ASSESSING THE EFFECT OF HOUSING QUALITY ON RESIDENTIAL OCCUPANCY DURATION IN MINNA, NIGER STATE, NIGERIA

BY

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MTech./SET/2017/7102

PROJECT SUBMITTED TO THE DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGER STATE,

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ABSTRACT

The study assessed the effect of housing quality attributes on residential occupancy duration in Minna to determine the amount of variation in occupancy duration among the tenants that is due to quality of housing attributes. The study administered 861 questionnaires across the three selected areas (F-layout, Tunga and Sabon Gari) using simple random sampling techniques and 705 retrieved questionnaires were analysed for the study. The study analysed responses using both descriptive and inferential methods of data analysis. The descriptive method featured mean, to determine the average quality condition of housing attributes and mean of occupancy duration. The inferential method featured Analysis of Variance (ANOVA), Correlation and Regression analysis. The use of ANOVA was to determine the significant variation in occupancy duration across the study area, the correlation was used to test hypothesis of non-correlation between housing quality and occupancy duration. Regression analysis was used to determine the effects of housing quality on occupancy duration. The results revealed that the quality index of housing attributes in F-layout and Tunga at .0758 and 0.685 respectively was found to be better than Sabongari at 0.502. The average occupancy duration across the study area revealed that Sabongari with 11 years 8 months (11.8) was higher than F-layout and Tunga at 9 years 2 months (9.2) and 8 years 4 months (8.4) despite poor quality index of housing attributes. The result of correlation revealed that there was a relationship between the quality of housing attributes and occupancy duration, the result of regression showed that 60.1% variation in occupancy duration across the study areas was explained by the quality of housing attributes. The study concluded that housing quality attributes had a predictive power of change in occupancy duration in the study area.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

The evolution and history of man overtime has continued to be linked directly to Land. The food, shelter and cloth that are man's basic necessities have direct connections to Land (Babalakin, 2004). Housing which is otherwise known as shelter is as prominent to man for as long as man keeps existing because it is critical to his existence (Omole, 2010). According to World Health Organization (WHO, 2018) which describes housing as that residential environment which includes the physical structure used for shelter, all necessary services, facilities, equipment and devices needed or desired for the physical and mental health and social wellbeing of the family and individuals. The essence of housing is to meet basic needs, such as for shelter from weather conditions, and to offer a sense of personal security, privacy and personal space (Balestra & Sultan, 2013). More so, housing is the totality of the surroundings and infrastructural facilities that offer human comfort, improve the quality of human health and productivity as well as enable them to sustain their psycho-social or psycho-pathological balance in the environment where they find themselves (Ankeli *el al.,* 2015).

However, housing quality is a priority most times for housing choices that is why Olayiwola, (2006) and Adewoye (2016) see quality as a product of subjective judgment which arises from the overall perception which individual holds towards what is seen as the significant elements at a particular point in time. Among these qualities include aesthetics, ornamentation, sanitation, drainage, age of building, access to basic housing facilities, burglary, spatial adequacy, noise level within neighborhood, sewage and waste disposal, air pollution and ease of movement.

According to Okewole and Aribigbola (2006), the housing quality in any neighborhood should be such that enhance the living standard and the health standards of the neighborhood but also be affordable to different categories of households. It is obvious that the pressure on housing

facilities and services serve as major determinants of house rents. Housing occupancy duration tend to peak in those areas that enjoy easy accessibility (through road network), electricity, pipe –borne water and efficient drainage system. However, Meteyka and Marlay (2009), says social and economic characteristics are associated with tenancy duration, they further stressed that age could certainly be an important variable to consider, as mobility tends to decrease dramatically among those over age 60. Both marital status and the presence of children could serve as disincentives to move, as coordinating jobs and school changes are difficult. Education and income are essential variables, but they tend to function differently for predicting duration. Individuals with more education and higher incomes are more likely to move, presumably for job opportunities. It is against this background that this study assesses the Effect of Housing Quality on Residential Occupancy Duration in Minna, Niger state, Nigeria.

Therefore the study examined the effect of housing quality on occupancy duration in Minna urban as a capital city of Niger state having a large residential market. Tenant occupancy in Minna has an elongated period under review based on the quality of the residential attributes. The quality residential housing in Minna urban is generally believed to be substandard and suffer from short occupancy and the duration varies across the Minna urban because of different attributes of housing. It is on this note that this study examines the attributes of residential housing in Minna and develops a quality index that will be used to measure the effect on occupancy duration.

1.2 Statement of the Research Problem

The process of urbanization has taken a new turn over the last few decades and this population explosion has placed urban areas in a situation whereby the available facilities including housing are below margin in terms of meeting its equivalent demand (Olotuah, 2005). This same menace

of uncontrolled urbanization in Nigeria is already overwhelming all our cities. Since the government has done little or nothing in meeting the current housing need, the pressure placed on the existing housing stock tends to increase by the day. This pressure placed on housing in urban areas has affected the quality of the various categories of the housing stock leading to increased and decreasing tenancy period, overcrowding and slum formation in urban settlements (Olotuah, 2005).

Like every other developing country, housing quality problems has been a predominant issue majorly in urban centers and major cities. These problems are seen around both residential settlements and other uses. Some of these areas, have little or no efficient infrastructural provision such as sewage system, drainage systems, poor waste disposal technique thereby affecting the natural and built environment which also affect the occupancy period for residential accommodations. However, the effort to reduce these problems by authorities responsible has not yielded any result and it is of these challenges the study intends to assess housing quality effect on occupancy duration in Minna, Niger state, Nigeria. The study will therefore develop residential housing quality index to measure the occupancy duration with view to determine the extent to which housing quality dictates the tenancy duration of a sitting tenant.

Also, a larger part of Minna is characterized with poor housing facilities with better accessibility having transportation cost advantage otherwise in some other area with reflection in rental variation and occupancy duration. The study addresses the extent to which quality of housing attributes determine the occupancy duration in residential properties in Minna.

1.3 Aim and Objectives

The aim of the research is to assess the housing quality effect on residential occupancy duration in Minna with a view to developing housing quality index to measure the variation in occupancy duration.

The Specific objectives are to:

1. Examine the nature of housing quality in F-layout, Tunga and Sabongari areas of Minna.
2. Assess the tenancy duration structure of residential household in the study area.
3. Establish the relationship between housing quality and tenancy duration
4. Assess the factors affecting occupancy duration in the study area.

1.4 Research Questions

1. What is the nature of housing quality in F-layout, Tunga and Sabongari areas of Minna?
2. What is the tenancy duration structure of residential household in the study area?
3. Is there any significant relationship between housing quality and occupancy duration?
4. What are the factors affecting occupancy duration in the study area?

1.5 Hypothesis.

1. H_o: There is no significant relationship between housing quality and occupancy duration.
2. H_1: There is significant relationship between housing quality and occupancy duration.

1.6 Justification for the Study

Many previous attempts have been made to measure housing quality. However, few practical studies have been able to come to grips with the housing problems which are so important in urban planning. Many studies are undertaken, precursors of almost every plan of action, but very few progress beyond the level of 'environmental stocktaking', detailed inventories, as it were, of housing attributes and shortcomings (Onaiwu, 2015; Asikhia *et al.,* 2016). For certain problems, this may be adequate; but it throws little light on how a given residential area functions or how it

fits into the wider urban complex (Olujimi & Bello, 2009). In particular, it gives very little help in understanding the course of residential change, which may well be critical in planning. For, if policy is able to exploit pre-existing processes of change, it is all the more likely to be successful. Occupancy duration has received least attention. Yet, unlike other research, it relates directly to questions of residential change, and its analysis can help considerably in bridging the gap between the study of housing and occupancy duration.

Minna has experience expansion in residential neighbourhoods and hence, resulted to massive expansion. People have been moving from different locations. However, these movements have not been properly articulated as regards the quality of housing in these new areas. There is need to find answers to some questions as regards whether the movement is done based on informed decision as regards the quality of the neighbourhood? Or, whether the existing areas are deficient of some qualities? And to what extent is the movement to other areas and at what duration were these movements effected? This and many more question this study seeks to unravel.

1.7 Scope of the Study

The study focuses on the effects of housing quality of residential occupancy duration in Minna. Minna, the capital of Niger State is a relatively large city, experiencing massive expansion both with commercial and residential properties. Therefore, to achieve the objectives of this study, the study covers residential properties owners and tenants in F-Lay-Out, Tunga and Sabongari Area of Minna. The selection of these areas is a deliberate one, because they represent low, medium and high density areas in the study area. The context of the scope is to assess the quality of housing units in the study area using some quality factors, as well as assessing the duration of tenancy and occupational period of household in the study area and to see how this quality can determine occupancy period among household in the study area. Large number of residential

properties in Minna is viewed as substandard. This is as a result of growing urbanization coupled with poor infrastructure provision and pressure on the existing facilities. Despite the substandard nature of housing attributes, there was increase in demand for residential accommodation variations in occupancy duration in the study areas. Theoretically, occupancy duration depends on lot of factors, of which housing quality is one the major determinants, but the large number of substandard housing facilities in the study justifies choice of the study area.

1.8 Limitation of the Study

There were detected limitations in the path of conducting out this research.

Sourcing of relevant information from appropriate quotas was encountered with some individual difficulty, but was surmounted with much persuasion and tenacity that came as a result of relaxed approach of the respondents to the questionnaire. Problems meeting with head of household and lack of conviction on respondents making relevant reply to questions asked. Notwithstanding, all were overcome respectively with prudency and careful monitoring of circumstances around. Furthermore, there were numerous issues aside this research work that coincidentally needed the researcher's equal attention, however they were appropriately prioritized.

1.9 Description of the Study Area

1.9.1 Geographical Description

Minna is a city (estimated population 304,113 in 2007) in west central Nigeria as shown in Fig 1.1. It's the capital of Niger State, one of Nigeria's 36 federal states, and is the headquarters of Chanchaga Local Government Area (Niger State Bureau of Statistics, 2009).

1.9.2 Historical Development

According to Niger State Bureau of Statistics, 2009 the archaeological confirmation infers settlement in the area (Minna) dates back to about 47,000-37,000 years back. Muslim society separated into Minna by method for the aged Saharan exchange tracks and the city holds numerous mosques and Muslim associations. Christianity is a real populace in Nigerian Niger State, where Sharia is valid. Minna has a Living Faith Church, a Grace Baptist Church, Nupe Kalvari Churches, Anglican Churches, ECWA Churches, Baptist Churches, Victory Christian Church, The Apostolic Church and numerous others excessively various to specify. Minna is the home of Nigeria's previous military President Gen. Ibrahim B. Babangida, and of previous Head of State Gen. Abdulsalami Abubakar. Dr. Mu`azu Aliyu Babangida dwells in Minna as the present legislative leader of Niger State. He served a term of four years (2007-2011), and is at present serving an alternate term of four years (2011-2015) - his last term since the political framework does not permit chose senator to serve more than two terms.

1.9.3 Administrative Structure

Minna is part of the Chanchaga local government area as shown in Fig 1.3. Since becoming the capital of Niger state in 1976, Minna has developed as an administrative center as well. The local government is headed by a Local government chairman, who serves as the administrative head of the local government. Fig 1.2 is the map of Niger state showing Minna and other major cities.

1.9.4 Economic Base

Cotton, guinea corn, and ginger are the fundamental rural results of the city. Yam is additionally widely cultivated all around the city. The economy additionally underpins steers exchanging, blending, Shea nut processing and gold mining. Conventional commercial enterprises and artworks in Minna incorporate cowhide work and metalworking. Additionally, Local exchange around the overwhelmingly Gbari (Gwari) populace is primarily in sorghum, yams, corn (maize),

millet, peanuts, cotton, tobacco, indigo, kola nuts, cows, goats, chickens, and guinea fowl. The town is known for its woven and colored cotton material, raffia mats and wicker bin, earthenware, and metal ware. Present day industry incorporates a block making plant.

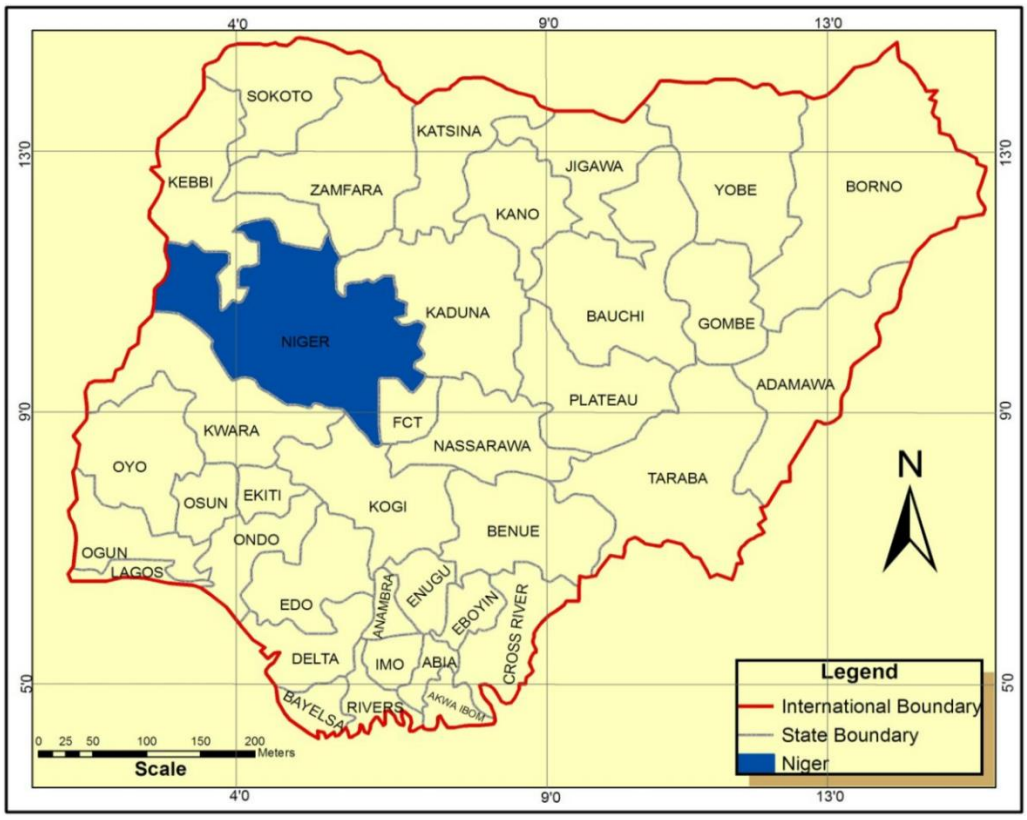

Figure 1.1 Map of Nigeria displaying Niger state.
Source: Lands and Housing Ministry, Minna (2019)

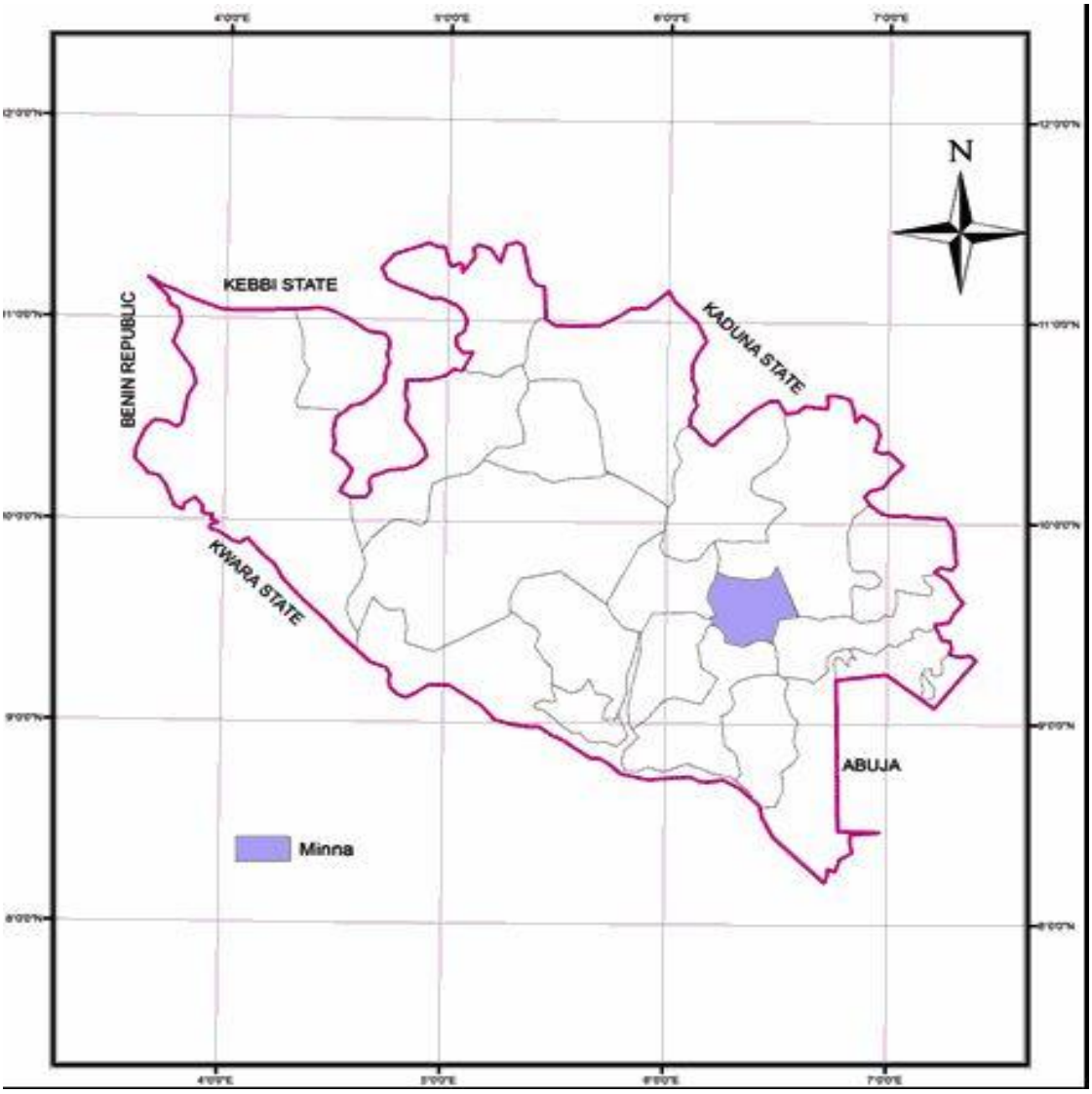

Figure 1.2: Map of Niger State Showing Minna
Source: Ministry of Lands and Housing, Minna (2019)

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Concept of Housing

A house in a general sense represents the smallest unit from where the town planning scheme emerges. It is the first unit of society and it is the primary unit of human habitation. The need for a house does not confine itself to the availability of a structurally stable unit to stay (Kurian & Thampuran, 2011). Houses must be so located and designed that they afford convenience, amenity, health and social life to community. Housing has potentiality to a great extent in promoting human welfare, social life, economic growth, health of community and various other aspects of human life. Housing is a commodity which is very much heterogeneous in nature. The definition for housing quality varies widely based on peoples' perspectives.

Housing is a foremost universal concern as the wellbeing of a country reflects in its people enjoying a particular standard of living. Housing usually has a significant impact on dweller's safety and wellbeing (Bankole & Oke, 2016). According to Listokin and Burchil (2007), as have define, housing as a permanent structure for human habitation. It is also referred to as the house and defined as a home, building or structure that is a dwelling or place for habitation by human beings. Also, Rapoport (2001) sees housing as a system of settings within which a certain system of activities takes place and therefore housing is more than the dwelling, the neighborhood and its environmental quality profiles become important. In the traditional African setting, in particular, housing is, in fact, one of the greatly cherished material properties it reflects the cultural social and economics values of a society as its appears the best evidences of civilization in a country and a reliable measure or indicator of economic development (Jiboye, 2009).

Agbola (1998) as cited by Adeleye (2012) describes housing as an issue that touches on the life of individuals as well as that of a nation. As such, he ascribes great importance to the role played by housing in endangering human comfort by both nature and society. In addition, he stresses that housing which is a combination of characteristics provides a unique home within any neighbourhood, describing it as an array of economic, social and psychological phenomena. “If the concept of housing is understood to represent the aforementioned expressions, then, housing designs and planning consideration should involve not only the physiological responses to the enclosed environment, but also the socio-cultural responses emanating from the socio-economic and cultural norms of the users (Jiboye, 2004). In this regard, all the ancillary services and Community facilities, which are necessary for human wellbeing, including environmental and social services, personal safety and security, which are also essentials for housing should be provided.

Housing is however an issue that touches on the life of individuals as well as that of the nation; a great importance is therefore ascribed to the role it plays in engendering human comfort by both nature and society. This is why Eldredge (1967) concludes that housing represents a bundle of goods and services which facilitate and enhance good living; and a key to neighbourhood quality and preservation. Likewise, Agbola (1998) notes that housing is a combination of characteristics which provide a unique home within any neighbourhood; it is an array of economic, social and psychological phenomena. In other words, housing could be seen as a multidimensional package of goods and services extending beyond shelter itself.

2.1.1 Housing habitability

Housing habitability is a vital aspect of housing quality. It is the degree to which housing and its location provide a physically safe, physically secure and physically healthy environment. It

relates to the design, construction, materials, and service provision of a house and to how well it has been built and maintained. Habitability covers the primary function of housing as providing shelter, focusing on the condition of the house's physical structure and the facilities within it.

Housing provides a physically safe environment when it has a sound structure reasonably resilient to natural hazards (such as extreme weather), is free from material hazards or hazards that may cause accidents. This includes adequate smoke alarms and escape routes.

Housing provides a physically secure environment if it offers reasonable protection from intruders. Housing provides a physically healthy environment if it has drinkable water, including hot and cold water supplies; hygiene facilities and area of washing clothes, kitchenette and refrigeration, and waste water treatment; a safe source of energy; access to natural and artificial light; protection from noise transmission; and protection from cold, dampness and mould, and excess heat (including the provision of weather tight structures, insulation, ventilation, a safe heat source, and drainage).

2.1.2 Housing functionality

Housing functionality has been defined as the degree to which the design, construction, and location of housing support the specific physical, cultural, and social needs of individuals, families and communities. Housing functionality may vary according to cultural background, family situation, and physical, spiritual, and emotional needs. Housing functionality covers elements of housing that play a role in reducing the limitations of disabilities. This is especially important within the context of an ageing population. It is also important to consider not just the physical needs of people living in a house but also their visitors (the concept of 'visitability') Saville-Smith and Saville (2012).

The components of housing functionality are described below. These aspects of housing functionality have been separated but they all work together to ensure wellbeing. Sustainability is referred to as a universal process that also attempts to assist evolve a time to come where environment and people are jointly considered with economic factors, (Idrus & Newman, 2002). Specific emotional and mental health needs concern the extent to which housing supports and provides for emotional and physical wellbeing. This is closely tied to housing habitability and social and cultural participation, and connectivity. Subcomponents that reflect the needs of specific groups could be added to complement the overall concept, and be developed by or in conjunction with these groups.

2.1.3 Environmental sustainability of housing

Environmental sustainability of housing is the degree to which housing design, construction, and materials interact with and impact on the natural environment to support habitability now and in the future. Environmental sustainability focuses on the resource efficiency, durability, and resilience of housing. Environmental sustainability includes measurable aspects of housing design and construction. These include the quality of the building envelope and services within it, including materials, energy, water, and interior situation (heat soothe, interior air quality, illumination, and sound absorption). They also include how responsive the building envelope is to the climate (different weather events), the efficiency of power and use of water, the use of limited resources, and production of toxic substances in the construction. The durability of the materials, their resilience to climate change, and the resilience of the housing site are also considered.

2.1.4 Socio-cultural sustainability of housing

Socio-cultural sustainability of housing is the extent to which dwelling design is flexible enough to respond to changes in the specific physical, cultural, and social needs of individuals and families thereby supporting functionality across time. This relates to the adaptability and flexibility of housing to meet changing living needs and circumstances, for example different life stages and cultures. It may include housing with accessibility for all ages, design and construction to facilitate future modification, or thoughtful design with spaces that can be adapted to different functions.

2.1.5 Classification of housing

The classification of housing depends on the number of rooms, existing comfort, form and the place where found (Adeleye, 2012). Similarly, Henilane (2014) opined that, housing is classified by the housing type, size, housing amenities, location, group of population living in the housing, type of ownership rights, construction period of the housing, energy efficiency indicators; construction materials used in the exterior wall of the housing and by other features. However, the developed types of classification of housing, by classifying them according the different characteristics, are only some of the main classifications of housing and could be supplemented by other classifications (Henilane, 2014).

Therefore, housing can be categorised into the following classification and characteristics.

Table 2.1: Housing Classification and Characteristics

Housing Classification	Characteristics
By Housing Type	Room in the apartment, Apartment in multi-apartment residential building or non-residential building, Multi-apartment residential building, Family house and Others
By Housing Size	One room, One-room apartment, Two-room apartment, Three-room apartment, and more, Family house and Others
By Housing Amenities	Housing with all amenities, Housing with part of amenities and Housing without amenities
By Housing Location	Housing in a city and Housing in rural territory
By Group of Population Living in the Housing	Any resident, Persons with low-income or other social group at risk
By Type of Housing Ownership Rights	State-owned housing, Municipality-owned housing, Natural person's owned housing, Legal person's owned housing and Others
By Construction Period of the Housing	Housing build before World War II, Housing built from 1945 to 1990 and Housing built from 1990 until now
By Energy Efficiency Indicators of Housing	Minimum regulatory energy performance level allowed for new buildings, Minimum regulatory energy performance level allowed for reconstructed or renovated buildings, Almost zero energy consumption housing and Others
By Construction Materials Used in the Exterior Wall of the Housing	Brick wall, Wood, Brick/panel, Reinforced concrete / concrete, Lightweight concrete, Wood/masonry and Other.

Source: Authors Compilation (Henilane, 2016)

2.1.6 Problems and challenges of housing

The challenges of housing are multi-lateral in nature and they are basically rooted in policy and economic mis-direction. With the policy shift from the public sector dependency to liberalization policy of private sector driven, the ineffective housing policy implementation has continued to create great challenges to housing. Basically, the major problems of housing are rooted in:

1. Lack in integration of policies between the three tiers of government.
2. Inadequacy of finance
3. High cost of building materials and
4. High infrastructural development cost.

2.2 Housing Quality Concept

Housing quality refers to the extent to which dwellings give a well, harmless, protected, and durable surroundings for persons or families that live in them and to partake within their environment or communities.

According to Weldemann and Anderson (1985) as cited by Adeleye (2012), they opined that planners and designers have used several criteria over the years to evaluate housing quality. These include:

1. Economic criteria such as the relationship between rent and income;
2. Physical criteria such as the integrity of the dwelling and the present plumbing fixtures;
3. Social criteria such as the incidence of diseases and the degree which overcrowding of housing occupies.

Housing quality is about the lived experience of people in their house. We identified four elements of housing quality as important because they support wellbeing in the broadest sense by enabling people to live as people desire in a serene and quite environment, presently and in

future. Individuals and families are at the centre of this framework. The four elements interact with and support each other.

The four elements of housing are; habitability, functionality, environmental sustainability and socio-cultural Sustainability. While housing habitability and environmental sustainability primarily relate to the physical structure, housing functionality and social and cultural sustainability also include the interaction of individuals and families in their communities. Habitability and environmental sustainability can also be impacted by how the occupants use the house.

According to Lawrence (1995) housing quality is a complex concept because it is neither absolute, nor static. He describes it as a relative concept that may vary between countries and also between specific groups of people in each country both at one point in time and over long periods. Given that housing quality is variable over time, no static, objective standards or prescriptions can provide a comprehensive account of this subject. Rather, a range of values, costs and benefits ought to be borne in mind if interpretations of the quality aspects of housing are to be undertaken in a comprehensive manner.

There is an urgent need for an integrated definition of housing quality in which sets of architectural, demographic, economic, ecological and political factors are explicitly interrelated. Today the relationship between people and their home environment is an important research theme. Cooperative works of different disciplines and research areas, such as environmental psychology, social psychology, community psychology, home environment studies, urban planning and architecture are trying to develop an understanding of relationships between quality and residential spaces. Decoding the quality of designed space and evaluating social, psychological, physical and economic parameters that effect quality issues in housing

environment are also important to develop new design strategies for future housing projects. A research of the literature reveals a variety and richness of these studies.

Different concepts and models have been provided by various researchers to illuminate this issue. Smith and his colleagues (1997) talk about works of Jarvis and Hester related to neighborhood space and community design in their paper, namely Quality of an Urban Community. According to Jarvis, in the book namely Site Planning and Community Design for Great Neighborhoods (1993), he states that the measure of success for any residential neighborhood is how well community and site plans can be implemented to achieve a balance between lists of opposing qualities of desirable places to live. The conflicting qualities include convenience, separation; relatedness, identity; affordability, luxury; tradition, innovation; unity, variety; safety, excitement. Smith further analyzes the social suitability of neighborhood space and creates a user needs checklists for use in neighborhood design. The major components of the checklists are: desired activities; appropriate activity settings; relatedness through interaction with the natural environment; safety; aesthetic appeal; convenience; psychological comfort; physical comfort, symbolic ownership and the cost (Smith *et al.*, 1997).

Smith, Nelischer and Perkins aim to develop a framework to facilitate the understanding of the relationship between quality of an urban community and physical form. They generate a matrix which is a device to link quality theories (livability, character, connection, mobility, personal freedom and diversity) with physical form criteria (community, urban block, buildings, streets and pedestrian ways, open space, vegetation, feature areas). Each quality principle is analyzed according to their relationships to each physical form criteria. With this community quality matrix, which graphically illustrates which design criteria and quality principles have strong or

weak relationships, authors try to understand the relationship between the qualities of a community with respect to its form (Smith *et al.*, 1997).

Bonaiuto, Fornara and Bonnes present two instruments measuring the quality of the relationship that inhabitants have with their urban neighborhoods. The instruments consist of eleven scales measuring the perceived environmental qualities of urban neighborhoods and one scale measuring neighborhood attachment. The eleven scales are included in four generative criteria as follows: three scales concern spatial aspects (architectural-planning space, organization and accessibility of space, green space), one concerns human aspects (people and social relations), four concern functional aspects (welfare, recreational, commercial, transport services), three concern contextual aspects (place of life, environmental health, upkeep) (Bonaiuto *et al.*, 2003). Kamp and his colleagues give a list of definitions of livability, environmental quality and sustainability. Among these, following can be highlighted: "RMB, 1996- Environmental quality is the resultant of the quality of composing parts of a given region but yet more than the sum of parts, as the perception of a location as a whole. The composing parts (nature, open space, infrastructure, built environment, physical environment amenities and natural resources) each have their own characteristics and partial quality" (Kamp *et al.*, 2003).

2.2.1 Housing quality in Nigeria

The definition of housing quality embraces many factors which include the physical condition of the building and other facilities and services that make living in a particular area conducive. The quality of housing within any neighbourhood should be such that satisfies minimum health standards and good living standard, but should also be affordable to all categories of households (Okewole & Aribigbola, 2006).

2.2.2 Indicators for evaluating housing quality

The need to appreciate the relevance of a habitable (qualitative) housing therefore, requires an understanding of the concept of „quality "which according to Onion, cited in (Afon, 2000), "is a mental or moral attribute of thing which can be used when describing the nature, condition or property of that particular thing". Jiboye (2004) noted that getting a definition of quality depends not only on the user and his or her desires, but also on the product being considered. In essence, quality is a product of subjective judgment which arises from the overall perception which the individual holds towards what is seen as the significant elements at a particular point in time (Anantharajan, 1983; Olayiwola *et al.,* 2006). In assessing the quality or suitability of housing, qualitative studies have identified some criteria as relevant indicators for quality evaluation in residential development. Among such is Ebong (1983) who acknowledged aesthetics, ornamentation, sanitation, drainage, age of building, access to basic housing facilities, burglary, spatial adequacy, noise level within neighbourhood, sewage and waste disposal, air pollution and ease of movement among others, as relevant quality determinants in housing. However, Hanmer (2001) conclude that qualitative housing involves the provision of infrastructural services which could bring about sustainable growth and development through improved environmental conditions and improved livelihood. In determining the quality of residential development, Neilson (2004) stipulates five basic criteria which provide that housing must be in compliance with tolerable standard, free from serious disrepair, energy efficient, provided with modern facilities and services, and that it must be healthy, safe and secure.

These indicators consist of variables such as; access to basic housing and community facilities, the quality of infrastructural amenities, spatial adequacy and quality of design, fixtures and fittings, building layout and landscaping, noise and pollution control as well as security. There

are however indications from these various studies that a single variable may not be sufficient to assess the qualitative nature of residential development; therefore, housing acceptability and qualitative assessment should also take into account type of constructions, materials used, services, spatial arrangement and facilities within dwellings, function and aesthetics, among others (Jiboye, 2004).

2.2.3 Housing quality criteria

Four criteria provide the basis for identifying indicators to produce a meaningful Housing Quality Indicator, namely; objective criteria, scientific/technical criteria, management criteria and social and cultural criteria (Meng & Hall, 2006). Each class of criteria has its own considerations that govern the selection of specific indicators from available data sources, as noted below:

1. **Objective Criteria Indicators Should:**

• Represent the local environment and should be comprehensive enough to address issues that include poverty and inequity in the housing sector;

• Be sensitive to changes between different socio-economic classes, especially in terms of economic status indicators such as accumulated wealth and income.

Scientific/Technical criteria indicators should:

• Be separable into geographically localized components and should be based on household-level data so that they can be measured both locally and globally as well as spatially in order to identify statistical and spatial distributions of the HQI within a study area;

• Be technically feasible to measure.

2. **Management Criteria Indicators Should:**

• Be easy to obtain from available data and subsequent calculations;

• Be easy to understand, and cost-effective so that the analysis of housing quality and housing segregation can be effectively utilized by policy makers;

• Be consistent and comparable so that housing quality and housing segregation can be monitored over time and can be compared between cities.

3. **Social and Cultural Criteria Should:**

• Include the preferences and priorities of the community in the housing programs;

• Enable local participants to evaluate indicators selected from the above criteria to make housing improvement proposals acceptable relative to local norms and expectations.

2.3 Some Major Determinants of Housing Quality

According to Kurian and Thampuran (2011), they summarized the major housing quality indicators to include the following:

2.3.1 Location

Location has a major impact on occupants and the long term desirability of housing. It is important to be aware from the outset how good it will be for residents, even if a developer or builder may have little influence over it. This indicator in turn gives weightage in terms of the facilities available in the vicinity. Various factors considered under this head are proximity of bus stop, proximity to bank, proximity to hospital, proximity to market place, nearness to place of worship, nearness to post office, nearness to school and nearness to park or playfield.

2.3.2 Infrastructure

The ever increasing urbanization and migration to the urban centers led to congestion in the residential areas and so the plot sizes have come down drastically. This in turn has resulted in the increased importance accorded to the common facilities and infrastructure. The factors therefore considered are public water supply system, public drainage system, common waste disposal facilities, garbage disposal facility, and independent well and neighboring building 5m away.

2.3.3 Design

Houses need to be planned according to the needs of occupants and whatever may be the kind of dwelling, there has to be rooms facilitating either one specific activity or overlapping activities along with passage, services and utilities. There should be flexibility in the design. The rooms have to be well ventilated and lighted. Keeping in view the various considerations in designing a house, the factors identified are separate rooms for living and dining, separate study room for children, casual eating place in kitchen, provision to build additional room, garage with lock and key, rooms facing specific direction, two bed rooms in ground floor, and additional car park for guests.

According to Baird *et al.* (1996), a well-designed building performs well and enhances our lives, communities and culture. A low-quality design building could affect our health, work, leisure, thoughts and emotions. Watt (2007) and Baird *et al.* (1996) both supported the idea that a well-designed building not only enhances the lives of users but also helps to nurture their leisure and supports their emotional needs. The above paragraphs can be summarised as follows:

a. The quality of housing design influences the individual and community. Design professionals should understand their responsibilities and adopt high design quality in housing projects.

b. The well-being and satisfaction of the resident population should be considered a priority. The buildings, particularly housing, should be designed in a way that helps build a positive image of the community and urban environment.

Previous studies have revealed that a house, or its multiple forms, has remained the subject of research and discussion in a number of reputable platforms, such as CABE, the United Nations and the World Bank. Despite the availability of modern resources and technology, optimisation of design quality has rarely been applied to modern buildings and housing. This limitation has continued to cause numerous imbalances and deficiencies in the subsequent design of buildings.

This scenario validates the need for a framework for assessing design quality in the design and construction industry. The HQD framework system would check the design and construction processes at various stages, from 2D drawings to the application of an outer fabric and skin to the façade. Such quality measures will improve building performance and life span, prevent highly taxed defects and reduce the requirement for maintenance.

2.3.4 Aesthetics

Utility and beauty must be considered in the design to satisfy the aesthetic aspirations of the occupants. It is to be noted that residential buildings are meant not only to provide enclosed spaces but also to have a good aesthetic appearance that may be obtained by the provision of a variety of designs and novel ideas. Architectural expression is the outward manifestation of the function of the building. Factors identified are good external finish, house facing a definite direction, well defined compound wall, and central courtyard for the house.

2.3.5 Materials and construction techniques

Due to the ever increasing construction activities, conventional building materials like bricks, cement, steel, sand, aggregates, and wood are running short in supply thereby generating many environmental impacts.

2.3.6 Sustainability

It is necessary that the broad environmental concerns of climate change, resource use and impact on wild life are considered and balanced against the need for a high quality, safe and healthy internal environment. The factors identified are house built on reclaimed area, kitchen units to last 15 years, wood used to last 25 years, use of teak wood, and PVC door panel for bath rooms, aluminum frames for windows, eco-friendly, and use of recycled material.

2.4 Urban Infrastructure Facilities and Housing Facilities.

Infrastructural facility has been defined by different authors based on the coverage of study being carried out, the level of importance of specific facility, specific beneficiary and financing modes. In a broad way Akubueze (2004) defined infrastructure as national physical assets which are the basic structures and facilities necessary for a country or organisation to function effectively. These include building, transport, water, energy resources and administrative systems. Earlier to this, Donald (1974) explained infrastructure as the physical structure and facilities that are developed or acquired by public agencies to enhance governmental function and provide water, power, waste disposal, transportation or similar services to facilitate the achievement of common social and economic objectives. The definition based on its importance to the society is revealed in Fox (1994) that infrastructure are those services derived from a set of public works traditionally provided by the public sector to enhance private sector production (performance) and household consumption.

However, the bulk of urban infrastructure in Nigeria has been admitted to be provided by the governments (federal, state and local levels,) financed largely by tax revenues and managed by public sector agencies. Thus infrastructure initiation, planning, implementation, operations and maintenance have traditionally been public sector responsibilities. Ebong (2007) pointed out that over the years the mode of provision and delivery of this infrastructure by the public sectors have been characterised with many shortcomings. The aftermaths of these problems include dilapidated state of most of the available infrastructure such as poor road, erratic supply of electricity and lack of political will to embark upon total deregulation and privatisation of all infrastructures including road and electricity supply.

The housing facilities therefore include all facilities attached to building fabrics in order for it to function efficiently while urban infrastructure is provided to service the larger society. Babarinde (1998) buttressed that the efficiency of any form of human activity largely depends on the provision of efficient infrastructural facilities and services. In Akinloye (2009) housing facilities roles were revealed as those conveniences that allow the unit to perform its function of creating an efficient platform for the occupants to organise themselves. The facility had earlier been mentioned in Boarne (1981) that housing is not a complete entity when it is lacking in necessary housing facilities.

2.5 Residential Properties

Residential properties are apartment units or houses where people live. This covers a broad range of housing types, many of which use the services of a property management firm.

2.5.1 Types of residential properties

There are various types of residential properties but the major type is listed here for the study.

1. Tenement houses

2. One, two, three and four-bedroom bungalow
3. Duplex
4. Detached or Semidetached houses among others.
5. A principal residence
6. A cottage
7. An apartment building
8. A rooming or boarding house
9. A mobile home or mobile home lot
10. Any other single family residence, duplex or triplex not used for commercial purposes
11. A community hall
12. A nursing home
13. A senior citizens' home
14. A hospital facility
15. A subdivided residential building lot
16. Farmland including farm buildings
17. Freehold timberland and farm woodlots
18. A school or public university, but not including property or a portion of property that is used for commercial purposes

2.6 Housing Quality and Residential Satisfaction

Mesch and Manor (1998) as cited by Balestra and Sultan (2013) defined satisfaction as the evaluation by respondents of features of the physical and social environment. However, there is no consensus about the type of appraisal provided by respondents when questioned about their residential satisfaction. Some authors follow a *purposive approach,* where residents own goals

are at the centre of the evaluation of residential satisfaction (Oseland, 1993). Canter and Rees (1982) define residential satisfaction as "a reflection of the degree to which the inhabitants feel their housing is helping them reach their goals". This approach, rooted in a cognitive view, enables researchers to understand the extent to which different facets of housing and neighbourhood contribute to users' satisfaction.

Other authors stressed that people are not only goal oriented, but also have affective relations with their surrounding environment. Moreover, evaluations of the environment usually involve comparisons between what users have and what they would like to have. This is the premise of a second approach to residential satisfaction, called *actual-aspirational gap approach* (Galster, 1987). Balestra and Sultan (2013) opined that, it is important to recognise that a dwelling and its neighbourhood are more than just physical units.

Most people chose to live in a house after careful considerations of many factors, some of which go beyond the physical and structural characteristics of the dwelling and of the surrounding area (*e.g.* local employment opportunities, efficiency of public transport, access to recreational areas, social networks). Onibokun (1974) notes that a dwelling that is adequate from the physical and design point of view may not necessarily be satisfactory from the household's point of view. The concept of satisfactory housing conditions is therefore related not only to the physical, architectural and engineering components of the house, but also to the components of the surrounding environment. People's residential satisfaction will also be influenced by the social, behavioural, cultural and demographic characteristics of the household.

2.6.1 Housing design quality

Housing sector suffers the most during the design and construction phases, which remain unchecked by field experts. International organisations, such as the United Nations-Habitat and

the World Bank, have raised concerns on the growing population and unavailability of quality housing in the developing world. This population increase will result in a high rate of demand in urban areas and put pressure on the existing housing supply.

A 1993 World Bank report highlighted the low quality of houses in developing nations and reported that a large fraction of the population living in the developing world has limited access to quality housing. The report also highlighted concerns over the growing population and inadequate housing in the developing region and stated that developing regions have undeveloped land and economic potential but are handicapped by inadequate housing and infrastructure, including water and sanitation. A later report from the World Bank suggested that underdeveloped countries should do more to ensure better service provision in housing through innovative arrangement and design. The report suggests that to achieve this objective, changes should involve private developers, voluntary agencies and community organisations (World Bank, 2000).

The above discussion suggests that the governmental sector in developing nations has failed to meet the housing needs of their citizens. Therefore, the private sector should step forward to solve the housing issue at the micro level. The present housing scenario is one of the major reasons for low-quality housing design in developing countries.

Housing quality is also a major issue in developed countries. Jamsen *et al.* (2008) described the state of housing quality in Australia and mentioned that one aspect of social disadvantage is housing inadequacy; the study considers low-quality housing as a social disadvantage and states that low-quality housing design does not fulfill the basic needs of the end-user.

Ely (2004) mentioned that houses are such awkward properties that people are often imprisoned rather than housed in them. Perhaps the author is referring to low-quality housing design and

compares the overall environment of available housing with a prison environment. Prisons have spatial limitations; for instance, beds and toilets are grouped together without any partition, such that people have limited access. These factors indicate that low-quality housing design can make a dwelling place resemble a prison.

To understand housing quality and its effects on residents, the Commission for Architecture and Built Environment (CABE, 2006) conducted a study to evaluate the design quality of new homes in England and established an active link between housing quality and community development. The study asserts that housing quality and space determine the success or failure of a community. The study also implied that the success or failure of a neighbourhood is exclusively dependent on housing quality and open space, regardless of income group.

The chairman of the CABE further highlighted the importance of design quality when he stated that design quality cannot be considered as an optional and additional factor but is rather a requirement. This statement suggests that design quality should not be limited to certain types of buildings and housing. This phrase may be directing professionals to consider quality as an integral part of their creative work and that good design quality should not be confined to prestigious edifices.

The importance of design quality was articulated in the report published by CABE (2006). The report highlighted the importance of design quality in buildings and warned of the possible repercussions of poor design. The report stated that the absence of design quality may have significant adverse environmental, social and economic effects. The report further added that low design quality could lower the quality of life. The report also defined what comprised good design quality and stated that a design ought to be fit for the purpose, be sustainable, efficient, coherent, flexible and good looking with a clear expression of requirements. This definition

confirms that good design pertains not only to the appearance of a built environment but also to the development of the people within its periphery. The report further added that good design quality could enhance life.

The Housing Corporation England (2007) defines good quality housing design as the delivery of desirable, affordable and high-quality homes and environments that utilise innovative approaches to satisfy needs and help address the aspirations of the occupants and the wider community. Simmons (2005) considers character, legibility and principles of design to be the basics of design quality and the extent of their existence in any design determines high design quality.

Housing design quality was established by William (2007) through a study commissioned by the Housing Corporation England. The study defined the design of affordable housing and formulated quality standards of housing. The report asserted that good design should contribute positively to making places better for people. The study revealed that the quality of a space is correlated to the users and that the presence of quality in space design is necessary for user satisfaction.

Watt (2007) highlighted the image of a good building and explained that a building should act as a container or envelope that buffers or filters external conditions for internal needs. Watts further added that this image is the simplest definition for the function of a building. The study used an analogy of a building envelope that serves as the skin surrounding the occupants and modifying the environmental conditions.

2.7 Residential Tenure Structure

Housing tenure refers to “the arrangements under which the household occupies all or part of a housing unit” (OECD, 2021). Also, according to OECD (2021), they stated that the different

types of housing tenure can be distinguished, and the categorisation is mainly determined by whether the dwelling is owned by the household who occupies it or not:

1. Own outright: The household owns the dwelling and has no outstanding mortgage related to the dwelling.
2. Owner with mortgage: The household owns the dwelling but is currently paying off the mortgage.
3. Rent (private): The household rents the dwelling at market prices on the private rental market.
4. Rent (subsidized): The household rents the dwelling at reduced market prices, e.g. employer subsidized housing and accommodations where rent is fixed by law.
5. Other: Includes for European countries accommodation provided for free; for other countries it also includes other, non-descript types of housing.

These are basic categories that can be identified across countries and are therefore useful for international comparison. Nevertheless, countries often use different or additional categories of housing tenures. These tenure categories are included in one or more of the above categories in the measures presented in this indicator, depending on the country context. For instance, social rental housing in most countries is included under subsidized rent, but in some cases it is classified as private rent. Furthermore, co-operative housing is in most cases grouped under owner occupancy. Please refer to ‘data and comparability issues’ below for a more detailed discussion (OECD, 2021).

2.8 Theoretical Framework

The following theory where underpinning to the study.

2.8.1 Theory of Housing Satisfaction

The initiators of this theory were Galster and Hesser who came up with the early definitions of living satisfaction so as to measure the instincts of a persons or family concerning the extent that their current scenario matches with their envisaged ideal living situation and future hope. Their satisfaction or discontentment with housing relies on the present scenario as does the necessity for unending need for change. Studies on housing satisfaction are principally centered on the analysis of the dwelling unit and its neighbourhood. Therefore, the perception of the neighbourhood depends alone on the individual. Housing satisfaction is set by three factors: the objective character of the unit, the objective features of the housing surroundings and then subjective well-being measured by their own perceptions, values and aspirations (Diaz-Serrano, 2006). Objective options will embrace the housing unit size, variety of rooms and spatial organization, whereas objective options of the housing surroundings is access to the housing unit, number of parking areas, proximity and size of buffer zones and social services.

The main target of satisfaction by authors of this theory was directed at the subjective housing satisfaction that varies among households or it is totally different within family life cycles. Therefore, Charlotte Büchler's theory of human development on the model of the psychological development of human life may well be incorporated into this theory as a result of the housing wants of a person or family cannot be similar within the time of decline, economic boom or the sensation of failure. That is, the lower the housing satisfaction, the more probability the dwellers move to a different residential unit or kind.

The correlation between these two variables was noted by Diaz-Serrano (2006), who in his analysis came to the conclusion that satisfaction in people is magnified by moving to a better and endearing housing units. The results of the aforementioned analysis make sure that housing satisfaction is merely a subjective class of judgment that is not constant which may not be applicable to individuals or families in similar circumstances. The conclusion is that housing satisfaction analysis in the future by several fields or disciplines is going to be engaging on the dimensions of housing that affect the general quality of a person's or family lifetime.

2.8.2 Functionalist Housing Theory

Functionality as a social idea emerged in American sociology in the 1940s and 1950s which dwells on social synchronization and its conservation. It dealt with parts within a system, based on economic ideology, simplicity, country planning adaptation and usefulness. The functionalist theory was most commonly used in geography and urban planning in the determination of the hierarchy and functions in towns, cities and regions. The functionalist theory of living was based on the statement that "the form always follows the function", as applied in profession of designing buildings.

By the functionalist theory, the function of the house should be the foundation of all other features in the dwelling such as the size and the floor space ratio within the house. And then when the shape and utility of the building satisfies, housing satisfaction will has been achieved. Šiljeg *et al.* (2018) postulates the contrary in the sense that indicators of the quality of the residential neighbourhoods have a more impact on housing satisfaction due to more multifaceted social, economic and environmental trends. This is the more reason new theories on housing satisfaction are evolving to support the ones in existence.

2.8.3 The Positivists Housing Theory

The conceiver of positivism is philosopher; Auguste Comte, who basically premised positivism theory on a certain occurrence that can be measured, i.e. the theory, involves all phenomena for which the cause and effect can be determined, while emotions are not notably vital. According to Soliman (2004), Positivists explained housing by three facets:

1) The economic standing on which the physical structure of the housing unit depends which improves economic value;

2) The measurable health scenario within the house; i.e. persons should dwell in serene neighbourhoods;

3) The role of the government in making sure houses are available and adequate for her citizenry (Soliman, 2004).

Positivist theory primarily centers on an "objective" way of some criteria, but in housing satisfaction studies, the "subjective" views are equally significant, that is, the perceptions and sensitivity of household dwellers. Several researchers (Mattika, 2001; Bhada & Hoornweg, 2009; Šiljeg *et al.,* 2018) had wrote on the relationship between objective and subjective measures in housing satisfaction researches targeted at arriving at a complete possible picture of housing certainty.

The theory is imperative due to the element of "objective indicators" that were often exempted in some other theories. The significance of objective measures was also tackled in the concept of the quality of life that in one way or another involves housing satisfaction. Thus, housing satisfaction researches cannot only be hinged on positivist theory, but the other subjective ideas of satisfaction should be included.

2.9 Review of Empirical Literature

According to Archer (2008), in a research titled "Ownership Duration in the Residential Housing Market: The Influence of Structure, Tenure, Household and Neighborhood Factors" the study revealed that duration of housing occupancy is important because it drives the volume of activity for a large industry of housing transaction services, also because it determines the speed of market adjustments for housing, and because it determines the completeness of price revelation in the housing marketplace. While for the study done by Deng (2002) in a paper titled "Duration of Residence in Rental Housing Market" opined that American Housing Survey and other metropolitan economic data are used to proxy time-varying covariates of duration of residence. The paper employs an innovative semi-parametric estimation approach for group duration analysis of the proportional hazard model, as originally proposed by Ryu (1994) and then modified by Deng [(1995), (1997)]. Results of the analysis indicate that the duration of residence in rental housing varies significantly across individual units and market segments. In fact, the duration of residence is highly time dependent, given significant inter-temporal variation in many of the housing and market covariates.

Also Onaiwu (2015) in a study titled "the quality of housing in an emerging urban region of Auchi", based on field survey of 886 sampled respondents of Auchi Region using the questionnaire instrument. The Region was divided into three zones that were further subdivided into 24 sampling units. The indicators of occupancy, building materials, age, and basic facilities were analysed descriptively; attributes of housing such as age, wall material, condition of dwelling units, general condition of housing were inferentially analysed in terms of spatial variability. Apart from quality of construction materials, other indicators of housing quality performed low (the indicators of age, facilities, and general condition of housing are significant, but with generally low Eta values).

Town Planning Authorities are also to monitor building developments to prevent space not being crammed up by illegal structures. In similar study by Yoade *et al.* (2018), by examining the housing quality in Ede, Nigeria and the impacts of urbanization on environmental degeneration of urban built environment, a total of 388 housing units, consisting of 236, 78 and 74 units were drawn for sampling from the high, medium and low density areas of the study area, respectively. The secondary data involved available census data, official documents and other relevant secondary data were obtained from existing literature, on books and journals. The study established that majority (62.6%) of the respondents are female while 37.3% of the respondents are male in the study area. Findings established that 63.9% and 55.1% have no educational qualification and primary education in high and medium density areas respectively while in contrast majority (91.1%) in low density area have tertiary education in the study area. Findings also revealed that household-size has a significant influence on the overall housing quality in the study area. The study concluded that it is imperative to check and prevent further decay for good living and working environment.

The knowledge of house prices is of great importance to different market players such as appraisers, real estate agents, tax assessors, local authorities, banks and other financial institutions, property developers, investors, financial analysts, policy makers, insurers and in fact, the general public (Joseph, 2010; Schulz & Werwatz, 2004; Pagourtzi *et al.,* 2003).

Hedonic regression has become the standard approach for modeling the behaviour of house prices (Schulz & Werwatz, 2004). The model postulates that a good possesses a myriad of attributes that combine to form bundles of utility-affecting attributes that the consumer values (Ching & Chan, 2003). The model tends to estimate the price of the house as a function of its attributes. It estimates the marginal contribution of each housing attribute to the price of a house.

It is worthy of note that what affects house price in one area might not be the same in another area. A lot of studies have employed the hedonic approach in estimating house prices with the researchers arriving at different conclusions. It is therefore impossible to generalize the outcome (Abdulai & OwusuAnsah, 2011). To this, Sirmans *et al.* (2006) noted that the estimated coefficients for some characteristics from previous studies vary significantly by geographical location. Hence, it is wise to conclude that each market or location requires a different study before any inference can be made. There is hardly any evidence of research work applying the hedonic price model in house price estimation in the Minna housing market.

According to Wither (1997) in a paper titled "Methodological Considerations in the Analysis of Residential Mobility: A Test of Duration, State Dependence, and Associated Events" revealed that a longitudinal research methodology is particularly well suited to disentangle life-course explanations of residential mobility while controlling for the duration-of-residence effect. He argued that the lack of analytical attention directed toward the concept of the risk period, as well as the persistent use of the household, rather than the individual, as the unit of analysis, further serve to confound our understanding of residential mobility.

Meteyka and Marlay (2009) in their paper titled "Residential Duration by Tenure, Race, and Ethnicity" concluded that both marital status and the presence of children could serve as disincentives to move, as coordinating jobs and school changes are difficult. Education and income are essential variables, but they tend to function differently for predicting duration than for predicting tenure. Individuals with more education and higher incomes are more likely to move, presumably for job opportunities. Nativity status is an important predictor of duration.

Asikhia *et al.* (2016) examined the impact of available housing facilities on rental value variation among residential properties in Benin City. The study employed 300 questionnaires to collected

relevant information and the data was analysed using regression analysis. The results revealed that the availability of standard housing facilities had a significant impact on the rental value of residential properties in Benin City.

Onaiwu (2015) examined the quality of urban settlements depends on the proportion and intensity of residential use in relation to other land uses in Auchi. The study is based on field survey of 886 sampled respondents of Auchi Region using the questionnaire instrument. The Region was divided into three zones that were further subdivided into 24 sampling units. The indicators of occupancy, building materials, age, and basic facilities were analysed descriptively; attributes of housing such as age, wall material, condition of dwelling units, general condition of housing were inferentially analysed in terms of spatial variability. Apart from quality of construction materials, other indicators of housing quality performed low.

Owolabi (2019) study focused on housing quality in Osogbo Local Government with the aim to assess the quality of residential housing. The study employed both descriptive and inferential statistics for analysis. For instance, charts, percentages, etc., were the descriptive statistics used while inferential statistics such as Likert scale. The result of the analysis, it was shown and clear that the quality of housing in Osogbo Local Government is not encouraging and this is due to the low level of income been earned by the inhabitants.

Study by Emankhu, *et al.* (2015) examined Housing Quality in the Peripheral area of Lafia town. The study evaluated the influence of socio-economic factors on housing quality of the peripheral area of Lafia, and revealed that peripheral area have serious adverse effects on people's health, their built environment and housing quality. Therefore, the study failed to explore the influence of the spatial make-up of Lafia as a State Capital on the housing quality attributes of the Inhabitants of Peripheral Areas.

This study took care of these loose ends. Study carried out on Osogbo by Jiboye (2010) in their study, it was revealed that the provisions of qualitative housing involves consideration of all ancillary services, environmental amenities and social infrastructures like water, electricity, road, drainage, sewage and water treatment facilities, personal safety and security. The lack of Master Plan for the study area; an evolving state capital, made it difficult for the research work to have Spatial Implications. This study is conducted in the context of Abuja Six Area Councils that are several kilometres from one another, thus given the study an unavoidable spatial considerations.

Hammer *et al.* (2001) unfolded that qualitative housing involves the provision of infrastructural services which could bring about sustainable growth and development through improved environmental condition and livelihood. The study did not examine issues of cost as it affects the quality of housing provided in the study area.

Malcolm (2007) explored disabled people's interactions with the physical quality of housing. The study concluded that most of the dwellings in the UK were not designed to respond to the needs of people with different types of impairment. Thus, the paper focused only on physical quality of housing and people with disability.

Shaughnessy *et al.* (2010) attempted developing data collection and response system that makes it possible to assess the finish housing stock from the point of view of quality, health and safety. The data collected could not be suited to developing countries like Nigeria, hence the need for this study. Streimikiene (2015) examined the quality of life and housing, the study observed that increase in the quality of life is the main aim of sustainable development and that housing dimension is one of the major issues affecting the quality of life.

Adewoye (2016) worked on the problems that aided the degradation of basic housing infrastructures, prevalence of substandard housing, overcrowding as well as incidences of

disease and epidemics in Akure. The study divided the City into density zones- high, medium and low, and attributed the incidence of substandard and overcrowded housing in the City to tenants' internal abuse of conversion of every available space to room to increase occupancy rate. Thus, the study did not focus on the spatial distribution of housing quality, as in the case of this research work.

Funmilayo (2012) examines the causes and characteristics of informal settlements in the assessment of housing quality. The research identified problems that have aided informal settlements as included urbanization, poverty, growth of informal sector, non-affordability of land and housing shortage. This study examines the quality of housing in formal settlements of Abuja.

2.10 Research Gap

Therefore, due to limited number of studies on duration of residence, additional research is warranted. Also, based on the above literature review, most of the researchers focused on race, education, job and mobility as it relates to duration without a conscious move to look at housing quality and occupancy duration. Hence, this project seeks to determine the effect of housing quality on residential occupancy duration in Minna, Nigeria which will stand as a fill to the gap in knowledge for the study in Minna.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Population for the Study

The targeted population for the study covers residential household population of selected neighbourhoods of low to high density in Minna, Niger state. These neighbourhoods include F-Layout, Tunga and Sabongari household population. Information on the qualities of the housing structures that related to neighborhood and structural qualities were gathered and values were assigned each of the housing attributes and then analysed using descriptive and inferential methods of analysis. Data on occupancy duration of residential household properties amounting to 5725 were also collected and analysed for the study.

3.2 Sampling Techniques

For this research, a convenient non-probability sampling techniques was use to get the sample size. Simple random sampling technique was used (each of the 5^{th} residential household in the study area was selected) to collect data from household respondents. The choice of simple random technique was based on the fact that population of the study was homogenous. Therefore this technique was adopted because of the similar homogenous nature of the population characteristics.

3.3 Sample Frame

Sampling frame is a list of the total units of household population under study. Therefore, the sample frame for the study was the published list of household population by National Population Commission (NPC) in 2006. According to National population commission, the household population in F-layout, Tunga and Sabongari were 822, 1990 and 713 respectively.

3.4 Sample Size

Sample size is important to any empirical study making inference about a population from a sample. However, the study conveniently adopts 255, 430 and 520 household respectively as sample size for the study population.

Minna neighbourhood's household population data of 2006 for the selected residential areas were gotten from National Population Commission (2006), Niger State Office. Projection for 2019 was based on annual growth rate of 3.80% (NPC, 2006) and was subsequently made for the 13 year time lag covering 2006 to 2019. The projection was given as follows:

$$Pr = Po\ (1+r/100)^{n}, \quad \ldots\ldots. \quad 3.1$$

Where Pr = Required population, Po = Initial population, r = population growth rate and n = Time interval.

Thereafter, the sample size for the study is determined by model developed by Kothari (2004) as follows:

$$n = \frac{Z^2 * N * \sigma^2}{(N-1)\ e^2 + Z^2\ \sigma^2} \quad \ldots\ldots. \quad 3.2$$

Source: Kothari, 2004

Where n is the sample size, Z is the standardized normal value and for this study it is taken as 1.96 for a 95% confidence interval, σ is the standard of deviation which was put at 0.5 depicting a safe decision enhancing large enough samples, N is the household population and e is the margin of error put at +/- 5%.

Table 3.1: Questionnaire Distribution to Household heads in the Study Area

S/No	Neighbourhoods	Household Population (NPC,2006)	Projected Household population 2019	Sample Size
1	F-layout	822	1,335	229
2	Tunga	1,990	3,232	343
3	Sabongari	713	1,158	289
	Total	**3525**	**5725**	**861**

Source: Field Survey, 2019

3.5 Method of Data Collection

For the study the following methods was used by the researchers to collect data for the study.

3.5.1 Questionnaire

Questionnaire was prepared constituting both open and close ended questions that provided responds for each objective in the study. This questionnaire and questions was design to elicit information from respondents on effect of housing quality on duration of tenancy occupation by filling or ticking the space provided for each purpose. However, a total of 1005 (One Thousand Two Hundred and Five) questionnaire was prepared and administered to the three neighbourhood (F-layout, Tunga and Sabongari respectively) in the study area, but only 1005 (One Thousand and Five) where returned which make up 83.4% success rate while 16.6% making up 200 questionnaires was not returned. Thus the table below is as illustrated.

3.5.2 Observation and Survey Method

The observation method is a primary technique for collecting data. Therefore, for this study, the author has taken into consideration the observable physical features that depict housing quality in the study area, that serve as data to be processed for the study.

3.6 Source of Data

3.6.1 Primary Sources

For this research purpose, questionnaire was administered directly to the target sample respondents that make up the sample size, and first-hand information on the required data was obtained. Both open ended and close ended questionnaire models where adopted for this research.

3.7 Data Analysis Techniques

The study adopts descriptive and inferential statistical techniques for data analysis which include Analysis of Variance, Correlation Coefficient and Multiple Regression.

3.7.1 Descriptive Analytical Techniques

1. To assess Housing Quality in the study area, a simple descriptive that determine the mean score and housing quality index was also determined as follows:

Mean Score: The mean was used to determine average responses of the respondents toward the question posed and it is a weighted mean of the data. The value assigned to various responses ranged from 10 (Absolute Perfect condition), 7 (perfect condition) 5 (Not perfect but fair) and 1 (not perfect and poor or not exist all), and the mean condition housing quality attributes is calculated thus:

$$\bar{X} = \frac{\Sigma(FW)}{N} \qquad 3.3$$

Where $\bar{X}$ = Mean Score, F- is the frequency, W- weight

Housing Quality Index (HQI): this is also called Relative Important Index (RII) for the purpose of this study. It was adopted to determine the level of Quality of Housing Attributes. This was calculated thus:

$$RII = \frac{mean\ score}{maximum\ score} \qquad 3.4$$

2. To assess the tenancy duration structure of residential household in the Study Area. The calculated descriptive mean in (1) above was used to determine the average occupancy duration. This mean is calculated thus:

$$Mean = \frac{\epsilon fx}{\varepsilon f} \qquad 3.5$$

a. **Analysis of variance (F – test):** this was used to examine the variation in occupancy duration of the respondent. It was also adopted in regression analysis to the significance of the model and it at discovering if the explanatory variable X_1, actually have any significant influence on the dependent variable Y. this test was adopted for objective two and three.
b. **Correlation**: the strength of relationship between tenancy duration (variable X) and elements of housing quality (variable Y) was determined using the correlation model as follows:

3. Assess the influence of housing quality on tenancy duration in the Study Area. The required data type is quantitative, while the method of data analysis was inferential method and analytical technique was regression analysis as the tool for its analysis. The regression mode employed for the study was specified as follows:

$$\boldsymbol{Y = \alpha + b_1X_1 + b_2X_2 \ldots + b_nX_n + \varepsilon} \qquad \mathbf{3.6}$$

This multiple regression equation can be substituted as follows: Where Y is occupancy duration, $\boldsymbol{\alpha}$ is constant, b is regression coefficients, X are the housing quality attributes.

Here, regression analysis is adopted in order to determine the amount of variation in tenancy that can be explained by quality attributes. It is adopted to determine the amount of influence of quality attributes has on tenancy duration.

The Tukey HSD

The Tukey HSD ("honestly significant difference" or "honest significant difference") test is a statistical tool used to determine if the relationship between two sets of data is statistically significant – that is, whether there's a strong chance that an observed numerical change in one value is causally related to an observed change in another value. In other words, the Tukey test is a way to test an experimental hypothesis.

The Tukey test is used when you need to determine if the interaction among three or more variables is mutually statistically significant, which unfortunately is not simply a sum or product of the individual levels of significance.

Table 3.2 Variable Description

Variables		Variable description
Dependent variable (y)	Occupancy duration	In years (Xyrs)
Independent variable (X)	Housing quality Attributes	
X1	Air quality	Low -1 medium -5 high-10
X2	Landscaping	Poor-1 fair-5, good-10
X3	Ventilation	No ventilation-1 not well ventilated-5, cross ventilation-10
X4	Design	Ranging from poorly design-1 to well design-10
X5	Size of building	Range from below standard size-1, to highly standard size-10
X6	Roofing	Ranging from Corrugated iron sheet-1 to long span alumininum-10
X7	Floor finishing	Ranging from concrete-1 to terrazzo-10
X8	Wall-fence	Ranging non-available-1 to a standard fence-10
X9	Burglary proof	Ranging from non-available to standard burglary
X10	Water source	Ranging from non-supply to 24hrs supply
X11	Kitchen facilities	Ranging from non-standard-1 to more standard-10
X12	Toilet facilities	Ranging from non-standard-1 to more standard-10
X13	Bathroom	Ranging from non-standard-1 to more standard-10
X14	Access road	Ranging from untarred non motorable to tarred road
X15	Electricity	Ranging from epileptic-1 to 24hrs supply-10

Source: Field Survey, 2019

CHAPTER FOUR

4.0 DATA PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULT

4.1 Characteristics of Respondents in the Study Area

The demographic information of residents in the three selected study areas is presented in Table 4.1. The characteristics of respondent within the sampled residential neighborhood include age, gender, marital status, level of education, and occupation, showing response levels and percentage value. The table shows that majority of the respondents' have a minimum of first school leaving certificate, hence, the responses given by them can be said to be reliable.

Table 4.1: Number of Questionnaire Administered and Retrieved

Questionnaire Administered	Questionnaire Retrieved
229	205
343	299
289	201
861	**705**

Source: Field Survey, 2019

Table 4.2: Demographic Characteristics of Respondents

Response	F-Layout	Tunga	Sabongari
Age In Years			
18-25	18 (8.8)	12 (4.01)	24 (11.94)
26- 32	29 (14.2)	39 (13.04)	69 (34.33)
33-39	144 (70.2)	100 (33.44)	92 (45.77)
>40	14 (6.8)	148 (49.50)	16 (7.96)
Total	205(100)	299(100)	201(100)
Gender			
Male	147 (71.7)	186 (62.2)	164 (81.6)
Female	58 (28.3)	110(36.8)	37 (18.4)
Total	205(100)	299(100)	201(100)
Marital Status			
Married	133 (64.9)	141 (47.2)	130 (64.7)
Single	39 (19)	129 (43.1)	71 (35.3)
Divorced/widow	33 (16.1)	29 (9.7)	0 (0)
Total	205(100)	299(100)	201(100)
Level of Education			
Primary	0 (0)	0 (0)	0(0)
Secondary	0 (0)	10(3.3)	20(10)
Tertiary	205 (100)	289(96.7)	181 (90)
Total	205(100)	299(100)	201(100)
Occupation			
Civil Servant	189(92.2)	190 (63.5)	20 (10)
Privately Employed	16(7.8)	95 (31.8)	57(28.4)
Self-employed	0 (0)	14 (4.7)	124 (61.6)
Total	205(100)	299(100)	201(100)

Source: Field Survey, 2019.

Table 4.2 shows the descriptive analysis of demographic information respondents in the study areas. The Table revealed that 70.2%, 49.5% and 45.77% of the respondents sampled for the study comprised age group between 33-39, 40 above and 33-39 in F-layout, Tunga and Sanbogari respectively. Also, 71.7%, 62.2% and 81.6% majority of the sampled respondents F-layout, Tunga and Sanbogari respectively were male. Furthermore, 64.9% 47.2% and 64.7% of the respondent were married men and women. Also, 100%, 96.7% and 90% majority of sampled respondents in F-layout, Tunga and Sanbogari respectively were graduates of tertiary institutions which indicate that the respondents have prerequisite knowledge. 92.2% 63.5% and 61.6%

sampled respondents in F-layout, Tunga and Sanbogari respectively were civil servants, civil servants and self-employed respectively.

4.2 Analysis of Data

4.2.1 Assessing Housing Quality across the Neighbourhoods.

In order to assess the nature of housing quality across the neighbourhoods, the study went on to access those quality considered to be elements that constitute housing quality in the three zones (F-layout, Tunga and Sabongari) that represent the study area. However, to do so data was collected from the field and analysed to show how this quality assessed vary from one location to another.

Table 4.3: Descriptive Analysis of Housing Quality Attributes F-layout

Variable	Min	Max	N	Mean	Quality index
Air quality	1	10	205	9.56	0.956
Landscaping	1	10	205	8.49	0.849
Ventilation	1	10	205	7.32	0.732
Design	1	10	205	6.54	0.654
Size of building	1	10	205	7.54	0.754
Roofing	1	10	205	6.69	0.669
Floor finishing	1	10	205	7.55	0.755
Wall-fence	1	10	205	6.45	0.645
Burglary proof	1	10	205	7.94	0.794
Water source	1	10	205	5.73	0.573
Kitchen facilities	1	10	205	7.49	0.749
Toilet facilities	1	10	205	7.91	0.791
Bathroom	1	10	205	8.51	0.851
Access road	1	10	205	9.65	0.965
Electricity	1	10	205	6.32	0.632

Source: Field Survey, 2019.

The descriptive analysis of housing quality attributes in F-layout is presented in Table 4.3. The variables were provided by the respondents and professionals in the construction industry in the selected area. The result showed the mean quality of housing attributes measured by assigning values presented in Table 3.2. The assigning values are based on quality condition of the housing attributes as at time of survey. The result of quality index of housing attributes revealed that quality of access road, air quality, bathroom and landscaping had the best quality index indicating that a very good road condition, non-polluted air good bathing accessories and esthetics surrounding respectively than other housing attributes. Toilet facilities, wall-fence, kitchen facilities, building size and ventilation also had good quality index indicating a better condition of the attributes than the remaining attributes with lower quality index.

Table 4.4: Descriptive Analysis of Housing Quality Attributes in Tunga

Variable	Min	Max	N	Mean	Quality index
Air Quality	1	10	299	6.46	0.646
Landscaping	1	10	299	5.46	0.546
Ventilation	1	10	299	6.36	0.636
Design	1	10	299	7.55	0.755
Size of building	1	10	299	7.77	0.777
Roofing	1	10	299	8.59	0.859
Floor finishing	1	10	299	7.43	0.743
Wall-fence	1	10	299	5.85	0.585
Burglary proof	1	10	299	8.05	0.805
Water source	1	10	299	6.57	0.657
Kitchen facilities	1	10	299	5.45	0.545
Toilet facilities	1	10	299	6.55	0.655
Bathroom	1	10	299	7.54	0.754
Access road	1	10	299	6.55	0.655
Electricity	1	10	299	6.55	0.655

Source: Field Survey, 2019.

The analysis of Housing Quality attributes in Tunga is carried out using descriptive mean as presented in Table 4.4. The result revealed the mean average of assigned values to various conditions of housing quality attributes ranging 1 to 10. The mean condition of housing attributes was computed and quality index was further determined. The result of quality index of housing attributes revealed that four attributes maintained the highest quality index such that burglary proof, building size, bathroom, floor finishing and design were found to have high quality index among others. This therefore indicates that these attributes had the best quality index which means that they were in their best quality condition as at time of survey, and they are found to be relatively better condition than others. Other attributes such as air quality, ventilation, water source, toilet facilities, access road and electricity also have an index little above average indicating good condition and better attributes than the remaining attributes with index lesser than the average.

Table 4.5: Descriptive Analysis of Housing Quality Attributes in Sabongari

Variable	Min	Max	N	Mean	Quality index
Air Quality	1	10	201	4.55	0.455
Landscaping	1	10	201	3.46	0.346
Ventilation	1	10	201	4.46	0.446
Design	1	10	201	5.55	0.555
Size of building	1	10	201	6.23	0.623
Roofing	1	10	201	3.88	0.388
Floor finishing	1	10	201	5.45	0.545
Wall-fence	1	10	201	5.85	0.585
Burglary proof	1	10	201	6.55	0.655
Water source	1	10	201	5.57	0.557
Kitchen facilities	1	10	201	6.44	0.644
Toilet facilities	1	10	201	4.55	0.455
Bathroom	1	10	201	3.57	0.357
Access road	1	10	201	3.65	0.365
Electricity	1	10	201	5.55	0.555

Source: Field Survey, 2019.

The study assessed housing quality attributes in Sabongari using descriptive mean to determine quality index as presented in Table 4.5. The result revealed the mean average of assigned values to various conditions of housing quality attributes ranging 1 to 10. The mean condition of housing attributes was computed and quality index was further determined. The result of quality index of housing attributes revealed that four attributes maintained the highest quality index such that burglary proof, building size, and kitchen facilities were found to have high quality index among others. This therefore indicates that these attributes had the best quality index which means that they were in their best quality condition as at time of survey, and they are found to be relatively better condition than others. Generally, there are low quality housing attribute in Sabongari as majority of the attributes were found to have an index that is below the average, thereby indicating a poor quality of hosing attributes.

Table 4.6: Average Housing Quality Index across the Study Areas

Variable	F –layout		Tunga		Sabongari	
	Mean	Quality index	Mean	Quality index	Mean	Quality index
Air quality	9.56	0.956	6.46	0.646	4.55	0.455
Landscaping	8.49	0.849	5.46	0.546	3.46	0.346
Ventilation	7.32	0.732	6.36	0.636	4.46	0.446
Design	6.54	0.654	7.55	0.755	5.55	0.555
Size of building	7.54	0.754	7.77	0.777	6.23	0.623
Roofing	6.69	0.669	8.59	0.859	3.88	0.388
Floor finishing	7.55	0.755	7.43	0.743	5.45	0.545
Wall-fence	6.45	0.645	5.85	0.585	5.85	0.585
Burglary proof	7.94	0.794	8.05	0.805	6.55	0.655
Water source	5.73	0.573	6.57	0.657	5.57	0.557
Kitchen facilities	7.49	0.749	5.45	0.545	6.44	0.644
Toilet facilities	7.91	0.791	6.55	0.655	4.55	0.455
Bathroom	8.51	0.851	7.54	0.754	3.57	0.357
Access road	9.65	0.965	6.55	0.655	3.65	0.365
Electricity	6.32	0.632	6.55	0.655	5.55	0.555
Average	7.58	0.758(75.8%)	6.849	0.685(68.5%)	5.021	0.502(50.2%)

Source: Field Survey, 2019.

The average housing quality index across the study areas is presented in Table 4.6. The result of average quality index was compared across the selected study area and found that f-layout had the best housing quality attributes as presented in Table 4.6. The quality of housing attributes in F-layout is found better than other selected areas, the quality index at 0.758 approximately 75.8%, indicating a high quality index thereby suggesting that all the selected housing attributes in the area are in good aesthetically pleasing and functionally the best when compared to others. The quality index in Tunga is found better than that of Sabongari. Tunga had a quality index at 0.685 approximately 68.5%, indicating a better aesthetical and functioning condition of the housing attributes. Sabongari had the lowest quality index at 0.502 approximately 50.2%, it is poor because majority of the housing attributes considered had quality index that are below the average.

4.2.2 Tenancy Duration structure of Residential household in the study area.

Table 4.7: Descriptive Analysis of Occupancy Duration

Study areas	N	Minimum	Maximum	Mean	Std. Deviation	Variance
F-LAYOUT	205	1	20	9.16	4.954	24.544
TUNGA	299	1	20	8.40	5.132	26.334
SABONGARI	201	2	20	11.82	4.871	23.728
Valid N (listwise)	201					

Source: Field Survey, 2019.

The result of descriptive analysis of occupancy duration in residential properties in selected study areas is presented in Table 4.7. The minimum and maximum indicating the least duration a sitting tenant (respondent) had stayed in occupation while maximum indicate the highest of duration of the tenant's occupation in the properties. In F-layout and Tunga, the study recorded minimum duration occupancy duration at 1year and maximum occupancy duration of 20years, Sabongari recorded minimum duration of 2years and maximum occupancy duration at 20years; this therefore indicates that the sampled respondents had been in occupation for an average of 11 years with minimum 1year, and 2years only in Sabongari. The average occupancy duration of the sampled respondents in F-layout is approximately 9years, in Tunga is 8years and Sabongari is approximately 11 years.

Table 4.8: Variation in Occupancy Duration across the Study Area

Model	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1463.781	2	731.891	29.192	.000
Within Groups	17600.196	702	25.072		
Total	**19063.977**	**704**			

Source: Field Survey, 2019.

The study further tested for significance of difference in occupancy duration across the study and the result is presented in Table 4.8. The result of analysis of variance revealed that F-statistics at 29.192 at p-value of 0.000 is statistically significant as the p-value is less than 0.05 level of precision. Therefore, the occupancy duration across the selected areas is significantly difference, in other word there is statistically significant difference in duration of occupancy of respondents across the study areas.

The study therefore further determines the selected area that had highest occupancy duration. This is done through post hoc test called Honesty Significant Difference (HSD). The result of HSD is therefore presented in Table 4.8.

Table 4.9: Multiple Comparisons in Occupancy Duration across the Study Area

	(I) FACTORS	(J) FACTORS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	F-LAYOUT	TUNGA	.758	.454	.218	-.31	1.82
		SABONGARI	-2.665*	.497	.000	-3.83	-1.50
	TUNGA	F-LAYOUT	-.758	.454	.218	-1.82	.31
		SABONGARI	-3.423*	.457	.000	-4.50	-2.35
	SABONGARI	F-LAYOUT	2.665*	.497	.000	1.50	3.83
		TUNGA	3.423*	.457	.000	2.35	4.50

*. The mean difference is significant at the 0.05 level.

Source: Field Survey, 2019

The result of Tukey HSD presented in Table 4.9 revealed the selected area that had highest occupancy duration. The result revealed that Sabongari maintained significant difference in occupancy duration with F-layout and Tunga at p-value (0.000) less than 0.05 level of precision. This thereby suggests that Sabongari constituted the bulk of difference; thereby the people stayed more in occupation in Sabongari than F-layout and Tunga. This may be attributed to relative proximity to several places and low rental values that enjoy in the areas due poor housing attributes.

4.2.3: Relationship between Housing quality and tenancy duration of residential housing in the Study Area.

The analysis of this objective comprised of correlation and regression as presented as follows:

Table 4.10 Mixed Pairwise Correlation Matrix between Occupancy Duration and Housing Quality

		Occupancy duration	Air Quality	Landscaping	Ventilation	Design	Size of building	Roofing	Floor finishing	Wall-fence	Burglary proof	Water source	Kitchen facilities	Toilet facilities	Bathroom	Access road	Electricity
Occupancy duration	Pearson Correlation	1															
	Sig. (2-tailed)																
	N	705															
Air Quality	Pearson Correlation	821	1														
	Sig. (2-tailed)	.000															
	N	705	705														
Landscaping	Pearson Correlation	.750**	.149*	1													
	Sig. (2-tailed)	.000	.033														
	N	705	705	705													
Ventilation	Pearson Correlation	.425**	.103	.756**	1												
	Sig. (2-tailed)	.000	.143	.000													
	N	705	705	705	705												
Design	Pearson Correlation	-.065	-.091	-.308**	-.008	1											
	Sig. (2-tailed)	.352	.193	.000	.910												
	N	705	705	705	705	705											
Size of building	Pearson Correlation	.435**	-.179*	-.606**	-.638**	.144*	1										
	Sig. (2-tailed)	.000	.010	.000	.000	.040											
	N	705	705	705	705	705	705										
Roofing	Pearson Correlation	.612**	-.148*	-.853**	-.899**	-.036	.832**	1									
	Sig. (2-tailed)	.000	.034	.000	.000	.613	.000										
	N	705	705	705	705	705	705	705									
Floor finishing	Pearson Correlation	.633**	-.014	-.197	-.097	.200**	-.089	.010	1								
	Sig. (2-tailed)	.000	.846	.405	.168	.004	.206	.881									
	N	705	705	705	705	705	705	705	705								
Wall-fence	Pearson Correlation	.828**	.065	.545**	.117	.263**	-.192**	-.415**	-.286**	1							
	Sig. (2-tailed)	.000	.356	.000	.095	.000	.006	.000	.000								
	N	705	705	705	705	705	705	705	705	705							
Burglary proof	Pearson Correlation	.127	-.141*	-.277**	-.365**	.505**	.762**	.429**	-.368**	.388**	1						
	Sig. (2-tailed)	.070	.044	.000	.000	.000	.000	.000	.000	.000							
	N	705	705	705	705	705	705	705	705	705	705						
Water source	Pearson Correlation	.757**	-.012	.331**	.080	.143*	.232**	-.097	-.800**	.704**	.708**	1					
	Sig. (2-tailed)	.000	.862	.000	.255	.041	.001	.165	.000	.000	.000						
	N	705	705	705	705	705	705	705	705	705	705	705					
Kitchen facilities	Pearson Correlation	.057	-.027	.079	.620**	.711**	-.243**	-.491**	.218**	-.044	.029	-.081	1				
	Sig. (2-tailed)	.418	.703	.263	.000	.000	.000	.000	.002	.535	.681	.250					
	N	705	705	705	705	705	705	705	705	705	705	705	705				
Toilet facilities	Pearson Correlation	.533**	-.104	-.871**	-.730**	-.072	.504**	.845**	-.179*	-.566**	.152*	-.180**	-.370**	1			
	Sig. (2-tailed)	.000	.137	.000	.000	.307	.000	.000	.010	.000	.030	.010	.000				
	N	705	705	705	705	705	705	705	705	705	705	705	705	705			
Bathroom	Pearson Correlation	.457**	-.135	-.898**	-.565**	.492**	.470**	.661**	-.113	-.358**	.390**	-.048	.123	.826**	1		
	Sig. (2-tailed)	.000	.053	.000	.000	.000	.000	.000	.107	.000	.000	.491	.080	.000			
	N	705	705	705	705	705	705	705	705	705	705	705	705	705	705		
Access road	Pearson Correlation	.046	.061	.564**	.461**	-.131	-.273**	-.497**	.630**	.092	-.343**	-.329**	.199**	-.783**	-.793**	1	
	Sig. (2-tailed)	.516	.384	.000	.000	.062	.000	.000	.000	.187	.000	.000	.004	.000	.000		
	N	705	705	705	705	705	705	705	705	705	705	705	705	705	705	705	
Electricity	Pearson Correlation	.416**	-.049	-.094	-.531**	.310**	.425**	.308**	-.328**	.733**	.761**	.692**	-.352**	.061	.179*	-.329**	1
	Sig. (2-tailed)	.000	.482	.182	.000	.000	.000	.000	.000	.000	.000	.000	.000	.383	.010	.000	
	N	705	705	705	705	705	705	705	705	705	705	705	705	705	705	705	705

Source: Field Survey, 2019

The result of mixed pairwise correlation matrix presented in Table 4.10 revealed the strength of relationship between Housing Quality and Occupancy Duration. The result showed a positive statistical significant relationship between occupancy duration and the ten Housing Quality attributes at 0.05 level of significant. There is no significant relationship between occupancy duration and the two housing attributes which are access road and kitchen facilities. This result generally suggests that housing quality attributes results to change in occupancy duration and therefore there is need to further estimate amount of variation in change in occupancy duration that is traceable to the change in housing quality attributes; this is therefore presented in Table 4.11

Table 4.11 Influence of Housing Quality Attributes on Occupancy Duration

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics				
	B	Std. Error	Beta			Tolerance	VIF	R^2	F	Sig.
(Constant)	4.164	3.883		1.072	.285			.601	5.021	.000
Air Quality	.502	.286	-.094	1.755	.041	.830	1.204			
Landscaping	.492	.368	.065	1.336	.037	.623	1.604			
Ventilation	.048	.324	.021	.147	.883	.625	1.679			
Design	.019	.163	.010	.117	.907	.629	1.589			
Size of building	.460	.256	.170	1.799	.044	.714	1.401			
Roofing	-.505	.673	-.186	-.750	.045	.618	1.619			
Floor finishing	.263	.229	.113	1.146	.043	.725	1.379			
Wall-fence	.386	.292	-.245	1.319	.029	.911	1.098			
Burglary proof	.820	.550	.318	1.490	.038	.739	1.354			
Water source	.494	.263	.192	1.876	.048	.874	1.144			
Kitchen facilities	-.394	.442	-.147	-.892	.373	.651	1.537			
Toilet facilities	.284	.258	.155	1.102	.272	.962	1.039			
Bathroom	.340	.508	.092	.669	.504	.657	1.521			
Access road	.449	.279	.218	1.609	.009	.694	1.441			
Electricity	.139	.168	.065	.828	.049	.790	1.265			

Source: Field Survey, 2019

The result of the regression analysis presented in Table 4.11 revealed the result of joint variables across the study areas with a view to making inference that can generalized for selected areas. From the result of the mixed regression carried out, it was revealed that 60.1% variation in occupancy duration across the study significantly influenced by the ten housing quality attributes (air quality, landscaping, building size, roofing, wall-fence, burglary proof, water source, access road and electricity. This therefore indicates that any change quality of air by avoiding environmental pollution, will result to a corresponding change in occupancy duration by 50.2%. Any change in quality of landscaping to the environment more aesthetic, causes a change in occupancy duration by 49.2%. the better the better building size, good floor finishing, wall-fence, burglary proof, quality source of water, good access road and constant supply electricity in the selected areas tend to cause a positive change in occupancy duration by 46%, 26.3%, 38.6%,

82% , 49.4%, 44.9% and 13.9%. Also change in quality of roofing and kitchen facilities do not cause positive change in occupancy duration. The validity or absence of white noise in the regression result is tested using variance inflation factor VIF and tolerance; the rule required that tolerance more than 0.5 is considered good. Therefore the result of this regression is considered non-spurious because there is high level of tolerance in the regression at very variance inflation factor. The significance of the regression model is also tested using F-statistics indicating that there statistical significance difference among the variables in the model, and therefore the model is considered fit for the purpose of prediction of occupancy duration.

Table 4.12: Factors Affecting Occupancy Duration.

	F-layout				Tunga				Sabongari			
Factors	**N**	**Sum**	**Mean**	**Rk**	**N**	**Sum**	**Mean**	**Rk**	**N**	**Sum**	**Mean**	**Rk**
Proper Design and Construction affect Tenancy Duration	205	697	3.4	2	299	1017	3.4	3	201	663	3.3	3
Housing Maintenance affects Tenancy Duration	205	533	2.6	5	299	837	2.8	4	201	482	2.4	4
Environmental Condition affects Tenancy Duration	205	861	4.2	1	299	1286	4.3	1	201	824	4.1	1
Sanity of environment affect tenancy duration	205	738	3.6	4	299	1106	3.7	2	201	663	3.3	3
Open Space, Size, Layout and Landscape affect Tenancy Duration	205	759	3.7	3	299	1106	3.7	2	201	724	3.6	2

Source: Field survey, 2021

The result of mean descriptive analysis of factors affecting occupancy duration is presented in Table 4.12. The mean response was derived based on Five Point Likert scale (strongly agree-5, agree-4, undecided-3, disagree-2, strongly disagree-1). In F-Layout environmental condition was ranked 1st with a mean value of (4.2) and housing maintenance was considered least with a ranking mean value of (2.6). Also in Tunga, environmental condition was ranked 1st with a mean value of (4.3) and housing maintenance was given least consideration with mean value of (2.8). In Sabongari, environmental condition was also ranked 1st with mean value of (4.1) and housing maintenance least with mean value of (2.4). From the table above, the study has showed that environmental condition is the major factor affecting tenancy duration in the neighbourhood under study.

4.3 Summary of Findings

The result of the analysis of this study has been presented and interpretations of the results were provided, following are therefore the summary of the findings:

1. The study found that hosing quality index varied across the selected locations. This variation is therefore reflected in different quality of housing attributes. In F-layout, there are high quality index of housing attributes than other selected area.
2. The study further discovered that occupancy duration of the oldest tenants sampled for the study is 20years across the study areas, while the newly occupancy duration is between 1year and 2years. The average occupancy duration of sampled tenants across the study areas are 9years, 8year and 12years for F-layout, Tunga and Sabongari respectively.
3. The study also found that occupancy duration across the selected areas varied significantly. The result further discovered that occupancy duration in Sabongari tends be

longer than other selected areas, this is attributed to relative accessibility of the area in relation to other areas.

4. It was also discovered that housing quality attributes causes change in occupancy duration. This is because the quality of housing attributes encourages the tenant to stay more in occupation than otherwise. Other factors could also be responsible for this longer duration in occupation as observed in Sabongari due to relative accessibility to places.
5. It was also discovered that 60.1% variation in occupancy duration is significantly influenced by the quality of housing attributes. This indicates that any change quality of housing attributes tend to cause positive change in occupancy duration of the tenant.
6. The study also discovered that environmental condition of the areas is an important factor that determines the tenancy duration of the occupants of the study areas.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The quality of housing attributes is not only a determinant occupancy duration but also good health condition of the environment. The quality of housing necessitates the condition of living of the occupants. Therefore the important of studying housing quality cannot be over emphasized in housing studies. It is on this basis that this study examined the effect of housing quality on occupancy duration. It is clear that tenants tend to stay in accommodation whenever the quality of housing attributes is improved upon. The intrinsic value of residential housing is therefore hinged on various conditions of environmental attributes or housing attributes which peradventure influence the occupancy duration of the sitting tenants. Therefore it is logical to conclude that a good residential housing is construed to be one with quality attributes that provide support services to occupants for the purpose of comfortability and convenience which therefore influence occupancy duration and not only improve the value of residential investment.

5.2 Recommendation

Having understood the outcome of this study and conclusion has been made, the following are the recommendations:

1. In order to achieve maximum return on residential investment, the investors should satisfy every condition and services needed relating to housing attributes.
2. That the residential real estate investors should develop a city garden concept to help in improving air quality and landscaping of residential environment which peradventure improve the value of the investment.

3. For good health living condition of the occupant to be preserved, quality of housing attributes such as water source, adequate ventilation, and air circulation must be given priority when investing in real estate.
4. Quality of residential housing necessitate the condition of living, housing attributes such access road, electricity, security (burglary proof), water supply, space (ventilation) and design must in-built into the residential development plan which will in turn improves the value of investment.
5. To every stakeholder in real estate development, environmental condition of the real estate investment must be addressed before investment. Location of residential properties must be free from all forms of pollution which might affect air quality and aesthetical outlook of the residential environment.
6. It is recommended by the study that physical, social and environmental conditions of household should be considered topmost when carrying out any construction/improvements.
7. Also it is recommended that the need for owners of properties/developers and users be educated on the importance of providing basic infrastructure and sustainable maintenance culture.
8. It is also recommended that government should make policies which are aimed at defining environmental and housing quality standard. Thus, providing supervision/agency that can monitor the implementation of the required housing standard.

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APPENDIX I

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION

ASSESSING THE EFFECT OF HOUSING QUALITY ON RESIDENTIAL OCCUPANCY DURATION IN MINNA, NIGERIA

An M.Tech (Estate Management) Research Questionnaire

Dear Respondent,

This questionnaire is part of an ongoing academic study to assess the effect of housing quality on residential occupancy duration in Minna, Nigeria. Your response and contribution is valued to this research and is extremely welcome. Please be guaranteed that your personality will not be negotiated in anyway, similarly all evidence you reveal here will be kept undisclosed. We look onto you to give us truthful and earnest information.

Thank You.

Instruction: Kindly tick [√] the appropriate answer or (box) that corresponds with your answer.

SECTION A: Respondent's Data

1. Gender (a) Male (b) Female
2. Age (a) 18-25 (b) 26-32 (c) 33-39 (d) Above 40
3. Marital status (a) Married (b) Divorce (c) Single
4. Level of Education (a) Primary (b) Secondary (c) Tertiary
5. Occupation (a) Civil Servant (b) Privately Employed (c) Skilled/Self Employed (d) Traders

SECTION B: Environmental Quality Attributes

1. Quality of air: Low quality [ ] Medium [ ] High quality [ ] Landscaping: Poor [ ] fair [ ] good [ ]
2. Ventilation in the room: No ventialation [ ] Not well ventilated [ ] highly ventilated [ ]
3. Design: Poorly design [ ] Fair design [ ] Excellent Design [ ]
4. Size of building: Low standard size [ ] Medium standard size [ ] High standard [ ]
5. Roofing: Corrugated iron Sheet[ ] non-corrogated iron [ ] long span alumininum
6. Floor finishing: concrete flooring [ ] tiles [ ] terrazzo [ ]

7. Wall-fence: non-available [ ] available but not standard [ ] Standard fence [ ]
8. Burglary proof: non-available [ ] available but not standard [ ] Standard fence [ ]
9. Water source: Daily supply [ ] weekly supply [ ] monthly supply [ ]
10. Kitchen facilities: Non- available [ ] available but not standard [ ] Standard kitchen [ ]
11. Toilet facilities: Non- available [ ] available but not standard [ ] Standard toilet [ ]
12. Bathroom Non- available [ ] available but not standard [ ] Standard bathroom [ ]
13. Access road: untarred road [ ] tarred but potholes [ ] tarred without potholes [ ]
14. Electricity: epileptic supply [ ] 6hours supply [ ] 24hours [ ]

SECTION C: Information on Occupancy and Property Types

15. Property types and units

Property types	1B/R	2B/R	3B/R	4B/R
Bungalow				
Flat				
Duplex				
Other specify_____				

16. How many years have spent in occupation?

Property types	Duration (yrs}
Bungalow	
Flat	
Duplex	
Other specify_____	

17. What is the tenancy duration structure in your neighbourhood?

Tenancy duration structure	Response
Monthly	
Quarterly	
Bi – Annually	
Annually	

18. **Factors Affecting Occupancy Duration (SA-strongly agree, A-agree, U-undecided, D-Disagree and SD-strongly disagree)**

Factors	SA	A	U	D	SD
Proper construction of housing affects tenancy duration					
Housing maintenance can affect tenancy duration					
Environmental condition and surrounding pollutant affect tenancy duration					
Environmental sustainability can affect tenancy duration					
Open space, property size, layout and landscaping can affect tenancy duration.					

APPENDIX II

SABONGARI

	E		VG		G		P		VP	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
AIRQUALITY	4	1.0%	10	2.4%	21	5.0%	215	51.2%	170	40.5%
HOMESAFETY	4	1.0%	17	4.0%	322	76.7%	67	16.0%	10	2.4%
VISIMP,LAY&LANDSC	5	1.2%	13	3.1%	72	17.1%	321	76.4%	9	2.1%
OPENSPACEWITHINHOUSE	7	1.7%	36	8.6%	95	22.6%	255	60.7%	27	6.4%
REDUCENOISE,LIGHT&OTHERSERPROV	10	2.4%	38	9.0%	85	20.2%	88	21.0%	199	47.4%
ENVIRONMENTAL SUSTAINABILITY	13	3.1%	49	11.7%	104	24.8%	194	46.2%	60	14.3%
OPENSPACEAROUNDTHEHOUSEHOLD	8	1.9%	49	11.7%	103	24.5%	205	48.8%	55	13.1%
SIZEOFBUILDING	5	1.2%	21	5.0%	292	69.5%	84	20.0%	18	4.3%
STDBUILDINGCONSTMATERIALS	3	0.7%	29	6.9%	104	24.8%	255	60.7%	29	6.9%
BASFACIPROV&PROPERMAINTENANCE	7	1.7%	35	8.3%	97	23.1%	245	58.3%	36	8.6%

	SA	A	U	D	SD
	Count	Count	Count	Count	Count
MONTHLYTENANCY	112	221	47	31	9
QUARTERLYTENANCY	88	245	47	31	9
BIANNUALLYTENANCY	0	19	53	253	95
ANNUALLY	81	164	40	127	8

	SA		A		U		D		SD	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
PROPERDESCONSOFHOUSINGAFFECTSTENANCYDURATION	0	0.0%	235	56.0%	112	26.7%	47	11.2%	26	6.2%
HOUSINGMAINTCANAFFECTTENANCYDURATIONS	0	0.0%	32	7.6%	126	30.0%	234	55.7%	28	6.7%
ENVCONDIANDSURROUNDPOLLUTCANAFFECTTENADURA	247	58.8%	0	0.0%	134	31.9%	26	6.2%	13	3.1%
ENVSUSTAINABILITYCANAFFECTTENANCYDURATION	0	0.0%	206	49.0%	159	37.9%	39	9.3%	16	3.8%
OPENSPACEPPTYSIZELAYANDLANDSCAPECANAFFETENDURA	0	0.0%	271	64.5%	112	26.7%	37	8.8%	0	0.0%

Correlations

		REDUCENOISE, LIGHT&OTHER SERPROV	OPENSPACEAROUNDTHEHOUSEHOLD	HOW LONG HAVE YOU BEEN AN OCCUPANT OF THIS PPTY
REDUCENOISE,LIGHT&OTHERSERPROV	Pearson Correlation	1	-.055	.113*
	Sig. (1-tailed)		.131	.011
	N	420	420	420
OPENSPACEAROUNDTHEHOUSEHOLD	Pearson Correlation	-.055	1	-.074
	Sig. (1-tailed)	.131		.066
	N	420	420	420
HOW LONG HAVE YOU BEEN AN OCCUPANT OF THIS PPTY	Pearson Correlation	.113*	-.074	1
	Sig. (1-tailed)	.011	.066	
	N	420	420	420

*. Correlation is significant at the 0.05 level (1-tailed).

TUNGA

	E		VG		G		P		VP	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
AIR QUALITY	37	9.7%	99	26.1%	216	56.8%	28	7.4%	0	0.0%
HOME SAFTY	20	5.3%	148	38.9%	136	35.8%	76	20.0%	0	0.0%
VISIUAL IMPACT,LAYOUT AND LANDSCAPIG	0	0.0%	99	26.1%	171	45.0%	110	28.9%	0	0.0%
OPEN SPACE WITHIN HOUSEHOLD	81	21.3%	116	30.5%	94	24.7%	89	23.4%	0	0.0%
REDUCE NOISE, LIGHTENING AND OTHER SERVICES	81	21.3%	116	30.5%	132	34.7%	51	13.4%	0	0.0%
ENVIRONMENTAL SUSTAINANBILITY	0	0.0%	30	7.9%	233	61.3%	117	30.8%	0	0.0%
OPEN SPACE AROUND HOUSEHOLD	81	21.3%	116	30.5%	155	40.8%	28	7.4%	0	0.0%
SIZE OFBUILDING	0	0.0%	62	16.3%	59	15.5%	259	68.2%	0	0.0%
STANDARD BUILDING CONST. MATERIALS	98	25.8%	96	25.3%	171	45.0%	15	3.9%	0	0.0%
BASIC FACILITIES PROVISION	37	9.7%	144	37.9%	182	47.9%	17	4.5%	0	0.0%

	SA		A		U		D		SD	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
MONTHLY	0	0.0%	13	3.4%	23	6.1%	211	55.5%	133	35.0%
QUATERLY	0	0.0%	114	30.0%	17	4.5%	143	37.6%	106	27.9%
BI-ANNUALLY	0	0.0%	261	68.7%	16	4.2%	80	21.1%	23	6.1%
ANNULLY	105	27.6%	211	55.5%	10	2.6%	46	12.1%	8	2.1%

	SA		A		U		D		SD	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
proper construction of housing affect TD	0	0.0%	277	72.9%	12	3.2%	73	19.2%	18	4.7%
housing maintenance affect TD	0	0.0%	134	35.3%	1	0.3%	234	61.6%	11	2.9%
environmental condition affect TD	211	55.5%	116	30.5%	7	1.8%	34	8.9%	12	3.2%
environmntal sustainability affect TD	79	20.8%	206	54.2%	12	3.2%	67	17.6%	16	4.2%
open space and others affect TD	80	21.1%	205	53.9%	14	3.7%	62	16.3%	19	5.0%

Correlations

		HOME SAFTY	ENVIRONMENTAL SUSTAINANBILITY	how long have you occupy your builing
HOME SAFTY	Pearson Correlation	1	-.002	.135**
	Sig. (1-tailed)		.485	.004
	N	380	380	380
ENVIRONMENTAL SUSTAINANBILITY	Pearson Correlation	-.002	1	.127**
	Sig. (1-tailed)	.485		.007
	N	380	380	380
how long have you occupy your builing	Pearson Correlation	.135**	.127**	1
	Sig. (1-tailed)	.004	.007	
	N	380	380	380

**. Correlation is significant at the 0.01 level (1-tailed).

F-LAYOUT

	E		VG		G		P		VP	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
AIR QUALITY	15	7.3%	48	23.4%	128	62.4%	14	6.8%	0	0.0%
HOME SAFTY	8	3.9%	82	40.0%	69	33.7%	46	22.4%	0	0.0%
VISIUAL IMPACT,LAYOUT AND LANDSCAPIG	0	0.0%	59	28.8%	91	44.4%	55	26.8%	0	0.0%
OPEN SPACE WITHIN HOUSEHOLD	45	22.0%	61	29.8%	55	26.8%	44	21.5%	0	0.0%
REDUCE NOISE, LIGHTENING AND OTHER SERVICES	45	22.0%	61	29.8%	73	35.6%	26	12.7%	0	0.0%
ENVIRONMENTAL SUSTAINANBILITY	0	0.0%	18	8.8%	124	60.5%	63	30.7%	0	0.0%
OPEN SPACE AROUND HOUSEHOLD	45	22.0%	61	29.8%	83	40.5%	16	7.8%	0	0.0%
SIZE OFBUILDING	0	0.0%	41	20.0%	34	16.6%	130	63.4%	0	0.0%
STANDARD BUILDING CONST. MATERIALS	56	27.3%	45	22.0%	97	47.3%	7	3.4%	0	0.0%
BASIC FACILITIES PROVISION	15	7.3%	73	35.6%	108	52.7%	9	4.4%	0	0.0%

	SA		A		U		D		SD	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
MONTHLY	0	0.0%	13	6.3%	17	8.3%	101	49.3%	74	36.1%
QUATERLY	0	0.0%	67	32.7%	13	6.3%	71	34.6%	54	26.3%
BI-ANNUALLY	0	0.0%	134	65.4%	12	5.9%	41	20.0%	18	8.8%
ANNULLY	69	33.7%	100	48.8%	7	3.4%	22	10.7%	7	3.4%

	SA		A		U		D		SD	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
proper construction of housing affect TD	0	0.0%	144	70.2%	10	4.9%	38	18.5%	13	6.3%
housing maintenance affect TD	0	0.0%	68	33.2%	1	0.5%	128	62.4%	8	3.9%
environmental condition affect TD	108	52.7%	63	30.7%	5	2.4%	19	9.3%	10	4.9%
environmental sustainability affect TD	41	20.0%	107	52.2%	9	4.4%	34	16.6%	14	6.8%
open space and others affect TD	43	21.0%	107	52.2%	11	5.4%	30	14.6%	14	6.8%

Correlations

		AIR QUALITY	HOME SAFTY	STANDARD BUILDING CONST. MATERIALS	how long have you occupy your builing
AIR QUALITY	Pearson Correlation	1	-.043	.439**	.143*
	Sig. (1-tailed)		.271	.000	.020
	N	205	205	205	205
HOME SAFTY	Pearson Correlation	-.043	1	.051	-.131*
	Sig. (1-tailed)	.271		.234	.030
	N	205	205	205	205
STANDARD BUILDING CONST. MATERIALS	Pearson Correlation	.439**	.051	1	-.143*
	Sig. (1-tailed)	.000	.234		.021
	N	205	205	205	205
how long have you occupy your builing	Pearson Correlation	.143*	.131*	.143*	1
	Sig. (1-tailed)	.020	.030	.021	
	N	205	205	205	205

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).