inspiration, and perseverance.

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ABSTRACT

The quality of students' halls of residence plays a significant role in shaping comfort, wellbeing, and academic productivity within the university environment. This study focused on the architectural evaluation of students' halls of residence at the University of Benin, using Hall 4 (Male Hostel) as a case study, with the aim of assessing its spatial layout, environmental performance, facilities, and students' level of satisfaction. A descriptive survey research design was adopted for the study. Data were collected through the administration of a structured questionnaire to 295 residents of Hall 4, alongside direct physical observation and photographic documentation of the hostel environment. The data obtained were presented in tables and analyzed using frequency counts, percentages, and descriptive interpretation. Findings from the study revealed that although the hall remains functional as a residential facility, several challenges exist, particularly in the areas of poor natural ventilation, inadequate sanitary facilities, insufficient maintenance, limited room space, and low overall student satisfaction.

Physical observation further confirmed visible signs of poor maintenance, aging furniture, stained wall finishes, and poorly maintained washrooms and toilets. The study concluded that the architectural performance of Hall 4 does not fully support a comfortable and conducive living environment for students. Based on the findings, the study recommended improved ventilation strategies, renovation of sanitary facilities, better maintenance culture, upgrading of communal spaces, and periodic post-occupancy evaluation to enhance the quality of student residential facilities within the University of Benin.

CHAPTER ONE

1.0 INTRODUCTION

The quality of students' residential environments has become an important issue in higher education because halls of residence serve as more than just sleeping spaces; they also function as spaces for studying, social interaction, personal development, and general well-being. Within university settings, the architectural condition of hostel facilities plays a major role in shaping students' daily experiences, influencing their comfort, privacy, health, and academic productivity. Where residential spaces are well planned and properly maintained, they support effective living and learning; where there are deficiencies in layout, ventilation, sanitary facilities, or maintenance, the quality of student life is significantly affected.

In many Nigerian universities, student hostels face increasing pressure due to rising student populations, aging infrastructure, and inadequate maintenance practices. These challenges often result in overcrowded rooms, poor ventilation, insufficient sanitary facilities, and declining environmental quality, all of which affect occupants' satisfaction with the residential environment. Such conditions make the evaluation of existing halls of residence necessary in order to understand how well they perform in meeting the needs of students.

At the University of Benin, Hall 4 serves as one of the male students' residential facilities and represents a typical example of university hostel accommodation within a federal institution. The architectural performance of this hall, particularly in relation to spatial organization, environmental comfort, facilities, and maintenance, directly influences the quality of living experienced by its residents. Examining these factors provides an opportunity to identify the strengths and weaknesses of the hostel environment and to propose practical measures for improvement. The growing importance of user-centered building assessment has further emphasized the need to evaluate hostel facilities based on both students' experiences and direct physical observation. This study, therefore, focuses on the architectural evaluation of Hall 4 with the aim of assessing how its design and physical condition affect students' comfort, satisfaction, and overall residential experience. The outcome of the study is expected to provide useful insights for improving hostel design, facility management, and students' living conditions within the University of Benin.

1.1 BACKGROUND OF THE STUDY

Student accommodation is a fundamental component of university infrastructure because it directly shapes students' academic engagement, social development, and overall well-being during their years of study (Akande *et al.,* 2023). Halls of residence are not only places where students sleep, but also environments where they read, interact, relax, and form social identities, making their architectural quality central to the university experience (Ibem & Aduwo, 2019). The design and performance of these residential buildings, therefore, influence students' comfort, behaviour, productivity, and perception of institutional care and support (Uzuegbunam, *et al.,* 2024).

Globally, universities have continued to expand in response to increasing demand for higher education, and this expansion has placed significant pressure on existing student housing facilities (Oyetunji & Boluwatife, 2023). In many developing countries, including Nigeria, the growth in student population has not been matched with proportional investment in on-campus accommodation, leading to overcrowding, aging infrastructure, and declining residential quality (Adelowokan & Sanni, 2024). These challenges have heightened concerns about the suitability of halls of residence to meet contemporary standards of comfort, health, safety, and learning support (Adegoke *et al.,* 2020). In the Nigerian context, federal universities commonly rely on halls of residence built several decades ago, many of which were designed for smaller student populations and different lifestyle patterns (Ibem & Aduwo, 2019). As enrolment has increased, rooms originally intended for two occupants are often shared by three or more students, while sanitary and circulation facilities are used beyond their designed capacity (Adelowokan & Sanni, 2024). Such conditions have been shown to affect students' satisfaction with their living environment and their ability to concentrate on academic activities (Uzuegbunam *et al.,* 2024).

One of the most critical dimensions of student housing is the quality of the indoor environment, particularly in terms of ventilation, lighting, thermal comfort, and air quality (Akande *et al.,* 2023). Studies conducted in tropical and hot-humid climates indicate that buildings without adequate climate-responsive design features expose occupants to heat stress, discomfort, and fatigue, which can negatively affect sleep quality and academic performance (Uzuegbunam *et al.,* 2024). Poor indoor environmental conditions have also been linked to increased health complaints among students living in university hostels (Adegoke *et al.,* 2020). Architectural layout and spatial organisation further determine how students experience their halls of residence in daily life

(Preiser & Vischer, 2019). Factors such as room size, circulation efficiency, privacy, noise control, and access to common spaces influence students' sense of personal space and social interaction within shared environments (Ibem & Aduwo, 2019). When these elements are poorly designed or inadequately maintained, they contribute to stress, conflict, and dissatisfaction among residents (Adegoke *et al.,* 2020). Post-occupancy evaluation has become a key method for assessing how buildings actually perform after they are occupied by users, especially in residential and institutional settings (Preiser & Vischer, 2019). This approach emphasizes the importance of understanding users' perceptions alongside physical building conditions in order to generate meaningful design and management recommendations (Yin, 2018). In student housing research, post-occupancy evaluation has been widely used to examine the relationship between architectural design and user satisfaction in halls of residence (Adegoke *et al.,* 2020).

The University of Benin, located in Benin City, Edo State, is one of Nigeria's prominent federal universities with a large and diverse student population (Onojah & Uche, 2021). The university provides on-campus accommodation for a significant number of its undergraduates through its halls of residence, which serve as important living-learning environments (Ibem & Aduwo, 2019). Hall 4, a male students' hall of residence, represents a typical residential facility within the university, accommodating students with varying academic, social, and cultural backgrounds. Like many halls of residence in Nigerian universities, Hall 4 faces challenges related to space adequacy, environmental comfort, and facility maintenance (Adelowokan & Sanni, 2024). The architectural characteristics of such halls influence how students perceive safety, privacy, comfort, and institutional support (Uzuegbunam *et al.,* 2024). Evaluating these characteristics is therefore essential for understanding how well the building supports students' academic and personal development. An architectural evaluation of Hall 4 provides an opportunity to assess how design intentions align with actual user experience in a real institutional context (Preiser & Vischer, 2019). By examining spatial organisation, environmental performance, and user satisfaction, the study contributes to evidence-based understanding of how student housing can be improved to meet contemporary needs (Adegoke *et al.,* 2020). This background establishes the justification for undertaking a detailed architectural evaluation of students' halls of residence at the University of Benin, with a specific focus on Hall 4 as a case study.

1.2 STATEMENT OF THE PROBLEM

Student halls of residence are expected to provide environments that support learning, wellbeing, and social development, yet many university hostels in Nigeria fall short of these expectations due to design, environmental, and maintenance challenges (Ibem & Aduwo, 2019). Research has shown that when student accommodation is overcrowded, poorly ventilated, and inadequately maintained, it negatively affects students' comfort, health, and academic concentration (Uzuegbunam *et al.*, 2024). Despite the central role of halls of residence in campus life, they often receive less architectural attention than academic buildings in terms of evaluation and upgrading (Preiser & Vischer, 2019).

One major problem is the mismatch between the increasing student population and the limited capacity of existing halls of residence in Nigerian federal universities (Adelowokan & Sanni, 2024). Many halls were designed several decades ago for smaller enrolments and different living patterns, but they now accommodate far more students than originally intended (Ibem & Aduwo, 2019). This has resulted in overcrowded rooms, overused sanitary facilities, and strained circulation spaces, all of which reduce privacy, increase noise levels, and heighten conflict among residents (Adegoke *et al.*, 2020). Another critical issue relates to indoor environmental quality, particularly ventilation, thermal comfort, and lighting in student hostels located in hot-humid climates such as southern Nigeria (Akande *et al.*, 2023). Studies indicate that inadequate natural ventilation and poor thermal performance expose students to heat stress and discomfort, which negatively influence sleep quality and academic productivity (Uzuegbunam *et al.*, 2024). When students are unable to rest comfortably or study effectively within their halls of residence, their overall university experience and academic performance are compromised (Adegoke *et al.*, 2020).

In addition to environmental concerns, the spatial organisation and functional layout of many halls of residence do not adequately support students' daily activities (Preiser & Vischer, 2019). Poorly planned room arrangements, inefficient circulation systems, and a lack of appropriate communal and study spaces limit opportunities for both private study and positive social interaction (Ibem & Aduwo, 2019). These shortcomings reduce residents' satisfaction with their living environment and weaken the role of halls of residence as supportive learning communities (Adegoke *et al.*, 2020).

At the University of Benin, students are accommodated in several halls of residence, many of

which share similar architectural and environmental challenges faced by federal universities nationwide (Adelowokan & Sanni, 2024). Hall 4, a male students' hall of residence, reflects these broader issues through concerns related to space adequacy, ventilation, thermal comfort, facility condition, and overall residential quality (Uzuegbunam *et al.,* 2024). However, despite these concerns, there is limited empirical and architectural evaluation focused specifically on how Hall 4 performs in relation to design standards and students' lived experiences (Preiser & Vischer, 2019). The absence of detailed, evidence-based architectural evaluation means that decisions about renovation, upgrading, and management of halls of residence are often made without sufficient understanding of user needs and building performance (Yin, 2018). Without systematic assessment, persistent problems in student housing remain unaddressed, and opportunities for improving comfort, functionality, and satisfaction are lost (Adegoke *et al.,* 2020). This situation highlights the need for a focused architectural evaluation of Hall 4 at the University of Benin in order to identify design and performance gaps and to provide recommendations for enhancing students' residential environments (Ibem & Aduwo, 2019).

1.3 RESEARCH QUESTIONS

Research questions guide the direction of a study by translating the research problem into specific inquiries that can be investigated systematically through data collection and analysis (Yin, 2018). In architectural and post-occupancy evaluation studies, research questions are designed to examine how building design, environmental performance, and user perception interact to shape residential quality in halls of residence (Preiser & Vischer, 2019). Since this study focuses on the architectural evaluation of Hall 4 (Male Students' Hall of Residence) at the University of Benin, the research questions are framed to explore both physical and experiential dimensions of the building (Ibem & Aduwo, 2019). The research questions guiding this study are as follows.

1. What is the existing architectural layout and spatial organisation of Hall 4 (Male Hall of Residence) at the University of Benin? This question is important because spatial arrangement, circulation systems, and room configurations significantly influence how students use and perceive residential spaces in university hostels (Preiser & Vischer, 2019).

2. How adequate are the environmental conditions of Hall 4 in terms of ventilation, lighting, and thermal comfort? This question reflects the importance of indoor environmental quality in student

housing, especially in hot-humid climates where poor thermal performance affects comfort, health, and academic productivity (Uzuegbunam *et al.*, 2024).

3. What is the condition and functionality of facilities and services provided in Hall 4? This question addresses the role of maintenance, sanitary facilities, and support spaces in shaping residential satisfaction and daily living experiences in halls of residence (Adegoke *et al.*, 2020).

4. How do students perceive and evaluate their level of comfort, privacy, and satisfaction within Hall 4? This question is grounded in the understanding that users' perceptions are central to post-occupancy evaluation and provide insights that physical inspection alone cannot reveal (Preiser & Vischer, 2019).

5. What architectural and environmental improvements can be recommended to enhance the performance and residential quality of Hall 4 at the University of Benin? This question emphasizes the applied nature of architectural research, which aims not only to diagnose problems but also to inform design and management strategies for better student housing outcomes (Ibem & Aduwo, 2019).

Together, these research questions provide a structured framework for investigating the architectural performance of Hall 4 by linking building design, environmental quality, and user experience in a coherent manner (Yin, 2018). They ensure that the study remains focused on itscore objective of evaluating and improving students' halls of residence within the University of Benin context (Preiser & Vischer, 2019).

1.4 AIM AND OBJECTIVES OF THE STUDY

The aim and objectives of a research study provide a clear statement of what the study intends to achieve and how it will be achieved through systematic investigation (Yin, 2018). In architectural research, the aim defines the overall purpose of the study, while the objectives break this purpose into specific, achievable components that guide data collection, analysis, and interpretation (Preiser & Vischer, 2019). This structure ensures that the study remains focused, logical, and aligned with its research problem (Ibem & Aduwo, 2019).

The main aim of this study is to carry out an architectural evaluation of Hall 4 (Male Students' Hall of Residence) at the University of Benin in order to assess its spatial, environmental, and

functional performance as well as students' level of satisfaction with the living environment (Preiser & Vischer, 2019). To accomplish the research aim, the following specific objectives have been established:

1. examine the existing architectural layout and spatial organisation of Hall 4 in relation to room arrangement, circulation patterns, and use of space.
2. assess the environmental performance of Hall 4 in terms of ventilation, lighting, and thermal comfort.
3. evaluate the condition and functionality of facilities and services provided in Hall 4, including sanitary spaces and shared areas.
4. investigate students' perceptions of comfort, privacy, and overall residential satisfaction within Hall 4.
5. propose architectural and environmental design recommendations for improving the performance and quality of Hall 4 based on the findings of the evaluation.

Together, these objectives provide a structured framework for achieving the overall aim of the study by linking architectural analysis, environmental assessment, and user perception in a coherent and systematic manner (Yin, 2018). They also ensure that the study contributes meaningfully to knowledge and practice in the field of student housing and residential architecture (Preiser & Vischer, 2019).

1.5 JUSTIFICATION OF THE STUDY

The justification of a research study explains why the study is necessary and how it contributes to knowledge, practice, and policy within a particular field (Yin, 2018). In architectural research, justification is particularly important because it establishes the relevance of evaluating existing buildings in relation to user needs, environmental performance, and design effectiveness (Preiser & Vischer, 2019). This study is justified by the growing recognition that the quality of students' residential environments plays a critical role in shaping academic performance, well-being, and overall university experience (Ibem & Aduwo, 2019). Student halls of residence are among the most intensively used buildings on university campuses, yet they often receive limited attention in terms of systematic architectural evaluation and performance assessment (Adegoke *et al.,* 2020). Studies have shown that inadequately designed or poorly maintained student housing can

contribute to discomfort, stress, health challenges, and reduced academic productivity among students (Uzuegbunam *et al.,* 2024). The need to evaluate halls of residence from both architectural and user perspectives is therefore essential for ensuring that these buildings effectively support students' daily living and learning activities (Preiser & Vischer, 2019).

In the Nigerian context, the justification for this study is further strengthened by the persistent challenges facing student accommodation in federal universities, including overcrowding, ageing infrastructure, and insufficient maintenance (Adelowokan & Sanni, 2024). Many halls of residence were constructed several decades ago and were not designed to accommodate current student populations or contemporary expectations regarding comfort, privacy, and environmental quality (Ibem & Aduwo, 2019). Without evidence-based evaluation, these challenges remain poorly understood and inadequately addressed, limiting opportunities for meaningful improvement (Yin, 2018). The University of Benin, as a major federal institution with a large student population, relies heavily on its halls of residence to provide affordable on-campus accommodation (Onojah & Uche, 2021). Hall 4, a male students' hall of residence, represents a typical example of university residential buildings that require detailed architectural assessment to determine how well they perform in relation to space planning, environmental comfort, and facility provision (Uzuegbunam *et al.,* 2024). Conducting an architectural evaluation of Hall 4 is therefore justified by the need to generate empirical evidence that reflects students' lived experiences and the actual performance of the building (Preiser & Vischer, 2019).

This study is also justified by its potential contribution to architectural knowledge and practice, particularly in the area of post-occupancy evaluation of student housing in tropical climates (Akande *et al.,* 2023). By examining the relationship between architectural design features and user satisfaction, the study contributes to the growing body of literature that seeks to improve the quality and sustainability of student residential environments (Adegoke *et al.,* 2020). Such contributions are important for informing future hostel design, renovation, and management strategies in Nigerian universities and similar contexts (Ibem & Aduwo, 2019). Furthermore, the findings of this study are expected to be useful to multiple stakeholders, including university administrators, architects, facility managers, and policy makers involved in campus planning and student welfare (Preiser & Vischer, 2019). Evidence-based recommendations derived from architectural evaluation can support more informed decision-making regarding the upgrading and

maintenance of halls of residence, ensuring that limited resources are directed toward interventions that have the greatest impact on student comfort and satisfaction (Yin, 2018).

1.6 SCOPE OF THE STUDY

The scope of a study defines the boundaries within which the research is conducted, specifying the aspects, locations, and population under investigation to ensure feasibility, depth, and relevance (Yin, 2018). In the context of student housing, a comprehensive evaluation of all halls of residence within a university is often impractical due to limitations of time, resources, and access, particularly in institutions with large student populations and multiple residential facilities (Ibem & Aduwo, 2019). Therefore, this study is deliberately confined to Hall 4 (Male Students' Hall of Residence) at the University of Benin, Edo State, Nigeria, as a representative case for evaluating architectural design, environmental performance, and user satisfaction.

The study examines the architectural layout and spatial organization of Hall 4, including room arrangements, circulation patterns, and common spaces, in order to assess how well the building design accommodates students' daily activities and interactions (Preiser & Vischer, 2019). Attention is given to environmental performance, with a particular focus on natural ventilation, lighting, and thermal comfort, since these factors significantly affect occupant wellbeing and productivity in tropical climates such as southern Nigeria (Uzuegbunam *et al.*, 2024). Furthermore, the study evaluates the adequacy, functionality, and condition of facilities and services, including toilets, bathrooms, communal areas, and study spaces, in line with research highlighting their influence on user satisfaction and residential quality (Adegoke *et al.,* 2020). The scope is also restricted to the perceptions and experiences of the male students residing in Hall 4, as user feedback provides critical insights that complement physical assessment and post-occupancy evaluation of architectural performance (Preiser & Vischer, 2019). This approach ensures that the study captures both objective building conditions and subjective experiences, enabling a holistic understanding of how the hall functions as a living-learning environment (Ibem & Aduwo, 2019). While the focus is limited to a single hall, the study acknowledges that findings may have broader implications for other halls of residence within the University of Benin and similar institutions in Nigeria (Adelowokan & Sanni, 2024). By concentrating on Hall 4, the research is able to conduct a detailed and systematic analysis of space, environmental performance, and user satisfaction, which would not be feasible if multiple halls were studied simultaneously (Yin, 2018). This depth of

study ensures that recommendations derived from the research are evidence-based, practical, and capable of guiding future architectural interventions and management strategies in student housing (Preiser & Vischer, 2019).

1.7 STUDY AREA

The study area for this research is the University of Benin (UNIBEN), located in Benin City, the capital of Edo State, Nigeria. Understanding the context of the university requires situating it within the broader urban, climatic, and historical environment of Benin City, as the characteristics of the city influence campus planning, building design, and residential comfort (Ogbodo & Nwokolo, 2018). Benin City is one of Nigeria's oldest urban centers and is historically renowned for its organized pre-colonial planning, street networks, and cultural heritage, which continue to shape contemporary urban development patterns (Adebayo, 2020). The city is located in the South-South geopolitical zone and serves as a hub for education, administration, and commerce, thereby contributing to the population pressures on university infrastructure, including student housing (Ogunleye & Adewale, 2021). Climatically, Benin City experiences a tropical wet and dry climate characterized by high temperatures, humidity, and significant rainfall, particularly during the wet season (Olawuni & Adebayo, 2019). Such climatic conditions have direct implications for the design, construction, and performance of buildings, particularly residential facilities, where ventilation, thermal comfort, and material durability are critical considerations (Akande *et al.*, 2019). For student halls of residence, these environmental factors affect indoor comfort, study behaviour, and the overall health and well-being of residents, highlighting the importance of architectural evaluation within the specific climatic and urban context of Benin City (Uzuegbunam *et al.*, 2024).

The University of Benin is a federal university established in 1970, with a main campus that spans a large area of Benin City and accommodates thousands of students (Onojah & Uche, 2021). The campus comprises academic, administrative, and residential facilities, including multiple halls of residence for male and female students. These halls are designed to provide on-campus accommodation that supports students' learning, social interaction, and integration into university life (Ibem & Aduwo, 2019). Hall 4, a male students' hall of residence, is the focus of this study, serving as a representative facility for evaluating architectural layout, environmental performance, and user satisfaction.

The spatial organisation of the University of Benin campus, including the positioning of academic and residential buildings, circulation routes, and open spaces, influences the accessibility and functionality of halls of residence (Akinluyi & Fadamiro, 2020). The proximity of halls to lecture theatres, libraries, and recreational areas shapes students' daily routines and underscores the importance of considering location within the campus in architectural evaluation studies (Ibem & Aduwo, 2019). Furthermore, the historical development and expansion of UNIBEN have led to a mixture of older and newer halls of residence, which exhibit varying architectural standards, spatial layouts, and environmental performance characteristics (Onojah & Uche, 2021). Focusing on Hall 4 allows for an in-depth assessment within this broader campus and urban context, providing insights into both the specific hall and the factors that may influence similar student residential facilities.

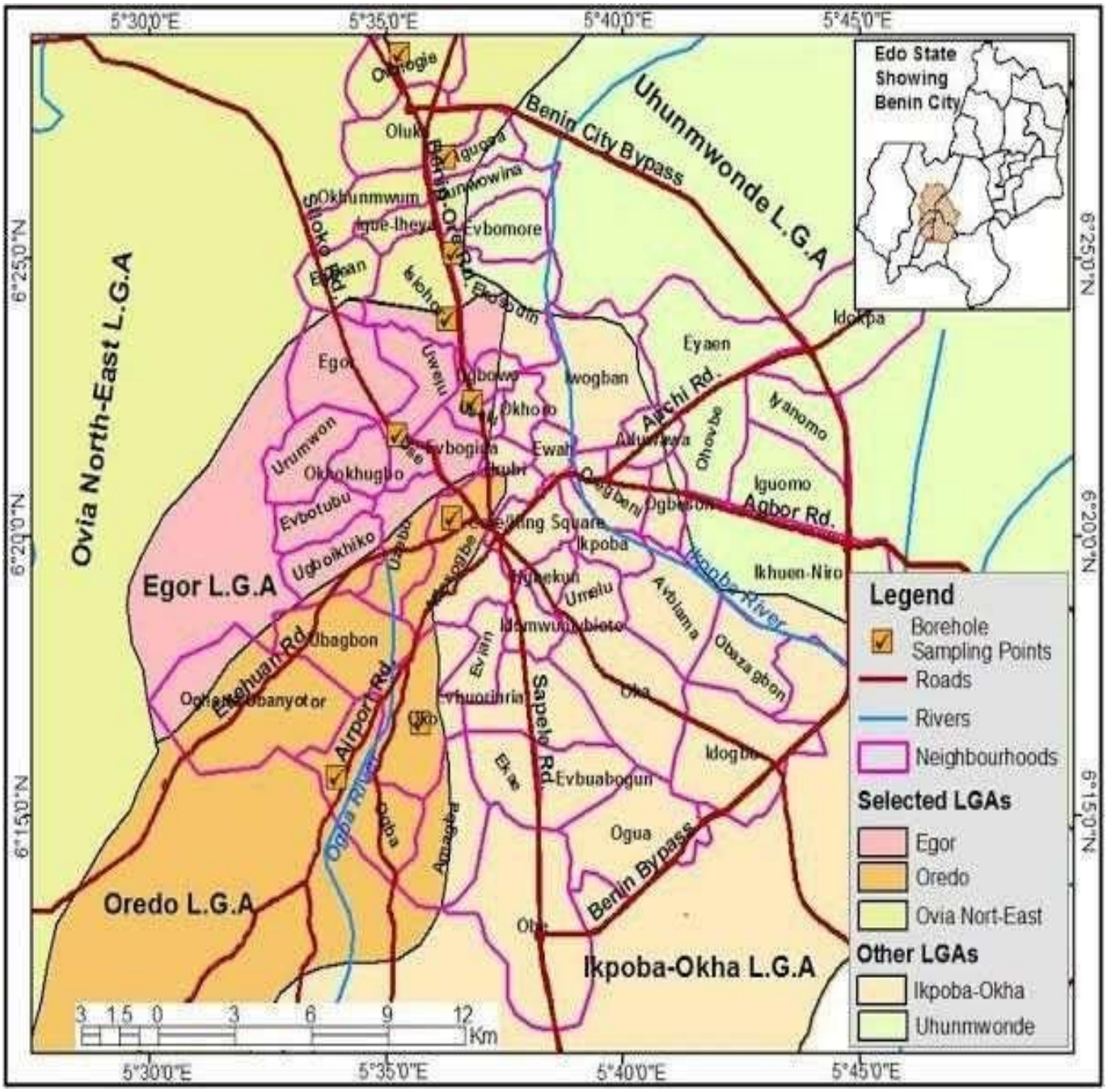

Figure 1.1: Map of Benin City showing local government areas
Source: Wikipedia

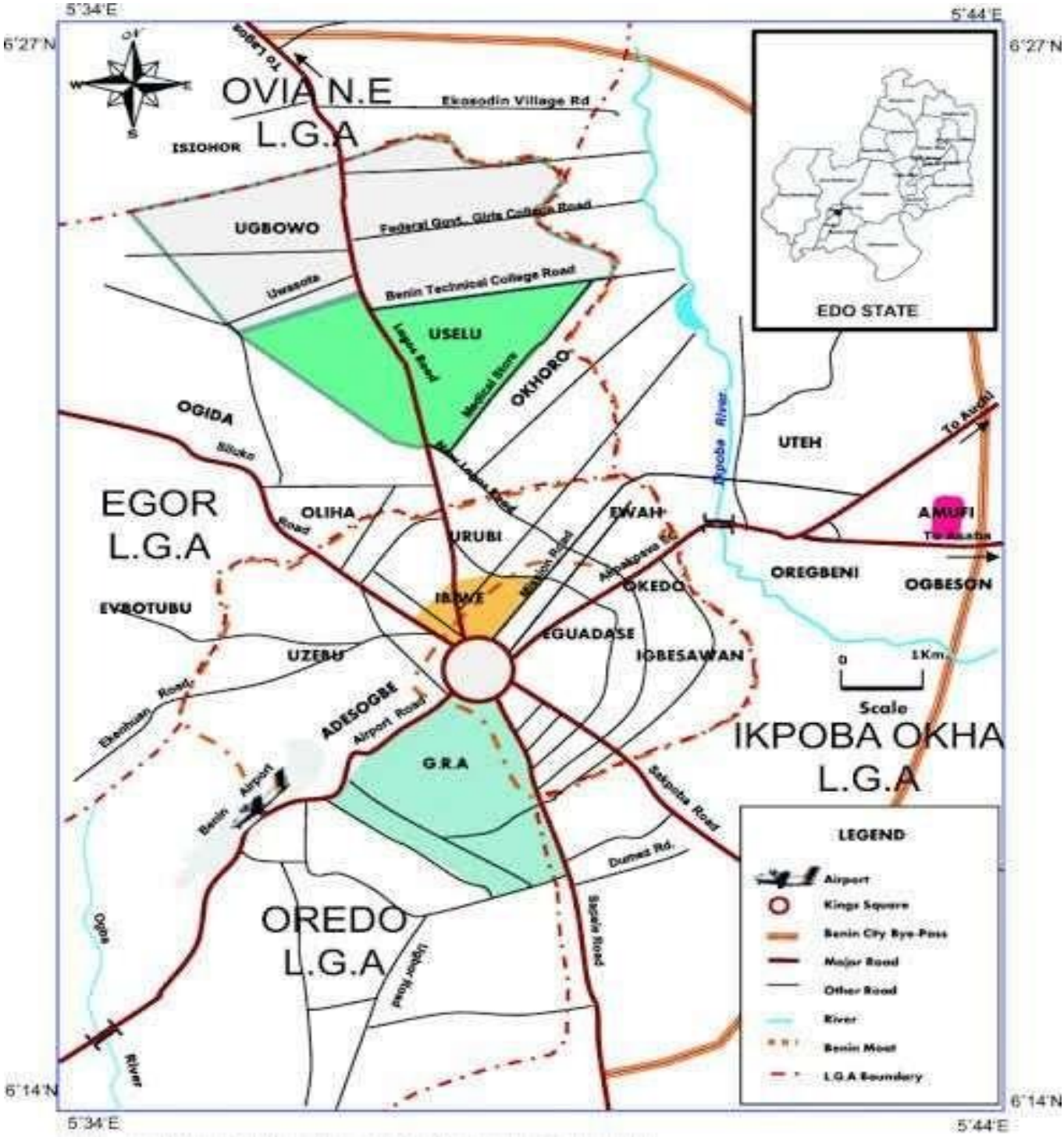

Figure 1.2: Map of Benin City, showing the study areas
Source: Ministry of Lands and Survey, Benin City (2014)

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

The theoretical framework provides the foundation upon which a research study is built by identifying relevant theories that explain the relationships between the key variables under investigation (Creswell & Creswell, 2018). In architectural research, particularly in the evaluation of existing buildings, theoretical frameworks are essential for understanding how design decisions influence building performance and user experience (Preiser & Vischer, 2019). The assessment of students' halls of residence requires a multidisciplinary approach because such environments combine physical, environmental, and behavioural dimensions that affect occupants' comfort, satisfaction, and overall well-being (Ibem & Aduwo, 2019). This study is therefore anchored on the following theoretical perspectives, which collectively provide a framework for evaluating the architectural performance of Hall 4 (Male Students' Hall of Residence) at the University of Benin. The theories underpinning this study include:

1. Post-Occupancy Evaluation theory
2. User Satisfaction Theory
3. Systems theory in building performance
4. Environmental Determinism theory (Preiser & Vischer, 2019).

2.1.1 Post-Occupancy Evaluation Theory

Post-Occupancy Evaluation (POE) theory is a well-established concept in architectural research that focuses on the systematic assessment of buildings after they are occupied and in active use by their intended users (Preiser & Vischer, 2019). The theory is grounded in the idea that the true performance of a building can only be fully understood through evaluating how it functions in real-life conditions, rather than relying solely on design intentions or technical specifications (Zimring & Reizenstein, 1980). This perspective emphasises the importance of user experience as a critical measure of building success, particularly in residential and institutional environments where occupants interact continuously with the built space (Vischer, 2008). POE theory is based on the understanding that buildings are dynamic systems that influence and are influenced by their users over time (Preiser & Vischer, 2019). As such, evaluation must consider not only physical characteristics such as spatial layout and environmental systems, but also users' perceptions, behaviours, and levels of satisfaction (Vischer, 2008). This user-centred approach is particularly

relevant in the assessment of students' halls of residence, where the quality of the living environment directly affects students' academic performance, comfort, and overall well-being (Amole, 2009). Although earlier studies laid the foundation, more recent applications continue to demonstrate the relevance of POE in evaluating student housing and identifying performance gaps in university residential facilities (Preiser & Vischer, 2019).

A key aspect of POE theory is its multidimensional approach to building performance evaluation, which typically includes functional, technical, and behavioural dimensions (Preiser & Vischer, 2019). Functional performance relates to how well the building supports the intended activities of users, including spatial organization, circulation, and accessibility (Zimring & Reizenstein, 1980). Technical performance refers to the efficiency of building systems such as ventilation, lighting, thermal conditions, and structural integrity, which determine the physical comfort and safety of occupants (Vischer, 2008). Behavioural performance focuses on users' responses to the building, including their satisfaction, comfort, and psychological well-being within the space (Preiser & Vischer, 2019). In the context of student housing, POE has been widely applied to assess the adequacy and performance of halls of residence, particularly in relation to space utilization, environmental comfort, and facility provision (Amole, 2009). Research has shown that POE helps to identify recurring issues such as overcrowding, poor ventilation, inadequate lighting, and insufficient support facilities, all of which negatively impact students' residential experience (Amole, 2009). These findings highlight the importance of incorporating user feedback into the evaluation process, as it provides insights that cannot be obtained through physical inspection alone (Vischer, 2008).

In summary, Post-Occupancy Evaluation theory offers a robust and user-centred approach to assessing building performance by emphasising the importance of evaluating buildings in use. Its application in this study ensures that the architectural evaluation of Hall 4 is grounded in both objective analysis and user experience, thereby contributing to a deeper understanding of student housing performance and the development of more effective and responsive residential environments (Preiser & Vischer, 2019).

2.1.2 User Satisfaction Theory

User Satisfaction theory is a fundamental concept in building performance evaluation that emphasises the importance of occupants' perceptions, experiences, and expectations in

determining the success of a built environment (Vischer, 2008). The theory is based on the premise that a building cannot be considered effective or successful solely on the basis of its physical design or technical performance, but must also be evaluated in terms of how well it meets the needs and expectations of its users (Preiser & Vischer, 2019). In this sense, user satisfaction represents a critical link between architectural design and human experience, particularly in residential environments where occupants interact continuously with the built space.

User satisfaction in residential buildings is influenced by several key factors, including spatial adequacy, environmental comfort, privacy, safety, and the quality of shared facilities (Amole, 2009). Spatial adequacy refers to the availability of sufficient space for occupants to carry out their daily activities comfortably, while environmental comfort encompasses conditions such as temperature, ventilation, lighting, and noise levels (Gifford, 2019). Privacy is another critical factor, particularly in shared living environments such as halls of residence, where the ability to control personal space significantly affects occupants' wellbeing and satisfaction (Thomsen & Eikemo, 2010). The condition and accessibility of facilities such as bathrooms, kitchens, and study areas also play a major role in shaping residents' perceptions of their living environment (Amole, 2009).

In student housing research, User Satisfaction theory has been widely applied to evaluate the quality and performance of halls of residence by capturing students' perceptions of their living conditions (Amole, 2009). Studies have shown that students' satisfaction with their accommodation is closely linked to their academic performance, mental health, and overall university experience (Thomsen & Eikemo, 2010). When students are satisfied with their residential environment, they are more likely to feel comfortable, secure, and motivated to engage in academic activities, whereas dissatisfaction can lead to stress, distraction, and reduced productivity (Gifford, 2019). Another important aspect of User Satisfaction theory is its role in post-occupancy evaluation, where it is used as a key indicator of building performance (Preiser & Vischer, 2019). While technical assessments can measure physical conditions, user satisfaction provides insight into how these conditions are experienced and interpreted by occupants (Vischer, 2008). This makes it an essential component of comprehensive building evaluation, as it captures the human dimension of architectural performance that cannot be fully understood through objective measurements alone. User Satisfaction theory highlights the importance of evaluating

buildings from the perspective of their occupants, recognizing that the success of a built environment is ultimately determined by how well it meets user needs and expectations. Its application in this study ensures that the architectural evaluation of Hall 4 incorporates both objective and subjective dimensions of performance, thereby contributing to a more comprehensive understanding of student housing quality and its impact on occupants' wellbeing and academic experience (Preiser & Vischer, 2019).

2.1.3 Systems Theory in Building Performance

Systems Theory in building performance provides a holistic framework for understanding buildings as complex, integrated systems composed of interrelated components that function together to achieve overall performance outcomes (Preiser & Vischer, 2019). Rather than viewing a building as a collection of isolated elements, systems theory emphasises the interconnectedness of architectural design, environmental systems, structural components, and user behaviour in determining how effectively a building performs (Leaman & Bordass, 2001). This perspective is particularly important in architectural evaluation because it recognizes that deficiencies in one component can influence the performance of the entire system.

In the context of student halls of residence, systems theory helps to explain how various aspects of the building environment interact to influence students' comfort, satisfaction, and well-being (Amole, 2009). For instance, poor spatial design may lead to overcrowding, which in turn affects ventilation, thermal comfort, and privacy, ultimately resulting in dissatisfaction among residents (Preiser & Vischer, 2019). Similarly, inadequate maintenance of facilities can disrupt the functioning of building systems, thereby reducing the overall quality of the residential environment (Leaman & Bordass, 2001). By considering these interrelationships, systems theory enables a more comprehensive evaluation of building performance. The relevance of systems theory to this study lies in its ability to provide a comprehensive framework for evaluating Hall 4 (Male Students' Hall of Residence) at the University of Benin. By applying systems thinking, the study examines how spatial organization, environmental conditions, facility provision, and user behaviour interact to influence the overall performance of the building (Preiser & Vischer, 2019). This approach ensures that the evaluation does not focus on isolated aspects but considers the building as a whole, thereby providing a more accurate and meaningful assessment of its effectiveness. Theory in building performance offers a holistic and integrative approach to understanding how buildings function as

complex systems. By emphasising the interdependence of physical components and human factors, the theory provides valuable insights into the factors that influence building performance and user satisfaction. Its application in this study ensures that the architectural evaluation of Hall 4 is comprehensive, systematic, and grounded in established theoretical principles, thereby contributing to a deeper understanding of student housing performance and the development of more effective residential environments (Preiser & Vischer, 2019).

2.1.4 Environmental Determinism Theory

Environmental Determinism theory is a concept rooted in environmental psychology and human geography that posits that the physical environment plays a significant role in shaping human behaviour, perception, and overall well-being (Gifford, 2019). Within the context of the built environment, the theory suggests that architectural design elements such as spatial configuration, lighting, ventilation, and material quality influence how individuals think, feel, nd interact within a space (Rapoport, 2005). This perspective is particularly relevant in residential settings, where occupants spend extended periods of time and are continuously affected by the conditions of their environment.

In the context of student housing, Environmental Determinism theory helps to explain how the design and condition of halls of residence influence students' daily activities and overall quality of life (Amole, 2009). Students rely on their residential environment for multiple functions, including studying, resting, and socialising, and the effectiveness of these activities is directly affected by the quality of the physical environment (Gifford, 2019). For instance, inadequate lighting and ventilation can negatively impact students' ability to study effectively, while a lack of privacy in shared spaces can lead to stress and reduced satisfaction with the living environment (Evans, 2003). Another important dimension of the theory is its focus on spatial behaviour, which examines how individuals use and interact with space based on its design characteristics (Rapoport, 2005). In halls of residence, spatial layout influences patterns of movement, social interaction, and privacy among students. For example, the arrangement of rooms, corridors, and shared facilities can either encourage social engagement or create barriers to interaction, depending on how the space is designed (Gifford, 2019). This highlights the importance of architectural planning in shaping the social dynamics of residential environments.

The relevance of Environmental Determinism theory to this study lies in its ability to explain how

the architectural features of Hall 4 (Male Students' Hall of Residence) at the University of Benin influence students' behaviour, comfort, and satisfaction. By applying this theory, the study examines how factors such as spatial layout, environmental conditions, and facility provision shape students' experiences within the hall (Amole, 2009). This approach ensures that the evaluation goes beyond physical assessment to consider the behavioural and psychological impacts of the built environment. Environmental Determinism theory provides a valuable framework for understanding the relationship between architectural design and human behaviour. By emphasising the influence of the physical environment on occupants' experiences and well-being, the theory highlights the importance of designing and evaluating buildings in ways that support users' needs. Its application in this study ensures that the assessment of Hall 4 is grounded in an understanding of how environmental factors shape student life, thereby contributing to a more comprehensive evaluation of building performance and residential quality (Gifford, 2019).

2.1.5 Synthesis of the Theoretical Framework

The integration of the various theories discussed in this study is placed into a coherent structure that explains the relationships between architectural design, environmental performance, and user experience in students' halls of residence (Preiser & Vischer, 2019). Rather than treating each theory in isolation, this section demonstrates how Post-Occupancy Evaluation theory, User Satisfaction theory, Systems Theory in building performance, and Environmental Determinism theory collectively provide a comprehensive basis for evaluating the performance of Hall 4 (Male Students' Hall of Residence) at the University of Benin. The integration of these theories results in a comprehensive and multidimensional framework for evaluating students' halls of residence. Post-Occupancy Evaluation provides the overall structure for assessment, User Satisfaction theory captures occupants' perceptions, Systems Theory explains the interrelationships between building components, and Environmental Determinism theory links the physical environment to behavioural outcomes (Preiser & Vischer, 2019). Together, these theories ensure that the evaluation of Hall 4 is both systematic and holistic, addressing functional, environmental, and experiential dimensions of building performance.

In summary, the synthesis of the theoretical framework demonstrates that no single theory is sufficient to fully explain the complexity of building performance in student housing. Instead, the integration of multiple theoretical perspectives provides a more robust and comprehensive

understanding of how architectural design, environmental conditions, and user experience interact within halls of residence. This combined framework, therefore, guides the study in evaluating Hall 4 in a manner that is both theoretically grounded and practically relevant, ultimately contributing to improved design and management of student residential facilities (Preiser & Vischer, 2019).

2.2 CONCEPTUAL FRAMEWORK

The conceptual framework provides a structured representation of the key variables in a study and illustrates the relationships among them, grounded in existing theories and literature (Creswell & Creswell, 2018). In architectural research, particularly in the evaluation of buildings, the conceptual framework serves as a guide for understanding how design elements and environmental conditions influence user experience and overall building performance (Preiser & Vischer, 2019). It translates theoretical concepts into measurable variables that can be investigated systematically within the study.

In this research, the conceptual framework is developed by integrating Post-Occupancy Evaluation theory, User Satisfaction theory, Systems Theory in building performance, and Environmental Determinism theory, which collectively explain how architectural features affect occupants' behaviour and satisfaction (Vischer, 2008). The framework identifies key independent variables related to architectural design and environmental performance, as well as dependent variables associated with students' perceptions and satisfaction within Hall 4 (Male Students' Hall of Residence) at the University of Benin.

2.2.1 Independent Variables

The independent variables in this study include architectural and environmental factors such as spatial layout, ventilation, lighting, thermal comfort, and the condition of facilities. These variables represent the physical characteristics of the building that can be observed and evaluated objectively (Preiser & Vischer, 2019). Spatial layout refers to the organisation of rooms, circulation patterns, and shared spaces, which influence movement and interaction within the hall (Hillier, 2018). Environmental factors such as ventilation, lighting, and thermal conditions determine the level of comfort experienced by occupants, particularly in tropical climates (Gifford, 2019). The condition and functionality of facilities, including sanitary and communal spaces, also play a significant role in shaping the quality of the residential environment (Amole, 2009).

i. Architectural Layout and Spatial Organization

The architectural layout and spatial organisation of residential buildings significantly influence both functionality and user experience. In the context of student housing like Hall 4, the

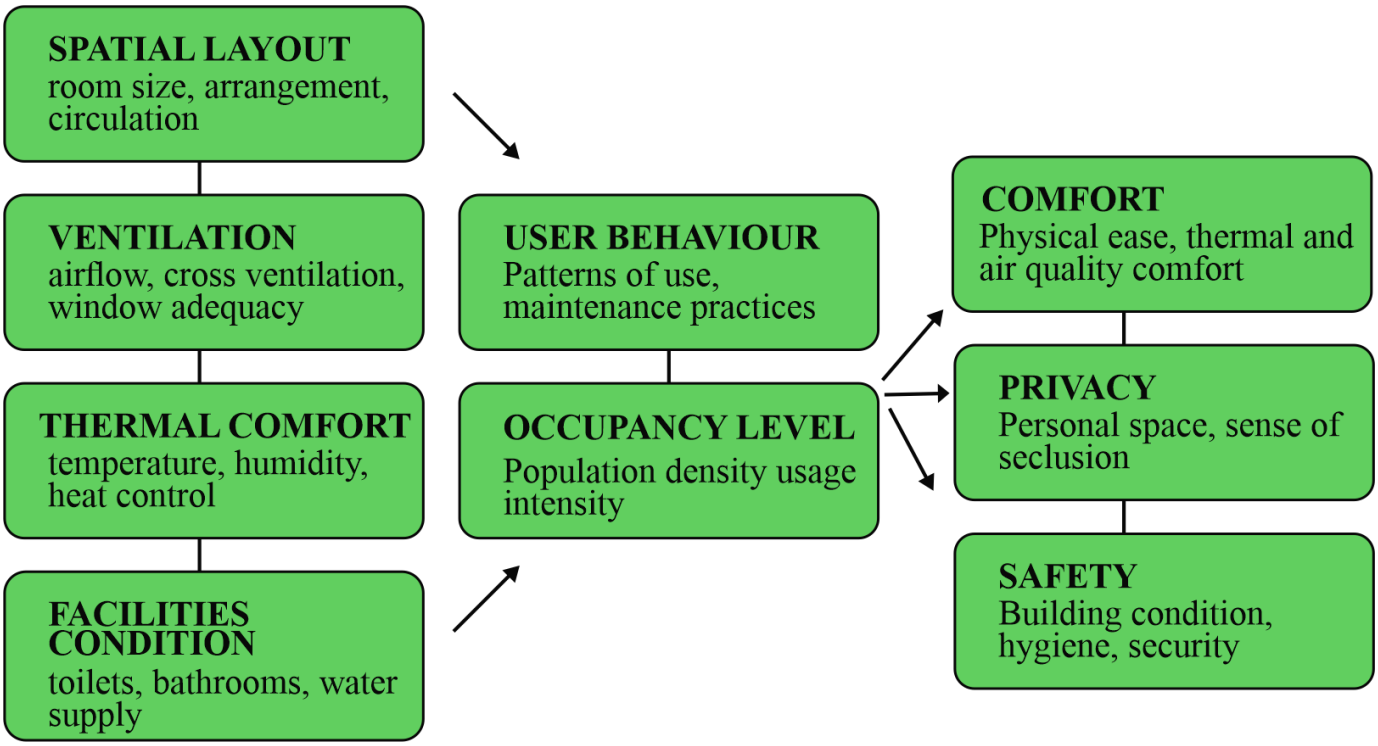

Figure 2.1: Conceptual framework of research
Source: Researcher field work, 2025

arrangement of rooms, circulation patterns, and allocation of space determine not only how efficiently the building operates, but also how occupants interact with and perceive their environment (Ching, 2014). Architectural theorist Francis D. K. Ching emphasizes that spatial organization is foundational to architectural design because it establishes the relationships among different functional areas, influences movement, and creates hierarchy and legibility within a building (Ching, 2014). Circulation patterns—how people move through space—are also central to spatial quality. Effective circulation systems minimize travel distance between key areas, reduce congestion, and provide clarity in orientation (Lawson, 2001). Lawson explains that in residential buildings, poorly designed corridors or stair connections can discourage use of shared spaces, increase travel times to facilities, and contribute to user frustration. Spatial theorists have further noted that circulation should be considered a “connector” space that is not simply transit but integral to the building’s social and functional performance (Hillier & Hanson, 1984).

The concept of spatial legibility is also crucial. Kevin Lynch (1960) described legibility as the ease with which occupants can form a mental map of a place, facilitating navigation and reducing cognitive stress. In halls of residence, legible spatial systems help students orient themselves quickly, promote efficient use of facilities, and shape the psychological comfort of living environments. Lynch's framework — including elements such as nodes, paths, edges, and landmarks — has been widely applied in architectural analysis to evaluate how built form supports user understanding (Lynch, 1960). Empirical studies further support the importance of thoughtful spatial organisation in residential buildings. A research investigation into student housing layouts found that poorly articulated room clusters and ambiguous circulation led to lower satisfaction ratings, especially regarding access to shared facilities and overall wayfinding efficiency (Salama & Gorgulu, 2001). Salama and Gorgulu argue that spatial layout should be evaluated not only in terms of aesthetic composition but also in functional performance — how spaces meet actual behavioral and movement needs.

In summary, architectural layout and spatial organisation are critical determinants of a residential hall's effectiveness. These design dimensions influence circulation efficiency, spatial legibility, privacy gradients, and the overall functional cohesion of the building. For Hall 4, examining spatial arrangement will reveal how its physical form supports or constrains daily life, directly addressing the first objective of this study.

ii. Environmental Performance: Ventilation, Lighting, and Thermal Comfort

Indoor environmental performance in residential buildings encompasses the physical conditions inside a space that influence comfort, health, and satisfaction. For student hostels like Hall 4, ventilation, thermal comfort, and lighting are among the most important environmental quality variables affecting students' wellbeing, daily functioning, and perceptions of their living environment. Ventilation and indoor air quality have been identified as persistent issues in Nigerian student accommodations. Akande *et al. (*2024) conducted an empirical assessment of indoor environmental quality (IEQ) in university hostels and found that *poor ventilation was widespread*, especially in female hostels, with elevated particulate matter and CO_2 concentrations linked to inadequate air movement and occupancy activities (Akande *et al*., 2024). These findings show that insufficient ventilation in Nigerian university hostels can negatively impact air quality, contributing to discomfort and potentially adverse health symptoms. Thermal comfort is closely

related to ventilation but is also influenced by indoor temperature and humidity levels. Nduka *et al.* (2021) investigated IEQ and "sick building syndrome" symptoms in selected student hostels in Southwestern Nigeria, using both objective measurements and occupant surveys. The study recorded indoor temperatures averaging around 30°C and *high relative humidity levels exceeding 70 percent* during their monitoring period, which corresponded with reported discomfort and symptoms such as stuffy noses and tiredness (Nduka *et al.*, 2021). These findings illustrate how high indoor temperatures and humidity—common in Nigeria's tropical climate—can intensify thermal discomfort within student living environments.

Similarly, recent research by Uzuegbunam *et al.* (2024) focused specifically on thermal comfort in naturally ventilated student hostels in southeast Nigeria. Using computational fluid dynamics and simulation methods, the authors demonstrated a significant relationship between design strategies (e.g., window placement, ventilation openings) and thermal comfort outcomes, emphasising that passive ventilation design strongly influences interior thermal conditions (Uzuegbunam *et al.*, 2024). Their ranking of effective passive ventilation approaches underscores the importance of architectural design decisions in moderating indoor temperatures and air movement for enhanced comfort. Lighting performance—although less frequently studied in Nigerian hostel literature—has been measured in relation to overall IEQ. In the Nduka *et al.* (2021) study, objective lighting measurements revealed low indoor illuminance levels (e.g., < 180 lux during parts of the day), indicating that lighting conditions within hostels may fall below optimal comfort thresholds.
While this study did not focus exclusively on lighting, the data signal that visual comfort is a relevant component of environmental performance in student residential buildings.

iii. Facilities and Services Condition

The quality, condition, and functionality of facilities and services in student hostels are central to evaluating the liveability and performance of residential halls. In the context of Nigerian tertiary institutions, institutional studies consistently show that hostel facilities and services are often inadequate, poorly maintained, and unevenly distributed, with direct implications for students' comfort, health, and overall satisfaction.

Research on Nigerian universities highlights that sanitary and hygiene facilities are frequently inadequate. A comprehensive study of sewerage and potable water facilities in the University of Uyo hostels revealed significant dissatisfaction with sanitary services and general facility

conditions. The research found that a majority of students perceived potable water systems to be ineffective and that the wastewater systems and general sanitary facilities were functioning only at a fair or below-standard level. Consequently, only a minority of students reported being moderately satisfied with these basic services, while a significant proportion expressed dissatisfaction (Ajiero *et al.,* 2022). This pattern aligns with broader evidence of facility constraints in Nigerian student housing. For example, assessment studies in multiple university environments show that laundry, bathroom, and toilet facilities are not only insufficient but also poorly maintained, often located far from student rooms, which reduces their usability and contributes to negative perceptions of hostel living conditions (Ajayi *et al.*, 2015). Beyond sanitary services, research also points to deficiencies in the general provision and maintenance of hostel amenities. In male hostels studied across Nigerian universities, students reported poor maintenance of bedroom storage facilities, inadequate provision of essential furniture, and insufficiently serviced general facilities. Poor maintenance practices were directly linked to negligence in facility management and the absence of regular quality checks (Assessment of Facilities in the Male Hostels of University Environments in Nigeria, 2019). The importance of adequate and functioning facilities extends to amenities that directly support academic and social life. Studies note that shared services such as internet connectivity, kitchen areas, and communal spaces are essential for students' day-to-day activities and influence both satisfaction and performance in higher education contexts. When these facilities are inadequate or poorly supported by infrastructure, students experience lower satisfaction and reduced quality of experience within hostel environments (Nwanekezie & Mendie, 2019).

Moreover, broader research into hostel facility management in Nigerian universities highlights inefficiencies in management responses to facility maintenance and service delivery. Findings from a recent case study at a major Nigerian university show that delayed repairs, inconsistent sanitation services, and poorly organized maintenance scheduling contribute to the decline of facility quality, undermining the condition and functionality of shared services (Oribhabor & Ihaza, 2026). Collectively, Nigerian empirical studies underscore that hostel facilities and services — including sanitary units, bathrooms, laundry areas, potable water systems, and general communal services — often fail to meet students' needs and expectations. These shortcomings are attributed to inadequate provision, poor maintenance cultures, and management inefficiencies, all of which negatively impact students' residential experience. Evaluating these conditions is

therefore essential to achieving the third objective of this study, which is to assess the condition and functionality of facilities and services provided in Hall 4.

2.2.2 Dependent Variables

The dependent variables consist of students' perceptions and levels of satisfaction, including comfort, privacy, safety, and overall residential satisfaction. These variables reflect how students experience and evaluate their living environment, making them essential indicators of building performance (Vischer, 2008). User satisfaction is influenced by the extent to which the physical environment meets students' needs and expectations, thereby linking the independent variables to behavioural and psychological outcomes (Preiser & Vischer, 2019). The conceptual framework assumes that the architectural and environmental characteristics of Hall 4 directly influence students' perceptions and satisfaction, while also acknowledging that these relationships may be mediated by user behaviour and adaptation (Gifford, 2019). For example, poor ventilation and high temperatures may reduce comfort levels, while inadequate spatial organisation may affect privacy and social interaction among students (Evans, 2003). These relationships reflect the principles of Environmental Determinism and Systems Theory, which emphasise the interaction between physical environments and human responses. The inclusion of intervening variables such as user behaviour and adaptation strengthens the framework by acknowledging that occupants do not passively experience the built environment but actively respond to it (Vischer, 2008). For instance, students may adapt to poor thermal conditions by using fans or adjusting their routines, which can influence their overall perception of comfort (Gifford, 2019). This aligns with Systems Theory, which emphasises the dynamic interaction between building systems and human behaviour (Preiser & Vischer, 2019). The conceptual framework, therefore, provides a clear basis for data collection and analysis by identifying the variables to be measured and the expected relationships between them. It ensures that the study systematically examines how architectural design and environmental performance influence students' experiences within Hall 4, thereby linking theoretical concepts to empirical investigation (Creswell & Creswell, 2018).

In summary, the conceptual framework establishes a logical connection between building characteristics and user satisfaction, demonstrating how architectural and environmental factors shape the quality of students' residential experience. By providing both a visual and descriptive representation of these relationships, the framework serves as a guide for the study and supports

the interpretation of findings in a manner that is consistent with established theories in architectural research (Preiser & Vischer, 2019).

i. Students' Perceptions of Comfort, Privacy, and Overall Residential Satisfaction

Students' perceptions of comfort, privacy, and overall residential satisfaction are critical indicators of the quality and performance of student hostels. In residential environments, subjective perceptions reflect how well physical conditions, social environments, and facility provisions align with students' expectations and needs. In the Nigerian context, multiple empirical studies have documented how environmental qualities and management practices shape occupants' experiences and satisfaction with hostel accommodation.

Perceptions of comfort in student hostels are strongly associated with indoor environmental conditions and facilities provided. Adeboyeje and Adebayo (2017) investigated student satisfaction with hostel facilities at a Nigerian university and found that thermal comfort, ventilation quality, lighting levels, and space adequacy were significant determinants of overall satisfaction. Students who reported poor indoor comfort — such as inadequate airflow, excessive heat, or low lighting — also reported lower overall satisfaction with their accommodation (Adeboyeje & Adebayo, 2017).

Privacy — particularly related to personal space and the arrangement of rooms — is another dimension that strongly influences satisfaction. In a study conducted at the Federal University of Technology, Akure, students cited privacy as a major concern, noting that overcrowded sleeping quarters and shared sanitary facilities reduced their sense of personal space and negatively affected their satisfaction (Ojo *et al.,* 2020). These findings align with broader research in Nigeria showing that lack of privacy due to shared facilities and inadequate room partitioning often leads to discomfort and diminished satisfaction among students living in hostels (Okeke & Udeaja, 2021). Overall residential satisfaction reflects how students evaluate their living conditions relative to their expectations. In a comparative study of hostels across public and private universities in Nigeria, Oluwatayo and Adebayo (2019) found that satisfaction levels varied significantly based on the quality of environmental conditions, maintenance of facilities, safety, and management responsiveness. Students in hostels with better maintenance services, safer environments, and more functional communal spaces consistently reported higher satisfaction scores compared to those in poorly managed hostels. The authors concluded that students' overall satisfaction is shaped not only by physical comfort and privacy but also by the perceived effectiveness of hostel management

(Oluwatayo & Adebayo, 2019).

Furthermore, Adekunle and Ayedun (2021) explored the relationships between hostel facilities, residential quality, and student satisfaction in southwestern Nigeria. Their research showed that perceived adequacy of sanitation, access to potable water, and availability of study spaces were statistically significant predictors of how satisfied students were with their hostel accommodation. Students with better access to essential services reported higher satisfaction, emphasizing the importance of both physical comfort and service provision in shaping perceptions (Adekunle & Ayedun, 2021). Collectively, Nigerian empirical studies indicate that students' perceptions of comfort, privacy, and overall satisfaction with hostel accommodation are influenced by a combination of environmental quality, provision and maintenance of facilities, privacy conditions, and management practices. Understanding these perceptions is therefore essential to evaluating Hall 4 as part of the fourth objective of this study, providing insight into how students living in Hall 4 experience their built environment and how these experiences influence their satisfaction with residential life.

ii. Architectural and Environmental Design Recommendations

Improving the architectural and environmental quality of student hostels requires design strategies that respond directly to climatic conditions, resource constraints, and user needs. In Nigeria's hot-humid and tropical environments, research emphasizes the importance of passive design strategies, sustainable building features, and climate-responsive architectural solutions that can enhance comfort, reduce energy use, and improve indoor environmental quality without heavy reliance on mechanical systems.

One of the most consistently recommended approaches in Nigerian architectural research is the integration of passive design strategies into hostel planning. Studies of Nigerian student hostels have shown that traditional design techniques such as proper building orientation, adequate natural ventilation, maximized window openings, and use of high thermal mass materials can significantly improve indoor comfort conditions (Akande *et al.,* 2021). These strategies improve thermal performance by harnessing prevailing winds, reducing direct solar heat gain, and creating airflow patterns that lower internal temperatures — approaches that are especially suitable in tropical climates where mechanical cooling is often unavailable or impractical. Closely related research highlights the need for innovative architectural detailing to improve passive ventilation and

thermal comfort in student hostels. Uzuegbunam *et al.* (2024) found that design elements such as larger apertures, cross-ventilation routes, and roof vents increased airflow efficiency in naturally ventilated dormitories, suggesting that hostel facades and spatial layouts should be designed to capture and channel wind more effectively. These design recommendations can help reduce overheating and improve occupants' comfort in common and sleeping areas. While much of the literature on Nigerian housing focuses on natural ventilation and thermal comfort, environmental sustainability features such as improved daylighting and energy-efficient design are increasingly recognized as valuable components of hostel design. In an empirical evaluation of resident buildings in Ile-Ife, Nigeria, Muhammed and Lateef (2024) found that many student residences suffer from poor natural lighting, with daylight factors far below recommended levels for comfortable living and study environments. They recommended larger and strategically placed windows, incorporation of courtyards, and shading devices that allow daylight while reducing glare and solar heat gain — measures that encourage both visual comfort and energy efficiency.

Sustainable architecture research within Nigeria also underscores the importance of climate-responsive design principles. Although broader in focus, studies such as those conducted on sustainable architecture for residential buildings in Enugu show that hostel design should be based on local environmental analysis, passive cooling mechanisms, and person-environment integration rather than merely importing standard design templates (Uzuegbunam, 2024). This approach promotes contextual solutions that align with local climate patterns and occupant behaviour, enhancing both comfort and environmental performance.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

The research methodology chapter outlines the systematic approach adopted to investigate the architectural layout, environmental performance, facilities, and student satisfaction of Hall 4. It provides a detailed explanation of the research design, population and sampling, data collection methods, and analysis techniques employed to achieve the study objectives. Given the multifaceted nature of the study, which examines both physical attributes of the hostel and students' perceptions, a mixed-methods approach was adopted. This approach integrates quantitative methods, such as environmental measurements and structured questionnaires, with qualitative methods, including interviews and open-ended survey questions. The combination allows for a comprehensive evaluation of both objective conditions (e.g., lighting, ventilation, room layout) and subjective experiences (e.g., comfort, privacy, satisfaction).

This chapter also discusses ethical considerations, ensuring the protection of participants' rights and the confidentiality of data, as well as limitations that may influence the scope of the study. By clearly outlining these methodological aspects, this chapter provides a robust foundation for collecting and analyzing data that directly addresses the research objectives.

3.2 RESEARCH DESIGN

This study adopts a mixed-methods research design, combining quantitative and qualitative approaches to provide a holistic understanding of Hall 4's performance. The quantitative component involves the measurement and evaluation of environmental parameters, such as ventilation, lighting, and thermal comfort, as well as the assessment of facility conditions. The qualitative component captures students' perceptions of comfort, privacy, and overall satisfaction through surveys and interviews. The use of a mixed-methods approach is particularly suitable for evaluating post-occupancy performance in building studies, as it allows the integration of objective measurements with subjective experiences to produce a comprehensive assessment. According to Adebiyi and Ilesanmi (2019), combining quantitative and qualitative methods in post-occupancy evaluations ensures a more reliable and nuanced understanding of building performance and user satisfaction in Nigerian educational environments. The study also employs a descriptive survey design to gather information on students' opinions and experiences, while post-occupancy

evaluation (POE) techniques are utilised to assess the physical and environmental characteristics of Hall 4. POE is recognised as a valuable tool for evaluating the effectiveness of design, facility provision, and environmental conditions in existing buildings (Olotuah & Akinmosin, 2015). Through this design, the study is able to triangulate findings, comparing environmental measurements with user perceptions to identify areas for improvement and inform evidence-based design recommendations. In essence, the research design ensures that the study addresses all objectives systematically, providing both empirical data on physical and environmental performance and insightful feedback from occupants regarding their residential experience.

The study will use both primary and secondary data sources to achieve the research objectives. These sources will provide complementary perspectives, ensuring a comprehensive understanding of Hall 4's architectural and environmental performance and students' perceptions.

3.2.1 Primary Data Sources

Primary data will be collected directly from Hall 4 and its residents. This includes:

- Structured questionnaires were administered to students to capture their perceptions of comfort, privacy, satisfaction, and use of facilities.
- In-depth interviews with hall management and student representatives to obtain information on facility maintenance, service delivery, and operational challenges.
- Observation checklists used to systematically record architectural layout, spatial organisation, and facility conditions. Photographic documentation to visually capture room layouts, circulation patterns, communal areas, and environmental conditions.

These primary sources will allow the researcher to collect firsthand, reliable, and context-specific data relevant to all five research objectives.

3.2.2 Secondary Data Sources

Secondary data will be obtained from existing literature, including:

- Academic journals, books, theses, and conference papers related to student housing, post-occupancy evaluation, environmental performance, and architectural design in Nigerian universities.
- Official records and documents from the University of Benin, including hostel occupancy registers, facility maintenance reports, and building plans.
- Online databases such as Google Scholar, Research Gate, and Nigerian university repositories for

recent and relevant studies.

These secondary sources will provide a theoretical foundation and comparative insights, helping to contextualise the findings from primary data and guide the development of design recommendations for Hall 4.

3.3 RESEARCH POPULATION

The population of the study comprises all students residing in Hall 4 of the University of Benin (UNIBEN), Edo State, Nigeria. Hall 4 accommodates approximately 1,120 students, distributed across multiple floors and room types. The hall's population includes students from various faculties, academic levels, and gender groups, providing a diverse cross-section of occupants for this study. This population is relevant because the study aims to evaluate students' perceptions of comfort, privacy, and satisfaction, as well as the hall's architectural layout, environmental performance, and facility conditions. Collecting data from the entire resident population would be impractical; therefore, a representative sample will be selected to ensure that findings accurately reflect the experiences and opinions of the larger student body. Studying this population allows the research to address all five objectives comprehensively, providing insights into both objective measurements of environmental performance and subjective experiences of the hall's occupants. The large and diverse population of Hall 4 ensures that the study results are robust and generalizable to similar student hostels within the University of Benin and other Nigerian tertiary institutions.

3.4 RESEARCH SAMPLE SIZE AND SAMPLING TECHNIQUE

To ensure that the study captures a representative sample of Hall 4 residents, a sample size was determined using Yamane's formula (1967) for finite populations:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = total population of Hall 4 ($1{,}120$ students)

e = level of precision or margin of error (0.05)

Applying the formula:

$$n = \frac{1120}{1 + 1120(0.05)^2}$$

$$n = \frac{1120}{1 + 1120(0.0025)}$$

$$n = \frac{1120}{1 + 2.8}$$

$$n = \frac{1120}{3.8}$$

$$n = 295$$

Thus, the sample size for this study is approximately 295 students, providing statistically reliable results while remaining practical for data collection.

Since Hall 4 is a ground-level building composed of different complexes, the study employs stratified random sampling based on the distinct complexes within the hall. This ensures that each complex is proportionally represented in the sample.

For instance, if one complex houses 200 students out of the total 1,120, the sample from this complex is calculated proportionally:

$$n = \frac{200}{1120} \times 295$$

$$\sim 53 \text{ Students}$$

This process is repeated for each complex, ensuring that the sample reflects the population distribution across the entire hall. Within each complex, participants are selected randomly to prevent selection bias, giving all students an equal chance of being included. The stratified random sampling technique ensures that the study captures a diverse range of student experiences and perceptions, enhancing the reliability and generalizability of the findings to all residents of Hall 4.

3.5 RESEARCH INSTRUMENTS

To effectively collect data for this study, four main research instruments will be employed:

structured questionnaires, in-depth interviews, observation checklists, and photographic documentation. Each instrument will be selected to capture both objective measurements of Hall 4's physical and environmental performance and subjective perceptions of students' comfort, privacy, and satisfaction.

1. **Structured Questionnaire:**

   The structured questionnaire will be administered to students residing in Hall 4 to gather information on their perceptions of comfort, privacy, and overall satisfaction, as well as their evaluation of facilities and services. The questionnaire will include closed-ended Likert-scale questions (1–5) for quantitative analysis and a few open-ended questions to capture qualitative insights. This instrument will directly address Objectives 4 and 5, providing measurable data on student satisfaction and areas for improvement.

2. **In-Depth Interview:**

   In-depth interviews will be conducted with hall management, facility staff, and student representatives to gain detailed insights into the operational, maintenance, and service delivery practices within Hall 4. This instrument will provide qualitative data on challenges in facility management, environmental control, and maintenance issues, complementing questionnaire findings.

3. **Observation Checklist:**

   An observation checklist will be used to systematically assess the architectural layout, spatial organisation, circulation patterns, and condition of facilities within Hall 4. The checklist will include items on room sizes, furniture arrangements, corridor widths, sanitation facilities, and common area usability. Observational data will provide objective evidence of how the hall's physical environment supports or hinders comfort, privacy, and overall functionality, addressing Objectives 1 and 3.

4. **Photographic Documentation**

   Photographic documentation will be employed to visually capture spatial arrangements, room layouts, circulation paths, and facility conditions. This instrument will complement the observation checklist by providing permanent visual records, which will allow for detailed analysis and presentation in the final report. Photographs will be particularly useful in illustrating

environmental conditions, facility issues, and design features, supporting Objectives 1, 2, and 3. Each Instrument will be pre-tested and refined to give more clarity and consistency.

3.6 METHOD OF DATA COLLECTION

Data for this study will be collected using a combination of fieldwork and survey techniques, employing the four main research instruments described earlier: structured questionnaires, in-depth interviews, observation checklists, and photographic documentation. The data collection process will be carried out systematically to ensure accuracy, reliability, and consistency. The data collection will be carried out in phases as follows:

1. **Preliminary visit:** The researcher will visit Hall 4 to familiarise with the layout, introduce the study to the hall authorities, and secure permissions.
2. **Questionnaire administration:** The researcher will distribute and supervise completion of questionnaires among the selected sample of students.
3. **Interviews:** The researcher will schedule and conduct interviews with hall management and student representatives.
4. **Observation and photography:** The researcher will systematically observe and photograph each complex in Hall 4, following the checklist to ensure uniformity.
5. **Data organization:** All collected data will be coded, categorized, and stored securely for analysis.

This structured approach will ensure that the data collected is reliable, comprehensive, and directly relevant to achieving all five research objectives.

3.7 METHOD OF DATA ANALYSIS

The data collected from Hall 4 will be analysed using both quantitative and qualitative techniques to address the research objectives comprehensively. The analysis methods will correspond to the type of data collected and the specific research instrument used.

- **Quantitative Data Analysis**

Quantitative data will be obtained from structured questionnaires and environmental measurements such as ventilation, lighting, and thermal comfort. These data will be analysed using descriptive and inferential statistics. The analysis will be performed using the Statistical Package for Social

Sciences (SPSS, version 26), which will facilitate accurate computation and visualisation of results. Graphs, tables, and charts will be used to present data in a clear and interpretable manner.

- **Qualitative Data Analysis**

  Qualitative data will be obtained from open-ended questionnaire responses, in-depth interviews, and observational notes. This data will be analysed using thematic analysis. Photographic documentation will also be used qualitatively, supporting observational data and providing visual evidence of spatial arrangements, facility conditions, and environmental features.

- **Integration of Quantitative and Qualitative Data**

  The study will adopt a triangulation approach, integrating findings from quantitative measurements and qualitative insights. This approach will enhance the validity of the results by cross-verifying data from multiple sources. For example, students' reported satisfaction levels will be compared with observed facility conditions and environmental measurements to identify gaps between perceived and actual performance. By combining these methods, the data analysis will provide a comprehensive understanding of Hall 4's architectural layout, environmental performance, facility functionality, and user satisfaction, ensuring that all research objectives are thoroughly addressed.

3.8 VALIDITY AND RELIABILITY OF INSTRUMENTS

To ensure that the research instruments will accurately measure what they are intended to measure and produce consistent results, procedures for validity and reliability will be adopted.

- **Validity of Instruments:** The structured questionnaires, interview guides, and observation checklists will be developed based on the study objectives, theoretical framework, and review of related literature. Each item will align directly with one or more research objectives to ensure that all relevant aspects of comfort, privacy, environmental performance, and facility conditions are covered (Owolabi & Oke, 2018).

- **Reliability of Instruments:** For the structured questionnaire, reliability will be assessed using Cronbach's Alpha to measure internal consistency of Likert-scale items. A coefficient of 0.7 or higher will be considered acceptable, indicating that the items consistently measure the same construct (Sekaran & Bougie, 2016).

By implementing these strategies, the research instruments will achieve both high validity and

reliability, ensuring that the data collected will be credible, accurate, and suitable for analysis to address all research objectives.

3.9 ETHICAL CONSIDERATIONS / LIMITATIONS OF THE METHODOLOGY

Ethical considerations will be strictly observed throughout the research process to ensure the protection of participants' rights, privacy, and dignity. Ethical compliance is essential, especially when collecting personal perceptions, opinions, and feedback from students residing in Hall 4.

- **Informed Consent:** Before data collection, all participants will be provided with clear information about the study's purpose, objectives, and procedures. They will be informed that their participation is entirely voluntary, and they will have the right to withdraw at any time without any consequences. Informed consent will be obtained in writing from all participants prior to administering questionnaires or conducting interviews.

- **Confidentiality and Anonymity:** To ensure confidentiality, all responses will be treated as strictly private. Names and personal identifiers will not be recorded in the analysis or final report. Instead, participants will be assigned codes to anonymize data, ensuring that individual responses cannot be traced back to any specific student. Photographs will avoid capturing identifiable faces unless explicit consent is granted.

By adhering to these ethical principles, the research will maintain high standards of integrity and professionalism, ensuring that the rights and welfare of all participants will be respected throughout the study. Despite careful planning, the methodology will have some limitations. First, the study will be limited to Hall 4 at the University of Benin, which may affect the generalizability of findings to other hostels. Second, self-reported data from students may be subject to bias or exaggeration. Third, environmental measurements such as lighting and thermal comfort will reflect conditions at the time of data collection and may vary at other times. Finally, time and resource constraints may limit the depth of observation and the number of interviews conducted.

SUMMARY

This chapter has outlined the research methodology that will guide the study of Hall 4 at the University of Benin. It has detailed the research design, which adopts a mixed-methods approach to

integrate both quantitative and qualitative data. The chapter has described the study population of 1,120 students, the sample size of 295 participants, and the stratified random sampling technique to ensure representativeness across the hall's complexes. The chapter also presented the research instruments, including structured questionnaires, in-depth interviews, observation checklists, and photographic documentation, and explained how data will be collected and analyzed. Measures for validity, reliability, and ethical considerations were discussed to ensure credible and ethically sound data collection. Finally, the limitations of the methodology were acknowledged, highlighting constraints related to generalizability, self-reporting, and environmental measurements.

Overall, the chapter provides a comprehensive framework for collecting and analyzing data, ensuring that all research objectives will be systematically addressed in the subsequent analysis.

CHAPTER FOUR

4.0 ANALYSIS, FINDINGS AND DISCUSSION

4.1 INTRODUCTION TO DATA PRESENTATION AND ANALYSIS

This chapter presents the analysis and discussion of data obtained from the questionnaire survey conducted in Hall 4 at the University of Benin, Benin, Edo State. A total of 295 questionnaires were successfully retrieved and analysed. The data are presented using tables and figures, while discussions are made in line with the objectives of the study.

4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

This section takes a closer look at the people who took part in the survey, exploring details like their age, gender and the length of stay of respondents in hall 4. Understanding who these respondents are helps us make better sense of their responses. After all, the way people view Hall 4 residence at the University of Benin can vary widely depending on their background. By considering these differences, we gain a richer, more meaningful understanding of how various groups within the Hall 4 residence relate to its architectural revitalisation and overall sustainability. The survey attracted a diverse group of participants, representing a wide range of ages, genders, and lengths of stay in Hall 4.

A. Age

Age Group	Frequency	Percentage (%)
Under 20	133	45
20-29	161	54
Above 30	1	1
Total	295	100

Table 4.1: Age Distribution of Respondents
Source: Researcher's fieldwork, 2026

The result shows the age distribution of respondents in Hall 4. The majority of respondents fall within the 20-29 age range, indicating that most occupants of the hall are within this category. A significant proportion of respondents also fall within the under 20 age category, while a smaller percentage belongs to the above 30 group. Overall, the age distribution indicates that respondents are within the expected age range of university students, thereby making their responses relevant to the study.

B. Gender

Gender	Frequency	Percentage (%)
Male	295	100
Female	0	0
Total	295	100

Table 4.2: Gender Distribution of Respondents
Source: Researcher's fieldwork, 2026

The majority of respondents are male, accounting for 100% of the total population. This indicates that the sample is largely male, since it's an all-male hostel.

C. Length of Stay in Hall 4

Response	Frequency	Percentage (%)
Less than 1	107	36.3
1-2 years	140	47.4
More than 2 years	48	16.3
Total	295	100

Table 4.3: **Length of Stay of Respondents in Hall 4**
Source: Researcher's fieldwork, 2026

The majority of respondents fall within the 1-2 years category, indicating that most students have spent a considerable amount of time in the hostel. This suggests that they are familiar with the hall's conditions and can provide reliable responses. A notable proportion of respondents also fall within the less than 1 year category, representing newer occupants whose responses reflect more recent experiences. Meanwhile, the least proportion of respondents are those who have stayed for more than 2 years, indicating a smaller number of long-term residents.

4.3 INTERPRETATION OF OPINION-BASED SURVEY RESPONSES

This section offers a comprehensive interpretation of the 20 opinion-based questions, organized according to the study's research questions and objectives.

4.3.1 Research Question One: What are the Architectural Layout and Spatial Organization?

A. Room Size

Response	Frequency	Percentage (%)

Very Satisfied	15	5
Satisfied	54	32
Neutral	101	34
Unsatisfied	95	18
Very unsatisfied	3	1
Total	295	100

Table 4.4: **Room Size Satisfaction of Respondents in Hall 4**
Source: Researcher's fieldwork, 2026

The majority of respondents indicated neutral, suggesting that the room sizes are generally perceived as normal. A considerable number of respondents selected unsatisfied, indicating a neutral perception, which suggests that while the room sizes may be manageable, they may not fully meet expectations. However, a smaller proportion expressed very unsatisfied, highlighting that some students experience challenges related to limited space.

B. Circulation Spaces

Response	**Frequency**	**Percentage (%)**
Very adequate	2	1
Adequate	127	43
Neutral	101	34
Inadequate	59	20
Very inadequate	6	2
Total	295	100

Table 4.5: **Respondents opinion on the Adequacy of Circulation Spaces**
Source: Researcher's fieldwork, 2026

Most of the students indicated adequate, suggesting that movement within the hall is okay. However, a notable proportion of respondents reported **inadequate**, indicating that circulation spaces may be inadequate in certain areas. This could affect ease of movement and accessibility within the hostel. Overall, the findings imply that circulation within Hall 4 is adequate, but improvements may be required to enhance movement and reduce congestion.

C. Spatial Layout

Response	**Frequency**	**Percentage (%)**

Strongly Agree	0	0
Agree	97	33
Neutral	154	52
Disagree	15	5
Strongly Disagree	29	10
Total	295	100

Table 4.6: **Respondents opinion on the Privacy of Spatial Layout**
Source: Researcher's fieldwork, 2026

The majority of students selected neutral, indicating that the layout is moderate. However, some respondents indicated strongly disagree, suggesting that issues such as lack of privacy or restricted movement exist within the hall. This highlights potential design limitations. Overall, the spatial layout of Hall 4 can be considered moderate, although certain aspects may require improvement.

4.3.2 Research Question Two: What is the Environmental Performance?

A. Natural Ventilation

Response	**Frequency**	**Percentage (%)**
Very Good	0	0
Good	13	4
Fair	42	14
Poor	39	13
Very Poor	201	69
Total	295	100

Table 4.7: **Respondents opinion on the Natural Ventilation**
Source: Researcher's fieldwork, 2026

The majority rated it as very poor, indicating that ventilation is generally very poor. However, a significant number of respondents rated it as fair, suggesting that ventilation is not adequate for all occupants. Poor ventilation can negatively affect comfort and indoor air quality.

B. Lighting Condition

Response	**Frequency**	**Percentage (%)**
Very Adequate	0	0

Adequate	35	12
Neutral	162	55
Inadequate	58	20
Very Inadequate	40	13
Total	295	100

Table 4.8: **Respondents opinion on the Lighting Condition**
Source: Researcher's fieldwork, 2026

The data presented above shows respondents' perception of lighting conditions in their rooms. The majority indicated neutral, suggesting that lighting conditions are moderate. Although some respondents reported inadequate lighting, indicating that lighting may be insufficient in certain areas. This could affect activities such as reading and studying.

C. Room Temperature

Response	**Frequency**	**Percentage (%)**
Very Comfortable	0	0
Comfortable	52	18
Neutral	186	63
Uncomfortable	41	14
Very Uncomfortable	16	5
Total	295	100

Table 4.9: **Respondents opinion on the Room Temperature**
Source: Researcher's fieldwork, 2026

The data above shows respondents' perception of temperature comfort within their rooms. The majority indicated neutral, suggesting that the thermal conditions are moderate. However, a notable proportion reported discomfort, indicating discomfort due to temperature variations. This may be attributed to poor ventilation or climatic conditions.

4.3.3 Research Question Three: What Are the Facilities and Services?

A. Washrooms and Toilets

Response	**Frequency**	**Percentage (%)**
Very Satisfied	0	0
Satisfied	2	1

Neutral	31	11
Unsatisfied	171	58
Very Unsatisfied	91	30
Total	295	100

Table 4.10: Respondents opinion on the Conditions of Washrooms and Toilets
Source: Researcher's fieldwork, 2026

The majority indicated unsatisfied, suggesting that these facilities are not okay. And a considerable number of respondents expressed very unsatisfied, indicating dissatisfaction with the condition and maintenance of these facilities.

B. Communal Areas

Response	Frequency	Percentage (%)
Very Adequate	16	5
Adequate	50	17
Neutral	102	35
Inadequate	96	32
Very Inadequate	31	11
Total	295	100

Table 4.11: Respondents opinion on the Adequacy of Communal Areas
Source: Researcher's fieldwork, 2026

The students indicated neutral, suggesting that these spaces are moderate. Although some respondents reported inadequate, indicating that communal spaces may be inadequate or insufficient. Overall, communal facilities in Hall 4 are moderate, but improvements may be necessary to support student interaction and study.

C. Maintenance of Furniture

Response	Frequency	Percentage (%)
Very Good	3	1
Good	24	8
Fair	108	37
Poor	127	43
Very Poor	33	11
Total	295	100

Table 4.12: Respondents opinion on the Maintenance of Furniture
Source: Researcher's fieldwork, 2026

The data presented above reflects respondents' assessment of furniture and fixtures. The majority indicated poor, suggesting that the condition of these elements is poor. And a notable proportion reported fair, indicating poor maintenance or deterioration of furniture. Overall, the condition of furniture and fixtures is poor, and maintenance improvements may be required.

4.3.4 Research Question Four: What Are the Students' Perceptions of Comfort, Privacy, and Satisfaction?

A. Satisfied with Stay in Hall 4?

Response	Frequency	Percentage (%)
Very Satisfied	0	0
Satisfied	44	15
Neutral	119	40
Unsatisfied	122	41
Very Unsatisfied	10	4
Total	295	100

Table 4.13: Respondents opinion on their Satisfaction with their stay in Hall 4
Source: Researcher's fieldwork, 2026

The data presented above shows respondents' overall satisfaction with their stay in Hall 4. The majority indicated unsatisfied, suggesting that students are generally unsatisfied with their living conditions. However, a number of respondents expressed neutral, indicating dissatisfaction with certain aspects of the hostel. Overall, the findings suggest that overall satisfaction is really poor, reflecting the combined effects of architectural and environmental factors.

B. Respect of Privacy

Response	Frequency	Percentage (%)
Strongly Agree	3	1
Agree	11	4
Neutral	103	35
Disagree	141	48
Strongly Disagree	37	12

Total	295	100

Table 4.14: Respondents opinion on the respect of their privacy in their rooms
Source: Researcher's fieldwork, 2026

The data presented above shows respondents' perception of privacy within their rooms. The majority disagreed, suggesting that privacy is low. Although some respondents reported neutral, indicating that privacy may be compromised due to spatial or occupancy issues.

C. Supports Academic Activities

Response	**Frequency**	**Percentage (%)**
Very Satisfied	23	8
Satisfied	51	17
Neutral	162	55
Unsatisfied	41	14
Very Unsatisfied	18	6
Total	295	100

Table 4.15: Respondents opinion on Hostel Environment supporting their Academic Activities
Source: Researcher's fieldwork, 2026

The data presented above shows whether the hostel environment supports academic activities. Most students indicated neutral, suggesting that the environment is quite moderate for studying.
But, a notable proportion reported unsatisfied, indicating that the environment may not fully support academic activities.

4.4 CASE STUDIES: Physical Observation of Hall 4

The physical observation of Hall 4 was carried out to assess the actual condition of the building and its facilities. This was necessary to complement the data obtained from the questionnaire and to provide a direct evaluation of the architectural and environmental characteristics of the hostel.

The room spaces observed during the site visit appeared relatively compact, with furniture arrangement occupying a large portion of the available floor area. This confirms the responses from several students who indicated concerns about room size and spatial adequacy. Although the rooms remain functional for basic student use, the available space may not fully support comfort, storage, and ease of movement, especially when occupied by multiple students.

The circulation spaces within the hall, particularly the corridors and walkways, were observed to

be functional but somewhat narrow in certain sections. In some areas, personal belongings and storage items placed outside rooms reduced the effective width of the corridors, thereby affecting movement. This observation supports the questionnaire responses relating to concerns about circulation space and ease of movement within the hall.

Figure 4.1: Image showing Interior View of a Typical Student Room in Hall 4
Source: Researcher field work, 2026

Figure 4.2: Image showing Corridor and Circulation Space in Hall 4
Source: Researcher field work, 2026

Figure 4.3: Image showing Windows and Ventilation Openings
Source: Researcher field work, 2026

One of the most significant observations made during the site visit relates to ventilation. The rooms rely mainly on window openings for natural airflow, but in several cases, the size and positioning of these openings appeared insufficient for effective cross-ventilation. Some windows were also partially obstructed by curtains, louvres, or surrounding building elements, reducing air movement into the rooms. This directly supports the findings from the questionnaire, where a large number of students expressed dissatisfaction with ventilation and thermal comfort.

The sanitary facilities, including toilets and washrooms, were observed to be in poor condition

compared to other parts of the building. Visible issues included stained wall finishes, worn-out fixtures, water leakage, and signs of inadequate cleaning in some areas. These conditions confirm the responses from students who reported dissatisfaction with the state of the washrooms and toilets. Since these facilities are essential for daily use, their poor condition significantly affects the quality of the hostel environment.

Figure 4.4: Image showing Washrooms and Toilet Facilities
Source: Researcher field work, 20

4.5 SUMMARY OF KEY FINDINGS

The findings from this study show that the overall condition of Hall 4 is not entirely satisfactory, particularly in areas relating to environmental comfort, facilities, and maintenance. While some aspects of the hostel appear manageable for students, the general response suggests that there are significant issues that affect the quality of living within the hall. With respect to spatial layout and organization, the results indicate that although some students find the room sizes and circulation spaces usable, a good number of respondents still experience challenges. This suggests that the design may not fully support ease of movement, privacy, or efficient use of space. In a shared residential environment like this, these issues can affect how comfortable students feel in their daily activities. The situation is more concerning when it comes to environmental performance. A large number of students expressed dissatisfaction with ventilation and overall thermal conditions in their rooms. This implies that the indoor environment is often uncomfortable, especially during periods of high temperature. Poor ventilation not only affects comfort but can also make the living space feel stuffy and unsuitable for studying or resting.

Another major issue highlighted by the findings is the condition of facilities, particularly the washrooms and toilets. Many respondents reported that these facilities are in poor condition, which points to inadequate maintenance and possibly overuse. Since these are essential daily-use facilities, their poor state has a direct impact on students' hygiene, comfort, and overall satisfaction. The results also show that general maintenance within the hostel is not at an acceptable level. Problems with furniture, fixtures, and shared spaces suggest that the building is not being properly managed or regularly maintained. Over time, this can lead to further deterioration of the hostel environment and increase dissatisfaction among residents. When looking at the overall level of satisfaction, it is clear that many students are not fully satisfied with their stay in Hall 4. This reflects the combined effect of the issues identified, particularly poor ventilation, inadequate facilities, and lack of proper maintenance. These factors together create an environment that does not fully support students' comfort or academic activities. The suggestions provided by respondents further emphasize these concerns, as many students pointed out the need for improvements in facilities, environmental conditions, and general upkeep of the hostel. This shows that students are not only aware of the problems but are also interested in seeing meaningful changes.

In general, the findings suggest that Hall 4 requires significant improvement in key areas to provide a more comfortable and supportive living environment for students. Addressing these issues would go a long way in improving students' experience and overall satisfaction within the hostel.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY OF RESEARCH FINDINGS

This study focused on the architectural evaluation of Hall 4 (Male Students' Hall of Residence) at the University of Benin, with emphasis on its spatial layout, environmental performance, facilities, and students' level of satisfaction. Data for the study were obtained through the use of a structured questionnaire administered to residents of Hall 4, alongside direct physical observation of the hostel environment.

The findings relating to the architectural layout and spatial organization revealed that although the room arrangement and circulation spaces are functional to some extent, a significant number of students expressed concerns regarding room size, privacy, and ease of movement. This indicates that the spatial configuration of the hostel does not fully support comfort and efficient use of space. With respect to environmental performance, the study found that natural ventilation and thermal comfort remain major concerns among students. A large proportion of respondents reported dissatisfaction with the ventilation conditions in their rooms, which contributes to uncomfortable indoor conditions, especially during hot periods. This suggests that the hostel design does not adequately respond to climatic requirements.

The findings also showed that the condition of facilities and services, particularly washrooms, toilets, furniture, and communal spaces, is poor. Students reported dissatisfaction with the state of sanitary facilities and the maintenance of furniture and fixtures. Physical observation further confirmed visible signs of wear, inadequate cleaning, and insufficient maintenance.

In terms of students' perception of comfort, privacy, and overall satisfaction, the results indicate that many residents are not fully satisfied with their stay in Hall 4. The major factors responsible for this dissatisfaction include poor ventilation, inadequate sanitary facilities, limited room space, and general neglect of maintenance.

The suggestions and recommendations provided by respondents further emphasized the urgent need for improvements in facilities, environmental conditions, and general maintenance practices within the hostel. Overall, the study reveals that Hall 4 requires significant architectural and facility upgrades in order to improve the quality of living and support students' wellbeing and academic activities.

5.2 CONCLUSION

Based on the findings of this study, it can be concluded that Hall 4 (Male Students' Hall of Residence) at the University of Benin does not fully meet the expectations of its occupants in terms of environmental comfort, facility provision, and overall residential quality. Although the hostel remains functional as a student residential facility, several critical issues were identified, particularly in the areas of ventilation, sanitary facilities, room space, and maintenance. These issues negatively affect students' comfort, privacy, health, and academic productivity.

The study, therefore, concludes that the architectural performance of Hall 4 is below the level required to provide a fully supportive and satisfactory living environment for students. There is a clear need for renovation, improved maintenance, and design interventions that respond to both functional and environmental needs.

5.3 RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations are made:

- **Improvement of Ventilation Systems:**

  The management of the hostel should improve natural ventilation by increasing window sizes, ensuring unobstructed openings, and, where necessary, introducing mechanical ventilation systems such as ceiling or wall fans.

- **Renovation of Washrooms and Toilets:**

  The sanitary facilities should be renovated and properly maintained to ensure hygiene, convenience, and comfort for students.

- **Better Maintenance Culture:**

  Regular maintenance should be carried out on furniture, fixtures, wall finishes, and shared spaces to prevent further deterioration of the hostel environment.

- **Improvement in Room Space Management:**

  Measures should be taken to reduce overcrowding and improve room layout in order to enhance privacy and ease of movement.

- **Upgrade of Communal Spaces:**

Lounges, reading spaces, and other communal areas should be improved to better support students' academic and social activities.

- **Regular Post-Occupancy Evaluation:**

  The university management should periodically assess hostel conditions through feedback from students to identify problems early and improve residential satisfaction.

5.4 CONTRIBUTION TO KNOWLEDGE

This study contributes to knowledge in the area of architectural evaluation of students' residential facilities by providing an in-depth assessment of Hall 4 (Male Students' Hall of Residence) at the University of Benin. While many studies on student housing focus on general residential satisfaction, this research specifically combines students' responses with direct physical observation of the building, thereby providing a more practical understanding of the relationship between building conditions and user experience. One major contribution of this study is the identification of the key architectural and environmental issues affecting students' comfort within Hall 4, particularly poor ventilation, inadequate sanitary facilities, limited room space, and weak maintenance culture. By highlighting these specific issues, the study provides useful evidence that can guide future renovation and upgrading of similar hostel buildings within the university.

The study also contributes by demonstrating how students' perceptions can be used together with physical site observations to evaluate the performance of an existing residential building. This combined approach provides a more reliable basis for assessing the true condition of hostel facilities and can serve as a useful model for future studies on student housing evaluation. Furthermore, the findings of this study provide practical recommendations that can assist university administrators, architects, and facility managers in improving the design, maintenance, and management of student hostels. In this way, the study extends knowledge beyond theory by offering solutions that are directly applicable to the improvement of residential environments in higher institutions.

Finally, this research adds to the growing body of knowledge on post-occupancy evaluation of student halls of residence in Nigerian universities, particularly within the context of the University of Benin, where limited detailed studies of Hall 4 have been documented. The study, therefore, serves as a reference point for future research on hostel design, students' residential satisfaction,

and architectural performance evaluation.

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APPENDIX

SURVEY QUESTIONNAIRE
Topic: ARCHITECTURAL EVALUATION OF STUDENTS' HALLS OF RESIDENCE AT THE UNIVERSITY OF BENIN

By **Odiase Bennett Oshiofe**
Mat No: **ENV2103357**
Submitted to the Department of Architecture,
Faculty of Environmental Science,
University of Benin Questionnaire

Dear Respondent,
This questionnaire is designed to gather information on the socio-economic, cultural, and infrastructural conditions of students' halls of residence at the University of Benin, as well as your experiences, challenges, and opinions regarding the architectural layout. The aim of this research is to better understand the architectural evaluation of students' halls of residence at the University of Benin and to enhance both their efficiency and heritage significance.

Your responses will help identify key issues affecting architectural layout of students' halls of residence at the University of Benin, and provide insights that can guide the development of sustainable, culturally sensitive halls of residence revitalization strategies at the University of Benin, Benin City. All information provided will be treated with strict confidentiality and will be used solely for academic research purposes. No personal identities will be recorded or disclosed.

Your participation is voluntary, and your honest input is highly valuable to the success of this study. Thank you for taking the time to assist in improving the future of our markets and preserving their cultural identity.

Yours faithfully,
ODIASE BENNETT OSHIOFE

Researcher

Appendix A
SURVEY QUESTIONNAIRE COLLECT DATA FROM RESIDENTS ON ARCHITECTURAL EVALUATION OF STUDENTS' HALLS OF RESIDENCE AT THE UNIVERSITY OF BENIN

Part One: Demographic Information: Respondent Profile
Please tick (✓) the appropriate response.

1. **Age Range**
   ☐Under 20
   ☐20-29 ☐ 36–45
   ☐above 30

2. **Gender**
   ☐ Male
   ☐ Female
   ☐ Other

3. **Length of stay in Hall 4**
   ☐Less than 1 year
   ☐1–2 years
   ☐More than 2 years

Part Two: Research Questions

A. Architectural Layout and Spatial Organization

1. **How satisfied are you with the size of your room?**
   - ☐Very satisfied
   - ☐Satisfied
   - ☐Neutral
   - ☐Unsatisfied
   - ☐Very unsatisfied

2. **How adequate is the circulation space (corridors, walkways) in your hall?**
   - ☐ Very adequate
   - ☐ Adequate
   - ☐ Neutral
   - ☐ Inadequate
   - ☐ Very inadequate

3. **Do you feel the spatial layout allows for privacy and easy movement?**
   - ☐ Strongly agree
   - ☐ Agree
   - ☐ Neutral
   - ☐ Disagree
   - ☐ Strongly disagree

B. Environmental Performance

1. **Rate the natural ventilation in your room**
   - ☐ Excellent
   - ☐ Good
   - ☐ Fair
   - ☐ Poor
   - ☐ Very poor

2. **How would you describe the lighting conditions in your room?**
   - ☐ Very adequate
   - ☐ Adequate
   - ☐ Neutral
   - ☐ Inadequate
   - ☐ Very inadequate

3. **How comfortable is the temperature in your room throughout the year?**
   - ☐ Very comfortable
   - ☐ Comfortable
   - ☐ Neutral
   - ☐ Uncomfortable
   - ☐ Very uncomfortable

C. Facilities and Services

1. **How satisfied are you with the condition of the washrooms and toilets?**
   - ☐ Very satisfied
   - ☐ Satisfied
   - ☐ Neutral
   - ☐ Unsatisfied
   - ☐ Very unsatisfied

2. How adequate are communal areas (lounges, study rooms) in Hall 4?

☐ Very adequate
☐ Adequate
☐ Neutral
☐ Inadequate
☐ Very inadequate

3. How would you rate the maintenance of furniture and fixtures in your room?

☐ Very good
☐ Good
☐ Fair
☐ Poor
☐ Very poor

D. Students' Perceptions of Comfort, Privacy, and Satisfaction

1. Overall, how satisfied are you with your stay in Hall 4?

☐ Very satisfied
☐ Satisfied
☐ Neutral
☐ Unsatisfied
☐ Very unsatisfied

2. Do you feel your privacy is respected in your room?

☐ Strongly agree
☐ Agree
☐ Neutral
☐ Disagree
☐ Strongly disagree

3. Do you feel the hostel environment supports your academic activities?

☐ Strongly agree
☐ Agree
☐ Neutral
☐ Disagree
☐ Strongly disagree

F. Suggestions and Recommendations

1. In your opinion, what improvements are most needed in Hall 4?

APPENDIX B

Additional Photos:

Image of the Refuse Area

Image of the Courtyard

Image of the Common Room

Image of the Football Field