

**DWELLERS SATISFACTION ON PUBLIC LOW-COST HOUSING
DEVELOPMENT IN BISHOFTU TOWN, OROMIA REGIONAL STATE,
ETHIOPIA**

Michael Asefa Fufa



A Thesis submitted to Department of Architecture

School of Civil Engineering and Architecture

**Presented in Partial Fulfillment of the Requirement for the Degree of
Master's in Architecture (Specialization in Environmental Architecture)**

Office of Graduate Studies

Adama Science and Technology

Adama

July 2020

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APPROVAL OF BOARD OF EXAMINER

We, the undersigned, members of the Board of Examiners of the final open defense by Michael Asefa have read and evaluated his thesis entitled “**Dwellers Satisfaction on Public Low-Cost Housing Development in Bishoftu Town, Oromia Regional State, Ethiopia**” and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirement of the Degree of Master’s in Architecture in Environmental Architecture.

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DECLARATION

I hereby declare that this MSc/MA Thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

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This MSc/ MA Thesis has been submitted for examination with my approval as thesis advisor.

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Signature: _____

Date of submission: July 10, 2020

ADVISOR'S APPROVAL SHEET

To: **Architecture Department**

Subject: **Thesis Submission**

This is to certify that the thesis entitled “**Dwellers Satisfaction on Public Low-Cost Housing Development in Bishoftu Town, Oromia Regional State, Ethiopia**” submitted in partial fulfillment of the requirements for the degree of Master’s in Architecture (Specialization in Environmental Architecture), the Graduate program of the department of Architecture, and has been carried out by Michael Asefa Fufa Id.No, PGR /18195/11 under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby he can submit the thesis to the department.

Eshetu T. Gelan (PhD.)

Name of Advisor

Signature

Date

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ABBREVIATIONS

ASTU: Adama Science and Technology University

UN: United Nation

IHDP: Integrated Housing Development Program

MWUD: Ministry of Works and Urban Development

PASDEP: Plan for Accelerated and Sustained Development to End Poverty

MS: Mean Satisfaction

SPSS: Statistical Package for Social Sciences

STD: Standard Deviation

CSA: Central Statistics Authority

ABSTRACT

This research was conducted to assess Bishoftu condominium dwellers housing satisfaction in four randomly followed by purposively selected condominium sites. The study was intended to address the issue of assessment on residential satisfaction on public low-cost housing based on dwelling unit features, dwelling unit support services, public facilities, social environment and neighborhood facilities. We pointed out 30 housing quality indicators, which were grouped into seven domains to assess satisfaction. Satisfaction was measured using 6- point Likert Scale.

Data that came from questionnaires distributed were fed to version 23.00 SPSS computer program and analyzed using descriptive statistics of the mean scores of satisfactions. In addition, qualitative analysis was performed to get in-depth insight about housing opinion. The findings show that a majority of the residents are slightly satisfied, however happiness levels were generally higher for physical space within the housing unit and community facilities, compared to satisfaction with services provided and the social environment within the housing area. It also indicated that the structure quality, stair quality and public facilities provided show significantly higher correlation with overall residential satisfaction with the housing unit. On the other hand, this research finding revealed that the corridor space, room space sufficiency, structure quality, water supply, electricity supply and sanitation system installation have insignificant correlation with the overall satisfaction.

The study infers that a new housing policy initiative that provides for the needs and desires of the poor through a change and redirection from fine and untenable housing commencement and development to comprehensive and viable housing initiatives which are embedded in consumer housing needs and desires to address the present massive housing problems in town like Bishoftu.

Keywords: Bishoftu: Condominium: Physical-features: Public-facilities: Satisfaction-index: Service-provision: Social-environment

CHAPTER ONE

1.0. Introduction

The justification for measurement of residential satisfaction is that it contains both current and future perspectives of residents on housing and residential environments. In other words, residential satisfaction measures the difference between the current state of the housing or environment, and what the residents wish for in terms of housing and neighborhood environments (Galster, 1987). Therefore, in a study of residential satisfaction, the definition of "residential environment" becomes critical. Normally, the residential environment is divided into the physical environment of the housing itself and the surrounding neighborhood, but the definition of "neighborhood" is ambiguous. Defining a neighborhood in a spatially accurate manner, for example, is not a simple matter. Dimensions of a neighborhood can vary based on the researcher. Therefore, a clear specification of dimensions is required prior to research (Amérigo and Aragonés, 1997). Precedent studies reveal that existing research on residential satisfaction has focused on two main perspectives. First, standards for analysis of residential quality (Galster and Hesser, 1981; Cutter, 1982; Weidemann et al., 1982), and second, use of residential satisfaction as a variable predicting action (Speare, 1974; Newman and Duncan, 1979; Weidemann and Anderson, 1985). The former delves into the extent to which the resident is satisfied with the residential environment, including the neighborhood, housing, and neighbors (Canter and Rees, 1982); the latter seeks to predict behaviors, such as residents with low residential satisfaction moving away or improving their residential quality through acting on new requirements (Priemus, 1986). Previous studies on residential satisfaction have utilized diverse variables for the measurement of residential satisfaction, depending on the researcher. Amérigo and Aragonés (1990) utilized the following variables: "Relationships with neighbors," "Residential safety," "Basic residential infrastructure," "Neighborhood infrastructure," "Deterioration," "Urban activity and noise," "Open natural spaces," and "Miscellaneous." Of particular note is their use of psychological factors, such as relationships with neighbors, in addition to the physical factors concerning the residential environment. Fauth et al. (2004) examined factors including neighborhood and housing conditions, physical and mental health, and socioeconomic conditions such as economic outcomes and social contact. Alternately, rather than the physical environment, Leslie and Cerin (2008) sought to measure

residential satisfaction through factors concerning the placement of the neighborhood environment surrounding housing, as well as surrounding conditions such as "Safety and walkability," "Access to destinations," "Social network," "Travel network," and "Traffic and noise." Mohit et al. (2010) measured residential satisfaction by exploring physical factors such as "Dwelling unit features," "Public facilities," and "Neighborhood facilities," as well as non-physical factors such as "Dwelling unit support services" and "Social environment." These

▪ **Environmental Determinants**

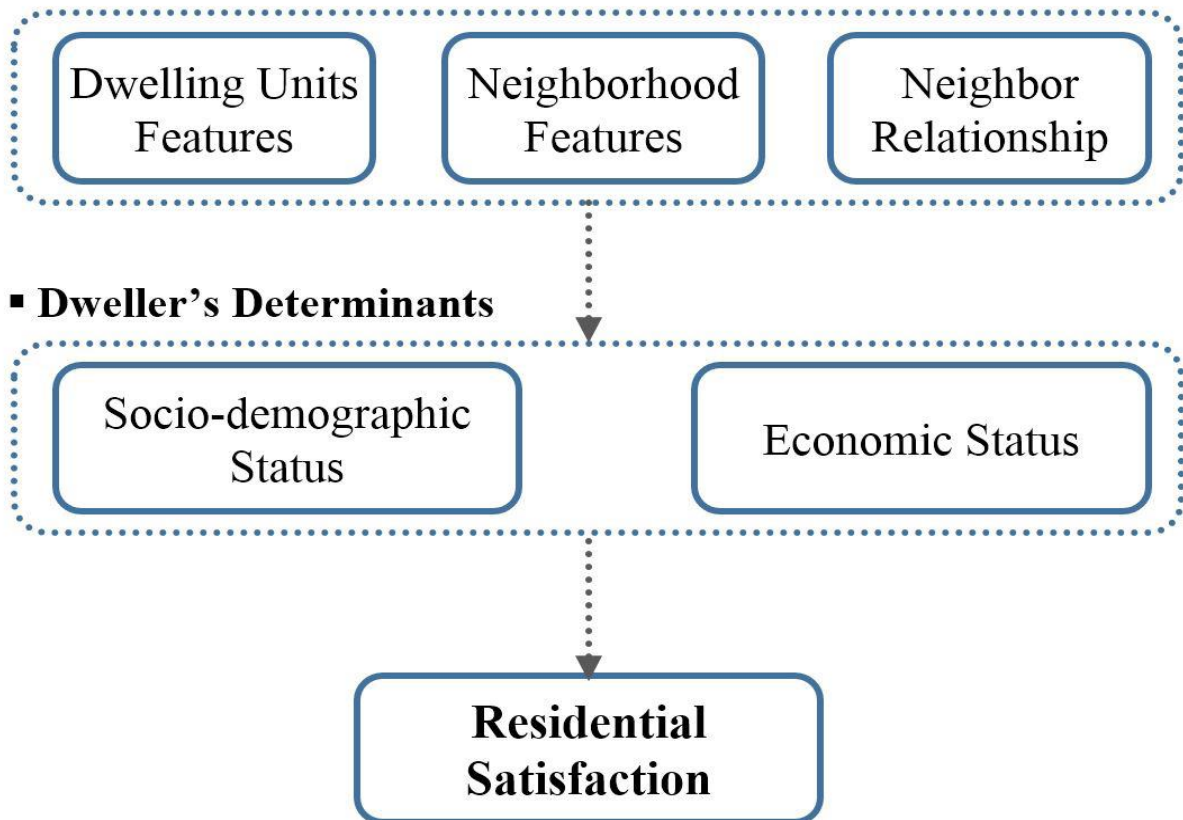


figure 1: determinants of residential satisfaction

various factors can be summarized as shown in Fig.1. In other words, the resident's assessment of physical factors (dwelling unit features/neighborhood features) and relationship factors (neighbor relationships) impacts human demographic factors (socio-demographic status/economic status), and this process determines residential satisfaction.

Despite housing satisfaction having been frequently studied in the Global South, more attention has been given for housing shortage than housing quality (Ilesanmi, 2012). Similarly, in Ethiopia housing studies have been focus on quantity and cost aspect (Adane and T/Giorgis, 2012; Addis

Ababa Housing Development Project Office, 2005; UN Habitat, 2011). Housing quality is a vital important factor in housing satisfaction (Cook and Bruin, 1994; Ilesanmi, 2012; Mohit et al., 2010). Therefore, it is rational to emphasis on housing quality to assess the dwellers housing satisfaction and its impact.

1.2. Problem Statement

The EFEDR government with collaboration of housing development agency is trying to solve housing problem in Ethiopia specially for low income groups; however, reports and blogs complained its effort concerning failure to meet residents' needs and expectations in quantity and quality aspect. The condominium has drawback in fulfilling basic infrastructure and social service in some urban periphery sites (Tadele, 2012). In addition, it failed to fully consider dwellers' culture and preference in construction design (Ingwani, Gondo, Gumbo, and Mazhindu, 2010). They further listed that malfunctioning of water pipe, sanitary system, door and window are exposed dwellers for extra maintenance and replacement costs. Because of poor housing management (Adamu, 2012), lack of skill in utilizing share facilities (Deribie, 2014), its potential risk for young children (Tiumelissan and Pankhurst, 2013) condominium negatively perceived by residents.

On the other side, few studies were focused on condominium contribution for housing stock, job creation and urban renewal (Haregewoin, 2007; UN Habitat, 2011). However, in Bishoftu no study has explicitly investigated the effect of condominium quality in dwellers' housing satisfaction and its implication on feature of life. Therefore, this research assesses condominium dwellers satisfaction variability.

1.3. Research Objective

1.3.1. General objective

The general objective of the research is to assess dwellers satisfaction on public low-cost housing development.

1.3.2. Specific objectives.

The specific objectives of the study are

- To investigate the level of residential satisfaction of the newly designed public low-cost housing project;
- To examine the elements and types of facilities which influence the residential satisfaction level of the inhabitants;
- To determine the key factors satisfaction level of the residents.

1.4. Research Questions

The following research question are formulated based on the specific objective of the study.

1. What are the levels of satisfaction perceived by the residents with the dwelling unit features?
2. How much the level of satisfaction depends on the provision and quality of public facilities?
3. What are the determining factors that can enhance the housing satisfaction levels of the residents?

1.5. Significance of the study

The study will be very important for the improvement of low-cost housing satisfaction in residence in different aspects, among these;

- The aim of this study is to unveil the significance of design considerations in low cost housing provision thorough the IHDP and the extent to which the Bishoftu Administration had considered design consideration in low cost housing provision relevant.
- It has its own significance for the policy maker, decision makers in the construction industry. This research will have its own significance as an academic input, social transformation, economic development, and technological improvement.

1.6. The scope of the research

Spatially the study is confided with Bishoftu city, and only focusing in kebele 01(Dire Jitu) and 05(cheleleka). Thematically the study had covered the evaluation of dwellers satisfaction on

public low-cost housing development. And the study was assessed based on the building comfort index.

1.7. Operational definition of the study

Bishoftu: ቢሽፋቱ): is a town and separate woreda of Ethiopia, lying southeast of Addis Ababa. The town is located in the Misraq Shewa Zone of the Oromia Region and has an elevation of 1,920 meters (6,300 ft). Bishoftu is located 47.9 kilometers (29.8 mi) southeast of Addis Ababa along its route 4 highway.

Condominium: is a self-contained housing unit (a type of residential real estate) that occupies only part of a building, generally on a single story. There are many names for these overall buildings, see below. The housing tenure of apartments also varies considerably, from large-scale public housing, to owner occupancy within what is legally a condominium.

Low cost housing: refers to housing units that are affordable by that section of society whose income is below the median household income.

Satisfaction index: It is a measure of how products and services supplied by a company meet or surpass customer expectation. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals.

Public-facilities: are service provided by the government to its citizen. Some of the importance public facilities include infrastructure, sanitation, public transport, health care and water are the essential elements of public facility.

Satisfaction-index: It is a measure of how products and services supplied by a company meet or surpass customer expectation. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals.

1.8. Description of the study area

The Bishoftu city administration is located in Oromia regional state, between 8°45' - 8°47' North latitudes and 38°56' - 39° East longitudes. It is situated at a distance of 47 km south East of Addis Ababa, and 52 KM from Adama. (Bishoftu city Administration, 2007) Selected site is located in Oromia regional state, west showa Zone, Bishoftu Town

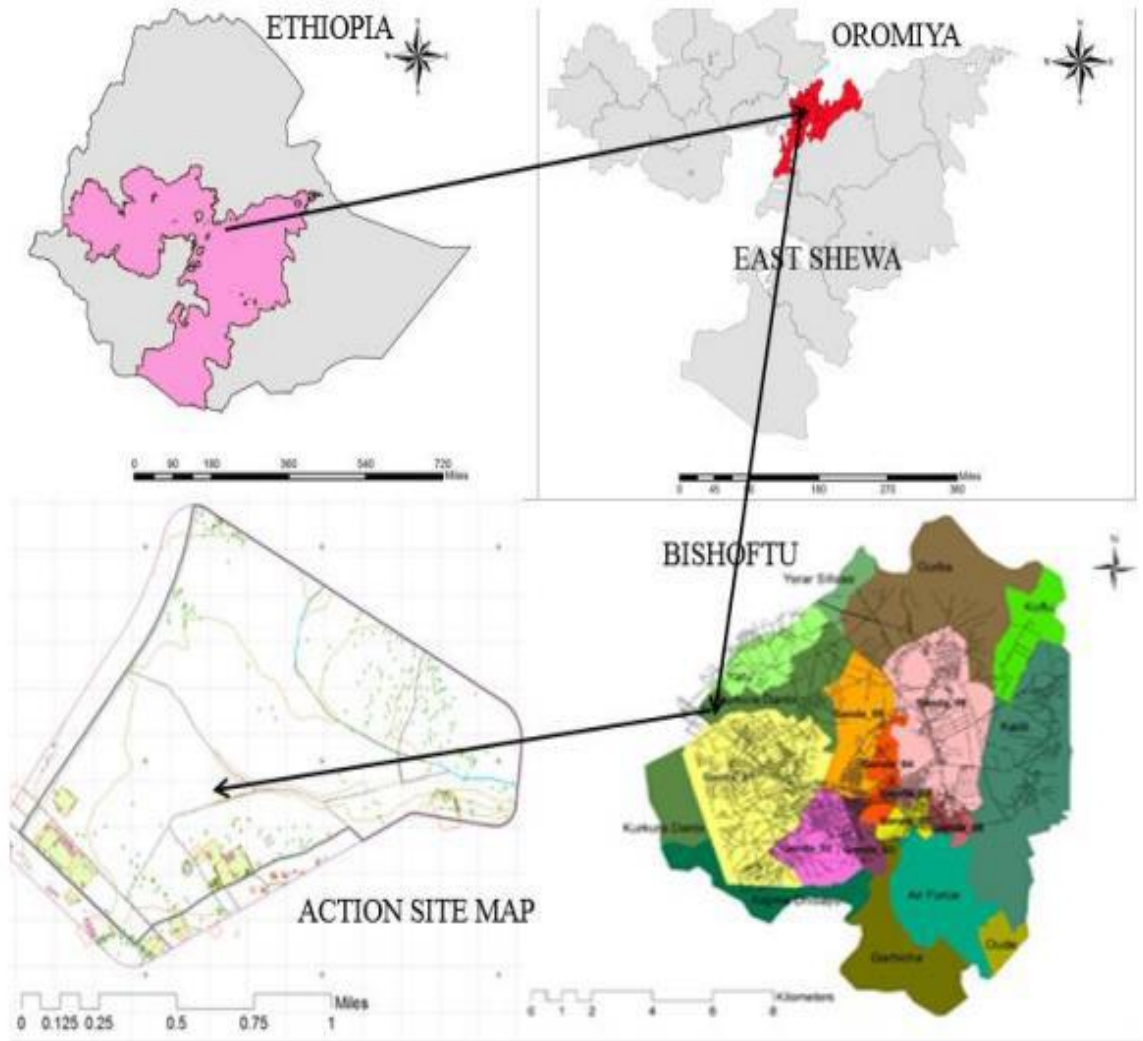


figure 2: description of the study area

CHAPTER TWO

2.0. Literature Review

2.1. Background

During the first half of the twentieth century land and housing in Ethiopia were controlled by a select few individuals and groups who owned and tightly controlled land and housing development. Housing supply was led by the landowning elite with less than one per cent of the population owning more than 70 per cent of the arable land, on which 80 per cent of the peasants were tenants. Low-income households had little option but to rent housing and this was done outside of any formal control or planning system [Kebbede, G. Jacob, M. (1985)]

While government urban housing and land strategies were debated and documented at length, they did not materialize into built projects to address the severe housing demand [UN-HABITAT (2007)]. The government exhibited little national commitment to land and housing development for the low-income sector and there was no coherent approach or action toward land and housing provision. Therefore, ad-hoc policies and approaches prevailed and informal, unauthorized housing proliferated [UN-HABITAT, op. cit.]

In 1974, the land and housing situation significantly changed as a result of the political revolution that saw the overthrow of Emperor Haile Selassie by the Soviet supported junta, the ‘Derg’. In July 1975, Proclamation No. 47: ‘Government Ownership of Urban Lands and Extra Houses’ nationalized all urban land in an effort to force a fairer distribution of wealth across the country [Teshome T. (2008).]

According to Mulugeta, S. (1995), in his PhD thesis entitled: “Housing for Low- and Moderate-Income Workers in Addis Ababa, Ethiopia: Policy versus Performance”

“Two new typologies in the housing sector were established: Government-owned rental units, administered by the Agency for the Administration of Rental Houses, and Kebele Housing managed by Kebele Administration units, the smallest government administration unit, operating at the neighborhood level. During this time approximately 60 per cent of housing in Addis Ababa was rental accommodation and Kebeles accounted for 93% of this rental accommodation.”

A consequence of the nationalization was a significant reduction in the rental price for low-cost rental housing of between 15 and 50 per cent for occupants paying below ETB 300 (USD 23). In Addis Ababa, the rent of 80 per cent of the city's population was reduced by 30 per cent [Kebbede, G. Jacob, M. (1985)]. Housing supply was controlled by the centralized government yet it was drastically insufficient to meet the large demand. For instance, in Addis Ababa between 1975 and 1995, only one-tenth of the projected dwellings were built because of "very low effective demand, rock-bottom national housing investment rates, and from regulatory constraints in the supply of land, credit, and building materials" (emphasis added) [Mulugeta, S. (1995)].

During the late 1980s, the 'Derg' loosened its control of housing supply by allowing private house owners and tenants of public premises to sell and exchange their houses although in reality the government devolved very little control and maintained its position as the key driver of housing supply. Proclamation No. 292 of 1986 specified that "residential buildings could be produced only by state enterprises, municipal governments, housing cooperatives and individuals who build dwellings for their personal consumption" [Mulugeta, S. (1995)], effectively excluding large-scale private sector housing developers to address the large demand. The housing stock continued to be characterized by high rates of rental housing.

According to Kebbede *et al* (1985), "By the mid-1980s, rental housing accounted for 60 per cent of the total housing stock in Addis Ababa". The low rental rates resulted in little to no investment in housing which led to a further deterioration of housing quality. The housing conditions were poorest in the center of Addis Ababa. According to the 1985 analysis report by the Municipal Technical College for the Teklehaimanot Upgrading Scheme, the average house had a floor area of 20m², 35 per cent of all houses had only one room, and 39 per cent of the urban population lived in overcrowded housing that lacked basic services such as potable water and sanitation [Kumie A. and Berhane Y. Crowding in traditional rural housing ("Tukul") in Ethiopia]. Since the overthrow of the 'Derg' by the Ethiopian People's Revolutionary Democratic Force (EPRDF) in 1991, Ethiopia has been undergoing market-orientated reforms, structural adjustment policies, decentralization of governing structures, and a program of agricultural development-led industrialization. Following the new constitution and federal system of government, in 1994 a rural development policy, named the Land Reform Program, was

introduced. This sought to decentralize urban planning responsibilities and to encourage secondary cities to attract rural migrants to ease pressure on the already limited housing available for urban dwellers living in Addis Ababa and other major urban areas [Acioly C. (2010)]. Addis Ababa's first housing policy, incorporating the Government's practice of maintaining public ownership, was also implemented at this time but it assumed that the housing market alone would meet the demand for affordable housing of the low-income population. Despite large subsidies and land provided at highly subsidized rates, the private sector has failed to deliver affordable housing at the large scale required. During this time house prices significantly rose making it extremely difficult for even professionals such as doctors and lawyers to access affordable housing.

Since 1991 Ethiopia has had a decentralized governing structure with substantial autonomy devolved to regional states regarding the management of their internal affairs. The country is divided into nine states (Kilils) and two autonomous administrative areas, the cities of Addis Ababa and Dire Dawa. The states are, in theory, financially independent from the national government. Each state comprises zones, districts (Woreda), cities, and neighborhood administrations (Kebeles). In each region the districts are the basic planning unit and have jurisdiction over the kebeles [UN-Habitat (2008)] The capital city of Addis Ababa has ten sub-city administrations containing 11 elected executives and 128 councilors at city level. There are 99 Kebele's within the capital and 300 councilors between them to represent 30,000 people. All land is property of the national government and is leased, not sold, for development. Until recently, there were few national coordination policies regarding housing and urban development.

In 2005, the Council of Ministers of the Federal Democratic Republic of Ethiopia formulated and approved a consolidated Urban Development Policy to link together the small-scale efforts made by regional governments and cities since 2000. They also created the national Ministry of Works and Urban Development (MWUD) to guide the overall development of the country's urban areas and conducting studies on its urbanization patterns [Ibid.]. Within MWUD, the National Urban Planning Institute is responsible for preparing physical urban development plans, the Housing Development Bureau works towards the implementation of the IHDP including the MSE Development Programs, the Urban Development Support Services deal with

financial planning, human resources, and capacity building. 1.3.2 Key players in housing the dominant player in housing is the state, manifested through its various arms such as regional governments, districts, and kebeles. The state controls the majority of the rental accommodation and influences the supply of new housing through active involvement in material production and importation, land supply, and housing finance. Very few private housing developers exist. The private construction industry is very small and it is complicated and time consuming to start a company, register it, and conduct business [Ibid., p. 14]. Those that do exist operate only for high-income groups as there is little incentive to construct low-income housing. Since the late 1970s housing cooperatives have also provided an avenue for home ownership [Dolicho, E. (1996)], [Hailu, T. (2001)]. This delivery method was established in 1978, through Proclamation No. 138. The approach is for citizens to organize themselves into small groups (between 10 and 20 people), register as a cooperative group for land allocation, develop savings capacity, prepare settlement plans, receive land and secure tenure, and largely build their housing themselves incrementally [Sileshi, T. (2002)]. Cooperatives have received varying levels of government support over the last 40 years. Between 1986 and 1992, housing supply by cooperatives did increase due to the significant subsidy of construction materials (60 per cent), land being allocated with no charge, and low mortgage interest rates, but this help was inadequate to meet the magnitude of housing demand. Between 1975 and 1992 housing, cooperatives produced a mere 40,539 units [Tesfaye, A. (2007)]. In addition to its small scale, cooperative housing is challenged by the undesirable peripheral location of land allocated, low quality of allocated land making construction costly and difficult, and the exclusion of the poorest sector of society who more often than not do not have a savings capacity at the scale demanded by this relatively expensive approach. Informal unplanned housing provision constitutes a considerable proportion of the total housing supply, although there are vastly different estimates of the scale of urban informality. Informal housing is especially prevalent in Addis Ababa accounting for 34.1 per cent of total housing supply between 1996 and 2003, and it is the fastest growing supply method [Berrisford, S. (2002)].

Private sector housing supply remains constrained by high costs and time required for title registration, plot access, construction material source, along with burdensome and costly procedures for land and property dealings and the lack of experienced private developers

[Haregewoin, Y. (2007) Aneley, A. (2006)]. Slum upgrading continues to be a marginal approach to improve low-income settlements.

In Addis Ababa, there was one notable government slum upgrading program, led by the Environmental Development Office (EDO), established in 1994, although housing improvement did not feature as part of this program. Slum upgrading program remain piecemeal and small scale, and do not directly address the housing units but rather the urban infrastructure and services. Many officials and local professionals believe that slum upgrading ‘does not work’ in Ethiopia because of the irreparable state of the housing units, the massive deficit that such small-scale program cannot address, and the need to increase density on valuable inner-city land.

Design considerations remain significant in low cost housing projects in both developed and developing countries. Both regions are currently being faced by challenges of shelter provision for everyone including the urban poor. This situation is being exacerbated by unprecedented increase in rates of urban migration and urbanization being experience the world over. Ethiopia, particularly Addis Ababa city has not been spared. Addis Ababa is a city where mixite is evidenced by modern building erected side by side delapidated slum settlements (IHDP 2008).

The prominent current government approach to solving the low-income housing challenge is the Integrated Housing Development Program (IHDP), initiated by the Ministry of Works and Urban Development (MWUD) in 2005. The Program is a continuation of the ‘Addis Ababa Grand Housing Program’ which supported the endeavors of the Ethiopian Government in their implementation of the ‘Plan for Accelerated and Sustained Development to End Poverty’ (PASDEP). The IHDP aims to:

- i) Increase housing supply for the low-income population
- ii) Recognize existing urban slum areas and mitigate their expansion in the future
- iii) Increase job opportunities for micro and small enterprises and unskilled laborers, which will in turn provide income for their families to afford their own housing
- iv) Improve wealth creation and wealth distribution for the nation

Responding to this situation, the Addis Ababa city administration launched grand low-cost condominium housing projects through the Integrated Housing Development Program (IHDP) in 2006 to minimize housing backlog, slums, and to provide decent shelter to middle- and low-

income groups. The same to that the Bishoftu city government designed condominium housing project as a response to acute housing shortage in the city due to unaffordability problems and the ever-increasing gap between the demand and supply of housing in the city. The condominium housing can be defined as a form of ownership arrangement for housing tenure in which several households occupy one property so that each dweller owns a housing unit; and has equity in common areas (Hecht, 1999).

2.2. Quality of Life and Housing Domain

Quality of life (QoL) studies recognized that it is a function of quality of life domains, such as housing, built-up environment, financial and material well-being. Marans and Stimson (2011, p. 4) claim that people living place, housing circumstance will impact their QoL. Another study by Zebardast (2008) established that housing provision improve individual's quality of life. Despite the fact that housing is a determinant of QoL, housing quality affect the states of QoL and the dwellers' satisfaction. To detect QoL with housing domain (Robert and Stimson, 2011) identified objective, subjective and behavioral indicators. Some of indicators in these categories were residential density as an objective indicator, housing and neighborhood satisfaction as a subjective indicators and residential mobility as behavioural indicators. Mukim, Haque, and Moore (2011) study shows that satisfaction with neighborhood also affects residents' life satisfaction. Lee and Park (2010) finding shown that housing satisfaction was a main determinate of quality of life among temporary resident in the USA. Thus, this research concern was how dwellers housing satisfaction affect the living condition.

2.3. Neighborhood Location Preference and Satisfaction

Neighborhood location in this research context is merely a three-dimensional location of a house in certain neighborhood. In housing studies housing location is an important element of housing satisfaction (Teck-Hong, 2012). Thus, everyone prefers to live in a location to maximize own utility and residential satisfaction. Lovejoy et al. (2010) define location preference as a function of set of residential (e.g. location of job and social tie) and non-residential factors (e.g. housing type and housing unit space). Sirgy and Cornwell (2014) also explained neighborhood preference and life satisfaction in terms of social, economic and physical feature of neighborhood.

Previous neighborhood satisfaction studies in Global North held in different urban areas found interesting results. For instance, Lovejoy et al. (2010) found that California residents who reside in traditional neighborhood had higher level of satisfaction than who reside suburb neighborhood. Further, they explained that perception of liveliness and diversity was important attributes for some traditional neighborhood residents while economic homogeneity for a suburban neighborhood resident. Besides, neighborhood amenity and safety were equally important for both neighborhoods. On the contrary, McCrea, Shyy, and Stimson (2013) found that in South East Queensland, Australia residents who live inner city, suburban, outer suburban and coastal had similar levels housing satisfaction across the neighborhoods. More interestingly, they explained that residents' subjective satisfaction relating to access, nature and community varied little across the neighborhoods even though the objective condition of these attributes much varied. Another study by Dennis and Rent (1987) in Charlotte, North Carolina show that residents were satisfied in new residential locations even though they scattered in newly developed eight public house projects scattered across the city. These was because they were satisfied with new location better housing quality, good neighbor, school accessibility even though the location inaccessibility with public transportation, shopping and jobs. Therefore, the research considered condominium location, as an important determinates of housing satisfaction.

2.4. Building Height Effect on Housing Satisfaction

Various housing studies have been dealt with building height effect by comparing and contrasting row house, low and high-rise building dwellers satisfaction. Gifford (2007) review on the consequences of living high-rise building found that it was less optimal for children and social relations. Similarly, Wilkinson (1999) reviewed that multi-storey dwellers express consistent compliant. Samaratunga (2013) argued that high raise low cost housing structure was not convenient for urban poor to have home-based business. Mukim et al. (2011) found that housing satisfaction decrease that floor level increases. Sungur and Cagdas (2003) claimed that dwelling story level has effect on residents' satisfaction. Based on this review, this research assesses floor level effect on dwellers satisfaction with qualitative and quantitative data.

2.5. Housing View and Satisfaction

Francescato et al (1979) defined residential satisfaction as the emotional response to a person's dwelling; the positive or negative feeling that the occupants have for where they reside. On the other hand, view (perception) is a process by which individuals organize and interpret their sensory impressions in order to give meaning to their environment (Dhingra et al, 2011, p.64). However, individuals' positive or negative insight about their house may or may not reveal objective condition of a house. Studies on housing insight explore on residents' perception of their housing conditions. Kahlmeier, Schindler, Grize, and Braun-Fahrlander (2001) study on residents' perception found that satisfaction with apartment related with their well-being than infrastructure accessibility, suitability and social life. Study by Statistics New Zealand (2013) found that residents' housing perception varied with their age, ownership status and material wellbeing. Another studies by Teck-Hong (2012), Lee and Park (2010), Blake and Darling (2014) found that residents' socio-economic attribute such as income level, marital status, family size, gender and ownership status were important determinants of housing perception.

Residential satisfaction has been used as a measure to examine the success housing development projects. Resident satisfaction has been in use since the early 1960s as the basis for optimizing the architectural design of large housing developments, where feedback was collected from residents of housing projects with regard to resident's views on the physical features of proposed housing developments and then feeding those views back into the design process. The method of choice for assessing residential satisfaction today uses structured surveys followed by statistical correlation of variables (Furbey & Goodchild, 1986). From the 1980s to present day, residential satisfaction has been a key tool to assess and improve the performance of housing developers, and key government policies related to housing (Amerigo & Aragones, 1997). Studies of residential satisfaction are basically of two types; those that consider residential satisfaction as a predictor of behavior (intention to stay/move from existing housing), or residential satisfaction as a criterion of housing quality (Weidemann and Anderson 1985). Studies based on residential satisfaction as a predictor of behavior assumes that satisfaction with existing housing determines behavior of the resident in terms of making changes to the housing unit or the decision to move to another housing unit. The basis of this assumption is that differences in the existing housing and the actual housing needs and preferences of the dwellers

will result in either making changes to existing housing or move to a housing unit that meets their actual housing needs and preferences. Studies that employ residential satisfaction as a measure of housing quality use housing unit features, services and facilities provided in housing area and the housing environment to determine the degree to which a person is satisfied with the existing housing unit (Amerigo & Aragonés, 1990).

Existing literature suggests that housing satisfaction is a function of a whole series of factors related to the occupant's dwelling, services within the dwelling area, relationship with neighbors and the location of the dwelling unit. For instance, Morris (1978) found that satisfaction depends on a whole system of beliefs and opinions that the occupant entertains in respect to the housing unit and which are not connected with its physical characteristics. Other researchers such as Galster (1987) measured housing well-being using a composite sum of satisfaction with dwelling unit features, for e.g., the number of rooms per family and the possession of a private bathroom and kitchen. On the other hand, Clarke (2008) identified dwelling types, property size, internal and outdoor space, kitchens and bathrooms, neighborhood parking and external appearance as factors important to today's households. Varady and Carrozza (2000) stress that housing satisfaction is related to satisfaction with dwelling unit (i.e. physical aspects and personal preferences), satisfaction with services provided, and satisfaction with the neighborhood and area, which also covers the location specific aspects.

Based on research carried out in Brazil by Pina & Kowaltowski et al (2005), the main factors related to housing satisfaction included communal services such as roads, sewer system, and basic utilities within the housing area. He and Zhao (2006) studied the real estate market in Beijing and found that housing demand is highly influenced by proximity to transportation and public facilities rather than merely based on physical factors. Physical aspects of the housing area such as common areas, ventilation and lighting, and orientation of windows within the housing areas also contribute towards overall housing satisfaction.

Toscano and Amestoy (2008), in their study examined housing satisfaction on the basis of individual and household attributes, housing characteristics, and social interactions with one's residential neighborhood. Similarly, Chin-Chun (1981) used the same factors to study housing satisfaction in Taichung, Taiwan; satisfaction with physical space, location, neighbors, and the environment. Jiboye (2009) studied the residential satisfaction with public housing in Lagos,

Nigeria, by assessing the levels of residential satisfaction of public housing tenants in Lagos using three major housing components; dwelling unit features, management of housing units and the housing area environment, and found that the level of residential satisfaction varies and is dependent on the physical features of the dwelling unit, housing area management and environmental features, with high levels of satisfaction for physical features and housing area environment but lower satisfaction level for the management of the housing unit and areas. Russell (2008) found that subsidized renters in the US report higher satisfaction with their housing than similarly situated non-subsidized renters.

The preceding review of existing literature and studies on residential satisfaction highlighted that physical characteristics of housing, the neighborhood environment and the public facilities provided determine the level of residential satisfaction, however, these may vary by the type of housing, the locale, the community, the cultural backgrounds as well as the nationality. This suggests that studies to determine the residential satisfaction of housing types is specific to the housing area, type of housing provided, community, housing policies and the country itself. As such, in order to assess the level of residential satisfaction with public housing in Bishoftu, the criteria used should be specific to Ethiopia in particular to the town of Bishoftu, but based on or adopted from the main definitions and concepts of residential satisfaction internationally and on lesson learnt through existing studies in similar countries. Due to the shortage of such studies in the Ethiopia, this study aims to fill the existing gap and contribute towards the development and growth of the housing sector in the Ethiopia, through amending existing housing policies, strategies and contributing to the development of future housing projects and policies.

2.6. 3D and 2D GIS Application for Housing Satisfaction Analysis

GIS is an analytical tool to integrate spatial context in wider arena of urban planning. In housing studies as well, it is cable of providing information about spatial distribution of public and private house hot spots, slum area, low- and high-rise buildings neighborhood, housing market analysis and housing quality analysis (Olajuyigbe, Osakpolor, and Adegboyega, 2013; Pellenbarg and Steen, 2005). They applied 2D GIS for spatial analysis.

Malumpong and Chen (2014), and Muzzarelli (2012) claimed that 3D GIS more effective in communication result than 2D GIS. Besides, they pointed that map visualization is as important

as map contents. However, there is 3D GIS application in urban scale as well as at building scale is limited. There was limited concern for 3D model validity due to accuracy, reality, and representativeness of the real world (Kim, 2005). A few studies for example, Cao and Lu (2012) applied 3D GIS to identified shortest evacuation route from in a floor.

In this research we did not apply either of them for condominium quality analysis at neighborhood level (site) and at floor level. Since, the motivation behind the techniques was to explore its capability, and in the course of analysis, it was difficult to visualize all site features and building architectural features given the situation we are in during this COVID19.

2.7. Housing Quality Indicators

Quality of any entity has a personal dimension and having an objective reality (Mukim et al., 2011, p. 4). This study considered sets of housing quality indicators to measure quality of low-cost housing. To select appropriate indicators, the low-cost technical manual was used as a reference (Ministry of Urban Development and Construction, 2006). In addition, based upon literature from various source housing quality indicators that affect dwellers housing satisfaction, this research considers thirty housing quality indicators and further groped into seven housing quality domains.

- Structure and space domain: it refers to the structure and space of housing units, construction quality and support features within a building;
- Affordability domain: play a role in dwellers satisfaction as they feel housing cost as a burden (if it is unaffordable) or as an asset (if it is affordable);
- Accessibility domain: affect dwellers satisfaction due to their housing location expending less or high time cost, money cost and service cost to accesses a service
- Utility and service domain: its supply adequacy and service level affect a dwellers satisfaction in various way such as fair cost or extra cost burden to access utility facility or accessing sharing facilities
- Sanitation domain: a service level affect dwellers health and related issue, it perhaps leads to complicated environmental problem
- Neighborhood attraction: it hinders or maximize dwellers satisfaction with support services in a certain neighborhood

- Noise and security: affect dwellers satisfaction feeling safe and secure in a certain neighborhood

2.8. Conceptual Model

This study adapts the conceptual model developed by Mohit et al., (2010) and Mohit & Nazyddah (2011), in their study of residential satisfaction in Malaysia.

In this study, three conceptual pillars were developing to link a framework. First, identifying housing quality indicators those have effect on dwellers satisfaction. Then, they were categorized as 30 main housing quality indicators and supportive socioeconomic factors. Even though literatures recognized housing policy and urban planning influence on residents housing satisfaction, this research not critically look at their effect. Secondly, how site characteristics and floor level affect dwellers perception and satisfaction. In the investigation, dwellers satisfaction and perception computed based on place they live. Third, a relationship between housing quality indicators and quality of life became assessed.

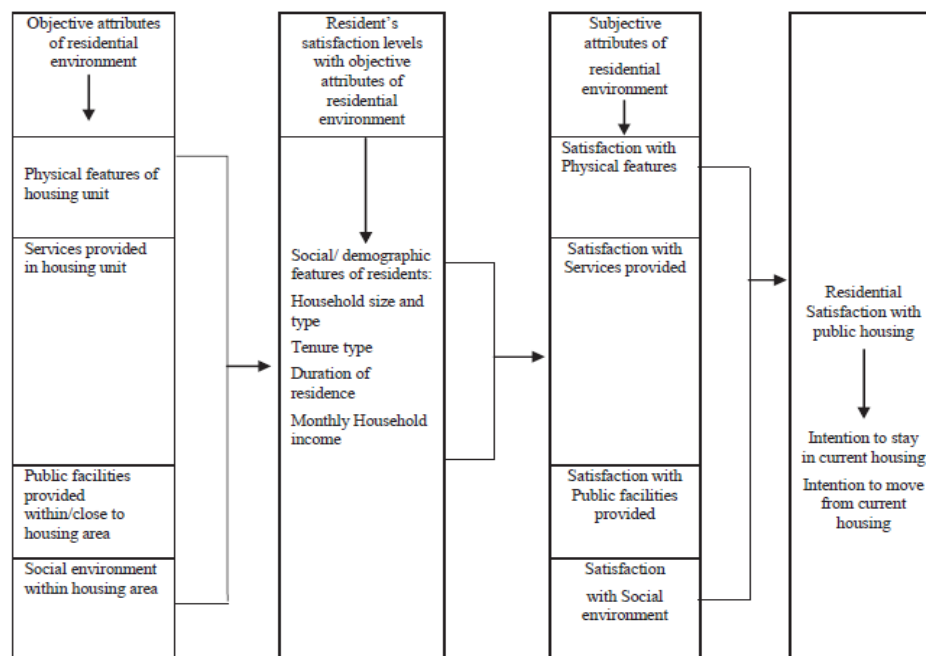


Fig.1. Conceptual model of residential satisfaction; Source: Mohit et al, (2010)

figure 3: conceptual framework

CHAPTER THREE

3.0. METHODOLOGY

This chapter gives a brief design about the basic structure of the research approach & methods, sources of research data, the sampling strategy, and sampling features. In addition, it presents a highlight as to the method used to investigate the data.

3.1. OVERVIEW

The study had filed survey of four (4) low-cost standard condominium in different site of the location additionally, formal interview was conducted to the resident and their response were evaluated accordingly. The method of this study focused on the analysis of resident's satisfaction based on the satisfaction index, residential satisfaction index, habitability index. Therefore, different types of standard condominium were selected for the survey. For the selection of the low-cost housing for the survey was according to the construction material, availability, site location and arrangement. Having this criterion, the selection of the sample space was random.

The fundamental research question of interest was assessing condominium dwellers' housing quality satisfaction. The research has employed comparative research design in four selected case study public low-cost housing sites. It has compared different floors of different sites using similar housing quality indicators. Then research design flow chart was developed to show the flow of the research-the stated objectives, the raised questions, the required data to answer the questions and the data analysis methods to produce the results.

3.2. Data Type and Data Collection Techniques

Through the literature review, an empirical study of the study area, and the research questions for this thesis assessed the resident's satisfaction and it examined the satisfaction level of the condominium house of Bishoftu city.

The sampling technique was based on observation of the building orientation, the construction material and the number of population representative were selected using sampling formula and the questionnaires' were distributed randomly. A sample of 243 residents ($n=243$) were selected

from a total population of 2,398 housing residents (N=2,398), within the condominium housing area of 'Bishoftu city' in four sites.

Yamane Taro (1967) provided a basic formula to calculate the sample size. This formula was used to obtain practicable sample size from a given population taking into account 95 percent confidence level. Though, the sample size can be computed using the following formula:

$n = \frac{N}{1 + N(e)^2}$ Where, n= Sample size, N= Total population of the case study (N=2,398)

e = the researcher used maximum tolerable sampling errors= 5% (0.05) and 95% confidence level. Taking into account time, resource and data management challenge as an important point, I employed purposive sampling to select case study sites. The main reason was selecting best representative of sites. Stratified random sampling technique was used to select sample households, building blocks and housing units. Sites' local development plan was used to classify building blocks into strata. From the selected a four-story building block five households' (of one from each floor) were interviewed. For households in the floors, which had no dwellers' during the hour of data collection, a housing unit with the same floor number was selected from the next building. Accordingly, 243 total sample was selected.

The method of this study focused on the examining the level of satisfaction on public low-cost housing. Therefore, three different low-cost housing condominium were selected from the four public low-cost housing sites in Bishoftu town.

Questionnaire was prepared in order to collect data regarding to the perception of dwellers satisfaction on low-cost housing. It was distributed to a representative sample of people who have experience living in both types of buildings. Questionnaires were given out to people selected randomly, through mutual contacts into the owners of the houses. The sample was considered randomly to select representative of the population. Originally, the questionnaire was written in English and translated to both Afan Oromo and Amharic to smooth data collection. Before collecting the actual data, a pilot data was collected for testing the questionnaire on the site.

Qualitative and quantitative data were collected for the research. Structured questionnaire was prepared for household survey and it includes both qualitative and quantitative data type. It comprised three sections: the first section sought to obtain information socioeconomic

characteristics of respondents; it has categorical type of quantitative data. The second section includes seven housing quality domains: structure and space, affordability, utility and service, accessibility, sanitation, neighborhood attraction, noise and security. All domains encompass two to five housing quality indicators. It has Likert scale type of quantitative data. The third section is qualitative open-end questions to elicited respondent's perception on overall housing condition.

6-point Likert scale for satisfaction measurement by considering satisfaction scale sensitivity. Accordingly, this research adopt 6-point Likert scale aims to give reasonable range of selection options for dwellers to estimate their satisfaction level. In this research, respondents were requested to tell their level of satisfaction from 0-5 scale. '0' standing for extremely dissatisfied and '5' standing for extremely satisfied. The field survey was focus on observation of the lifestyle of the residences and how they challenged and analyses the factors that affect the satisfaction of the residences.

Informal interviews were carried out individually with owners of low-cost house, with the people who had earlier experienced living in both types of houses, with construction workers and visitors in the city and some experts. Many questions were asked, about the particular features of the houses, especially about the satisfaction level.

3.3. DATA ANALYSIS

Furthermore, interview and personal observation results were analyzed qualitatively and written in an essay form.

3.4. Data Verification by Factor Analysis

Factor analysis was computed to verify sample sufficiency, significance test to verify theory-based housing domain classification suitability for index calculation. It was also helpful to uncover strong indicators for dwellers' satisfaction level during data aggregation of index computation. According to Rezvani et al. (2012) and Tesfazghi, Martinez, and Verplanke (2010), prior to data analysis data verification and suitability of data was performed. Prior to extraction, Varimax with Kaiser Normalization rotation method and Bartlett's Test measure were applied to test sample size adequacy and significance test. Sampling adequacy and significant level test

value have been tested with > 0.6 and < 0.05 respectively. Principal Component Analysis (PCA) method data was to extract data. Seven factors were fixed to extract 30 housing quality indicators. Seven factors were fixed because of verify whether theory based seven housing quality domains were best suited or not. Then Eigen values greater than one and loading value grater that 0.5 considered for result presentation and interpretation.

3.5. Housing Quality Index Measurement

The study selected 30 main housing quality indicators to construct housing quality index. The housing quality indicators were grouped into seven housing quality domains for sub index computation as follows:

- (1) Structure and space domain: It include structure quality, dwelling unit size, installation of sanitary appliances, corridor space and staircase quality indicators.
- (2) Affordability domain: include down payment, finishing cost, mortgage cost and rent cost indicators
- (3) Utility and service domain: It includes water supply, electricity supply, cell phone network connection and communal service building indicators.
- (4) Accessibility domain: It includes mode of transport availability, proximity to working place, school, health Centre and shopping center.
- (5) Sanitation domain: It includes solid waste disposal and drainage system indicators
- (6) Neighborhood attraction domain: It includes green area, parking lot; children play ground, adult recreation center and neighborhood cleanness indicators
- (7) Noise and security domain: It include absence of bar noise, absence of sharing flat noise, feeling safe and secure, privacy level and social network indicators.

To construct the final housing quality index a number of procedures were done. Firstly, indicators were derived from respondents' scores. Secondly, seven domain sub-indices were constructed aggregating separate indicators. Finally, housing quality index (HQI) was constructing all housing domains sub-indices.

3.6. Housing Satisfaction Percentage Measurement

Dwellers' satisfaction percentage was derived from the Likert scale 0 to 5. Then dweller's score for each housing quality indicator index less than 3 was interpreted as dissatisfied, score equal to 3 was interpreted as neither dissatisfied nor satisfied and score greater than 3 was interpreted as satisfied based on the method adapted from (Inah Sylvester et al., 2014).

The site and floor indices as well as satisfaction percentage are presented in Table and chart format. To support statistical data, pictures and dweller's reflection were included in the results section.

CHAPTER FOUR

4.0. RESULT AND DISCUSSIONS

4.1. Respondents' Socioeconomic Data

The sample consists of 243 respondents drawn from 243 housing units in four condominium sites. As it can be observed below 28.8 % of respondents were females and 71.2 % were males. Their family characteristics show that majority (56.8 %) of respondents have 3 to 5 family members. According to a study by Mohit et al. (2010), if the family size increases the housing satisfaction become decrease.

Table 1 Sex Distribution Frequency

	Frequency	Percent	Valid Percent	Cumulative Percent	Bootstrap for Percent			
					Bias	Std. Error	95% Confidence Interval	
							Lower	Upper
Valid Male	173	71.2	71.2	71.2	.0	.0	71.2	71.2
Female	70	28.8	28.8	100.0	.0	.0	28.8	28.8
Total	243	100.0	100.0		.0	.0	100.0	100.0

Table 2 Family Size Distribution Frequency

	Frequency	Percent	Valid Percent	Cumulative Percent	Bootstrap for Percent			
					Bias	Std. Error	95% Confidence Interval	
							Lower	Upper
Valid 1 To 2	36	14.8	14.8	14.8	.0	.0	14.8	14.8
3 TO 5	138	56.8	56.8	71.6	.0	.0	56.8	56.8
G6	69	28.4	28.4	100.0	.0	.0	28.4	28.4
Total	243	100.0	100.0		.0	.0	100.0	100.0

The above table indicates that highest family were from 3 to 5 family this implies the satisfaction was linked to large family size

4.1.1. Density and Proprietorship Status

The research contemplates these variables relationship to assess housing denseness. The result indicates that the majority of respondent who have 3 to 5 family size live in two bedrooms (Table 2). UN Habitat (2009) define overcrowding as low number of square meters per person and more than three persons share one room. According to Cook and Bruin (1994) if more than one person shares a room, it is an indicator of overcrowding. If the family size exceeds three in one bedroom, housing typology children could not have private room for study and sleep. It is clear indication of majority of respondents live in overcrowded housing unit. Studies show that crowdedness is a sign of poor housing quality (Cook and Bruin, 1994) and bad objective quality of life (Berhe, Martinez, and Verplanke, 2013). It has also negative effect for housing satisfaction and health (Kahlmeier et al., 2001). According to Lee and Park (2010) family size is negatively related with housing satisfaction. If number of rooms and dwelling unit size are small, it significantly affects housing satisfaction. When we see the proprietorship status the sample result shows majority of homeowners let their houses (Table 3).

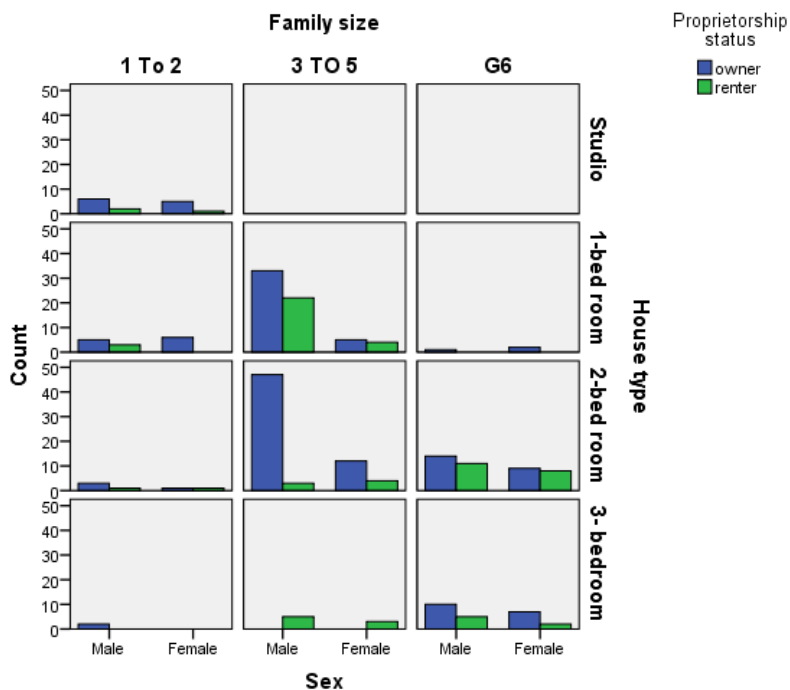


Figure 3: Family size and house type relationship

Table 4 Proprietorship Status

		Frequency	Percent	Valid Percent	Cumulative Percent	Bootstrap for Percent			
						Bias	Std. Error	95% Confidence Interval	
								Lower	Upper
Valid	owner	168	69.1	69.1	69.1	0	0	69.1	69.1
	renter	75	30.9	30.9	100	0	0	30.9	30.9
	Total	243	100	100		0	0	100	100

4.1. 2. Housing Cost (Percentage of income that goes to either rent or mortgage)

We were not asked specifically their income level, rather we asked about the share of housing cost of their income. Housing cost in this study context refer to a share of income spent as rent or mortgage repayment. The result reveals that majority (76.6%) of tenants and homeowners spend more than 30% of their income for housing rent and mortgage. In the extreme 6.6% of homeowners were unable to repay their mortgage and it is paid by their helper (**Table 4**). According to Cook and Bruin (1994) if the housing cost go beyond 30% of income it is considered as problem for residents. Another study by Elsinga and Hoekstra (2005) show that housing cost has substantial effect on dropping housing satisfaction. UN Habitat (2009) define affordable house, as housing cost do not take up a high share in their income. The finding suggests that condominium was expensive house for majority of dwellers.

Table 5 Housing Cost

		Frequency	Percent	Valid Percent	Cumulative Percent	Bootstrap for Percent			
						Bias	Std. Error	95% Confidence Interval	
								Lower	Upper
Valid	21-30%	57	23.5	23.5	23.5	.0	.0	23.5	23.5
	31-40%	103	42.4	42.4	65.8	.0	.0	42.4	42.4
	41 -50%	45	18.5	18.5	84.4	.0	.0	18.5	18.5
	Above 50%	22	9.1	9.1	93.4	.0	.0	9.1	9.1
	6	16	6.6	6.6	100.0	.0	.0	6.6	6.6
	Total	243	100.0	100.0		.0	.0	100.0	100.0

The overall inference of exploring respondents' socioeconomic characteristics, specifically, family size, housing type, ownership status and housing cost have a consequence on difference in view of housing satisfaction. Thus, it is projected that housing satisfaction and quality of life of dwellers can be linked to respondents' characteristics.

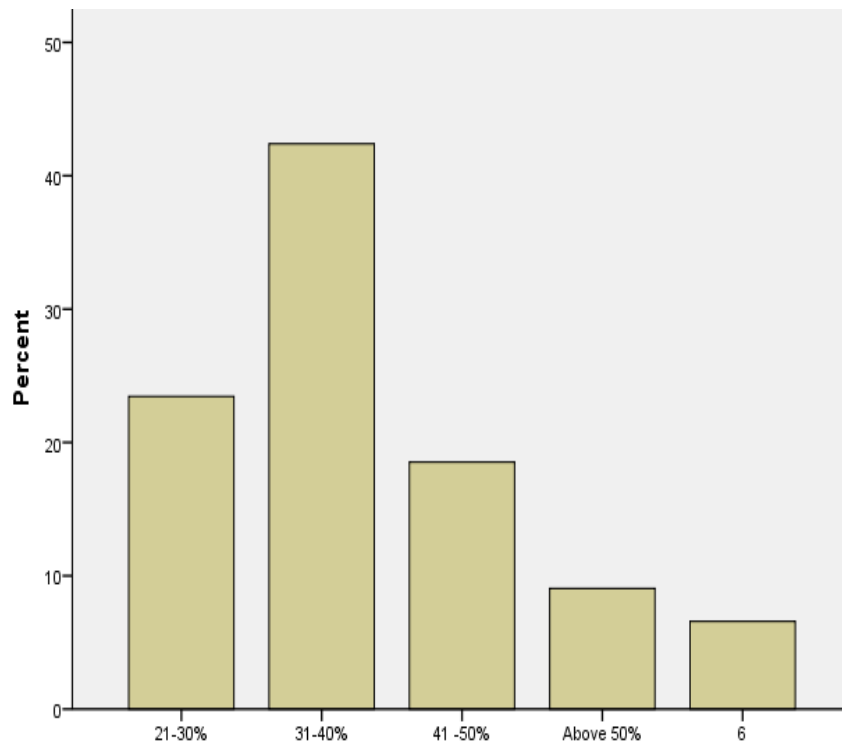


Figure 4 Percentage of income goes to rent or mortgage

4.2. Housing Quality Indicators

Table 6 Structure and space

		Statistic	Std. Error	Bootstrap ^a			
				Bias	Std. Error	95% Confidence Interval	
						Lower	Upper
structure quality	N	241		0	0	241	241
	Minimum	1					
	Maximum	5					
	Mean	3.44		.00	.04	3.36	3.51
	Std. Deviation	.888		-.004	.035	.812	.945
	Skewness	-1.154	.157	.001	.075	-1.308	-1.009
	Kurtosis	1.565	.312	.028	.277	1.077	2.104
room space sufficiency	N	241		0	0	241	241
	Minimum	2					
	Maximum	5					
	Mean	3.47		.00	.03	3.42	3.54
	Std. Deviation	.832		-.001	.020	.786	.871
	Skewness	-.461	.157	-.004	.074	-.588	-.331
	Kurtosis	-.606	.312	.008	.096	-.757	-.368
corridor space	N	241		0	0	241	241
	Minimum	1					
	Maximum	5					
	Mean	3.52		.00	.05	3.43	3.61
	Std. Deviation	1.021		-.005	.034	.946	1.084
	Skewness	-.537	.157	.004	.069	-.660	-.351
	Kurtosis	.437	.312	.014	.148	.173	.778
stair quality	N	241		0	0	241	241
	Minimum	1					
	Maximum	5					
	Mean	3.24		.00	.03	3.18	3.30
	Std. Deviation	.963		-.004	.028	.903	1.016
	Skewness	-.423	.157	.010	.062	-.521	-.270
	Kurtosis	.262	.312	.021	.143	.009	.538
Valid N (listwise)	N	241		0	0	241	241

4.2.1. Structure and Space

Data analysis (Table 6) indicates that the residents have shown highest level of satisfaction with corridor space [Mean Satisfaction (MS) =3.52], followed by room space sufficiency (MS=3.47, structure quality (MS=3.44), and stair quality which has the lowest level of satisfaction (MS=3.24). The analysis indicates that the respondents were most satisfied with corridor space and were least satisfied with stair quality in the housing unit. The structure and space have statistically almost the same satisfaction level though they differ with slight degree.

4.2.2. Affordability

Table 7 Affordability

		Statistic	Std. Error	Bootstrap ^a			
				Bias	Std. Error	95% Confidence Interval	
						Lower	Upper
dawn payment	N	68		0	0	68	68
affordability	Mean	3.35	.125	.00	.00	3.35	3.35
	Std. Deviation	1.033		.000	.000	1.033	1.033
finishing cost	N	68		0	0	68	68
affordability	Mean	2.71	.131	.00	.00	2.71	2.71
	Std. Deviation	1.080		.000	.000	1.080	1.080
monthly mortgage	N	68		0	0	68	68
repayment	Mean	3.41	.111	.00	.00	3.41	3.41
	Std. Deviation	.918		.000	.000	.918	.918
rent cost	N	68		0	0	68	68
affordability	Mean	3.00	.119	.00	.00	3.00	3.00
	Std. Deviation	.977		.000	.000	.977	.977
Valid N (listwise)	N	68		0	0	68	68

Data analysis (**Table 7**) indicates that the residents have shown highest level of satisfaction with dawn payment affordability [Mean Satisfaction (MS) =3.35], followed by monthly mortgage repayment (MS=3.41), and finishing cost affordability which has the lowest level of satisfaction (MS=2.71).

4.2.3. Utility and Provision

table 8 utility and provision

		Statistic	Bootstrap ^a			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
water supply	N	243	0	0	243	243
	Minimum	1				
	Maximum	5				
	Mean	3.17	.00	.04	3.08	3.24
	Std. Deviation	.859	-.001	.033	.786	.926
electricity supply	N	243	0	0	243	243
	Minimum	1				
	Maximum	34				
	Mean	3.66	.00	.03	3.60	3.72
	Std. Deviation	2.865	.000	.005	2.855	2.877
cell phone network connection	N	243	0	0	243	243
	Minimum	1				
	Maximum	5				
	Mean	2.39	.00	.06	2.27	2.52
	Std. Deviation	1.443	.001	.028	1.392	1.500
communal service building	N	243	0	0	243	243
	Minimum	1				
	Maximum	5				
	Mean	2.58	.00	.04	2.52	2.67
	Std. Deviation	.902	.000	.027	.846	.955
Valid N (listwise)	N	243	0	0	243	243

The residential' satisfaction with Utility and Provision (**Table 8**) within the housing area show means values of 3.17, 3.66, 2.39, and 2.58, for water supply, electricity supply, cell phone network connection, and communal service building, respectively. From the observation check list, we can understand that most residents have frequently complained about the communal service building and cell phone network connection.

4.2.4. Convenience

Table 9 Convenience

		Statistic	Bootstrap ^a			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
mode of transport	N	243	0	0	243	243
	Minimum	1				
	Maximum	5				
	Mean	2.36	0	0.06	2.24	2.46
	Std. Deviation	1.301	-0.004	0.028	1.247	1.358
proximity to your work place	N	243	0	0	243	243
	Minimum	1				
	Maximum	45				
	Mean	3.41	0	0.15	3.17	3.76
	Std. Deviation	2.938	-0.289	1.138	1.167	4.776
proximity to public school	N	243	0	0	243	243
	Minimum	1				
	Maximum	5				
	Mean	3.08	0	0.03	3.01	3.14
	Std. Deviation	0.793	-0.002	0.025	0.744	0.837
proximity to public health Centre	N	243	0	0	243	243
	Minimum	1				
	Maximum	5				
	Mean	3.28	0	0.04	3.21	3.36
	Std. Deviation	0.898	-0.006	0.04	0.808	0.964
proximity to shopping Centre or market	N	243	0	0	243	243
	Minimum	2				
	Maximum	5				
	Mean	3.52	0	0.03	3.47	3.6
	Std. Deviation	0.83	-0.003	0.021	0.778	0.867
Valid N (listwise)	N	243	0	0	243	243

Residents' satisfaction with convenience for public service (Table 9) within the housing area show means values of 2.36, 3.41, 3.08, 3.28 and 3.52, for mode of transport, proximity to your work place, proximity to public school, proximity to public health Centre, and, respectively.

Mean satisfaction level with public facilities shows that the residents are most satisfied with the location of the shopping center or market and are satisfied with mode of transport, public school,

and public health center. Lower level of satisfactions was reported by the residents with the distance from housing unit to the town Centre (mode of transport) followed by the distance to the proximity to public school.

4.2.5. Sanitation

Table 10 Dwellers sensation

		Statistic	Bootstrap ^a			
			Bias	Std. Error	95% Confidence Interval	
Lower	Upper					
drainage system connection	N	210	0	0	210	210
	Minimum	1				
	Maximum	5				
	Mean	2.74	0	0.05	2.65	2.84
	Std. Deviation	0.988	-0.003	0.031	0.925	1.051
solid waste disposal service	N	210	0	0	210	210
	Minimum	0				
	Maximum	5				
	Mean	2.48	0	0.06	2.38	2.59
	Std. Deviation	1.324	-0.001	0.027	1.269	1.377
sanitation system installation	N	210	0	0	210	210
	Minimum	1				
	Maximum	5				
	Mean	3.03	0	0.04	2.95	3.13
	Std. Deviation	0.98	-0.002	0.026	0.926	1.033
Valid N (listwise)	N	210	0	0	210	210

In Table 10 above showed with regard to the satisfaction levels on the sanitation provided in the housing unit(area), the respondents were relatively satisfied with the sanitation system installation (MS=3.03), while they expressed dissatisfaction with solid waste disposal service (MS=2.48), and (MS=2.74) for drainage system connection.

4.2.6. Neighborhood Attraction

Table 11 Neighborhood Attraction

		Statistic	Bootstrap ^a			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
neighborhood cleanness	N	137	0	0	137	137
	Minimum	1				
	Maximum	13				
	Mean	2.66	-0.01	0.09	2.48	2.82
	Std. Deviation	1.442	-0.038	0.225	1.096	1.887
children play ground	N	137	0	0	137	137
	Minimum	1				
	Maximum	5				
	Mean	3.23	0	0.05	3.12	3.34
	Std. Deviation	0.926	-0.002	0.039	0.834	1.006
neighborhood green area	N	137	0	0	137	137
	Minimum	1				
	Maximum	6				
	Mean	3.12	-0.01	0.06	3	3.24
	Std. Deviation	1.099	-0.002	0.04	1.019	1.17
parking lot	N	137	0	0	137	137
	Minimum	1				
	Maximum	6				
	Mean	3.33	0	0.07	3.19	3.47
	Std. Deviation	0.993	-0.001	0.043	0.894	1.067
recreational service	N	137	0	0	137	137
	Minimum	1				
	Maximum	5				
	Mean	3.23	0	0.06	3.12	3.33
	Std. Deviation	1.002	0.001	0.044	0.922	1.103
Valid N (listwise)	N	137	0	0	137	137

4.2.7. Sound pollution and safety

Table 12 Sound pollution and safety

		Statistic	Bootstrap ^a			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
privacy feeling	N	222	0	0	222	222
	Minimum	1				
	Maximum	4				
	Mean	2.24	0	0.04	2.16	2.32
	Std. Deviation	0.857	0.001	0.015	0.827	0.888
safty and secure of neighborhood	N	222	0	0	222	222
	Minimum	1				
	Maximum	5				
	Mean	2.63	0	0.06	2.52	2.74
	Std. Deviation	1.311	-0.002	0.023	1.26	1.354
absence of noise from sharing flat	N	222	0	0	222	222
	Minimum	0				
	Maximum	5				
	Mean	3.22	0	0.06	3.1	3.33
	Std. Deviation	1.221	0.002	0.029	1.161	1.28
absence of noise from day and night bar	N	222	0	0	222	222
	Minimum	1				
	Maximum	6				
	Mean	3.45	0	0.05	3.34	3.54
	Std. Deviation	1.147	0.005	0.047	1.064	1.253
neighborhood social network	N	222	0	0	222	222
	Minimum	0				
	Maximum	5				
	Mean	3.37	0	0.04	3.28	3.45
	Std. Deviation	1.028	-0.004	0.031	0.959	1.087
Valid N (listwise)	N	222	0	0	222	222

From the observation check list, we can understand that most residents have frequently complained about the solid waste disposal service and drainage system connection. Few residents have seldom complained about the sanitation system installation.

The residential' satisfaction with neighborhood attraction (Table 11) within the housing area show means values of 2.66, 3.23, 3.12, 3.33 and 3.23, for neighborhood cleanness, children plays ground, neighborhood green area, parking lot and recreational service, respectively.

From the observation check list, we can understand that most residents have frequently complained about neighborhood cleanness.

Ranking the sound pollution and safety by mean satisfaction level shows that the respondents are most satisfied with absence of noise from day and night bar (MS=3.45), with neighborhood social network (MS= 3.37) and absence of noise from sharing flat (MS= 3.22). The respondents have conveyed lower satisfaction levels with privacy feeling (MS=2.24) and safety and secure of neighborhood (MS= 2.63). Activities such as house break-ins and drug addiction, robbery, sexual harassment & similar others have been reported as frequently happening which indicating that a need to improve security by increasing police patrols within the housing area and by mobilizing the residents to safeguard themselves from such illegal attempts.

4.3. Correlation Analysis

Rubin et al (1994) as cited in Gezahagn (2014) a Pearson correlation coefficient can be summarized as Table 12 given below:

Table 13 Description of Pearson correlation coefficients

SN	Ranges	Results
1	0.90 - 1.00	very high correlation
2	0.70 - 0.89	high correlation
3	0.40 - 0.69	moderate correlation
4	0.20 - 0.39	quite small correlation
5	0.00 - 0.19	slight or negligible correlation

Correlation analysis governs the strength of the relationship as well as the extent of relationship between variables. First the relationship among the four variables of the condominium housing structure and space and their respective relationship with residential satisfaction have been examined. The results are demonstrated on Table 4.14 below.

The correlation process has been subject to 2-tailed test of statistical significance at two different levels – highly significant ($p < .01$) and significant ($p < .05$). Correlation matrix presented in

(Table 13-16) below supports almost all positive relationships among the studied variables with statistical significance. The variables significantly (statistically) and positively correlated with structure quality of housing unit were residential satisfaction (.552^{**}, $p < .01$) and residential satisfaction with the corridor space within the housing area (.409^{**}, $p < .01$).

Although all the components show significant correlation with overall residential' satisfaction, residential' satisfaction with structure quality of housing unit (.552^{**}) and residential' satisfaction with the stair quality within the housing area (.552^{**}) show significantly moderate correlation which indicating that these components play a role in the overall satisfaction level with condominium housing unit. Residential' satisfaction with corridor space provided within the housing area (0.409^{**}) still too have significant impacts on the overall residential' satisfaction levels. From Socio-economic & demographic characteristics point of view, the correlation analysis of the social, economic and demographic features of the respondents have slight or negligible impact on overall residential satisfaction of condominium house. Generally, as it can be seen from (Table 13 -16) below the Socio-economic & demographic characteristics respondents have slight impact on overall residential satisfaction of condominium house.

Table 14 Correlation analysis between residential satisfaction variables and relative ccontribution to overall residential satisfaction.

				structure quality	room space sufficiency	corridor space	stair quality
structure quality	Pearson Correlation			1	.318**	.522**	.552**
					0	0	0
					241	241	241
					-0.001	-0.003	-0.003
					0.045	0.047	0.043
					0.215	0.413	0.449
				0.397	0.595	0.624	
room space sufficiency	Pearson Correlation			.	1	.441**	.219**
	Sig. (2-tailed)					0	0.001
	N					241	241
	Bootstrap ^c	Bias				-0.002	-0.002
		Std. Error				0.041	0.038

		95% Confidence Interval	Lower Upper			0.349 0.507	0.136 0.29
corridor space	Pearson Correlation					1	.409**
	Sig. (2-tailed)						0
	N						241
	Bootstrap ^c	Bias					-0.001
		Std. Error					0.041
		95% Confidence Interval	Lower				0.308
			Upper				0.476
stair quality	Pearson Correlation						1
	Sig. (2-tailed)						
	N						
	Bootstrap ^c	Bias					
		Std. Error					
		95% Confidence Interval	Lower				
			Upper				

Table 15 Correlation analysis between residential satisfaction variables and relative contribution to overall residential satisfaction

				neighborhood cleanliness	children play ground	neighborhood green area	parking lot	recreational service
neighborhood cleanliness	Pearson Correlation			1	0.457	0.313	0.243	0.147
	Sig. (2-tailed)				0	0	0.004	0.086
	N			137	137	137	137	137
	Bootstrap ^a	Bias		0	0.015	0.004	0.011	-0.001
		Std. Error		0	0.061	0.069	0.096	0.053
		95% Confidence Interval	Lower	1	0.365	0.185	0.091	0.033
			Upper	1	0.596	0.46	0.439	0.236
children plays ground	Pearson Correlation			0.457	1	0.175	0.492	0.187
	Sig. (2-tailed)			0		0.04	0	0.029
	N			137	137	137	137	137
	Bootstrap ^a	Bias		0.015	0	-0.004	-0.003	-0.011
		Std. Error		0.061	0	0.1	0.061	0.058

		95% Confidence Interval	Lower	0.365	1	-0.025	0.362	0.061
			Upper	0.596	1	0.363	0.599	0.296
neighborhood green area	Pearson Correlation			0.313	0.175	1	0.268	0.242
	Sig. (2-tailed)			0	0.04		0.002	0.004
	N			137	137	137	137	137
	Bootstrap ^a	Bias		0.004	-0.004	0	0.001	-0.007
		Std. Error		0.069	0.1	0	0.086	0.062
		95% Confidence Interval	Lower	0.185	-0.025	1	0.093	0.111
			Upper	0.46	0.363	1	0.424	0.355
parking lot	Pearson Correlation			0.243	0.492	0.268	1	0.166
	Sig. (2-tailed)			0.004	0	0.002		0.052
	N			137	137	137	137	137
	Bootstrap ^a	Bias		0.011	-0.003	0.001	0	-0.001
		Std. Error		0.096	0.061	0.086	0	0.077
		95% Confidence Interval	Lower	0.091	0.362	0.093	1	0.015
			Upper	0.439	0.599	0.424	1	0.309
recreational service	Pearson Correlation			0.147	0.187	0.242	0.166	1
	Sig. (2-tailed)			0.086	0.029	0.004	0.052	
	N			137	137	137	137	137
	Bootstrap ^a	Bias		-0.001	-0.011	-0.007	-0.001	0
		Std. Error		0.053	0.058	0.062	0.077	0
		95% Confidence Interval	Lower	0.033	0.061	0.111	0.015	1
			Upper	0.236	0.296	0.355	0.309	1

Table 16 Correlation analysis between residential satisfaction variables and relative contribution to overall residential satisfaction.

				proximity to your work place	proximity to public school	proximity to public health Centre	proximity to shopping Centre or market	drainage system connection
proximity to your work place	Pearson Correlation			1	0.094	0.083	0.02	0.083
	Sig. (2-tailed)				0.146	0.197	0.758	0.197
	N			243	243	243	243	243
	Bootstrap ^a	Bias		0	-0.002	0.042	-0.012	0.031
		Std. Error		0	0.042	0.089	0.049	0.06
		95% Confidence Interval	Lower	1	-0.014	0.021	-0.127	0.048
			Upper	1	0.159	0.285	0.07	0.244

proximity to public school	Pearson Correlation			0.094	1	-0.102	0.041	-0.256
	Sig. (2-tailed)			0.146		0.112	0.524	0
	N			243	243	243	243	243
	Bootstrap ^a	Bias		-0.002	0	-0.002	-0.003	-0.004
		Std. Error		0.042	0	0.048	0.047	0.054
		95% Confidence Interval	Lower	-0.014	1	-0.2	-0.044	-0.356
Upper			0.159	1	-0.016	0.141	-0.13	
proximity to public health Centre	Pearson Correlation			0.083	-0.102	1	0.269	0.558
	Sig. (2-tailed)			0.197	0.112		0	0
	N			243	243	243	243	243
	Bootstrap ^a	Bias		0.042	-0.002	0	0	0.002
		Std. Error		0.089	0.048	0	0.052	0.038
		95% Confidence Interval	Lower	0.021	-0.2	1	0.146	0.48
Upper			0.285	-0.016	1	0.368	0.635	
proximity to shopping Centre or market	Pearson Correlation			0.02	0.041	0.269	1	0.213
	Sig. (2-tailed)			0.758	0.524	0		0.001
	N			243	243	243	243	243
	Bootstrap ^a	Bias		-0.012	-0.003	0	0	0.003
		Std. Error		0.049	0.047	0.052	0	0.051
		95% Confidence Interval	Lower	-0.127	-0.044	0.146	1	0.106
Upper			0.07	0.141	0.368	1	0.316	
drainage system connection	Pearson Correlation			0.083	-0.256	0.558	0.213	1
	Sig. (2-tailed)			0.197	0	0	0.001	
	N			243	243	243	243	243
	Bootstrap ^a	Bias		0.031	-0.004	0.002	0.003	0
		Std. Error		0.06	0.054	0.038	0.051	0
		95% Confidence Interval	Lower	0.048	-0.356	0.48	0.106	1
Upper			0.244	-0.13	0.635	0.316	1	

Table 17 Description of Correlation between overall satisfaction and socio-economic & demographic features

		Sex	Family size	Percentage of income goes to rent or mortgage	House type	Proprietorship status
Sex	Pearson Correlation		1	0.063	-.226**	0.027
	Sig. (2-tailed)			0.324	0	0.67
	N		243	243	243	243
	Bootstrap ^b	Bias		0	0	0
		Std. Error		0	0	0

		95% Confidence Interval	Lower	1	0.063	-0.226	0.054	0.027
			Upper	1	0.063	-0.226	0.054	0.027
Family size	Pearson Correlation			0.063	1	.319**	.584**	0.108
	Sig. (2-tailed)			0.324		0	0	0.092
	N			243	243	243	243	243
	Bootstrap ^b	Bias		0	0	0	0	0
		Std. Error		0	0	0	0	0
		95% Confidence Interval	Lower	0.063	1	0.319	0.584	0.108
			Upper	0.063	1	0.319	0.584	0.108
Percentage of income goes to rent or mortgage	Pearson Correlation			-.226**	.319**	1	.266**	.359**
	Sig. (2-tailed)			0	0		0	0
	N			243	243	243	243	243
	Bootstrap ^b	Bias		0	0	0	0	0
		Std. Error		0	0	0	0	0
		95% Confidence Interval	Lower	-0.226	0.319	1	0.266	0.359
			Upper	-0.226	0.319	1	0.266	0.359
House type	Pearson Correlation			0.054	.584**	.266**	1	0.036
	Sig. (2-tailed)			0.405	0	0		0.577
	N			243	243	243	243	243
	Bootstrap ^b	Bias		0	0	0	0	0
		Std. Error		0	0	0	0	0
		95% Confidence Interval	Lower	0.054	0.584	0.266	1	0.036
			Upper	0.054	0.584	0.266	1	0.036
Proprietorship status	Pearson Correlation			0.027	0.108	.359**	0.036	1
	Sig. (2-tailed)			0.67	0.092	0	0.577	
	N			243	243	243	243	243
	Bootstrap ^b	Bias		0	0	0	0	0
		Std. Error		0	0	0	0	0
		95% Confidence Interval	Lower	0.027	0.108	0.359	0.036	1
			Upper	0.027	0.108	0.359	0.036	1

4.4. The Results of Open-Ended Questions

When respondents were asked about additional variables that might add to residential dissatisfaction in open-ended question, residents added some points that contribute to residential dissatisfaction with the housing environment. To point out some of them, social insecurity like: robbery, criminal issues, chewing chat, sexual harassment and the like. Unfair use of common

areas especially commercial house owner uses large portion of the common area and corridor for their personal commercial purposes.

Most respondents also believed that co-ordination efforts of upper –lower government organs will be important to get easy access whenever needed. They also raised the issue of unfinished constructions of communal building, roads, and common pedestrian walkways.

Lack of access to proper government structures for the grievances raised by the residents to settle disagreements between the residents and residents' cooperatives leaders. Most respondents highlighted on the provision of satisfactory and quality infrastructures to their residential places. They also underlined on taking appropriate legal measures on illegal construction, illegal use of common areas, illegal house renters and criminal practices.

4.5. Major Contributing Factors to Low Condominium Quality in Bishoftu

From the officials' interview and report review we found that the major contributing factors for low condominium quality as follows

From Administration Side

- Failure to review national building code according to residents' demand and existing situation (e.g. absence of elevator)
- More attention and coverage are given for housing units' quantity than quality
- Provide house for the poor without proper facilitation for their livelihood and employment opportunity
- Low public consultation in design review
- Ineffectiveness of technical manual of condominium construction
- Lack of coordination between utility service provider and sanitation and environment protection agencies

From Residents Side

- Lack of experience on living multi-story house
- Lack of commitment on managing sharing area
- Failure to follow and /or adopt the condominium management guideline

4.6. Summary of Reasons of Condominium Housing Satisfaction

Based on our research we can summarize reasons for satisfaction and dissatisfaction as given below:

Reasons for satisfaction

- Contribute for homeownership
- Privately own water tape, electric meter, toilet facility
- Relatively better residential place than slum
- Relatively better sewerage system and solid waste disposal
- Better quality kitchen
- Positive influence on housing unit space management
- Experience modern life style
- Strength culture of tolerance between sharing flat.

Possible reason for dissatisfaction

- Low quality construction
- Narrow housing unit space
- High finishing cost
- Short time for down payment
- Long time between winning house and possessing
- Lack of option for housing finance
- High interest rate
- High rent cost
- High level of intervention of broker in housing market
- Structural inconvenience for low income group to do home-based business

4.6.1. Synthesis of Housing Quality Domains to quality of Life

It is evident that housing satisfaction is one of widely held researched topic in quality of life study. In this section we wanted to present factors that affect condominium dwellers satisfaction within the context of body of knowledge and relevant research by focusing on major housing domains namely: site aesthetic, structure and space, affordability, utility and service, accessibility, sanitation, neighborhood attraction, noise and security effect on dwellers satisfaction and perception.

The overall condominium dwellers' housing satisfaction was slightly higher than dissatisfaction. Housing satisfaction percentage result show that inner town low-cost housing sites percentage

was above average while town periphery low-cost housing below average. On the other hand, the result show ground floor score was slightly higher than top floors and negative perception and low preference for top floors.

Structure and space domain were compiled structural quality, dwelling unit space, staircase quality, corridor space and sanitary appliance installation indicators. The research found respondents' satisfaction in this domain as case summary report for each of them as below.

4.6.2. Room space sufficiency

As the graph indicated below room space insufficiency was one cause for dissatisfaction and accordingly from the total respondents the higher number of respondent n=127(52.3%) was satisfied with there with room space sufficiency and the list number of informants were n=14(5.8%),were exceedingly satisfied and the rest was not bad as well as somehow satisfied.

Table 18 Room space sufficiency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not bad	39	16	16	16
	somehow satisfied	63	25.9	25.9	42
	satisfied	127	52.3	52.3	94.2
	exceedingly satisfied	14	5.8	5.8	100
	Total	243	100	100	

4.6.3. Corridor space

Concerning to corridor space the highest respondents n=103 were somehow satisfied and average number of respondents n=77, were satisfied and n=44, were exceedingly satisfied, this indicates that the dwellers not fully satisfied with the corridor space and it needs improvement in different aspect.

Table 19 Corridor space

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	16	6.6	6.6	6.6
	not bad	4	1.6	1.6	8.2
	somehow satisfied	103	42.4	42.4	50.6
	satisfied	77	31.7	31.7	82.3
	exceedingly satisfied	43	17.7	17.7	100
	Total	243	100	100	

4.6.4. Stair quality

Stair quality of a building is a key element for satisfaction of residents regarding to respondents the highest number of respondents n=109(44.9%) were somehow satisfied, n=75(30.9%) were satisfied and total dissatisfaction were n=16(6.6). This indicates that the respondents were not highly satisfied or highly dissatisfied rather they are in the middle but the result indicates that the quality of stair also need improvement to highly satisfy the residents.

Table 20 stair quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	16	6.6	6.6	6.6
	not bad	22	9.1	9.1	15.8
	somehow satisfied	109	44.9	45.2	61
	satisfied	75	30.9	31.1	92.1
	exceedingly satisfied	19	7.8	7.9	100
	Total	241	99.2	100	
Missing	System	2	0.8		
Total		243	100		

4.6.5. Structure quality

Regarding to the collected data from respondent's concerning to structural quality the highest number of respondents $n=121(49.8)$ were satisfied with the structure the list number of respondent $n=6(2.5)$ were responded as not bad and also the large number $n=89(36.6)$ were somehow satisfied this indicates that structural quality of the building was good and have no effect for dissatisfaction of the residents.

Table 21 Structure quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	16	6.6	6.6	6.6
	not bad	6	2.5	2.5	9.1
	somehow satisfied	89	36.6	36.6	45.7
	satisfied	121	49.8	49.8	95.5
	exceedingly satisfied	11	4.5	4.5	100
	Total	243	100	100	

4.6.6. House type

Conserving housing type of the residents as shown below in graph the highest number of respondents $n=144(46.9)$ were from two-bed room= $81(33.33\%)$ were from one-bed room= $34(14\%)$ were three-bedroom and the list number $n=14(5.8)$ were from studio this indicates that the highest respondents were from one-bed and two-bed rooms.

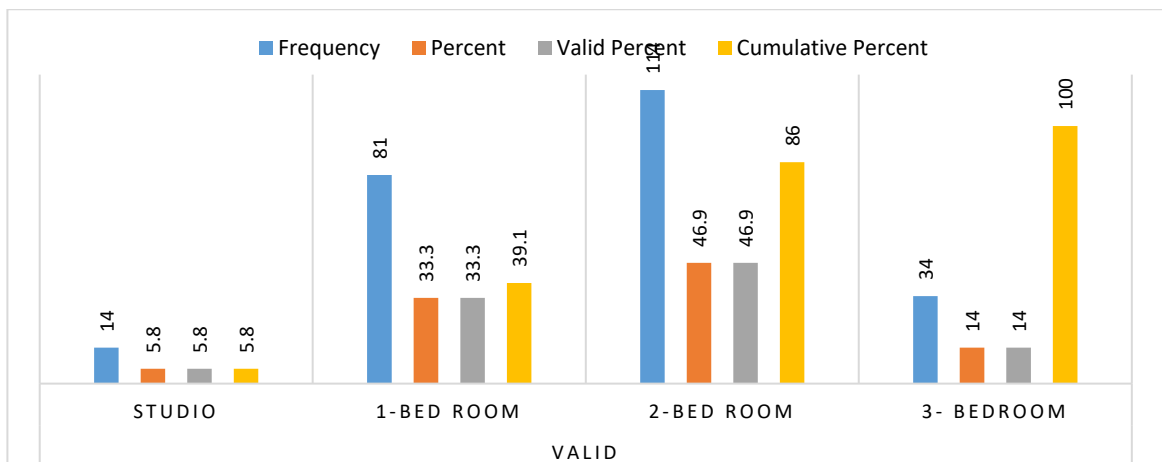


Figure 5 House type

An examination of survey result reveals that most of the respondents were dissatisfied with affordability domain. Which was evident by the following summary table.

4.6.7. Down payment

The table below indicates that the down payment of residents and the result indicates that from the total respondents n=96(39.50) were satisfied with the down payment, n=27(11.10) were somehow satisfied=16(6.60)were responded as the down payment was not bad this implies that the respondents were satisfied.

Table 22 Down payment

		Value	Count	Percent
Standard Attributes	Position	10		
	Label	dawn payment affordability		
	Type	Numeric		
	Format	F8		
	Measurement	Ordinal		
	Role	Input		
Valid Values	0	exceedingly dissatisfied	0	0.00%
	1	dissatisfied	4	1.60%
	2	not bad	16	6.60%
	3	somehow satisfied	27	11.10%
	4	satisfied	96	39.50%
	5	exceedingly satisfied	4	1.60%
Missing Values	System		96	39.50%

4.6.8. Finishing

Concerning to the floor finishing of the houses as shown below in the table the highest respondents n=89(36.60) were somehow satisfied, n=22(9.10%) were replies not bad, n=16(6.60) with equal respondents dissatisfied and satisfied this implies that the satisfaction of residences to finishing material of the building were somehow not satisfied and it needs some improvement for best satisfaction of residents.

Table 23 Finishing

		Value	Count	Percent
Standard Attributes	Position	11		
	Label	finishing cost affordability		
	Type	Numeric		
	Format	F8		
	Measurement	Ordinal		
	Role	Input		
Valid Values	0	exceedingly dissatisfied	0	0.00%
	1	dissatisfied	16	6.60%
	2	not bad	22	9.10%
	3	somehow satisfied	89	36.60%
	4	satisfied	16	6.60%
	5	exceedingly satisfied	0	0.00%
Missing Values	System		100	41.20%

4.6.9. Monthly mortgage

Concerning to monthly mortgage the respondents were n=92(37.90%) were satisfied=29(11.90) somehow satisfied and n=22(9.10) were Replies not bad this implies that above half presents of the residents were satisfied there for it need somehow improvement for the below half respondents

Table 24 Monthly mortgage

		Value	Count	Percent
Standard Attributes	Position	12		
	Label	monthly mortgage repayment		
	Type	Numeric		
	Format	F8		
	Measurement	Ordinal		
	Role	Input		
Valid Values	0	exceedingly dissatisfied	0	0.00%
	1	dissatisfied	0	0.00%
	2	not bad	22	9.10%
	3	somehow satisfied	29	11.90%
	4	satisfied	92	37.90%
	5	exceedingly satisfied	0	0.00%
Missing Values	System		100	41.20%

4.6.10. Rent cost

Regarding to the rent cost of the houses the highest respondents n=67(27.6) were somehow satisfied n=61(25.10%) were satisfied=36(14%) responded not bad generally the rent cost of the house was somehow good.

Table 25 Rent cost

		Value	Count	Percent
Standard Attributes	Position	13		
	Label	rent cost affordability		
	Type	Numeric		
	Format	F8		
	Measurement	Ordinal		
	Role	Input		
Valid Values	0	exceedingly dissatisfied	0	0.00%
	1	dissatisfied	0	0.00%
	2	not bad	36	14.80%
	3	somehow satisfied	67	27.60%
	4	satisfied	61	25.10%
	5	exceedingly satisfied	0	0.00%
Missing Values	System		79	32.50%

4.7. Utility

4.7.1. Water supply

Concerning water supply the highest respondents n=132(54.3%) were somehow satisfied with the water supply=71(29.2) respondents were satisfied=9 (3.7%)were exceedingly satisfied and few number n=16(6.6%) were not satisfied there for those implies that the water supply of the houses were good but it needs improvement for dissatisfied residents.

Table 26 Water supply

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	16	6.6	6.6	6.6
	not bad	15	6.2	6.2	12.8
	somehow satisfied	132	54.3	54.3	67.1
	satisfied	71	29.2	29.2	96.3
	exceedingly satisfied	9	3.7	3.7	100
	Total	243	100	100	

4.7.2. Electricity supply

Regarding to the collected data concerning to electric supply the highest respondents above the half n=143(58.8) were somehow satisfy n=70(28.8%) were satisfied with the electric supply and few number n=4(1.6%) were dissatisfied this indicates that there is good electric supply in the residence

Table 27 Electricity supply

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	4	1.6	1.6	1.6
	not bad	4	1.6	1.6	3.3
	somehow satisfied	143	58.8	58.8	62.1
	satisfied	70	28.8	28.8	90.9
	exceedingly satisfied	20	8.2	8.2	99.2
	34	2	0.8	0.8	100
	Total	243	100	100	

4.7.3. Cell phone network connection

Concerning to cell phone connection network the highest respondents n=111(45.7%)were not satisfied n=22(9.1%) were answered the connection is not bad n=30(12.3) were somehow satisfied and n=64(26.3) were satisfied

Table 28 Cell phone network connection

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	111	45.7	45.7	45.7
	not bad	22	9.1	9.1	54.7
	somehow satisfied	30	12.3	12.3	67.1
	satisfied	64	26.3	26.3	93.4
	exceedingly satisfied	16	6.6	6.6	100
	Total	243	100	100	

4.8 location of the house

4.8.1. proximity to your work place

Concerning to proximity to work place the highest respondents were n=96(39.5)were somehow satisfied, n=62(25.25%) were resplice bad, n=34(14%) were satisfied and n=29(11.9) were exceedingly satisfied this indicates that the location houses are not centered to all residents.

Table 29 proximity to your work place

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	7	2.9	2.9	2.9
	not bad	62	25.5	25.5	28.4
	somehow satisfied	96	39.5	39.5	67.9
	satisfied	34	14	14	81.9
	exceedingly satisfied	29	11.9	11.9	93.8
		14	5.8	5.8	99.6
	Total	243	100	100	

4.8.2. proximity to public school

Concerning to proximity to public school the highest respondents above half n=125(51.4%)were responded as they are somehow satisfied, n= 53(21.8%) with equal number the respondents were answered the proximity to public school were both satisfied and not bad this implies that the houses were near to public school and the residents were satisfied.

Table 30 proximity to public school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	1	0.4	0.4	0.4
	not bad	53	21.8	21.8	22.2
	somehow satisfied	125	51.4	51.4	73.7
	satisfied	53	21.8	21.8	95.5
	exceedingly satisfied	11	4.5	4.5	100
	Total	243	100	100	

4.8.3. proximity to public health Centre

As the table below indicates that the proximity of the residences to health center the highest respondents, n= 101(41.6%) recipes that they are somehow satisfied=109(44.9%) were satisfied and few number n=20(8.2%) were dissatisfied with proximity to public health center

Table 31 proximity to public health Centre

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	dissatisfied	20	8.2	8.2	8.2
	not bad	9	3.7	3.7	11.9
	somehow satisfied	101	41.6	41.6	53.5
	satisfied	109	44.9	44.9	98.4
	exceedingly satisfied	4	1.6	1.6	100
	Total	243	100	100	

The overall noise and security satisfaction domain show that 63% of respondents were satisfied. Safety and security are an important feature for those sites frequently experience crime. With this regard respondent stressed, the importance of strength fence, gated locked and guardhouses manned service to control thieves and stranger frequent visit.

4.9. Low-cost Housing Contribution for Quality of Life

In Bishoftu, much is unknown on the outcome of low-cost house contribution in addressing housing need of different income group and its impact on their quality of life. As indicated earlier, this study examine is how the low-cost has contributed to improved quality of life or standard of living of residents. Numerous researches examined housing as a domain of quality of life and its effect on other domains such as material wellbeing, health, financial capability and general wellbeing of individuals (Zebardast, 2008). It is for this reason that the following section summarizes only the major low-cost contribution for quality of life.

This study considered residents' housing satisfaction level as an indication of the quality of life. The research found that satisfaction and dissatisfaction determinants about low-cost house. The

main finding of the study is that the residents are generally satisfied by having a dwelling for their family. Satisfied dwellers acknowledged that condominium contribution for modern life style, positive influence on saving culture, homeownership, sanitation improvement, improvement over previous housing location, a relief from chronic house shortage, culture of tolerance and mutual understanding among neighbors, better housing space management, privacy, freedom of using facilities and utilities. These factors are important ingredients for quality of life improvements. Previous studies held on housing and quality of life support this finding (Dunny and Kyle, 2007; Ilesanmi, 2012; Zebardast, 2008).

Condominium project at macro level also has impact on overall quality of life. Ministry of Works and Urban Development (2010), Addis Ababa Housing Development Project Office (2005) reports and publication claimed that condominium project contribute for housing provision, thousands of job creation for micro and small-scale enterprise, strength of construction sectors and consultants, slum clearance, improvement in urban design, infrastructure development, alleviating social problem and poverty. Another study by UN Habitat (2011); Haregewoin (2007) also support this claim.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1. Summary

This research finding with regard to stair quality, cell phone network connection, communal service building, distance from housing unit to the town center (mode of transport), distance to the proximity to public school, solid waste disposal service, drainage system connection, and neighborhood cleanness in the housing unit illustrated that the respondents have dissatisfaction. This research result corresponded with the findings of Clement and Kayode (2012) that, there was high rate of satisfaction with factors such as proximity to religious center and adequate size of the living room; favorable location attributes generally refer to accessibility in relation to central business district, local amenities such as shopping centers, schools and transportation centers. Accessibility of public transportation, community and shopping facilities and physical environment variables had been identified as predictors of neighborhood satisfaction (Ozo, 1990).

The findings of this research also complained that residents have complaints on sewerage line, unfinished constructions, unfair distributions of communal buildings, unfair use of common areas, lack of sense of ownership, insecurity, privacy, sounds pollution, robbery, criminal issues etc. This research result declared that the findings of previous researchers such as Ghani Salleh, (2008) who confirmed that absence of complains suggest residential satisfaction at equilibrium point of needs and aspirations, and would likely feel dissatisfied if their housing and neighborhood do not meet their needs and aspiration.

Previous researchers such as Mohit et al., (2010) discovered that age has a negative influence over satisfaction. On the contrary, this research finding revealed that the corridor space, room space sufficiency, structure quality, water supply, electricity supply and sanitation system installation have insignificant correlation with the overall satisfaction.

The research result indicated that the structure quality, stair quality and public facilities provided show significantly higher correlation with overall residential satisfaction with the housing unit. Finally, satisfaction is a complex result that is brought about by a composition of many factors in addition to the aforementioned residential satisfaction measuring variables. Thus, it should be noted accordingly that the findings of this research suggest issues related with the four basic

researched variables contributing for the overall residential dissatisfaction that is exhibited or witnessed by residents.

It is also vital to ask how previous studies addressed the subject. In this regards no study has been explicitly address the condominium dwellers satisfaction in Bishoftu. Thus, lack of similar study in Bishoftu context was a challenge. To compensate these challenge empirical literatures in multistory buildings and developing country, low cost housing studies were reviewed.

5.2. Conclusion

The main objective of this research is to assess Bishoftu condominium dwellers' satisfaction assessments. The core conclusion of the study is that the dwellers of condominium are generally satisfied by having a house for their family. There was difference in the level of satisfaction among tenants depending on whether the house is top floor or ground floor, better housing structural quality, accessibility of the condominium to major public service and utilities. Unaffordability, structure inconvenience for home-based business, absences of children playground, absence of adult recreation center, and lack of living experience in multi-story houses were the central contributing factors to the dissatisfaction of dwellers regardless of site location and floor level.

On the other hand, the satisfaction for ground floor was slightly higher than other floors as well as low preference for top floor. The variation in satisfaction with respect to floor mainly associated with low water pressure power, noise coming from ceiling, leakage from sanitary appliance and roof. However, to generalize the finding further proof is needed. It is because this research did not control variables besides floor difference, such as housing unit space, interior housing quality and respondent socioeconomic characteristics. Furthermore, of 30 indicators some of them are not significant effect on floors variation (for example, accessibility). Therefore, to come to conclusion on floors housing quality index variation with statistical analysis further investigation is necessary.

Based on the research findings, refining physical quality of buildings in terms of structure, space design, improving sites socio-physical characteristics of sites would increase condominium dwellers' satisfaction level. Taking the structural, physical, social, and economic and cultural needs of the dwellers into account in the design, and construction of communal service building would improve housing quality.

5.3. Recommendations

To get a full picture of existing condominium condition in Oromiya more sample sites, sample blocks and respondents are recommended. During the course of the research, the researcher realized that housing quality could not be assessed only by reviewing international standards and indicators. During further investigation, some of housing quality issues raised was unique and perhaps only visible in case of Bishoftu. Therefore, housing quality indicators should be selected and considered in the local context as much as possible.

Furthermore, housing satisfaction is wide and complex i.e. it includes architectural, economic, social, cultural, environmental, geographical and political issues. The scope of this research does not fully address all of these elements; instead focus on housing unit characteristics, locational attributes and few socioeconomic aspects with respect to Environmental Architecture. Finally developing a macro research project is a recommended direction for further research.

Thus, this study demands for a new housing policy initiative that provides for the needs and desires of the poor through a change and redirection from fine and untenable housing commencement and development to comprehensive and viable housing initiatives which are embedded in consumer housing needs and desires to address the present massive housing problems in town like Bishoftu.

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Appendices

Questionnaire for Household Survey

My name is Michael Asefa MSc student in Adama University of Science and Technology, Adama, Ethiopia. The purpose of this study is to assess DWELLERS SATISFACTION ASSESSMENT ON PUBLIC LOW-COST HOUSING DEVELOPMENT IN BISHOFTU, ETHIOPIA. The motive behind to assess the dwellers' satisfaction is to detect the housing quality effect on dwellers view and satisfaction level and to show possible quality problems for future policy intervention. All answer you give is kept private. Therefore, I kindly request you to give real and honest answers for the questions below. I would like to thank you for your precious time devoted to answer back the questions.

Condominium Site name_____

Kebele _____

Block number_____

Story number 1) Ground floor 2) Story one 3) Story two 4) Story three 5) Story four

House number-_____

I. Socioeconomic data

1. Sex i) male ii) female
2. Family size i) 1-2 ii) 3-5 iii) 6 or above
3. Proprietorship status i) Owner ii) Renter
4. Percentage of income goes to rent or mortgage
i) below 10% ii) 11-20% iii) 21-30% iv) 31-40% v) 41 -50% vi) Above 50%
5. House type i) Studio ii) 1-bed room iii) 2-bed room iv) 3- bedroom

II. Housing Quality Indicators

For this questionnaire part, please show your level of satisfaction from zero to 5. Value “0” stands for “exceedingly dissatisfied” and “5” stands for “exceedingly satisfied”. You have right to tell your practice in detail on each item.

Value “0” stands for “exceedingly dissatisfied” and “5” stands for “exceedingly satisfied”.							
	Structure and space	0	1	2	3	4	5
6	. To what extent you are satisfied with structure quality?						
7	To what extent you are satisfied with room space sufficiency?						
8	To what extent you are satisfied with corridor space?						
9	To what extent you are satisfied with stair quality?						

	Affordability	0	1	2	3	4	5
10	To what extent you are satisfied on down payment affordability?						
11	To what extent you are satisfied on finishing cost affordability?						
12	To what extent you are satisfied on monthly mortgage repayment						
13	To what extent you are satisfied level on rent cost affordability?						
	* for tenant ** for house owner						
	Utility and Provision	0	1	2	3	4	5
14	To what extent you are satisfied with water supply?						
15	To what extent you are satisfied with electricity supply?						
16	To what extent you are satisfied with cell phone network?						
17	To what extent you are satisfied with communal service building?						
	Convenience	0	1	2	3	4	5
18	To what extent you are satisfied level with availability of mode of transport?						
19	To what extent you are satisfied with your house proximity to your work place?						
20	To what extent you are satisfied with your house proximity to public school?						
21	To what extent you are satisfied with your house proximity to public health Centre?						
22	To what extent you are satisfied with your house proximity to shopping Centre or market?						
23	Sanitation						
24	23. To what extent you are satisfied in drainage system connection?						
25	24. To what extent you are satisfied in solid waste disposal service?						
26	25. To what extent you are satisfied in sanitation system installation?						
	Neighborhood Attraction	0	1	2	3	4	5
27	To what extent you are satisfied in neighborhood cleanness?						
28	To what extent you are satisfied at children plays ground?						
29	To what extent you are satisfied at neighborhood green area?						
30	To what extent you are satisfied with parking lot?						
31	To what extent you are satisfied with recreational service of your site?						
	Sound pollution and safety	0	1	2	3	4	5
32	To what extent you are satisfied at privacy feeling?						
33	To what extent do you feel safe and secure in your neighborhood?						
34	To what extent you are satisfied absence of noise from sharing flat?						
35	To what extent you are satisfied absence of noise from day and night bar?						
36	To what extent you are satisfied at neighborhood social network?						

Additional Questions:

1. Would you tell me any encounter experienced because of living in condominium?
2. How do you identify about your floor?
3. To what extent condominium affects your quality of life?
4. Would you tell me any proposal about further housing quality enhancement?
5. How do you assess your condominium site quality in terms of the following housing quality parts?
 - Neighborhood attractiveness
 - Sound pollution and safety
 - Convenience
 - Utility and service provision
 - Sanitation
 - Affordability
 - Structure
6. Which floor do you prefer? Why?
7. How do you observe condominium input for quality of life of dwellers?
8. What do you propose for further policy intervention in housing quality upgrading?