RESIDENTS' SATISFACTION AND RESPONSIVENESS IN STUDENTS' HOUSING; DESIGN PROPOSAL OF POST GRADUATE STUDENTS' HOSTEL FOR AHMADU BELLO UNIVERSITY, ZARIA.

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NIGERIA

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DEPARTMENT OF ARCHITECTURE

AHMADU BELLO UNIVERSITY, ZARIA

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MAY, 2015

DECLARATION

I declare that the work in this thesis entitled 'RESIDENTS' SATISFACTION AND RESPONSIVENESS IN STUDENTS' HOUSING; DESIGN PROPOSAL OF A POST GRADUATE STUDENTS' HOSTEL FOR AHMADU BELLO UNIVERSITY, ZARIA.' has been carried out by me with Department of Architecture. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at this university or any other institution.

_____ _____

HAUWA YAHAYA OTHMAN **DATE**

Msc./ENV-DES/2384/2011-12

CERTIFICATION

This research work titled **"**RESIDENTS' SATISFACTION AND RESPONSIVENESS IN STUDENTS' HOUSING; DESIGN PROPOSAL OF A POST GRADUATE STUDENTS' HOSTEL FOR AHMADU BELLO UNIVERSITY, ZARIA.**"** by Hauwa Othman YAHAYA (Msc./Env-Des/2384/2011-12), meets the regulations governing the award of the degree of Master of Science (Architecture) of Ahmadu Bello University Zaria, and is approved for its contribution to knowledge and literacy presentation.

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DEDICATION

I hereby dedicate this thesis to my mother, Hajiya Sa'adatu Yahaya, for her unrelenting support, love and guidance towards the success of my research.

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First and foremost, I would like to express my profound gratitude to the **Almighty, the beneficent, the most merciful** for His sustainance, love, divine protection, guidance and infinite mercy which has seen me through this program. ALL PRAISE, GLORY AND HONOUR BE TO HIM.

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ABSTRACT

In the past, resident satisfaction has been used as an important indicator in evaluating student housing quality and services. The recent increase in students' population in universities and the diversity of these student needs makes their housing an issue of serious attention. This work however reports the result of a survey of residential satisfaction of the post graduate students of Ahmadu Bello University, Zaria. The main objective of the study is to evaluate the response pattern through an empirical case study emphasizing on the functionality, conformability of the use of spaces and facilities provided for a typical student hostel of some randomly selected types using structured questionnaires, personal observations and interview. Various components of housing satisfaction were identified; the framework was expanded to address physical and social variables. The result however reflects different perceptions of respondents, ranging from their satisfaction with provided facilities to expectations of the facilities. The implications of these results was used to measure satisfaction, that is the difference between expectation and provision, this was analysed, discussed and finally recommends by way of making a proposal, integrating these variables as design parameters to enhance better performance of such developments.

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CHAPTER ONE

1.1 BACKGROUND OF THE STUDY

Housing from the on-set is as a result of man seeking shelter. Housing is a response to man's natural and legal need for a conducive and safe environment for living. It is a component of many variants, one of which is the students housing or hostel, a building with simple accommodation (Amole, 2008). Hostel or Students apartment is a core component of a learning institution across the globe. Traditionally, Students' Housing in Nigerian Universities was exclusively on-campus (Sagada, 2009). However, the explosion in students population over time, led to spontaneous development of commercial Students' Housing in university towns across the country known as the 'off campus hostels'.

The case in Ahmadu Bello University, Zaria is no different from other Nigerian Universities. The standard of students' housing is questionable as regards to the end users' satisfaction and the various impacts on their learning, either physically, socially or functionally. Also, Samaru, the university satellite town, a sub-urban settlement of Zaria metropolis, which houses the university, offers various off campus students' apartments which have greatly accommodated the students of the university as a result of the population boom. Samaru's growth is influenced by the establishment of the University in Zaria. Samaru is regarded as the off-Campus territory for activities which include housing, banking, shops, markets, restaurants etcetera.

It is essential to understand the incentive of the learner in respect to where and when he or she acquires knowledge. Often, it is argued whether the learner should adapt to the learning environment or the learning environment should adapt to him/her, and the interactional relationship between the learning and the environmental setting (Peter, 2010). But, the big question here is 'how does the environment influence the learner and, in turn, how does the learner shape the learning environment? There should a complimentary relationship of living and learning. The learning environment in this

context is composed of the students and the physical environment.

The twenty-first century learning environment is envisioned as a place where the learner is engaged in self-directed and co-operative learning activities, and the physical environment is planned so that it can be routinely re-organised to mediate learning (Partnership for 21st Century Skills, 2002). However student accommodation should be able to enhance the social interaction, aiding a 'responsive' approach between students and their physical environment. Responsive approach evaluates the limits and merits of the physical environment. This line of Architecture considers the social environment and views the physical environment as involving the spatial design, the integration of information technologies throughout buildings and the efficiency and effectiveness of sustainable building systems (Peter, 2010).

This approach does not assume that any place has been ideally designed, but it is used to reveal its advantages and constraints. The responsive design approach understands the transactional relationship between learners and their environment and that sustainable design does not merely signify the integration of green principles, but rather how the learning environment – social and physical – can contribute to the development of the learner (Peter, 2010). The design must begin with an understanding that learning is situated in time and place, rather than dealing merely with aesthetics. Therefore physical learning (form, space, order-aesthetics), combined with social setting (user), results to psychological interactive education.

1.2 STATEMENT OF THE PROBLEM

The increasing rate of students' housing development has been quite significant in sheltering students, thus; giving concern for the quality of learning environment and its impact on these students'

residents. “Our surroundings influence not only the way we think but our intellectual development,” (Salingros, 1999). That people naturally seek out places where they will feel competent, confident and where they will feel comfortable. Such an understanding of human behaviour is a key in the design of the built environment. According to Akingbohungbe and Ojo, (2005), performance evaluation of physical and environmental developments is a key determinant of learning environment.

Issues involved includes:-

i. Personal reflections
ii. Impact of physical setting on students’ learning
iii. Responsive design approach for creating learning environments

1.3 AIM AND OBJECTIVES

This research is aimed at evaluating students’ perception of their residential environment in Ahmadu Bello University housing towards an efficient design proposal of a post graduate hostel. To achieve this aim, four objectives were targeted as follows;

i. To examine students’ satisfaction with their housing on and off campus;
ii. To identify the impact of examined features on students;
iii. To identify students’ preferred environment;
iv. To propose a post graduate hostel;

1.4 RESEARCH QUESTIONS

The relevant research questions are:-

i. What is the perception of students’ with their housing on and off campus?

ii. What is the impact of the residential environment on students'?

iii. What kind of environment do students require?

1.5 SCOPE OF THE STUDY

This study shall focus on housing specifically for Post Graduate students. For this thesis, the A.B.U. Campus students' hostel and the Samaru off-campus students' accommodation area, has been chosen as the case-study believing that it can be a suitable unit for a short-term analysis on environmental impacts on students learning. This neighbourhood-Samaru has been selected since it provides most of the off-campus hostel accommodation; hence, enables a comparison of their evaluated impacts as a basis for discussion.

1.6 JUSTIFICATION

The rise in demand for students' accommodation in Nigerian Universities has led to the construction of low standard housing to students. Students' Hostels are built without a proper evaluation of the needs and requirements of the end users. These accommodations are built with a sole aim of space minimisation, master plan requirements and meeting up to the university standards and landlords of the off-campus housing build with a sole aim of profit maximisation. This research challenges the current practice in students' accommodation, by embracing a pre-design evaluation and a responsive design approach for students' accommodation.

Evaluating responsiveness provides the basis for improvement of existing students' housing as well as give feedback on residential satisfaction towards enhancing the development of new accommodations. The result of this work shall provide an insight for housing facility managers and

administrators at higher learning institutions. Information provided by the students however will enable the facility managers and administrators improve their services and facilities in students housing.

CHAPTER TWO

RESPONSIVE ARCHITECTURE AND STUDENTS' HOUSING IN NIGERIAN UNIVERSITIES

2.1 INTRODUCTION

The value of housing development as seen by Akingbohungbe & Ojo (2005) usually transcends the borders of a building's scenic image and involves a whole range of its functional and behavioural impacts on the residents.

"A building is a kind of memory that provides a lasting framework for one's own actions and for those of others" (lang, 1985). The concept of performance in building process is central and borne out of the assumption that a building is designed and built to support and enhance the goals and activities of the occupants (Wolfgang & Preiser, 1988). Satisfaction according to Amérigo & Aragonés, (1997) can be defined as "the gap between achievements and aspirations" for this project; it is the difference between what is provided and what is required. A study of use and response is imperative because it helps in the measurement of the degree of success of a building with reference to the quality of design. Amole (1998) argued that this serves as a springboard for future designs and enhances the standard of living within any given building. Knowing how occupants respond to their buildings helps in determining how an existing space should function and the extent to which the design objectives are achieved. Most importantly, such study offers a feedback on several assumptions, prediction and decisions implemented during the design phase and how they eventually turn out during occupancy. Therefore,

Satisfaction = Building Image + Function + Behaviour

Design Response = Feedback + Prediction + Post Occupancy Evaluation

2.2 RESPONSIVE ARCHITECTURE

Architecture is the art, which above all others, combines expression, technology and satisfaction of human needs. Its purpose is to make places where people feel comfortable and fulfilled. It is in Vitruvius' words, the art which combines utilitas, firmitas, and venustas, or human behaviour,

technology and beauty (Beesley & Khan, 2009).

Responsive architectures deals with the interaction between man and his environment taking into consideration spatial perception, spatial thinking, orientation behaviour or spatial experience, territorial behaviour, living requirements and satisfaction which are those that measure actual environmental conditions to enable buildings to adapt their form, shape, colour or character responsively through increased performance of buildings thus incorporating intelligent and responsive technologies into the core elements of a building's fabric (Peter, 2010).

It is the ability to tie the shape and function of a building directly to its environment. This enables reconsideration in the design and construction of space while striving to advance the discipline rather than applying patchworks of intelligent technologies to an existing vision of "building".

Beesley & Khan, (2009) see “responsive” architecture, as a performing instrument. A new generation of architecture that responds to building occupants and environmental factors which embraces distributed technical systems as a means and end for developing more mutually enriching relationships between people, the space they inhabit, and the environment. Adding that this way of thinking about architecture, places “performance” above form making. It explores the conceptual landscape of humans’ fraught relationship with responsive technologies and proposes a renewed engagement with instruments that establish complex organic relationships between environment and occupant (Beesley & Khan, 2009).

Christian Del Sole, Imagines how much more effective the design process would be if you could get into the minds of your clients, what colours inspire them, how they interact with their physical environments, how the sunlight makes them feel. Answers to those questions

are rarely gathered during typical design, pre-design planning sessions. For one thing, design teams rarely delve that deep into the human psyche of the end users. And most people have difficulty verbalising this kind of information (Zube & Moore, 1991).

"Research conducted by Del Sole shows that only 5% of what the average person thinks can be expressed verbally", the other 95% is hidden in the subconscious. A staid research technique was used in this research to probe the conscious and subconscious thoughts of user groups and translates these thoughts into design approaches (Zube & Moore, 1991). Harvard business school professor Gerald Zaltman, says, the technique has been used for many years by coca-cola, DuPont, and fortune 500 companies as a market research tool for products and brand development. Bringing it to the architectural community helps designers create better environment by establishing users' preferences, needs and how they interact with the physical setting.

"We ask questions a typical designer would not ask, and in ways that uncover the deepest thoughts", says Del Sole. Key to the process is the use of art therapy during the initial one-on-one interviews with end users. "We ask them to bring six to eight images that explain their thoughts and feelings about their most recent experience at the facility," she adds, "It's a snapshot of what is going on inside their head." Then analyse the resulting graphical collages to look for common metaphors, ideas like "transformation," "energy," "control" among the group or sample of end users. "With the metaphors, we are able to conduct brainstorming sessions where we come up with design and human objectives that tie back to these metaphors," she says. These objectives are then matched with the client's programmatic needs to come up with a prioritized design guide. Pointing to the Pittsburgh children's hospital, Del Sole gives an example of one-on-one interviews with 29 patients,

nurses and doctors resulted in metaphors like “control,” “energy,” and “connection” (Zube & Moore, 1991).

If people do indeed react to subtleties of structure, would this explain why people react emotionally or spiritually given their entrance into places of worship? Why would people either like or dislike the ultra modern gleaming Guggenheim museum in Bilbao, Spain? We would be inclined to believe that the human body is biologically predisposed to reorganizing design and structure either consciously or unconsciously and that a variety of criteria may be at work influencing us when we find ourselves living, working or learning within the urban environment (Powpow, 2000).

The physical and behavioural effects between people and their physical environments became quite complex when elements of light and colour (shade and tint, warm or cool), texture (materials and surfaces), acoustical characteristics (noise) are taken into account. “Our surroundings influence not only the way we think but our intellectual development,” (Salingros, 1999). Responsive architecture would surely, but not completely, confirm why people might behave in awe at the sight of awesome vertical exteriors and interiors, the varied materials and textures on the floors, walls and ceiling. Salingros (1999) asserts that Gestalt psychology seems to be central to how we experience architecture in suggesting our brains are wired to infer the rhythm and patterns of architecture that in turn yield a behavioural effect. Such an understanding of behaviour and environment might be helpful in the design of the built environment.

For one thing it is explicitly purposeful; it has the task of reorganizing people in space. In this utilitarian process its motive is to make inhabitants aware of their surroundings while at the same time achieving different forms of crowding in the space.

2.2.1 MEASURE OF RESPONSIVE ARCHITECTURE

Responsive Architecture constitutes of several elements: attention or understanding how people notice their environment; perception and cognitive mapping or how people cognitively map what they experience on what they know or think they know about their environment (Peter, 2010). This form of architecture illustrates that people naturally seek out places where they will feel competent, confident and where they will feel comfortable.

2.2.1.1 Attention: understanding response to architecture begins with knowing how people notice the environment. This includes at least two kinds of stimuli; those that involuntarily, even distractingly, command human notice, as well as those places, things or ideas to which people must voluntarily, and with some effort (and resulting fatigue), direct their awareness. According to Garling & Golledge, (1993) restoring and enhancing people's capacity to voluntarily direct their attention is a major factor in maintaining human effectiveness.

2.2.1.2 Perception and cognitive maps: how people image the natural and built environment has been an interest of this field from its beginning. Information is stored in the brain as spatial networks called cognitive maps. These structures link one's recall of experiences with perception of present events, ideas and emotions (Kaplan & Kaplan, 1990). It is through these neural networks that humans know and think about the environment, plan and carry out their plans. Interestingly, what humans know about an environment is both more than external reality in that they perceive with prior knowledge and expectations, and less than external reality in that they record only a portion of the entire visual frame yet recall it as complete and continuous.

2.2.1.3 Preferred environments: people tend to seek places they will be at their best, competent and confident, places where they make sense of the environment while also being engaged with it. From a research carried out by Garling & Golledge, (1993), the notion of preference was expanded to include coherence (a sense that things in an environment connect together) and legibility (the inference that one can explore an environment without being lost) as contributors to the environmental comprehension. Also from the research, Garling & Golledge added that being involved and wanting to explore an environment requires that it have complexity (containing enough variety to make it worth learning about and mystery (the prospect of gaining more information about the environment). Thus the preserving, restoring and creating a preferred environment is believed to increase the sense of well being and behavioural effectiveness in people.

2.2.1.4 Environmental stress and coping: along with the common environmental stressors (e.g., noise, climatic extremes) Kaplan & Kaplan, (1990), define stress as the failure of preference, including in the definition such cognitive stressors as prolonged uncertainty, lack of predictability and stimulus overload. Density and crowding can also have adverse effect on mood and may cause stress-related illnesses. Also identifying numerous behavioural and cognitive outcomes including physical illness, diminished altruism, helplessness and intentional fatigue. Coping with stress involves a number of options, people can change their physical or social settings to create more supportive environments (e.g., smaller scaled settings, territories) where they can manage the flow of information or stress inducing stimuli. People can also endure stressful period, incurring mental costs that they deal with later, in restorative settings (e.g., natural areas, privacy and solitude). They can also seek to

interpret or make sense of the situation as a way to defuse its stressful effects, often sharing these interpretations as part of their culture.

2.2.1.5 Control: control and predictability are the greatest factors in stressful effects of noise, context, pitch, source and habituation and are also important variables (Isling, 1992). To control these environmental problems related to human satisfaction in architecture, principles should come directly from the physical settings (proshansky, 1990). For example, factors that reduce the feeling of crowding within buildings include;

- Windows (particularly ones that can be opened and provide a view as well as light),
- High ceilings,
- Doors to divide spaces and provide access control,
- Room shape (square rooms feel less crowded than rectangular ones),
- Using partitions to create smaller personalised spaces within an open plan office or larger work space,
- Providing increases in cognitive control over aspects of the internal environment such as ventilation, light, privacy, etc.
- Conducting a cognitive appraisal of the environment and feelings of crowding in different settings, for example one might be comfortable with crowding at a school show but not in school corridors.

2.2.1.6 Defensible space: having an area of personal territory in a public place, e.g. at the hostel should be a key feature in architectural designs. Having such a 'defensible space' (term coined by Calhoun during his experiment) can reduce the negative effects of crowding in our buildings. Placing barriers and personalising space are ways of increasing cognitive control therefore mastering the level of density and crowd in our buildings.

2.2.1.7 Connection: place attachment has been defined as "the bonding of people to places", through interaction with places, people describe themselves in terms of belonging to a specific place. We connect to certain places, thereby increasing our sense of self esteem and happiness, creating a sense of belonging that can best be termed as feeling at home (Altman & Low, 1992). Place attachment or connection involves an elaborate interplay of emotion, cognition and behaviour in reference to place and can change with different life stages.

2.2.2 RESPONSIVENESS IN HOUSING; ACCOMODATION FOR STUDENTS

The standards, which are set for student housing, must take into account the preferences of the students who reside in those facilities. Studies aimed at determining factors that predict residence hall satisfaction describe student housing preferences. Student preferences for housing have evolved and they now demand more luxurious accommodations and increased technological amenities (Dixon, 2009). Satisfying the high standards from the millennial generation is difficult for residence halls today due to the luxurious preferences students have. Many providers of student accommodation have already made immense efforts to improve their residence hall satisfaction by renovating old facilities or building new facilities with more spacious accommodations and more luxurious amenities though achieving responsiveness in a building is much more than this.

When predicting what factors may contribute to student satisfaction, there is a correlation between residence hall living and overall college experience satisfaction (Foubert et al., 1997). Residents at a college or university are overall more satisfied with their undergraduate experiences than students who chose to live off-campus and commuted to school (Astin, 1999). "Convenience and location are an important factor, as most prefer to be within

walking distance of their lectures. These students said that being only 15 minutes from the furthest end of the campus was very handy and meant they could get up just half an hour before a morning lecture. Living off-campus meant an expensive and time-consuming bus journey every morning" (Jia Cheng, 2010).

Studies of residential satisfaction have usually examined residences as whole environments (Amole, 2008). Completed residential buildings should not only be fit for the purpose of the users, but also be able to perform their functions in such ways as to ensure relative residents 'satisfaction (Liu, 1999). However, on campus accommodation has been a potent source of conflict between the university authority and students, the more it is de-emphasized the less the conflicts. Khozaei *et al.* (2010) postulate that feeling attach to a place can be originated from the overall residential satisfaction.

The research literature shows that student satisfaction with a place of residence is impacted by the physical appearance and amenities that are offered. In fact the physical environment is the strongest predictor of residential satisfaction. The closer residence halls are to student expectation, the more satisfied the students will be.

Oxford and Cambridge Universities initiated the earliest and most popular examples of student housing as a building type followed later by Harvard University. Yale University also established a similar housing program in 1933 and a few years later, Princeton University established what is commonly referred to as the 'Quadrangle Plan' (Amole, ibid). All these models focused on joining the classroom experience with the out-of-class experiences in the halls of residence. The goal was to bring faculty and students into closer contact to promote an environment that allowed students increased opportunities to discuss classroom subjects and other academic topics with pears in their residences.

Another study, performed by *Null et al.* in 1982, shows that student perception of residence halls are more favourable when certain factors related to the residence hall, such as living situation, social activities or programs, and organization of the residence hall are highly rated (Null, 1982). Students that hear good things about their residence hall, perhaps by word of mouth or survey data, tend to have a better perception of their residence hall, which may lead to them having a higher overall satisfaction in the end. Satisfaction is defined by the experiences students have with their residences hall and there is a need to identify the main contributors to student satisfaction (Chan, Dubois, Fahey & Josephs, 2011).

Institutions of higher learning around the world, including Nigeria, have successfully incorporated student housing schemes in their master plan in an effort to integrate the formal aspect of learning with the informal yet, no less important aspect. Therefore student housing has become an inherent part of campus planning (Amole, ibid). By providing general student accommodation, she averred that differences in backgrounds could be near equalized through the fusion of living and learning by common standard.

Most universities in Nigeria were primarily residential until emerging situations of population increase on campuses leading to unacceptable incidences of overcrowding and unhealthy accessibility to legitimate accommodation on-campus became prevalent. Students then turned to the town for accommodation and, in no time, private individuals and groups responded to these needs by providing off-campus accommodation for students' need through refurbishment of old buildings and construction of new ones. The resulting off-campus housing thus presented unregulated and varying levels of facilities.

Many buildings do not perform as planned; in some cases this can impact on running costs, staff and client satisfaction and performance, health, safety and comfort. For repeat construction clients, learning from, and correcting past mistakes in design and commissioning of buildings can be

extremely cost-effective and greatly improve workplace productivity. The concept of post occupancy evaluation is about procedures for determining whether or not design decisions made by the architect are delivering the performance needed by those who use the building (Ilesanmi, 2010).

One common residential satisfaction measurement as Hassanain (2008) points out that student perceptions can be assessed in terms of both technical (i.e., acoustic and visual comfort) and functional (i.e., room finishes and room layout) requirements. He, however, considers technical and functional building performances as two different aspects that can be used to explain student residential satisfaction. Other physical factors that adversely affect satisfaction levels satisfaction with residence halls include excessive noise, too little or too much light, extreme temperatures, and poor air quality (Strange, 1991). These factors affect satisfaction negatively and all result in poor overall satisfaction with a residence hall (Foubert et al., 1997). Building size is also a key determinant of satisfaction, with lower levels of satisfaction reported in larger residence halls (Spencer, 1979). This is mostly due to the perceived crowdedness of the residence hall, which takes into account the perceived size of the facilities. High density situations, such as in a perceived crowded residence hall, have the least positive impact on residents (Strange, 1991).The second key determinant that contributes to student satisfaction of residence halls is social factors (Foubert et al., 1997). Students who are supported both "emotionally and socially, or who have a strong sense of community tend to be more satisfied with their residence hall experience […]" (Ullom & Hallenbeck, 1981).

In a different approach, (Foubert *et al* ,1998, Amole , 2009a & Khozaei *et al.,* 2010 cited in Najib, Yusof and Osman, 2010), investigate beyond the scope of housing facilities and add management as a factor in student satisfaction. They include elements such as hostel rules and fees and the attitudes of hostel employees. Several factors can be used to assess overall satisfaction with student housing, including physical variables such as facilities and extra services (Hassanain, 2008). Social variables such as student relationships, financial support, crowding and privacy are a combination of this (Frank & Enkawa, 2009). Nevertheless, previous studies have not provided conclusive results

regarding student satisfaction in all of these areas.

An extensive student survey at the University of Maryland reveals that the strongest predictor of residential satisfaction is physical features, followed closely by the "quality of the relationship with residents‟ roommates" (Foubert et al., 1997). Other factors such as 'community feel', the academic setting, safety & security, and student lifestyles are much less closely related to levels of satisfaction (Foubert et al., 1997). This is where 'collaborative learning' comes to play.

The key aspect to focus on is building stronger academic environments, such as using design to increase the students-accommodation bond by accessing the minds of these residents incorporating technology, physical and mental fulfilment which will ultimately benefit the residence hall with increases in 'millennial student satisfaction'.

The millennial generation is roughly defined as the generation of people born between the years of 1980-1994 (Sweeney, 2005). Seven core traits identify the millennial generation, according to Willam Strauss, author of "Millennials Go to College". The millennial generation is defined as "special, sheltered, confidence, team-oriented, conventional, pressured, and achieving" (Howe et al., 2007). Bearing these attributes in mind, the designer should know that, the millennial generation is characterized by a few key points that set the people apart from the other generations. Millennials expect to be able to choose from a wide range of consumer choices. They expect continuous improvement of products and services, and are drawn to customization and personalization. They value education and thus expect that their lives will be made better because of it thus have very high expectations for their futures and don't settle for anything less (Sweeney, 2005). Millennials are impatient and have a need for instant gratification. This is mainly due to the development of technology and the ability to provide answers or perform a task at the blink of an eye (Chan, et al., 2011).

Millennials expect the “flexibility, geographic independence, speed of response, time shifting, interactivity, multitasking, and time savings”.

Two key factors contribute to student satisfaction with residence halls: the physical environment and various social factors. The physical environment, including building design, space, amenities, and location, are found to all impact student satisfaction (Strange, 1991).

Providing enormous potential for improving the performance of a building, filling the gap in the conventional building process, which consists of planning, programming, design, construction and occupancy of a building, as well as representing the perception of the prospective users of a building, should be a designer’s aim.

2.3 LEARNER AND THE LEARNING ENVIRONMENT

This approach focuses on the role of the social environment and how the physical environment may be structured to support learning. A reasonable criticism of so-called innovative learning environments is that they are neither original nor new, and generally sustainable learning environments focus on “green building” technologies and ignore other aspects of sustainability such as social development (Peter, 2010). A responsive design approach would embrace the educational ideology, practice theory, which describes the interaction between learner and environment, and link this to the concept of responsive commissioning, a research approach that explores the nature of the interaction between the social and physical aspects of the learning environment. The designer can then create an environment that is more responsive to the needs of 21st century or mellenial education (Peter, 2010). A responsive design approach would help designers create more innovative and sustainable learning environments. Such an approach accepts that the environment shapes the learner, and that learners influence their environment.

Researchers and designers of learning environments often debate whether the learner should adapt to the learning environment or whether the learning environment should adapt to them. Arguably this is the wrong question. A better question is: how does the environment shape the learner and, in turn, how does the learner influence the learning environment? In other words: what is the transactional relationship of the learning environment? This involves understanding the motivations of the learner with respect to the time and place in which s/he acquires knowledge (Lave & Wenger, 1991). The learning environment in this context is composed of the learner, other students and teachers and the physical environment.

Therefore, 20th century constructivist concepts which view the learner as active and the learning environment as passive should be replaced with a new perspective. Practice theory recognises that the learner and the learning environment are active (Dent-Read & Zukow-Goldring, 1997). In the constructivist setting, students learn from their own discoveries, whereas with practice theory learners are transformed and shaped by their transactions alongside others and their physical settings (Peter, 2010).

In terms of innovation, the 21st century learning ideals are not so different from Reggio Emilia and Montessori pedagogies. Both aspired to engage learners in activities with a variety of tools. Furthermore, these alterative programmes are places where faculty and students are motivated to extend their development beyond their current level of knowledge. On the whole, the goals foster critical thinking, social skills (through co-operative activities) and self-directed work. Whereas Reggio Emilia viewed the physical environment as the "third teacher" who guides learning, Montessori recognised that it must be prepared with tools to promote learning opportunities. Similarly, 21st century learning environments are using today's tools (*i.e.* information technologies) which are believed to guide the learner and lead development (Vygotsky, 1978). Montessori developed teaching tools that encouraged learners to explore their environments through self directed and co-operative learning activities. At the time, this was an innovative and modern approach.

How can the design professional envision a space that includes technology if the advantages and constraints of this tool have not been fully evaluated in relation to the pedagogy of the place? Otherwise put, learning environments should be programmed, planned and designed to support the intended learning activities. In addition, the spatial design of the learning environment, especially in Nigerian education, is structured around the classroom. On the whole, these learning environments have not changed for decades whereby contradicting the fact that Learning is a transaction between students within the physical environment.

2.3.1 COLLABORATIVE LEARNING

Collaborative learning is a situation in which two or more people learn or attempt to learn something together (Dillenbourg, 1999). Unlike individual learning, people engaged in collaborative learning capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work, etc.). More specifically, collaborative learning is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and take on asymmetry roles (Chiu, 2008).

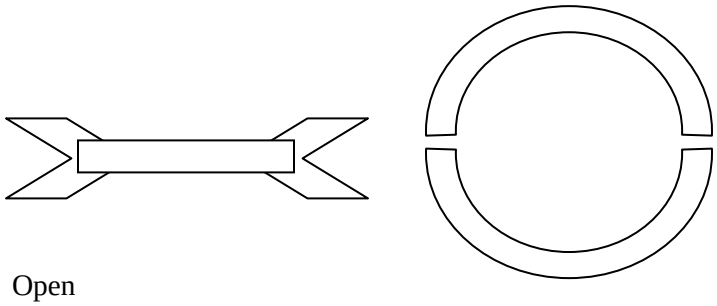
The importance of the social environment in students life cannot be overemphasized and integral role which student housing assumes in overall campus planning and design evolved based on philosophy that a close proximity between learning and intellectual development of universal students. In fact, it is the social responsibility owed by the school authorities to provide a constructive atmosphere for learning and interaction (Amole, 1998). Interaction develops the mind of the learner in many ways, improving social engagement and enlightenment. Although learning happens in a variety of ways in indigenous communities, collaborative learning is one of the main methods used in indigenous learning styles instead of using European-American approaches to learning. These methods include learning in a horizontal plane where children and adults share contribution in ideas and activities.

Proponents of collaborative learning claim that the active exchange of ideas within small groups not only increases interest among the participants but also promotes critical thinking. According to Johnson and Johnson (1986), there is persuasive evidence that cooperative teams achieve at higher levels of thought and retain information longer than students who work quietly as individuals. The shared learning gives students an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers (Totten, Sills, Digby, & Russ, 1991).

Therefore, a cooperative learning environment proposed in this design must offer opportunities for learning by hierarchy and interaction. Since the Project is not focusing on classrooms but students' residential hostel, the accommodation needs to meet the hierarchy of needs such as;

- Privacy,
- Selective interaction
- Affordance of learning (critical thinking, social skills)

All these resulting in common metaphors, (Control, Privacy, Security, etcetera). The design guide and priorities would link back to these metaphors and the objectives are matched to the students' common needs. The apartment design could assume Open-closed, Closed-open, hierarchic, regimented or informal styles.



Open

Closed

Figure 1: The Open and Closed Design Layouts.

Learning together, however, is = Collaborative learning



Sharing of resources



Experience sharing



Active exchange of ideas.

(Mai, 2011)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

To consider the social environment in relation to the physical environment as involving spatial design, the connection throughout buildings and the efficiency and effectiveness of building systems,

responsiveness has to be checked, (Peter, 2010) Whether responsive commissioning involves a new facility or developing an understanding about a current facility, this process begins with gathering information from key residents and conducting evaluations of the constraints and advantages of the physical environment.

The goal here is to evaluate responsiveness in students' housing design, assessing the preferences and satisfaction of the students residing on campus and those off-campus residents experience, compare the feedback, select common metaphors, recommend ways to improve and propose a suitable environment to enhance learning in Ahmadu Bello University, Zaria and other Universities across Nigeria.

The research thesis could be reduced to;

1. Physical environment Pe
2. Social environment Se
3. Learning environment Le

Therefore, L = P + S

With Physical environment, P as

i. Room space
ii. Circulation space
iii. Arrangements of rooms or individual apartments
iv. The conglomeration of apartments in blocks
v. Shared facilities such as laundry, common rooms
vi. The building aesthetics

While the Social environment, S

i. Residents interaction with spaces mentioned above

ii. Flexibility of spaces/ facilities to enhance individual and peer learning, self directed learning and social skills, etc

3.2 RESEARCH SURVEY

Data used for this work was generated from responses of students residing on campus hostels and resident students in the randomly selected off-campus hostels around the neighbourhood of the university. A preliminary survey by the author spout off-campus housing in the town into "purpose-built", "converted", or "adapted" buildings and ten percent samples of each type were randomly selected for the study. The structured questionnaires administered were designed for on and off campus residents to elicit their socio-economic characteristics, the facility analysis of the hostels, the factors influencing the hostels' performance and the residential satisfaction of the respondents. The research method is grouped as follows; qualitative approach.

3.2.1. CASES

the case study serves an important instrument for systematic research procedure, thus an in depth study of existing student accommodation on-campus within the A.B.U. Zaria is undertaken to ascertain the level of application of variables analysed for this research. This case studies aid in drawing conclusions for the design process.

This method is basically evaluative; visiting the selected buildings and careful observation of their effectiveness to determine how they have fared against stipulated standards. The design process must focus on the role of the social environment and how the physical environment may be structured to support learning. This calls for examining existing settings so as to understand how they function, as well as to identify the social patterns that emerge from the

activities that occur in learning environments. By conducting case studies evaluative, these activity patterns can be identified; they may then be used to inform the designer/ researcher who then recommend what the appropriate spatial arrangements might be.

3.2.2. METHOD OF DATA COLLECTION

3.2.2.1 Sample

The questionnaires to be developed shall cover paramount issues such as socio-economic characteristics of respondents, available facilities, spaces provided, environmental issues, security, comfort, stress, distance, control, connection with peers, sports and relaxation, to students within the university (A. B. U.) campus and for the off campus, the questionnaires was divided in three from the preliminary survey around the off-campus housing and by interviewing a sample of off campus residents. 30% samples of the "purpose-built", "converted", and "adapted" buildings were randomly selected for the study to determine residential satisfaction of student residents outside the campus in Samaru. Purpose-built are the originally intended to serve as students housing, Converted buildings as the name implies are residents changed in form and function to serve for students, while the Adapted are buildings students made suitable, by way of modification or fitting in.

Data was also collected from other key informants; the developers or landlords of properties in Samaru and Architects. Key informants' interview, quantitative survey of 100 respondents (10% margin of error) or 90% confidence. The secondary source of data collection is review of relevant literature from architectural journals, text books, periodic publications, articles and magazines.

3.2.2.2 Sample Population

100 structured questionnaires were administered, 50 designed for on-campus residents, 5 0f which were used as interview for a randomly selected residents of the postgraduate hostel at Kongo campus,

A.B.U. Zaria. Only 43 of the remaining 45 administered questionnaires were returned bringing total completed questionnaires to 48 from the Campus students. Another 50 was designed specifically for the Samaru off-campus student residents, with over 30% samples administered to students in each of "purpose-built", "converted", and "adapted" hostels. 41 questionnaires were returned.

3.2.2.3 Sample Procedure

The implications of the results provided by respondents in the questionnaire and interview were subject to quantitative factor analysis. Site visits, survey, observations and interviews conducted by the researcher, complemented the data collection process. Content analysis of the themes and values of L = P + S, was established. Quantitative data shall be reduced to frequencies and charts. Subsequently the themes from the qualitative data are put in contrast with the quantitative in other to triangulate apparent trends.

Also secondary data collected shall be quantified. Also sketches of the typical student room and the hostel layout are made available for analysis, in addition to Photographs of spaces and forms of the hostel were taken and documented, figures analysed and schematic representation adapted.

From the data gathered, satisfaction was measured using the difference between what is expected and what is provided. Where; Satisfaction S = Expectation E – Provision P

Not only does the responsive approach value research on how the learning environment functions, but it also embraces a process which promotes a "culture of inquisitiveness" which requires rigorous analysis, animated dialogue between all participants and a working knowledge of the information available. This change will only occur when designers understand the value of creating places that are not only aesthetically pleasing, but are also grounded in research (Lave & Wenger, 1991). It is under these conditions that the design of the physical environment can support the activities that take place routinely in them so that people may develop.

3.2.3 VARIABLES

These are considered values or factors used to assess satisfaction in this research work. They may also be seen as the design constructs. Set preferences determine these features for this project, as satisfaction is seen as the difference between what is provided and what is required.

3.2.3.1 Physical factors: is the strongest predictor of residential satisfaction. How people notice the environment and how they tend to seek places where they can be at their best, competent and confident, places where they make sense of the environment while also being engaged with it.

- Technical factors; acoustic and visual comfort; this has to do with the appearance of the building
- Functional factors; room layout, size and finishes; lower levels of satisfaction is usually perceived in larger residence halls due to density.
- Density and Overcrowding; perceived crowdedness is higher in larger hostels.
- Noise; excessive noise due to overcrowding might abuse sense of privacy.
- Location; Convenience and location are an important factor, as most prefer to be within walking distance of their lectures.
- Safety; most prefer secured environments.
- Lighting and ventilation; too little or too much light, extreme temperature and air quality can adversely affect satisfaction.

3.2.3.2 Social factors: second key determinant of students' satisfaction. These factors include

- Privacy: Defensible space, having an area of personal territory reduces the negative effects of crowding in our buildings
- Connection; bonding with space, other residents

- Health; having a hygienic environment

CHAPTER FOUR

CASE STUDIES

This research is to evaluate how students perceive their residential environment on and off the campus hostels, emphasizing on their satisfaction and how it affects their learning as well as connection of students to their physical and social environment. Case studies were carried out and data obtained from students of different socio-economic characteristic were presented and analyzed.

The case study involves careful observation of the selected building's effectiveness by examining existing settings/facilities so as to understand how they function, as well as to identify the social patterns that emerge from the activities that occur in learning environments.

4.1 CASE STUDY 1: FEMALE POSTGRAUATE HOSTEL, AMINA HALL A. B. U., ZARIA

The female postgraduate hostel (block 9) is located within Amina hall separately while the PHD block (W H) is located in the undergraduate section. Because the PHD block is located within the undergraduate section it shares most of its facilities with the undergraduates except the toilet facilities, while the postgraduate section has unshared facilities of toilet and laundry which is attached to the block and the common room which is detached from the block. On the observation that other facility for the Amina hall are located outside to avoid infiltration. Therefore, the facilities were categorised into three;

i. The unshared facilities
ii. The shared facilities
iii. The general facilities

4.1.1 THE UNSHARED FACILITIES

The unshared facilities includes those facilities that are not shared with the post graduate students these includes

- The toilet and laundry facilities.
- The common room
- The parking lot.

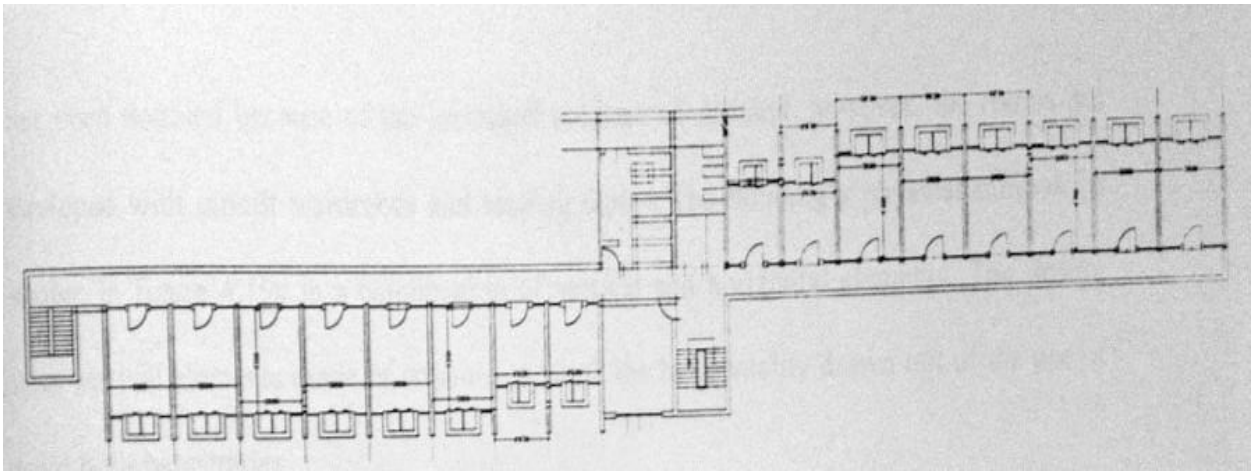


Figure 2a: Showing a typical plan of the Amina hostel Source: Sagada, (2009)

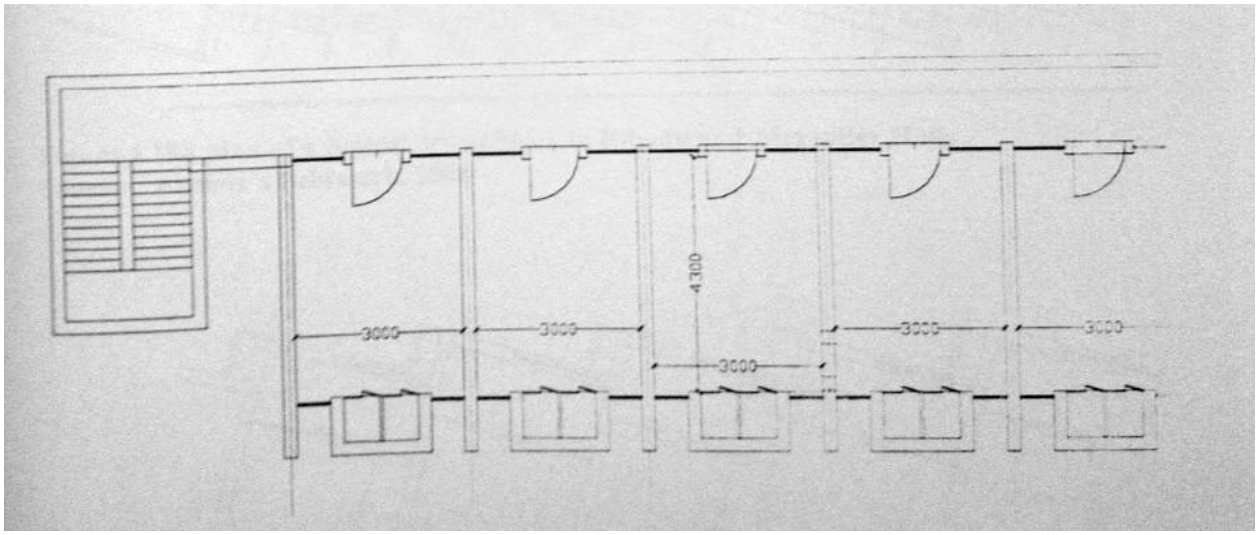


Figure 2b: Showing a typical plan of the Amina hostel Source: Sagada, (2009)





Plate I (a) and (b) showing the common room, the shop and the toilet facility

Source: author's fieldwork, (2013)




Plate II showing the laundry and the post graduate common room

Source: author's fieldwork, (2013)

4.1.2 THE SHARED FACILITIES

The shared facilities are those that are shared by the postgraduate students and undergraduate students some are located within the hostel while others are located around the hostel. Those located within the hostel are the cafeteria, shop and the mosque while those located outside the hostel include tailoring shop and the salon.





Plate III (a) and (b) showing the walk way and the mosque Source: author's fieldwork, (2013)





Plate IV (a) and (b) showing the cafteria Source: author's fieldwork, (2013)





Plate V: showing the salon Source: author's fieldwork, (2013)

4.1.3 THE GENERAL FACILITIES

The general facilities are those attached to the hostel outside but used by all students on campus these are; the standard size swimming pool, pepsi garden and nineties.





Plate VI (a) and (b) showing the attached shops to the hostel fence and the swimming pool.

Source: author's fieldwork, (2013)



Plate VII showing the pepsi garden at the amina hall. Source: author's fieldwork, (2013)

4.2 CASE STUDY 2: AKENZUA POST GRADUATE MALE HOSTEL, A. B. U., ZARIA

Facilities are buildings or services that are provided for a particular purpose. As such, in the case study that was carried out at the Akenzua PG male Block, the notable facilities include;

4.2.1 COMMERCIAL FACILITIES:

- **Kiosks:** Series of shops are arranged on a row to cater for the purchasing of items, provisions and goods by the PG students.



Plate VIII: shows a row of kiosks outside the Hostel
Source: author's fieldwork, (2013)

- **Cafeteria**: A cafeteria is also provided to cater for the feeding of the students in the Hostel.



Plate IX (a) shows the main entrance to the Cafeteria from outside
Source: author's fieldwork, (2013)



Plate IX (b) shows seats used within the Cafeteria
Source: author's fieldwork, (2013)

4.2.2 SOCIAL FACILITIES:

- **Common Room**: A common room is provided to boost the interaction amongst the students of various disciplines in the block.



Plate X (a) shows the 3D image of the Common Room. Source: author's fieldwork, (2013)



Plate X (b) shows the interior of the common room. Source: author's fieldwork, (2013)

- **Mosque**: A Mosque is provided to help the Muslim brothers pray together and to some extent come together for some socio-religious gatherings.



Plate XI shows the Mosque used by the residents of the PG Hostel

Source: author's fieldwork, (2013)

4.2.3 RECREATIONAL FACILITIES:

- **Five Aside Pitch:** This is provided to enable the PG students to shake off once in a while.



Plate XII: shows the five aside pitch at the middle of the type B Hostel.
Source: author's fieldwork, (2013)

4.2.4 SERVICE FACILITIES:

- **Parking:** Parking spaces are provided to enable students conveniently park their cars.



Plate XIII: shows the undefined parking nature Source: author's fieldwork, (2013)

- **Laundry Facilities:** Open-air washing and drying areas are provided in the courtyard of the Type B Block.



Plate XIV shows open-air drying area Source: author's fieldwork, (2013)

4.2.5 DISCUSSIONS ON THE FACILITIES

Zoning of the facilities:

- The Commercial and Social facilities are located to the front of the Hostel; commercial outside the boundary fence and social within the boundary.
- The Recreational facilities are located at the centre of the block alongside with the Open air laundry facility and the Parking space.

4.2.6 MERITS:

- The zoning of the social, recreational and services facilities suggests that they are all conceived at the conceptual stage of the design.

- The location of the commercial facilities seems fit, owing that it is outside but adjacent to the hostel block: security consciousness.

4.2.7 DEMERITS:

- Overburdening of facilities, there by leading to the deterioration of facilities (toilet facilities).
- No defined access and layout within the blocks, therefore a threat to security.
- No defined drying area in the Type A Block while that of the Type B Block is quite inadequate.
- The location of the cafeteria seems centralized thus becoming the focal point.
- The location of the common room seems to be semi- hidden.

In summary, the above facilities serve as the communal areas for the PG Students for the purpose of interaction and mutual relationship among the students. As such this should be noted in the proposed design especially in the conceptualization of the building form.

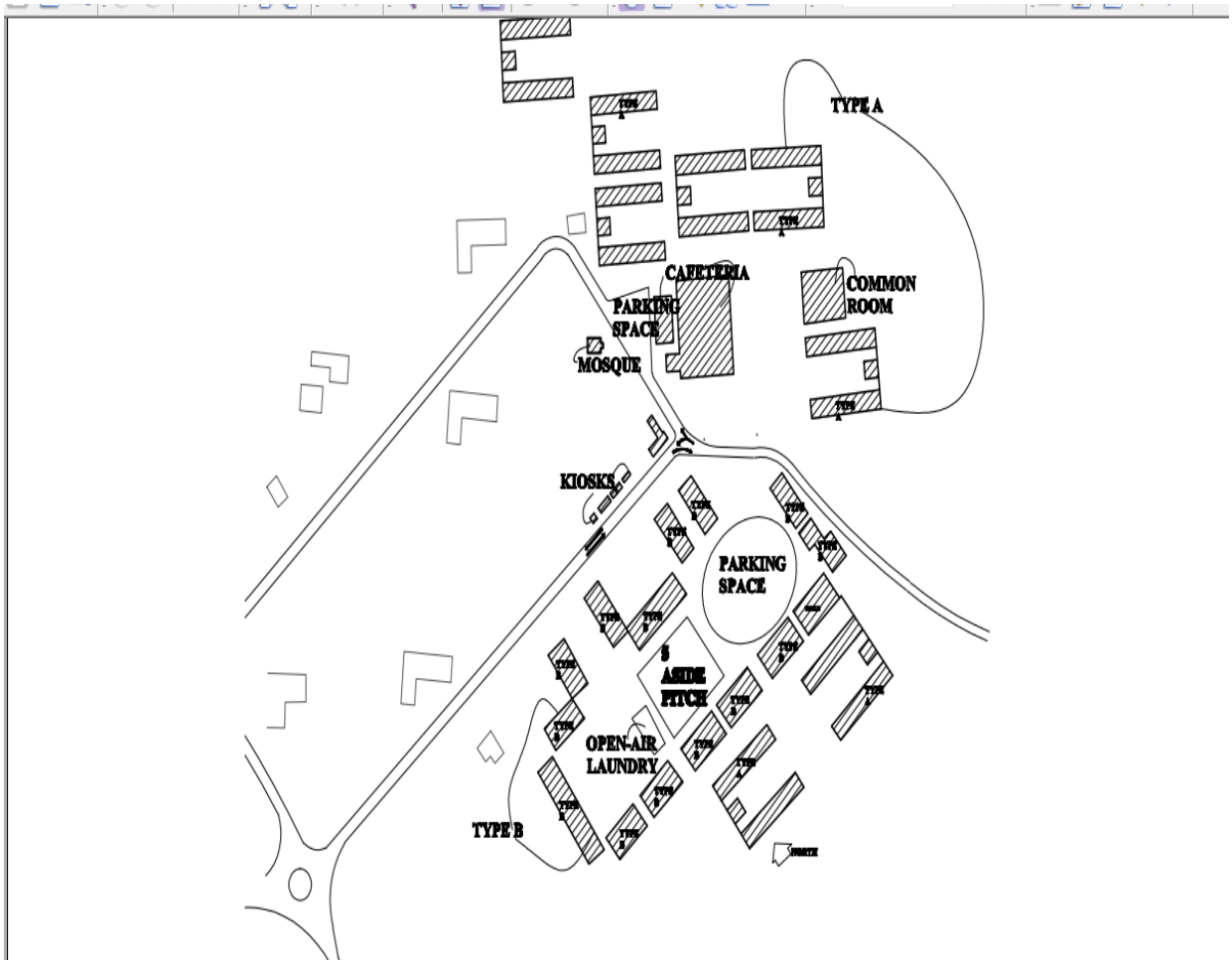


Figure 1: Site layout of Akenzua PG Hostel source: ABU Estate Department(2010)

4.3 CASE STUDY 3: POST GRADUATE MALE HOSTEL, KONGO CAMPUS, A. B. U., ZARIA

4.3.1 BACKGROUND

This is a dedicated male post graduate hostel commissioned in 2003, meant to be for 312 bed spaces. It is building of 3 floors and two wings, A and B, with 13 double rooms and 2 single rooms on each floor, which brings the total bed spaces to 168 instead of the proposed 312. There are 8 toilets and 8

bathrooms on each floor, which means there are four rooms per one.

4.3.2 FACILITIES AND FUNCTIONS

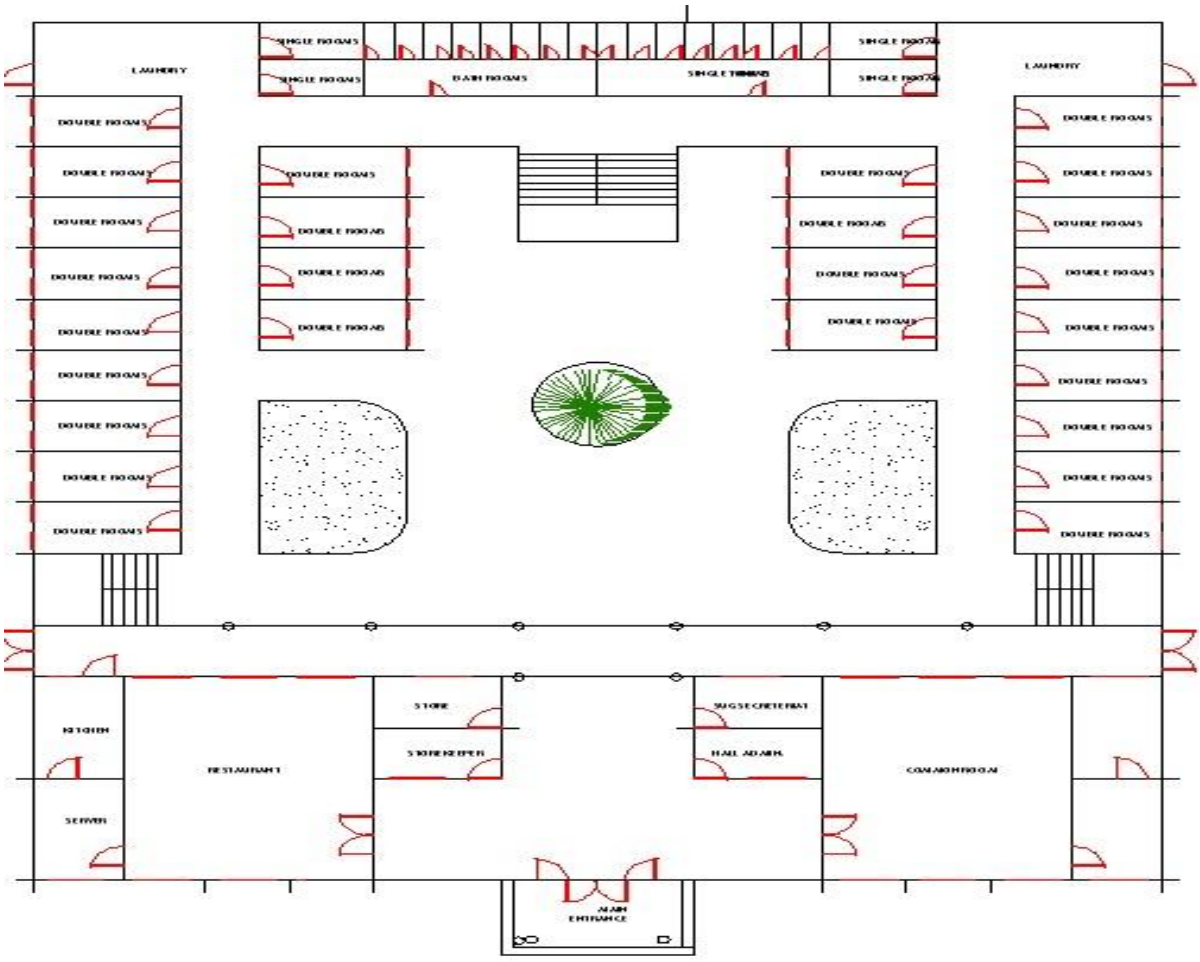


Figure 4: Showing a typical plan of the Kongo PG male Hostel Source: author's sketch, (2013)

The main entrance; shows the facade of the building and the parking space.



Plate XIV: shows the main entrance and parking space Source: author's fieldwork, (2014)

- **The common room**; A common room of 36 seats is provided to enable interaction amongst the students of various disciplines in the block. Located just at right side of the entrance.

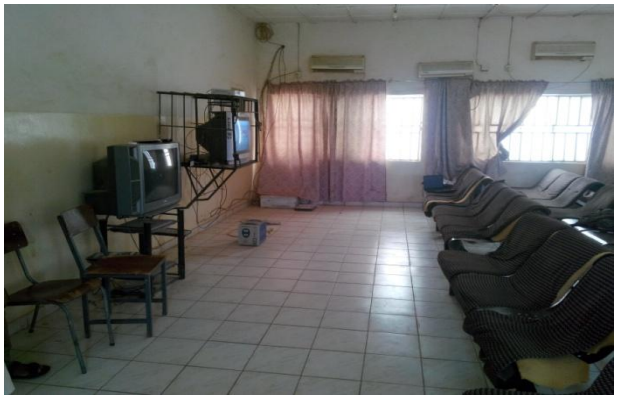




Plate XV (a) and (b) shows the interior of the Common Room. Source: author's fieldwork, (2014)

- **The cafeteria**; students eatery, just opposite the common room.



Plate XVI: shows the Cafeteria Source: author's fieldwork, (2014)

- **Offices**; the hall administrators' office and Student Union Government secretariat close to the entrance of the building.





Plate XVII (a) and (b) shows the hall admin offices, the SUG secretariat and the storage room
Source: author's fieldwork, (2014)

- **Rooms**; there are 13 double rooms and 2 single rooms on each floor,





Plate XVIII (a) and (b) shows a view of the double and single rooms Source: author's fieldwork, (2014)

- **Circulation system**; there are 3 stair wells, one central and two at the sides of each block for ease in circulation and escape from the floors.





Plate XIX (a) and (b) shows a view of the staircases Source: author's fieldwork, (2014)

4.3.3 OBSERVATIONS AT THE POST GRADUATE MALE HOSTEL, KONGO CAMPUS, A. B. U., ZARIA

- The hostel was meant for 312 bed spaces but there were 168 bed spaces, this may either be as a result of funds or availability of site
- The supposed kitchens, two on each wing (A and B) of every floor, that is, four on each floor were converted to room of one (single rooms).
- The location of the hostel is deserted that is, it does not connect to the schools social facilities of any kind and does not have enough on its own.

4.4 CASE STUDY 4: POSTGRADUATE CENTRE, OXFORD BROOKES UNIVERSITY

4.4.1 BACKGROUND

This accommodation of 361 bed spaces for postgraduate students has a higher level of specification than a typical student bedroom, one which is more commonly associated with the private residential market. The design includes a mixture of 1 bedroom flats and cluster flats with a mixture of 2-6 bed spaces each.

All the flats are arranged around a central quadrangle courtyard. The courtyard provides a secure outdoor facility with grass area, large central water feature which also works as a balancing pond and a social provision building for student and conference use. The building was completed under a design and build contract (GSS Architecture, 2012).



Plate XX shows the site layout of the hostel. Source: GSS Architecture, (2012).



Plate XXI: floor plan of single bed rooms and cluster rooms Source: GSS Architecture, (2012).



Plate XXII: showing attached kitchen Source: GSS Architecture, (2012)



Plate XXIII: a view of the hostel elevation Source: GSS Architecture, (2012)

4.5 CASE STUDY REPORT

An extensive student survey at the University of Maryland reveals that the strongest predictor of residential satisfaction is physical features, followed closely by the "quality of the relationship with residents‟ roommates" (Foubert et al., 1997). Other factors such as „community feel,‟ the academic setting, safety & security, and student lifestyles are much less closely related to levels of satisfaction (Foubert et al., 1997).

TABLE 4.5.1: CASE STUDY REVIEW

Variables		CASE STUDY 1	CASE STUDY 2	CASE STUDY 3	CASE STUDY 4
Physical factors	visual comfort	Large Symmetric and continuous building, could be visually discomforting.	Not exactly pleasing also not discomforting.	Visually comforting, as rooms are arranged properly on both wings and building size is at a balance.	From the elevations, and interiors, it can be said that the building is visually comforting, rooms are arranged in blocks and

					attached to each other by stair cases.
	Room layout, size and finishes	Room sizes were just enough space for two students but there are four in some rooms and quite congested and discomforting, finishes are deteriorating.	Meant for two students per room, but with the increase in students' population, most of these rooms are congested as well.	Good room layout, having and enough space for rooms of two, though supposed kitchen was converted to single rooms, depriving students of making use of this facility.	Designed for specific number of students, good circulation spaces and finishes in rooms and kitchens.
Physical factors	Lighting and ventilation	Narrow openings for lighting and ventilation and the lack of kitchens and narrow corridors makes the students cook in their rooms which is quite inconvenient.	Fairly good lighting and ventilation, though the absence of kitchens is also a setback.	Enough lighting and ventilation which helps in temperature control.	Proper openings for the temperature variations.
	Density and Overcrowding	The large size of the building makes it dense and overcrowded and noisy	The layout of this building is sparse and has thereby solved the problem of perceived crowdedness.	Sparsely dense due to building size	From the plan it can be seen that some of the blocks are clustered, which may give a sense of crowdedness.

	Location	Convenient location, this hostel is at the central of the school, for this reason many students want to live there	Quite far from other school activities and usually not in favour of the students	Isolated from other school activities and from lecture rooms	From the site layout, it can be seen that the building is not isolated.
	Safety	Hostels within school are usually secured	Hostels within school are usually secured.	Hostels within school are usually secured.	Hostels within school are usually secured.

Physical factors					

Source: Authors field work, (2014), GSS Architecture, (2012)

The above table shows the data review of several Case Studies carried out in the course of this research. The selected buildings' effectiveness was observed, existing settings/facilities were examined, and also the social patterns that emerge from the activities that occur in learning environments were noted.

CHAPTER FIVE

ANALYSIS AND DISCUSSION OF FINDINGS

5.1 RESULT ANALYSIS

100 structured questionnaires were administered, 50 designed for on-campus residents, 5 0f which were used as interview for a randomly selected residents of the postgraduate hostel at Kongo campus, A.B.U. Zaria. Only 43 of the remaining 45 administered questionnaires were returned bringing a total completed questionnaires to 48 from the Campus students. Another 50 was designed specifically for the Samaru off-campus student residents, with over 30% samples administered to students in each of "purpose-built", "converted", and "adapted" hostels. 41 questionnaires were returned.

Table 5.1.2: Demographic Characteristics of Respondents on Campus

Demographic characteristics		Frequency	Percentage %
Gender	Female	27	**56.3**
	Male	21	**43.8**
	Total	48	**100**

Age	Below 20	2	**4.2**
	20-25	30	**62.5**
	25-above	16	**33.3**
	Total	48	**100**
Department	Sciences	10	**20.8**
	Social Sciences	5	**10.4**
	Environment	15	**31.3**
	Others	18	**37.5**
	Total	48	**100**
Marital Status	Single	36	**75.0**
	Married	11	**22.9**
	Total	47	**97.9**
Hostel Name	Amina Hall	17	**35.4**
	Suleiman Hall	8	**16.7**
	Akenzua Hall	8	**16.7**
	Sassakawa Hostel	10	**20.8**
	PG Hostel, Kongo Campus	5	**10.4**
	Total	48	**100**

Number in Room	1	9	**18.8**
	2	15	**31.3**
	4	24	**50.0**
	Total	48	**100**

Source: Authors field work, (2014)

The above distribution table shows the demographic characteristics of campus students in order to understand the primary situation of the respondents. Most of the respondents were females; the remaining 43% were males, also shows that most of the respondents are between the ages 20-25. The distribution table shows the departments of the respondents, as well as the name of their halls of residence, mostly from Amina hall, the female post graduate hall. The number of students per room was also checked, most of the respondents are in a room of 4, which is a great number for the sizes of the room.

Table 5.1.3: Satisfaction of On-Campus Students with Provided Facilities

Facilities Provided		Frequency	Percentage %
Room Size	Very dissatisfied	20	**41.7**
	Dissatisfied	13	**27.0**
	Fairly Satisfied	8	**16.7**
	Satisfied	7	**14.6**
	Very Satisfied	0	**0**
	total	48	100

Room layout	Very dissatisfied	19	**39.6**
	Dissatisfied	11	**22.9**
	Fairly Satisfied	10	**20.8**
	Satisfied	2	**4.2**
	Very Satisfied	5	**10.4**
	total	47	97.9
Room finishes	Very dissatisfied	30	**62.5**
	Dissatisfied	2	**4.2**
	Fairly Satisfied	12	**25.0**
	Satisfied	4	**8.3**
	Very Satisfied	0	**0**
	total	48	100
Number of students in a room	Very dissatisfied	32	**66.6**
	Dissatisfied	15	**31.3**
	Fairly Satisfied	1	**2.1**
	Satisfied	0	**0**
	Very Satisfied	0	**0**
	total	48	100
Noise	Very dissatisfied	22	**45.8**
	Dissatisfied	17	**35.4**

	Fairly Satisfied	6	**12.5**
	Satisfied	1	**2.1**
	Very Satisfied	0	**0**
	total	46	95.8
Privacy level	Very dissatisfied	31	**64.6**
	Dissatisfied	6	**12.5**
	Fairly Satisfied	11	**22.9**
	Satisfied	0	**0**
	Very Satisfied	0	**0**
	total	47	97.9
Ventilation	Very dissatisfied	20	**41.7**
	Dissatisfied	6	**12.5**
	Fairly Satisfied	12	**25.0**
	Satisfied	10	**20.8**
	Very Satisfied	0	**0**
	total	48	100
Location of hostel	Very dissatisfied	3	**6.2**
	Dissatisfied	1	**2.1**
	Fairly Satisfied	18	**37.5**
	Satisfied	9	**18.8**
	Very Satisfied	17	**35.4**

	total	48	100
Security	Very dissatisfied	0	**0**
	Dissatisfied	7	**14.6**
	Fairly Satisfied	22	**45.8**
	Satisfied	4	**8.3**
	Very Satisfied	15	**31.3**
	total	48	100
Fire Safety	Very dissatisfied	11	**22.9**
	Dissatisfied	36	**75.**
	Fairly Satisfied	1	**2.1**
	Satisfied	0	**0**
	Very Satisfied	0	**0**
	total	48	100
Hygiene/ Maintenance	Very dissatisfied	16	**33.3**
	Dissatisfied	18	**37.5**
	Fairly Satisfied	9	**18.8**
	Satisfied	0	**0**
	Very Satisfied	2	**4.2**
	total	45	93.8
Shared Facilities (common room,	Very dissatisfied	27	**56.3**

toilets/bathrooms, kitchen/canteen, laundry, shops)	Dissatisfied	19	**39.5**
	Fairly Satisfied	2	**4.2**
	Satisfied	0	**0**
	Very Satisfied	0	**0**
	total	48	100

Source: Authors field work, (2014)

The above frequency table shows the Satisfaction of on-campus students with provided facilities in their halls of residence. The table shows that most students are dissatisfied with their room sizes and number of students per room, this particular response came majorly from students in the room of 4, the satisfied students of this facility were in a room of 1 (single room). The room layout and finishes also do not appease most of the users. Most students were not satisfied with the Noises in the hostel-disturbing environment, the lack of private space except in single rooms and the ventilation system. Though the hostel locations and security were highly appreciated by the respondents particularly respondents in Amina and Sassakawa halls, they were not satisfied with the maintenance of the deteriorating halls. Also in a case of fire, the students are not satisfied with the safety provisions. The shared facilities seem to be a big problem for the students particularly the toilet/bathrooms and the canteen.

Table 5.1.4: Expectation of Campus Students with Hostel Facilities

Facilities Expected		Frequency	Percentage %
Larger room spaces	Very Insignificant	0	**0**
	Insignificant	3	**6.3**

	Fairly Significant	0	**0**
	Significant	16	**33.3**
	Very Significant	29	**60.4**
	Total	48	100
En suite bathroom/ kitchenette	Very Insignificant	0	**0**
	Insignificant	7	**14.6**
	Fairly Significant	12	**25.0**
	Significant	10	**20.8**
	Very Significant	19	**39.6**
	Total	48	100
Improve Room finishes	Very Insignificant	0	**0**
	Insignificant	3	**6.3**
	Fairly Significant	5	**10.4**
	Significant	24	**50.0**
	Very Significant	14	**30.4**
	Total	46	97.1
Reduce number of students per room	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	4	**8.3**
	Significant	25	**52.1**
	Very Significant	19	**39.6**

	Total	48	100
Reduce number of rooms per hall	Very Insignificant	0	**0**
	Insignificant	5	**10.4**
	Fairly Significant	2	**4.2**
	Significant	11	**22.9**
	Very Significant	30	**62.5**
	Total	48	100
Hostel proximity to other facilities (shops, recreational facilities, atm etc)	Very Insignificant	1	**2.1**
	Insignificant	1	**2.1**
	Fairly Significant	8	**16.7**
	Significant	20	**41.6**
	Very Significant	18	**37.5**
	Total	48	100
Improve building maintenance	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	12	**25.0**
	Significant	15	**31.3**
	Very Significant	21	**43.7**
	Total	48	100
Improve/ restructure shared Facilities	Very Insignificant	0	**0**

(common room, toilets/bathrooms, kitchen/canteen, laundry, shops)	Insignificant	0	**0**
	Fairly Significant	4	**8.3**
	Significant	11	**22.9**
	Very Significant	33	**68.8**
	Total	47	100

Source: Authors field work, (2014)

The above distribution table shows the students' expectations with the hostel facilities. The table indicates that majority of the respondents 60% want larger room spaces, this response came mostly from students in shared and congested spaces. En suite kitchen and toilets is also of significance to students who need privacy especially the married ones. Improving the room finishes was not of much significance though most students responded; this is believed to be some part of luxury though can be controlled. Over 80% of the respondents want the number of students per room reduced; this implies most of the rooms are congested. 89% of the respondents want less crowded halls; they want the number of rooms per hall reduced, though the remaining 10% do not share this view. The proximity of the hostel to other facilities is of great significance as 95% of the respondents agree to this. 100% of the respondents want the maintenance of the deteriorating hostels taken seriously as well as improving the shared facilities.

Table 5.1.5: Demographic Characteristics of Respondents Off-Campus

Demographic characteristics		Frequency	Percentage %
Type of Hostel	Purpose-built	15	**36.6**
	Converted	12	**29.3**

	Adapted	14	**34.1**
	Total	41	100
Gender	Female	20	**48.8**
	Male	21	**51.2**
	Total	41	100
Age	Below 20	9	**22.0**
	20-25	18	**43.9**
	25-above	14	**34.1**
	Total	41	100
Department	Sciences	11	**27.0**
	Social Sciences	8	**19.5**
	Environment	12	**29.2**
	Others	10	**24.3**
	Total	41	100
Marital Status	Single	22	**53.7**
	Married	19	**46.3**
	Total	41	100
Reason for staying off-campus	Comfort	3	**7.3**

	Privacy	7	**17.0**
	Less crowded buildings	4	**9.9**
	Hygiene	1	**2.4**
	All of the above	26	**63.4**
	Total	41	100
Means of transportation to the School	Walk	9	**22.0**
	Commercial	21	**51.2**
	private	11	**26.8**
	Total	41	100
Is your neighbourhood safe? **(controlled crime rate)**	Yes	13	**31.7**
	Fairly	16	**39.0**
	No	12	**29.2**
	Total	41	100
How conducive is your environment for studying?	Not conducive	10	**23.4**
	Fairly conducive	13	**31.7**
	Conducive	18	**43.9**
	Total	41	99.0
Do you go to class in time for lectures?	Yes	16	**39.0**
	Scarcely	11	**26.8**
	No	14	**34.1**

	Total	41	100
If hostel facilities were improved, would you stay on campus?	Yes	33	**80.4**
	No	8	**19.5**
	Total	41	99.9

Source: Authors field work, (2014)

The above distribution table shows the demographic characteristics of respondents **off campus** in order to highlight the primary characteristics of the students. Having administered 30% samples, to students in each of "purpose-built", "converted", and "adapted" buildings. Most of the respondents were males 51%; the remaining 48% were females, this seems to almost come to a balance, showing that there is a very insignificant difference between the numbers of male to female students off campus. The table also shows that 43.9% of the respondents are between the ages 20-25, 53% are single while the remaining 46% are married. The departments of the respondents vary, as well as their reasons for staying off campus, 7.3% for comfort, 17% for privacy, 9.9% for a less crowded room, 2.4% for hygiene, and the most 63.4% for all the four reasons combined. Samaru town may be the School's neighbourhood but it is quite large, knowing that 22% of the respondents walk to school, 51% use commercial transportations, and the remaining 26% use their private vehicles. The safety of the off campus neighbourhood may sometimes be questioned due to the minimal control of the environment, 29% of the respondents believe it is not safe, 39% agree it is fairly safe while 31% feel safe. How conducive the environment is, depends on the space, the building, neighbours and the neighbourhood, because the students design their spaces and choose their buildings, 43.9% feel it is conducive, 31% say fairly conducive and 23% say not conducive. Attending lectures in time is also of question, 39% are usually in time, 26.8% scarcely while 34% are often not. If hostel facilities were improved, 80% of these off campus respondents prefer to stay on campus while 19% would not. This shows that students require a threshold of comfort to stay on campus.

Table 5.1.6: Off-Campus Residents' Satisfaction

Facilities Provided		Frequency	Percentage %
Proximity to school	Very dissatisfied	15	**36.6**
	Dissatisfied	8	**19.5**
	Fairly Satisfied	3	**7.3**
	Satisfied	5	**12.1**
	Very Satisfied	10	**24.4**
	total	41	100
Level of Security	Very dissatisfied	8	**19.5**
	Dissatisfied	13	**31.7**
	Fairly Satisfied	2	**4.9**
	Satisfied	6	**14.6**
	Very Satisfied	12	**29.2**
	total	41	99.9
Level of Privacy	Very dissatisfied	0	**0**
	Dissatisfied	0	**0**
	Fairly Satisfied	1	**2.4**
	Satisfied	11	**26.8**
	Very Satisfied	29	**70.7**
	total	41	100

Connection (ease in reaching school facilities **Such as library, classes, school centre)**	Very dissatisfied	10	**24.4**
	Dissatisfied	16	**39.0**
	Fairly Satisfied	5	**12.2**
	Satisfied	7	**17.1**
	Very Satisfied	3	**7.3**
	total	41	100
Attendance in classes	Very dissatisfied	4	**9.9**
	Dissatisfied	2	**4.9**
	Fairly Satisfied	19	**46.3**
	Satisfied	6	**14.6**
	Very Satisfied	10	**24.4**
	total	41	100
Power supply	Very dissatisfied	17	**41.5**
	Dissatisfied	13	**31.7**
	Fairly Satisfied	8	**19.5**
	Satisfied	3	**7.3**
	Very Satisfied	0	**0**
	total	41	100

Source: Authors field work, (2014)

The frequency table above shows the Off Campus Residents Satisfaction with their Environments. The table shows that most students are dissatisfied with the proximity of their residences to the

school, as well as their connection to the school, that is ease in reaching school facilities such as academic, recreational and social facilities though the remaining 36.5% are satisfied with the proximity to school and 24.4% are satisfied with the connection to the school facilities, this response came mostly from respondents that live very close to the school at a walk-able distance and also a few of those that own a private vehicle. 51.2% of the respondents are not satisfied with the level of security while 48.8% are satisfied; this is a small but significant difference, the respondents seek secured halls, though the environments cannot be controlled. Most of the off campus respondents choose their spaces except in a few cases where available spaces are taken; this however helps in control, connection and defensible spaces and explains why 97.5% of the respondents are satisfied with their level of privacy. 39% of the respondents are satisfied with their attendance in class, 46.3% are fairly satisfied while the remaining 14.8% are dissatisfied, this simply implies that the respondents adjust their lifestyle to meet up to school activities. The power supply in Samaru town is very poor, as 73.2% of the respondents are not satisfied with d electricity situation off campus, most of them use generators are usually used to supply power, thereby causing noise and disturb the neighbourhood making is less conducive and habitable for learners.

Table 5.1.7: The Off-Campus Students' Expectation of the Campus Hostel Facilities

Facilities Expected		Frequency	Percentage %
Larger room spaces	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	1	**2.4**
	Significant	8	**19.5**
	Very Significant	32	**78.0**
	Total	41	100

En suite bathroom/ kitchenette	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	0	**0**
	Significant	16	**39.1**
	Very Significant	25	**61.9**
	Total	41	100
Improve Room finishes	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	4	**9.8**
	Significant	21	**51.2**
	Very Significant	13	**31.7**
	Total	38	92.7
Reduce number of students per room	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	0	**8.3**
	Significant	3	**7.3**
	Very Significant	38	**92.7**
	Total	41	100
Reduce number of rooms per hall	Very Insignificant	0	**0**
	Insignificant	0	**0**

	Fairly Significant	4	**9.8**
	Significant	10	**24.4**
	Very Significant	26	**63.4**
	Total	40	97.6
Hostel proximity to other facilities (shops, recreational facilities, atm etc)	Very Insignificant	0	**0**
	Insignificant	2	**4.8**
	Fairly Significant	7	**17.0**
	Significant	21	**51.2**
	Very Significant	11	**28.8**
	Total	41	100
Improve building maintenance	Very Insignificant	0	**0**
	Insignificant	1	**2.4**
	Fairly Significant	12	**29.3**
	Significant	15	**36.6**
	Very Significant	13	**31.7**
	Total	41	100
Improve/ restructure shared Facilities (common room, toilets/bathrooms, kitchen/canteen, laundry, shops)	Very Insignificant	0	**0**
	Insignificant	0	**0**
	Fairly Significant	0	**0**
	Significant	9	**21.9**
	Very Significant	31	**75.6**

	Total	40	97.5

Source: Authors field work, (2014)

The off-campus respondents were asked; if they were to live on campus what would be their expectations with the hostel facilities. The above distribution table shows their responses. From the above table, 100% of the respondents want lager room spaces, en suite bathroom and kitchenette, number of students per room reduced, room finishes improved and rooms per hall reduced, to reduce congestion and disturbance, this is significantly higher than the number from the campus respondents, thus, indicates the difference of comfort between the campus and the off campus students. The off-campus students go for what they want, while the campus students go for what is available, this may be a matter of priority. 4.8% of the respondents think the proximity of the hostel to other facilities is insignificant, 95.2% disagree with this. 97.6% of the respondents say maintenance is significant while 100% of the respondents want shared facilities improved.

5.2 MEASURE OF SATISFACTION

Satisfaction according to Amérigo & Aragonés, (1997) can be defined as "the gap between achievements and aspirations" for this project; it is the difference between what is expected and what is provided.

Therefore; Satisfaction S = Expectation E – Provision P

$$S = E - P$$

For P, the total percentage of satisfaction with each of the provided facilities on campus would be used. This is because the proposal is meant to be on campus.

For E, the mean of total percentage of the significance of expected facilities by on and off campus respondents would be used.

Table 5.1.8: Measure of Satisfaction

Facilities	Expected (%)	Provided (%)	Gap= Satisfaction (%)
Room Size/ larger room spaces	96.85	31.3	**65.6**
Room layout/ En suite bathroom/ kitchenette	92.7	35.4	**57.3**
Room finishes/ Improve Room finishes	91.75	33.3	**58.5**
Number of students in a room, privacy/ Reduce number of students per room	100	12.5	**87.5**
Noise, fire safety/ Reduce number of rooms per hall	93.6	8.35	**85.3**
Location of hostel/ Hostel proximity to other facilities	95.5	91.7	**3.8**
Security	-	85.4	**0**
Hygiene/ Maintenance /Improve building maintenance	98.8	23.0	**75.8**
Shared Facilities/ improve/ restructure	98.75	4.2	**94.6**

Source: Authors field work, (2014)

The above table shows the level of satisfaction, which is the gap between the percentage of required facilities and provided facilities of respondents within the campus. From the table, it can be seen that, **the larger the gap, the less the satisfaction**, and the lower the gap, the higher the satisfaction. This

implies that respondents are most dissatisfied with their shared facilities by a gap of 94.6%, then the number of students per room which gap is 87.5%, over crowdedness in building halls causing noise and other forms of disturbance as well as reduced fire safety resulted 85.3%, the building maintenance gap was calculated to be 75.8%, the room sizes compared to the number of students per room was 65.6% gap, room finishes 58.5% gap and lastly the room layout which is 57.3%. The respondents were quite satisfied with the security as 0% gap as well as the current hostel location/proximity to other facilities at 3.8% gap.

5.3 DISCUSSION OF FINDINGS

Hostels, as living spaces should serve efficiently offering functional and adaptable environments as well as aesthetic satisfaction to residents. From the research, the performance of evaluated hostels is not satisfactory to the residents as findings of these work has shown most students' housing does not function efficiently, and are not supportive in design aspect such as conformability, size of the room, arrangement of fixtures and furniture no per room, ease of movement, ventilation and privacy required by individual students. All these and more were considered in the proposed design, functionality and adaptability being the key.

CHAPTER SIX

DESIGN REPORT

6.1 INTRODUCTION

From a research carried out by Garling & Golledge, (1993), people tend to seek places they will be at their best, competent and confident, places where they make sense of the environment while also being engaged with it. Thus the preserving, restoring and creating a preferred environment is believed to increase the sense of well being and behavioural effectiveness in people. Therefore, improving the standards of the postgraduate hostel would not be luxury; it would be increasing the students well

being instead of the student interpreting and adapting to the current situation, which some students still cannot condole thereby moving off campus.

The researcher here is aware that the school may not be able to accommodate 100% of the post graduate students. Currently the postgraduate school caters for 15% of the postgraduate students, having one block of the female hostel in the Samaru campus; with rooms to cater for students and the Akenzua hostel for the males, and other hostel attachments in the Suleiman hall and other halls, while the majority live off campus. Though the Post Graduate School has the proposal to increase the number/ percentage of accommodated students, this researcher's proposal is meant not just to tackle the problems of the hostels in use but also to improve on the proposal made by means of research and giving the end users what they actually deserve.

A proposal was made from the Common metaphors arrived upon from the research; space, control, connection, privacy and comfort.

6.2 SITE SELECTION CRITERIA

Choosing a viable site within the school campus would be quite challenging, the school's master plan has to be taken into consideration. But with the proposal of the phase 2 campus, and a practicable site for the post graduate hostel, it was quite easy. Four sites have been considered, within the proposed phase 2 campus site. The following under listed criteria were used to weigh the suitability of each of the site and thus the most appropriate site shall be selected. They are:

- Accessibility
- Proximity

- Size of site, Possibility for expansion, suitability
- Land use compliance

6.2.1 Accessibility

The site for the proposed hostel should be easily accessible so as to enhance safe ingress and egress of people. The site should be easily accessed and evacuated at any time especially in the event of emergency.

6.2.2 Proximity to other facilities

A site meant to accommodate a hostel should be located close to other facilities such as, social and recreational centres so as to create the most pleasant environment for students' activities. This is aimed at creating a conducive environment for interaction and connection.

6.2.3 Size of site, possibility for expansion, suitability and availability

Students' housing environment involves a healthy living both mentally and physically, as such, there is the need to provide large indoor and outdoor spaces, for laundry, green areas and also suitable and available space for future expansion to avoid overcrowding.

6.2.4 Land use compliance

Site is located within the approved allocated zone for accommodation in the phase 2 master plan for the school. The school planning authorities usually work with a master plan in order not to disrupt land use. Therefore, it's mandatory to work within certain limits in choosing a site for proposing a post graduate hostel.

6.3 SITE SELECTION

Four alternative sites were selected from the ABU phase 2 proposals. A number of criteria were

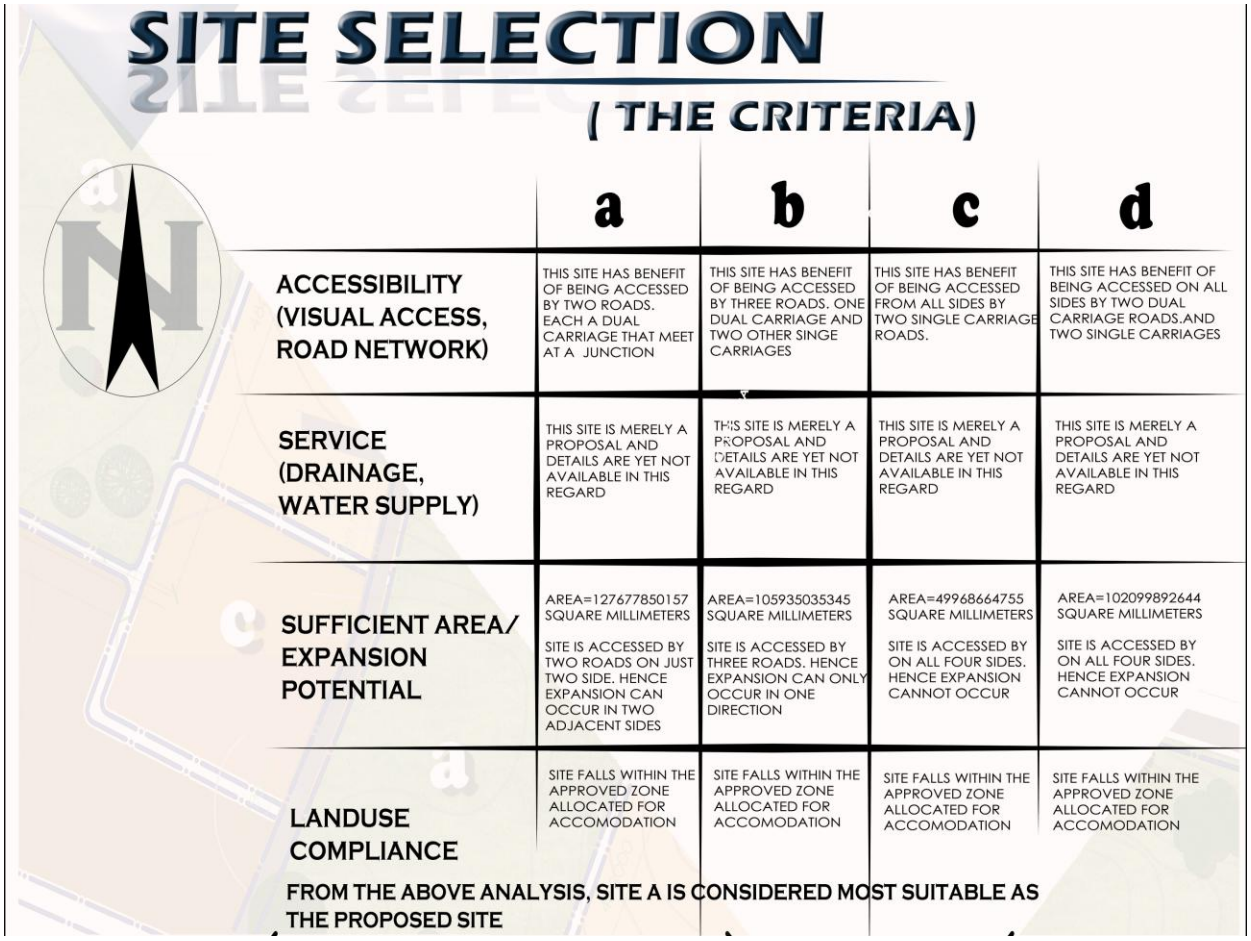
employed to assess the suitability of the site for the proposed post graduate hostel design.



Plate XXIV: Google map and image of the alternative sites Source: Estate Dept ABU

All four alternative sites are located within the ABU phase 2 action plans, so as not to tamper with the school's master plan

Table 6.3.9: Site Selection Criteria



ria have been carefully analysed and resulted in the selection of the site A as the most suitable and appropriate for proposed post graduate hostel. The selected site A, can be accessed by two roads, expansion can occur on adjacent sides, and the size of the site is enough to accommodate the proposed design.

6.4 SITE LOCATION

This illustrates the location of the selected site for the proposed post graduate hostel.

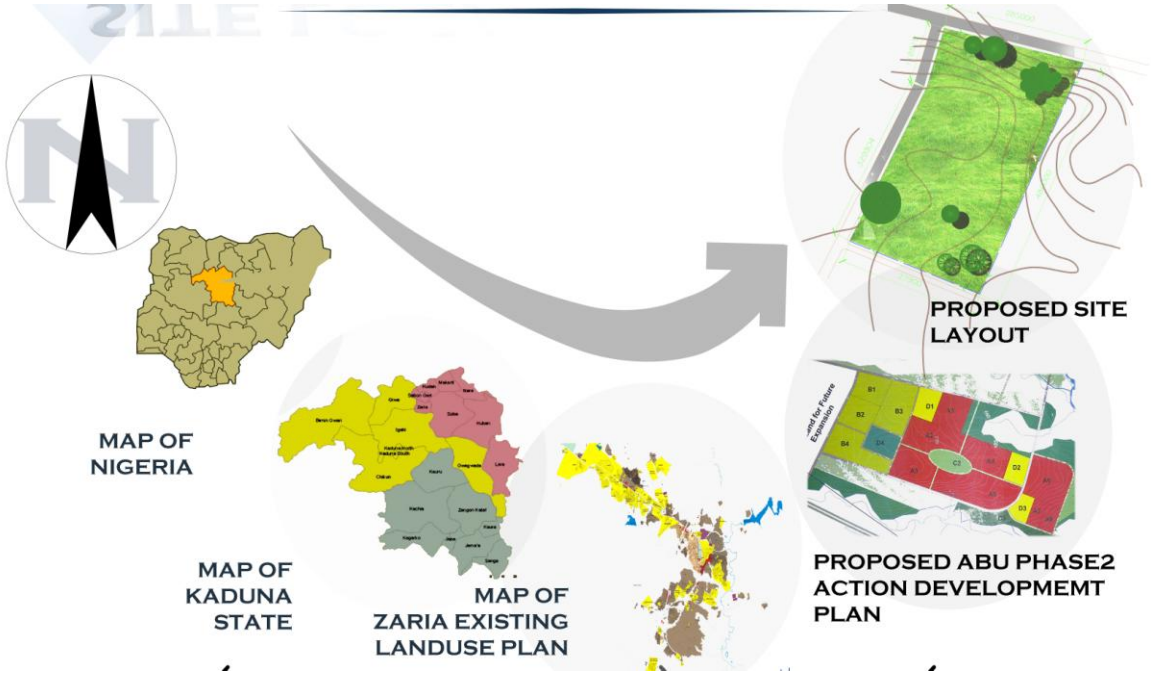


Figure 4: Site Location Map Source: author's proposed post graduate hostel design (2014)

6.5 SITE ANALYSIS

The selected site was analyzed based on several parameters that will aid the design of the proposed post graduate hostel. All the feature of the site were carefully studied and incorporated into the design.

6.5.1 Weather and Climate

The climate of Zaria, Kaduna is Semi-arid continental. Rainfall figures range from 600-700mm per annum. Climate varies considerably with month and season. December to February witness a cool dry (Seldom dusty hammatan) season; while from March to May witness a hot dry season with temperatures ranging from 320C to 400C. The season is followed by a warm wet one which flows from June to September. Another season comes between the month of October and November. It is

characterized by decreasing rainfall and gradual lowering of temperature.

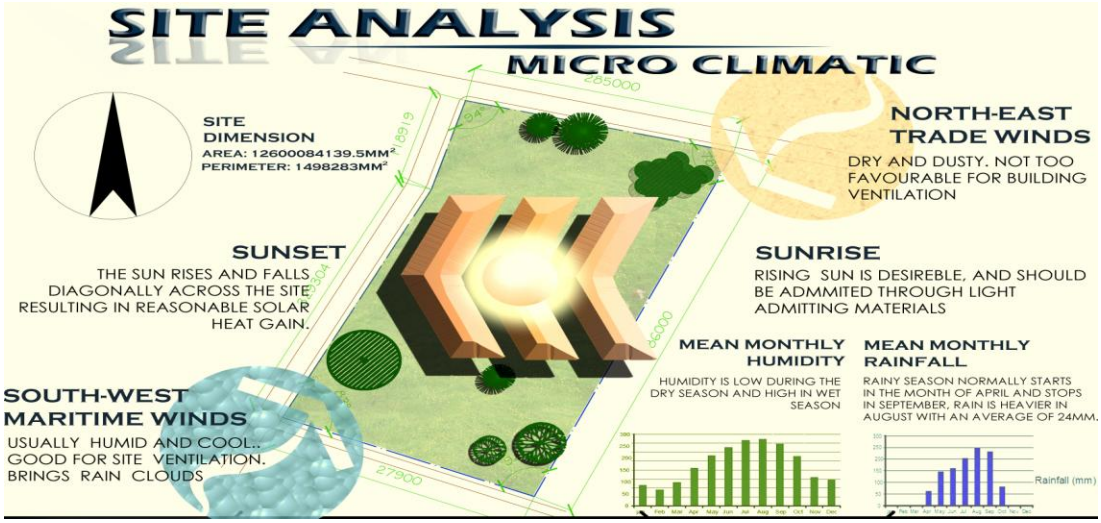


Figure 5: Site Analysis-Micro Climate Source: author's proposed post graduate hostel design (2014)

6.5.2 Vegetation

The vegetation of Zaria, Kaduna State is Sahel-Savannah in nature. Therefore, the area is characterized by sparse bushes, open grassland and few natural forests. The site has a few clustered trees and lots of shrubs. This vegetation would be maintained except where it may obstruct the development process. The trees can serve as wind brakers and shield from noise from neighbouring sources. Together with the abundant grass cover, the trees form a pleasant micro-climate to the site.

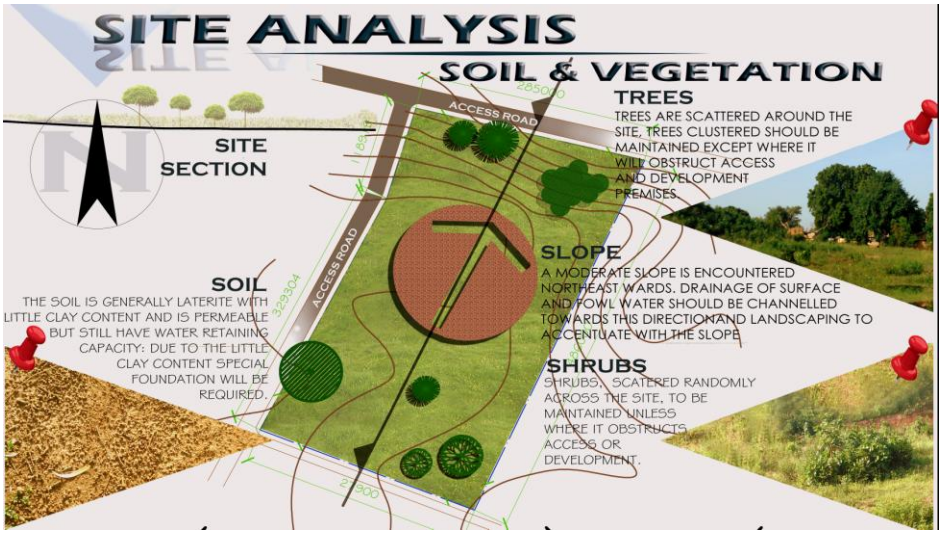


Figure 6: Site Analysis- Soil, Vegetation And Topography Source: Author's Proposed Post Graduate Hostel Design (2014)

6.5.3 Soils

The soil is generally laterite, with few areas of clay content. The site soil exhibits some physical signs of load bearing capacity. However, the actual load bearing capacity is subject to hydrological and geological surveys which are beyond the responsibility of architects, hence the need to refer to soil engineers for appropriate advice.

6.5.4 Topography

The site topography has a gentle slope northwards. Services such as sewage, refuse, drainage and plumbing take the slope direction so to utilize natural gravity.

6.5.5 Visuals and development

Major source of noise is envisaged to be from adjacent roads and moving vehicles, the main building would distant from this, and trees would be used as buffers. Entrance in and out of site would be situated just before the adjacent corner of the road. From the ABU phase II master plan, the proposed site is surrounded by other proposed structures, to the east is a proposed undergraduate female hostel

and shopping mall, and to the south is proposed undergraduate male hostel.

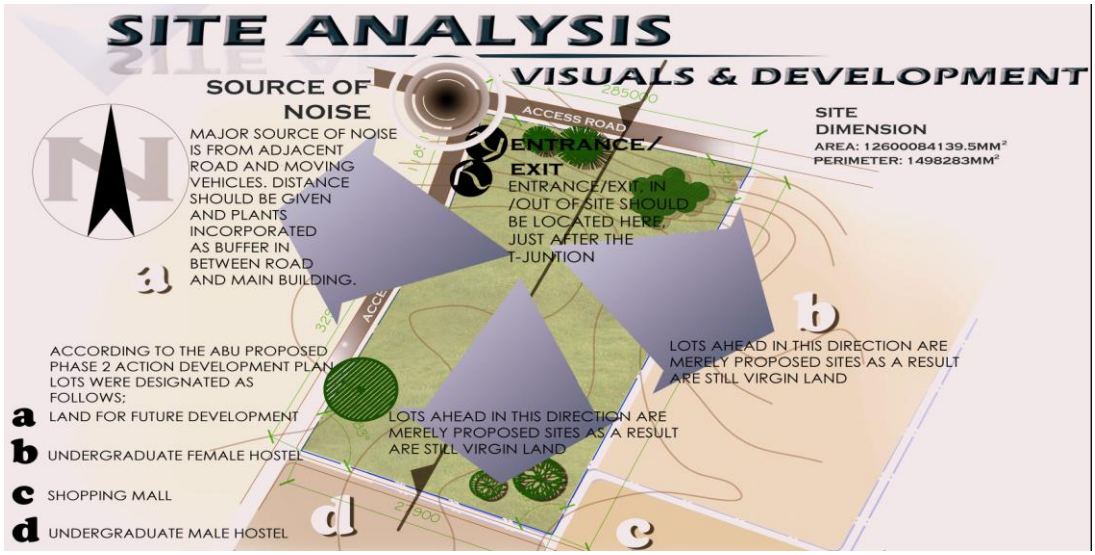


Figure 7: Site Analysis: Visuals and Development Source: author's proposed post graduate hostel design (2014)

6.6 DESIGN BRIEF

A hostel is a budget oriented shared accommodation, with common areas and communal facilities, and brings together different individuals for a short period of time. The ABU phase 2 action plan includes a proposed post graduate hostel to accommodate over 300 students, not just to complement the schools expansion but to also curb the lack of bed spaces in the post graduate hostel. For this write up, the researcher proposes a post graduate hostel from the research findings, giving the users (students) their required facilities, that makes the hostel not just a housing segment of the school but a part of the learning environment. By integrating the common metaphors derived from the findings; comfort, privacy, space, connection, safety, control and management, the students' basic needs was met. From the average number of full time admitted students gotten from the ABU post graduate school, a hostel proposal of 330 rooms was made for male and female students, which includes studio flats, and en suite rooms, with supporting facilities and other auxiliary and communal facilities, the school standards was also put into consideration, separating the male from female.

- The rooms and bed spaces
- Admin facilities
- Auxiliary and Communal facilities
- Recreational facilities

6.6.1 Rooms and Bed spaces

The proposed design provides 432 bed spaces for post graduate students in 3 categories of rooms; studio apartments, single rooms, and double rooms. The studio flat is a luxury room, designed to accommodate students in need of extreme privacy, and space, such as nursing mothers, women who commute with their children and need a safe space and men who require large spaces. The proposed studio apartment comprises; a bedroom, study space, living area, an en suite kitchenette and toilet/bathroom and a balcony, 12 of the studio flat was provided on each block, making 24 each for males and females. The single room is designed for students who are very particular with privacy; it comprises a single bed space, en suite kitchenette and toilet/bathroom, wardrobe, study space, and a shared balcony, 48 of the single rooms is provided each for the male and female hostel. The double room is designed for students who want shared spaces at the same time own a defensible space, this features, 2 bed spaces, with wardrobe, study spaces, shared kitchenette and toilet/bathroom, and a shared balcony. 72 of the double rooms are proposed for each hostel, male and female. The researcher is aware that the proposed design should have a comfort control thereby not exceeding the standard threshold.

6.6.2 Administrative Facilities

Facilities such as hall administrator's office, security offices, store rooms, technicians' office and the maintenance offices, to support in the efficient run of the hostel, create security, a sense of safety to the student, and good management and meet to other students needs.

6.6.3 Auxiliary and Communal facilities

These comprises restaurants/cafeteria, common rooms, auto laundry, gymnasium each for the male and female hostels, day-care for the female hostel, provided for nursing mothers, indoor/board games centre for the male hostel, shops and sit outs/social gardens. All these are meant to support the students' lifestyle, create a bond and connection with the environment and ease their stay in the hostels.

6.6.4 Recreational Facilities

Sports and recreational facilities were provided in the proposed design, such as swimming pools, gymnasium and basket ball and tennis courts to support fitness and create social interactions between the students.

6.7 SITE PLAN

The hostels may be a whole entity but the northern culture was taken into consideration, carefully separating the male from the female blocks. The site was zoned into public, semi-public and private zones. The public spaces such as parking, admin and other facilities were located at the periphery of the structure and the site. While the semi-public spaces such as the male students block and other facilities are located next to the public spaces while the private spaces including the female students' block. The figure below further illustrates the site concept adopted.



Figure 8: Site Plan Source: author's proposed post graduate hostel design (2014)

6.8 FLOOR PLANS

The building was designed simple and self-supporting, a honey comb related set up was adopted in the proposed 3-storey hostel design so that spaces within the hostel relate to each other to form a structure with inter cellular spaces. The figure below further illustrates the plan.

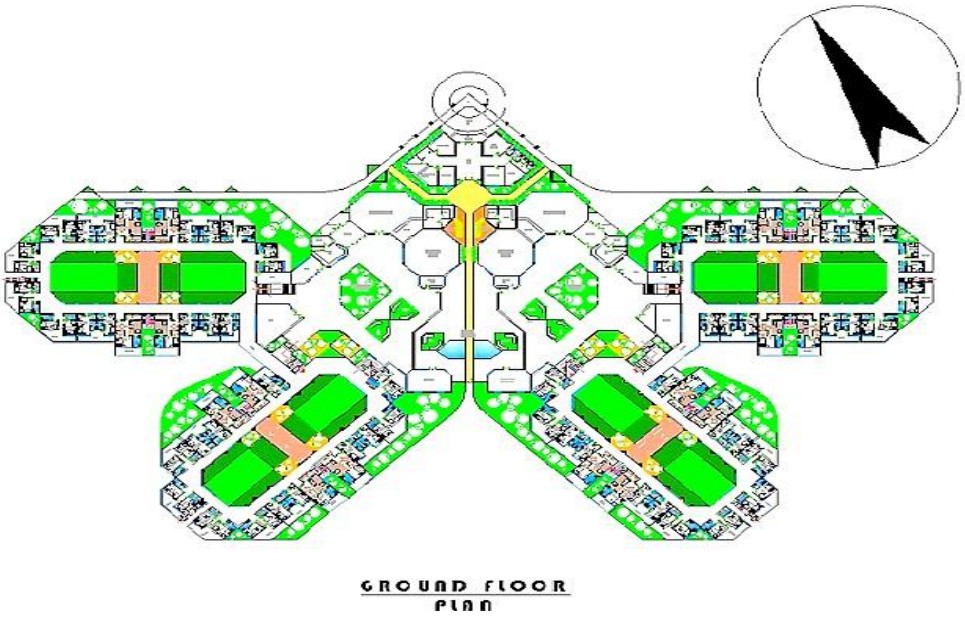


Figure 9: Ground Floor Plan Source: author's proposed post graduate hostel design (2014)



Figure 10: First Floor Plan Source: author's proposed post graduate hostel design (2014)



Figure 11: Second Floor Plan Source: author's proposed post graduate hostel design (2014)

6.9 ROOF PLAN

For the admin, a simple gable roof was used, for the hostel blocks, gable end butterfly roof draining inwards was adopted while for the shops and other indoor facilities, a lean- to single fall was used for simplicity, cost control and visual comfort.

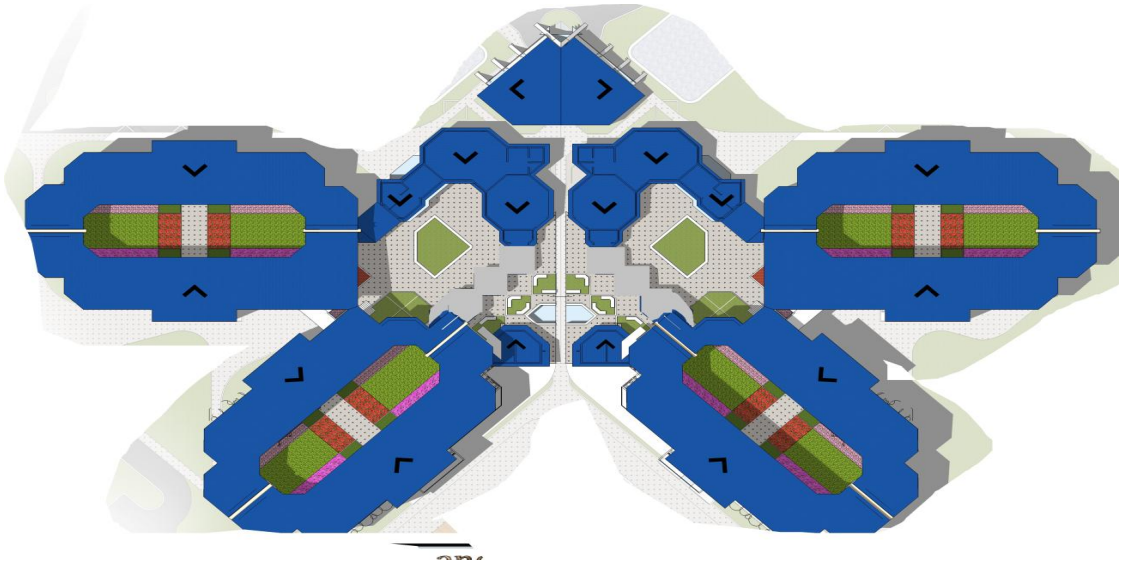


Figure 12: roof plan Source: author's proposed post graduate hostel design (2014)

6.10 ELEVATIONS

The design elevations made attempts to portray a view of a library book shelf, and feature elements of learning not just for aesthetics but to fit perfectly in the environment. See figure below.

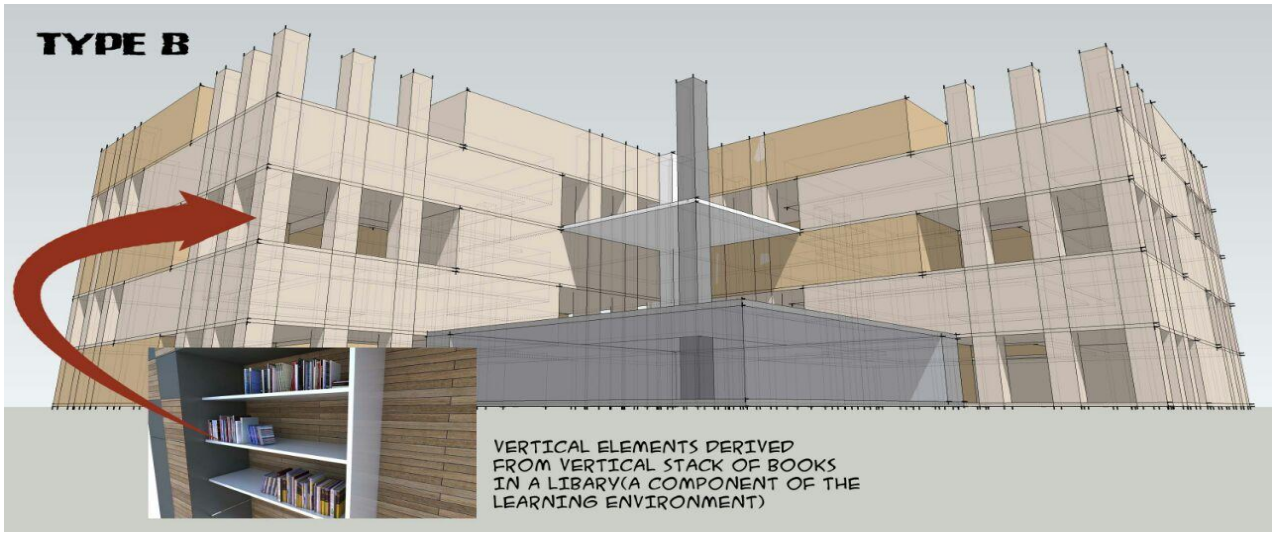


Plate 13: shows the Elevation Concept Source: author's proposed post graduate hostel design (2014)



Figure 14: shows the approach and rear Elevations

Source: author's proposed post graduate hostel design (2014)



Figure 15: Showing side Elevations Source: author's proposed post graduate hostel design (2014)

6.11 MATERIALS AND CONSTRUCTION

Mimicry in architecture is an element based on design technique, however a hostel is budget oriented.

Therefore for any material to be chosen, it has to have the qualities that will give desired effect at the same time be limited to a budget control. Construction must be in a manner that will not compromise the school standard and reflect the schools' decorum.

6.11.1 WALLS

Walls are constructed purely of concrete blocks. They are however faced with different materials depending on the desired effect. Interior walls serve as partition elements without necessarily having to perform any load bearing function.

6.11.2 ROOF

A budget building should be cost monitored at all times; the roof is quite simple and still visually pleasing. A simple butterfly roof was adopted, aesthetically pleasing, cost efficient and eco friendly. For the admin vaulted roofs supported by steel truss members was adopted, serves as an icon and a learning practical structure to complement the school environment.

CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 SUMMARY OF FINDINGS

This project looks to provide more insight on post graduate student accommodations within and outside the school campus and evaluate their satisfaction. As stated previously, the goal of this project is to evaluate residents' satisfaction and responsiveness in student housing of the Ahmadu Bello University, Zaria. This project helped explain the importance of the connection between the student and their environment as well as the difference between the students' requirements and provided facilities and supports the increasing trend of student expectations with their housing.

The rise in demand for students' accommodation in Nigerian Universities led to the construction of low standard housing to students. Students' Hostels are built without a proper evaluation of the needs and requirements of the end users. These accommodations are built with a sole aim of space minimisation, master plan requirements and meeting up to the rising demands, while landlords of the off-campus housing build with a sole aim of profit maximisation. This research challenges the current practice in students' accommodation, by embracing a responsive design approach for creating conducive environments. This approach should focus on the role of the social environment and how the physical environment may be structured to support learning.

The findings of this project are of benefit to many individuals and groups. Students are the first beneficiaries of this write up, the school, and other accommodation providers will look to improve their facilities and be able to use the research of student expectations to make improvements on their infrastructures based on the growing trends observed; having knowledge of the increased student expectations of accommodations will help providers stay up to date with their accommodations and continue to focus on improving student experiences.

From user responses, it was clear that off-campus housing is more satisfactory in terms of spatial arrangements, privacy and layout. On the other hand the campus environment is more satisfactory, due to security, proximity to learning facilities, power and water supply and connection with the social activities. Hostels, as living spaces should offer functional and adequate services hence in the proposed design, both findings were merged to achieve maximum satisfaction. As previously mentioned the satisfaction has a threshold and luxury is not a part of it.

Though the project has addressed many aspects of the student accommodations, more research can be done to study student experiences and how they relate to their environment. This write up helps establish the level of satisfaction and knowing how to achieve this, as well as the connection of students to their environment.

7.2 RECOMMENDATIONS

Based on the gathered data, analysis from the evaluated postgraduate campus hostels and information provided by the post graduate students of different demographic characteristics on campus, it is essential to make some viable recommendations on the way of improving the functionality and conformability of the use of space, services and facilities provided in the student hostel. Hence, the following recommendations are made:

- For every hostel design proposal, a research of the end users should be made. The students' hostel is designed to function efficiently in relation with activities to acquiring knowledge and other basic students housing need. This way, a higher housing performance would be achieved, where the end users are satisfied.

- Address the problem of density and overcrowding in the hostels currently in use. Density and crowding have adverse effect on mood and may cause stress-related illnesses. The first solution is by increasing the number of rooms or hostels to accommodate the postgraduate students. From the hostel evaluations, the students seek to interpret or make sense of the situation as a way to defuse its stressful effects, thereby coping with the stress. This simply indicates the failure in design. The increase in room sizes eases movement, level of privacy, solves overcrowding and gives adequate flow of ventilation. Though all these cannot be achieved for the hostels in use, it can be incorporated in the subsequent or proposed designs.

- Control the number of students per room. For the hostels in use, the number of students per room should be monitored. This also solves overcrowding; this can be ensured by the hostel maintenance team to ensure a healthy and satisfactory through proper monitoring and control of the number of student per room based on the design requirements.

- Improve or restructure the facilities in the hostels in use. The university hostel maintenance team should improve on the management of the facilities in the students' hostel in terms of adequate services and facilities provided to serve the students. Such as regular waste disposal, maintenance of drainage system, maintenance and repair toilets/ baths and other damaged/ mismanaged facilities. This would not just improve satisfaction but health of the students. Also proper and adequate orientation for students on importance of good maintenance culture of fixture, furniture and other facilities provided.

Although analyses show that off-campus students' housing is successful in its performance, more could be done to enhance better residential satisfaction and ultimately improve the learning process of the students. For optimal performance of off-campus student housing, the design, maintenance and management require clinical intervention. To this end, the following recommendations are made:

- The use of charlatans in building design has to be tackled impetuous towards eliminating sub-standard designs while the approving body is also restructured to allow appropriate professionals handle the approval paperwork in order to ensure design standards.

- Operators of all students' housing should be required to carry out such services through professionals who would enforce standards of occupancy and maintenance for such buildings to avoid cases where students occupy dilapidating buildings, and control overcrowding and unsanitary conditions.

7.3 CONCLUSION

The research focuses on residents' satisfaction and responsiveness of the Post Graduate Students' accommodation in Ahmadu Bello University, Zaria. The facilities of the hostels in use on and off campus were scrutinised, the impact of these features on the students were analysed through case studies, questionnaires and interview and from the responses, it was identified that 80% of the

respondents preferred the school environment to the off campus housing.

The main aspects affecting the living of the students, as identified from the research, are: room size, number of students per room, density and overcrowding, hygiene and maintenance of shared facilities. Buildings may not quite work out as planned; however complaints are not necessarily the result of bad design, human satisfaction is believed to be dynamic and may change over time. The students' perceived expectation of facilities and their satisfaction with provided facilities were compared and a gap indicating highest dissatisfaction with density and overcrowding in the hostels was recorded. On the other hand, a good level of satisfaction of the off campus hostels was recorded from the analysis made. The major reason for choosing to live off campus- satisfaction was thereby achieved, and a major problem of ease in reaching school facilities was recorded as well. The analysis of the responses given by the male and female users revealed that gender was a significant factor affecting the orders of satisfaction with the facilities, where the females had the highest dissatisfaction.

Therefore, from this research a befitting design proposal can b made to suit the satisfaction of these students on campus. The use of space in student's housing should be functional, comfortable and flexible to a degree so that it will be able to serve generations of students.

Though the study has been able to achieve to a reasonable extent the set aim, it will be worthwhile and complementary that further work is done to evaluate the performance of on-campus student housing and the residential satisfaction.

7.4 CONTRIBUTION TO KNOWLEDGE

Learning environments in Nigerian education system have not changed for decades whereby contradicting the fact that Learning is a transaction between students within the physical environment.

This research challenges the current practice in students' accommodation, by embracing an approach that integrates the students' housing as part of the learning environment, emphasising the end users (students) requirements by way of evaluating their needs at the same time meeting the university standards, this may be seen as 'Pre-Design Evaluation'.

The research established the importance of the connection between the student and their environment as well as the difference between the students' requirements and provided facilities and supports the increasing trend of student expectations with their housing.

The physical and social environment in a school should be part of the learning process, with the physical comprising of what is seen, the structures while the social is the activities that take place within the school environment aside classroom learning.

Therefore, a cooperative learning environment proposed in this design offers opportunities for

Integrating the common metaphors derived from the findings, and the objectives are matched to the students' common needs.

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APPENDIX

Appendix A: Case Study Check List

Visual survey; notable observations

- visual comfort; the building as an object of view
- Room layout

- Room size and
- Room finishes
- Lighting
- Ventilation
- Density and Overcrowding
- Location; proximity to other school facilities
- Safety; safety measures and how secured the students are.

Appendix B: Sample Questionnaire for the ON-campus postgraduate students

SECTION A- DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Please tick as Appropriate

A1.

Gender	Female	
	Male	

A2.

Age Group	Below 20	
	20 – 25	
	25 – Above	

A3.

Department	Sciences	
	Social Sciences	
	Environment	
	Others specify	

A4.

Marital status	Single	
	Married	

A5.

Hostel Name	Amina Hall	
	Suleiman Hall	
	Akenzua Hall	
	Sassakawa Hostel	
	Pg hostel, kongo	

A6.

Number in Room	1	
	2	
	4	
	Others (specify)	

SECTION B: LEVEL OF SATISFACTION OF CAMPUS STUDENTS

Please rate your level of satisfaction by ticking the appropriate response below:

1--Very dissatisfied, 2– Dissatisfied, 3– Fairly Satisfied, 4– Satisfied, 5– Very Satisfied

B1. Satisfaction with current on- campus room spaces

Facilities Provided	**1**	**2**	**3**	**4**	**5**
Room Size					
Room layout					
Room finishes					
Number of students in a room					
Noise					
Privacy level					
Ventilation					
Location of hostel					
Security					
Fire Safety					
Hygiene/ Maintenance					
Shared Facilities (common room, toilets/bathrooms, kitchen/canteen, laundry, shops)					

B2. LEVEL OF EXPECTATIONS

Rate your level of need of the following hostel facilities based on the scale below.

1–Very Insignificant, 2– Insignificant, 3– Fairly Significant, 4– Significant, 5–Very Significant

	1	2	3	4	5
Larger room spaces					
En suite kitchenette					
En suite toilet					
Reduce number of students per room					
Reduce number of rooms per hall					
Hostel proximity to other facilities (shops, recreational facilities, atm etc)					
Improve building maintenance					
Improve/ restructure shared Facilities (common room, toilets/bathrooms, kitchen/canteen, laundry, shops)					

Appendix C: Sample Questionnaire for the Off-Campus Postgraduate Students

SECTION A- DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Please tick as Appropriate

A1.

Gender	Female	
	Male	

A2.

Age Group	Below 20	
	20 – 25	

	25 – Above	

A3.

Department	Sciences	
	Social Sciences	
	Environment	
	Others specify	

A4.

Marital status	Single	
	Married	

A5.

Reason for staying off-campus	Comfort	
	Privacy	
	Less crowded room	
	Hygiene	
	All of the above	

A6.

Means of transportation to the school	Walk	
	Commercial	
	private	

A7.

Is your neighbourhood safe? (controlled crime rate)	Yes	
	Fairly	
	No	

A8.

How conducive is your environment for studying?	Not conducive	
	Fairly conducive	
	Conducive	

A9.

Do you go to class in time for lectures?	Yes	
	Scarcely	
	No	

A10.

If hostel facilities were improved, would you stay on campus?	Yes	
	No	

SECTION B: LEVEL OF SATISFACTION OF STUDENTS

Please rate your level of satisfaction by ticking the appropriate response below:

1--Very dissatisfied, 2– Dissatisfied, 3– Fairly Satisfied, 4– Satisfied, 5– Very Satisfied

B1. Satisfaction with current off- campus room spaces

	1	**2**	**3**	**4**	**5**
Proximity to school					
Level of Security					
Level of Privacy					
Connection (ease in reaching school facilities) Such as library, classes, school centre					
Attendance in classes					
Power supply					

B2. If you were to live on-campus, please rate your level of need of the following campus hostel facilities based on the scale below.

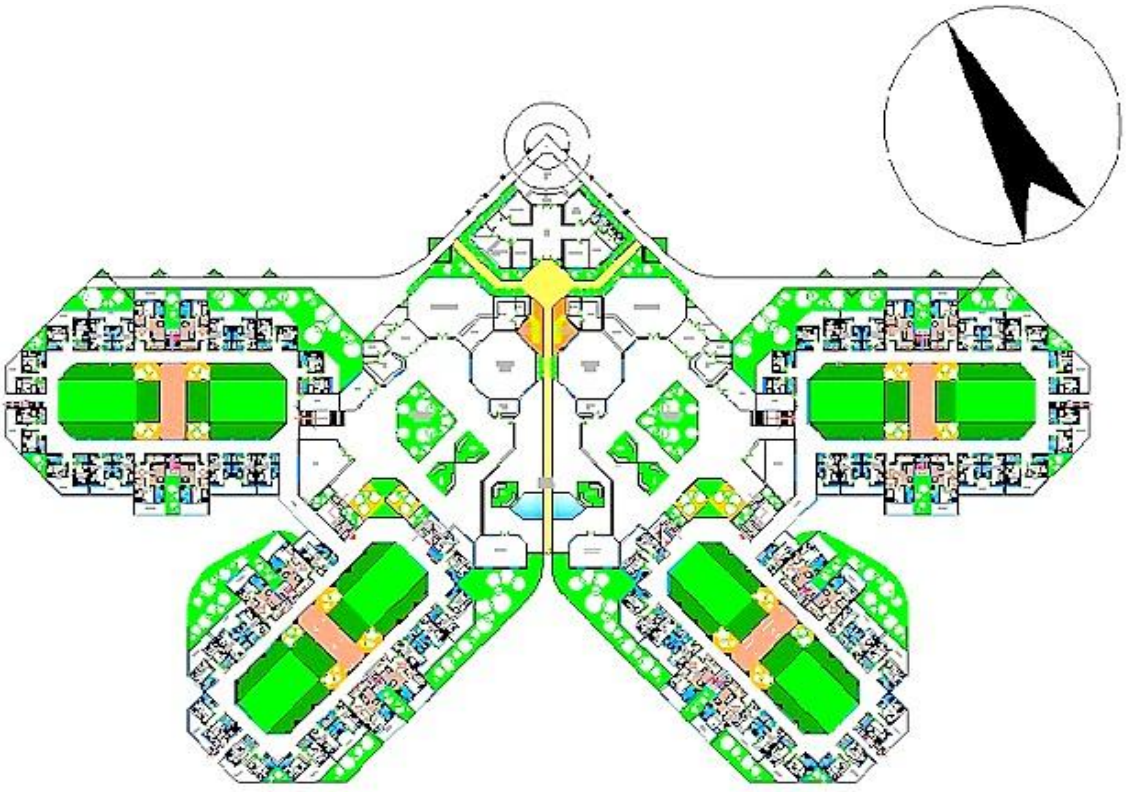
1–Very Insignificant, 2– Insignificant, 3– Fairly Significant, 4– Significant, 5–Very Significant

	1	**2**	**3**	**4**	**5**
Larger room spaces					
En suite kitchenette					
En suite toilet					
Reduce number of students per room					
Reduce number of rooms per hall					
Hostel proximity to other facilities (shops, recreational facilities, atm etc)					
Improve building maintenance					
Improve/ restructure shared Facilities (common room, toilets/bathrooms, kitchen/canteen, laundry, shops)					

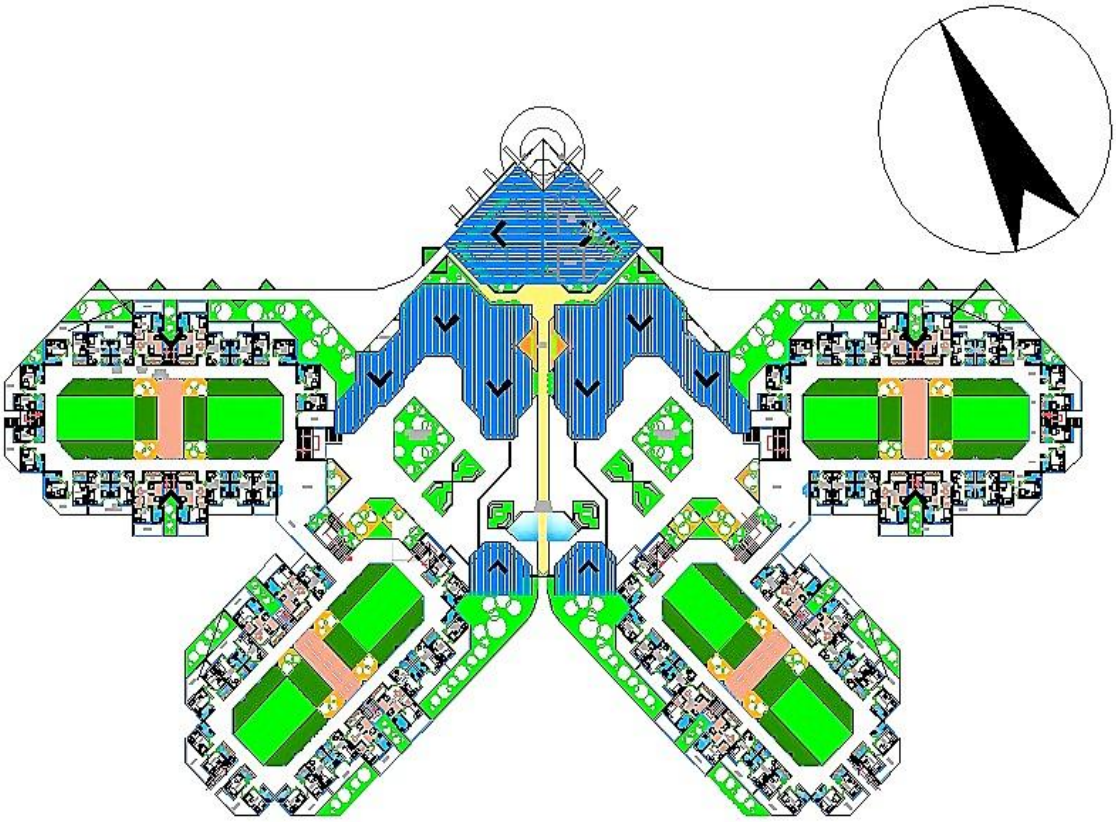
Appendix D: Site plan of the proposed Postgraduate Students Hostel



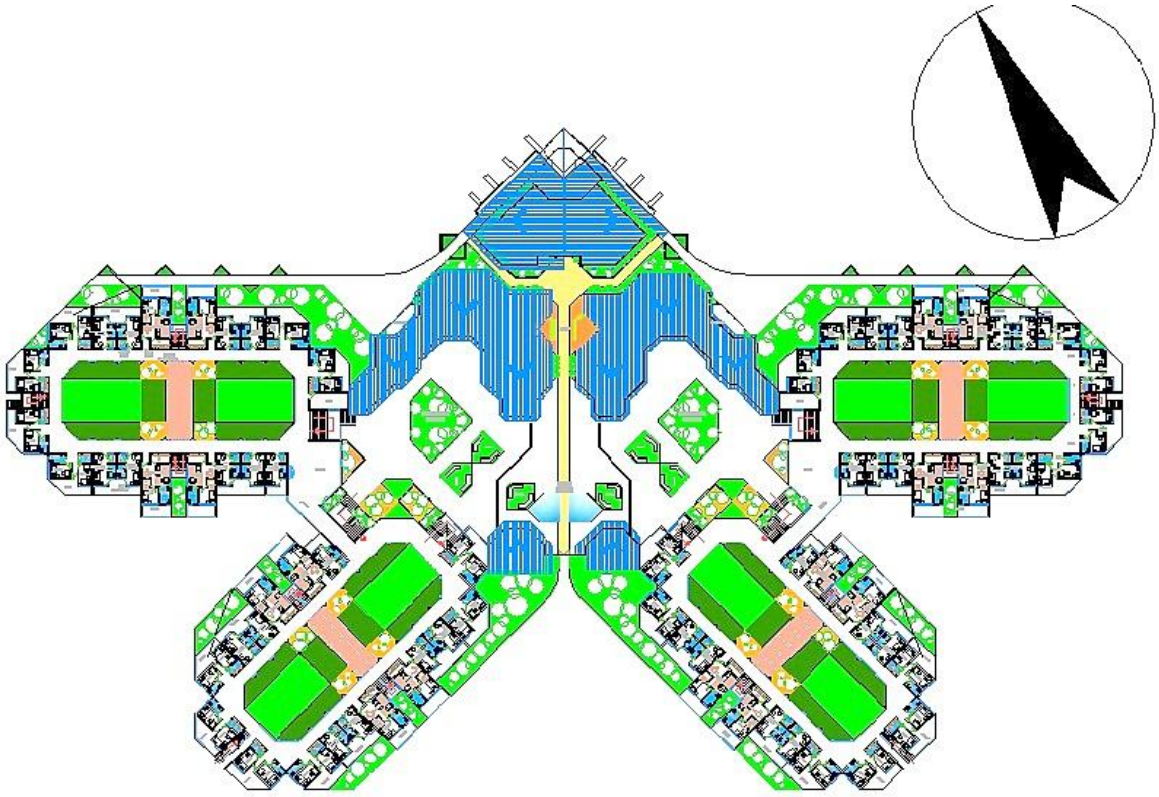
Appendix E: Ground floor plan of the proposed Postgraduate Students Hostel



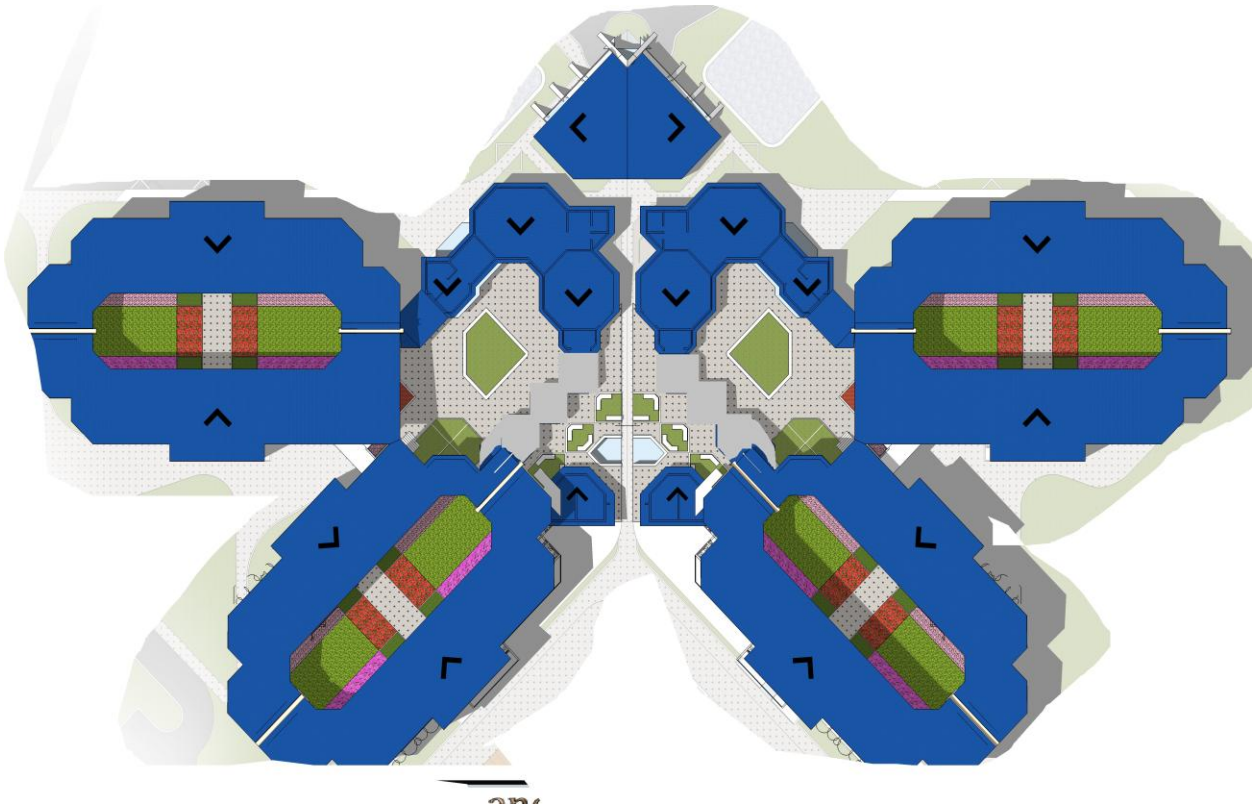
Appendix F: First floor plan of the proposed Postgraduate Students Hostel



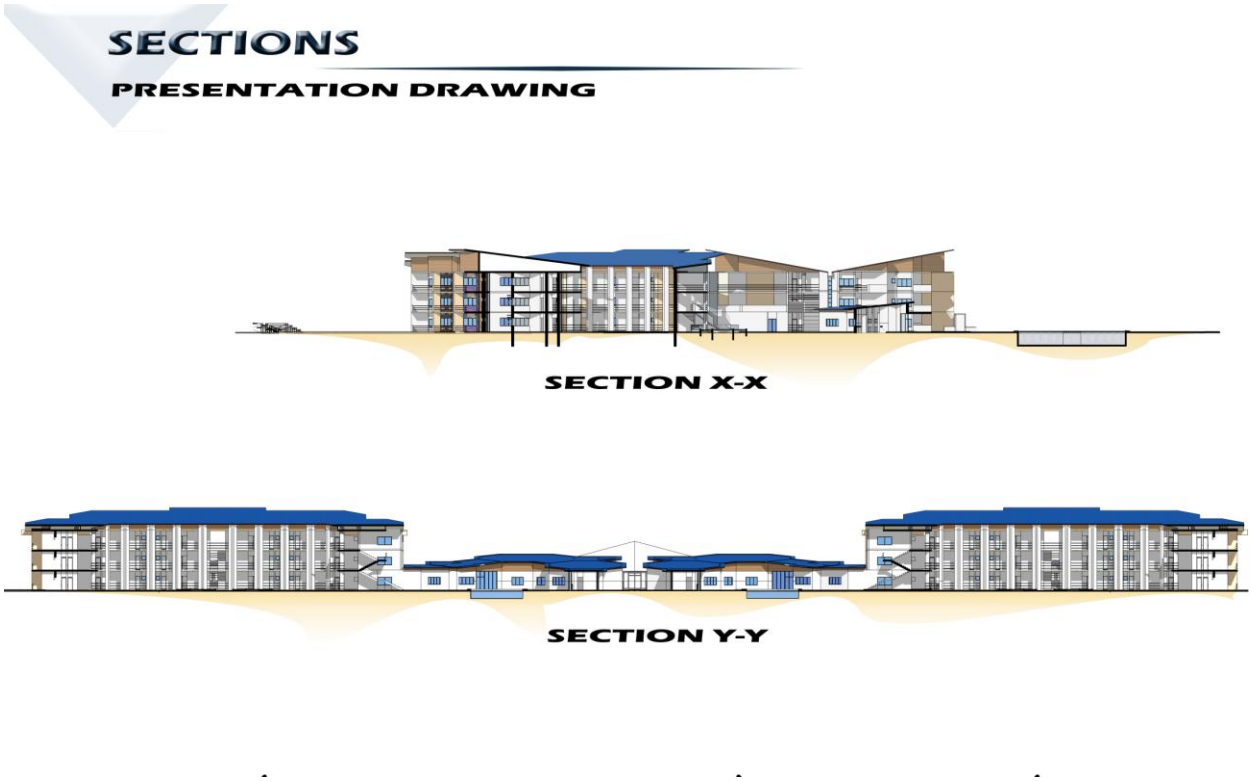
Appendix G: Second floor plan of the proposed Postgraduate Students Hostel



Appendix H: Roof plan of the proposed Postgraduate Students Hostel



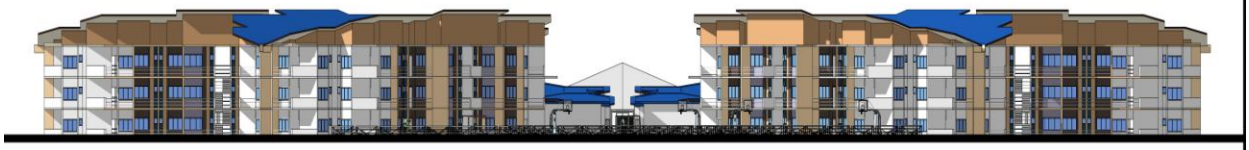
Appendix I: Section through the proposed Postgraduate Students Hostel



Appendix J: Approach and Rear Elevations of the proposed Postgraduate Students Hostel



APPROACH ELEVATION



REAR ELEVATION

Appendix K: Right and Left sides Elevations of the proposed Postgraduate Students Hostel



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

Appendix L: 3D view of the proposed Postgraduate Students Hostel







