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Nyx Wenlin Zhu

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DEVELOPMENT OF A MODEL FOR AFFORDABLE SENIOR LIVING COMMUNITY

By

Nyx Wenlin Zhu

Bachelor of Science, Interior Architecture and Design
University of Nevada Las Vegas
2020

A thesis submitted in partial fulfillment
of the requirements for the

Master of Design

School of Architecture
College of Fine Arts
The Graduate College

University of Nevada, Las Vegas
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Thesis Approval

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The University of Nevada, Las Vegas

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This thesis prepared by

Nyx Wenlin Zhu

entitled

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is approved in partial fulfillment of the requirements for the degree of

Master of Design
School of Architecture

Dak Kopec, Ph.D.
Examination Committee Chair

Kathryn Hausbeck Korgan, Ph.D.
*Vice Provost for Graduate Education &
Dean of the Graduate College*

Glenn Nowak, M.Arch.
Examination Committee Member

Steffen Lehmann, Ph.D.
Examination Committee Member

Tirth Bhatta, Ph.D.
Graduate College Faculty Representative

Abstract

Objective

An affordable senior living community model must be developed to support the needs of our growing elderly population. Health, safety, and wellbeing depend on equal physical health, social health, and mental or psychological health provisions. As we look at each of these aspects, we must filter physical, social, and mental health based on the abilities of the older population.

Background

The aging population in western societies is one of the biggest challenges of the 21st century and has multiple implications for society, the economy, and other aspects of the community. Aging people who lack family support often require the services of a senior living community to ensure their health, safety, and wellbeing. However, many of these people have concurrently experienced a decline in wealth, limiting their access to these communities.

Methods

To gain a better idea of what current senior living communities offer, six case studies will be evaluated based on a collective case study methodology which assess multiple cases concurrently or sequentially to better understand particular issues. In this study, the issues will be provisions for physical, social, and mental health within each facility. These assessments will be based on the provision of equipment and quality of that equipment to facilitate the activity.

Physical health aspects might include access to healthcare services, facilitation of a healthy diet and nutrition, and opportunities for physical activity that promote flexibility and strength. Social health is based on the ability for people to engage with one another, which requires the provision of gathering spaces that allow for organic conversation can occur. In addition, the

physical and social health venues often support mental or psychological health but do not account for personal empowerment or self-determination. Therefore, methods for volunteerism or the ability to do something with limited barriers are essential.

Result

When a community can support its residents' physical, social, and psychological health, it will allow personal growth and inhibit cognitive deterioration. Suppose such a model can be developed and offered at an affordable rate. In this case, we will be better able to meet the needs of our growing senior population while ensuring optimal health, safety, and wellbeing.

Conclusion

The main benefits of this model are that installed from the external world where residents live in the community periodically. The design integrates the senior living community into the greater community by providing support that can be unitized surrounding the public, providing elderly people with diverse volunteer opportunities to give them a sense of purpose. This affordable development model offers amenities that could be rented out in a childhood care facility with occupants serving as volunteers to support these activities, including tutoring, peer counselor, and activities coach. At the same time, this could provide services for the external community to reduce the cost of rent for its occupants.

Figure 1: Logic Map



This figure demonstrates the logic of this thesis.

Source: Image drawn by author.

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NYX WENLIN ZHU

University of Nevada, Las Vegas

April 2022

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Chapter 1 – Introduction

1.1 Statement of Problem

In this thesis, the operational definition for the term ‘elderly population’ refers to the group of people who are 65 and older. The National Institutes of Health (2016) state that the elderly population within western civilizations will continually grow. The Rural Health Information Hub (2019) states that by 2050 the elderly population in the United States is expected to reach 90 million. In addition, the American Association of Retired Persons (AARP, 2013) projects that by 2030, approximately 16% of women will be between 80 and 84 years old. Elderly populations, by their very nature, have specific needs if they are to remain active and vital contributors to society. Six and a half percent (about 2.5 million) of the elderly have opted to move into senior housing facilities to better meet their social and physical needs (Institute of Medicine [US] Food Forum). However, recent decades have seen a widening gap in socioeconomic status between the upper and lower socioeconomic classes (Pew Research Center, 2020), which threatens the availability of resources to meet the specific needs of the poor.

Economic status is a term used to describe one's level of financial freedom, and one's quality of life is determined by income. The cost of senior housing has increased 6.15% in 2020 and is expected to increase. The national median cost for a one-bedroom apartment in a senior living community is about \$4,300 per month or \$51,600 per year (Sodu, 2020). According to the United Nations Department of Economic and Social Affairs (2016), this widening gap leaves many older people without the resources needed to ensure health and safety during their advanced ages. Therefore, an affordable model for a senior living community that offers an array

of physical, social, and psychological service-based offerings must be explored to ensure all senior citizens' health, safety, and well-being.

1.2 Purpose of Study

The purpose of this study is to assess ways that a senior living community could be designed to meet the goals of physical, social, and psychological health while concurrently remaining affordable to those with limited economic resources. A significant challenge will be providing spaces and items needed to facilitate activity in a meaningful way. Likewise, areas and objects need to inspire healthy interactions between the residents. Many within the elderly population who suffer from economic constraints tend to experience one or more health conditions that can be addressed through physical or social activities. Therefore, the ability to promote physical, social, and psychological health within a senior living community must be regarded as essential and not merely an amenity of desire.

1.3 Method of Analysis

The purpose of this study is to explore ways to reduce development costs for senior retirement communities so that individuals within the lower- and middle-income economic brackets can age safely while remaining active and healthy during their golden years. A series of case studies will be performed to identify different methods used for cost reduction. Variables of analysis will center on those aspects of senior living that promote wellbeing. Among these variables are physical activities based on fitness centers, exterior paths and walkways, and opportunities to swim or engage in aqua aerobics. Another variable will be amenities that support social activities such as a game room, library, and multimedia space. Mental or psychological health is the final variable of analysis. It will be assessed through self-determination and

empowerment activities such as the desire to plant a garden, learn a new skill, or individualize one's home.

Chapter 2 – Societal Issues

2.1 Elderly Population

The elderly populations within western civilizations are continually growing. With rapidly developing healthcare practices and advances in medical technologies, people in developed countries live longer, with an average age extending into the 70s, 80s, and even 90s (World Health Organization, 2018). In 2019, the population of people aged 65 and over grew 17 times beyond the 1900s. For example, in 1900 roughly 3.1 million people aged 65 and older resided in the U.S. In 2000, just 100 years later, the population of people aged 65 and older was roughly 31.2 million. In 2019, this number grew to 54.1 million (ACL, 2021), which means that the elderly population is growing rapidly, and the demand for resources is increasing.

By 2050, The Rural Health Information Hub (2021) projects that the number of older people in the U.S. will increase to approximately 90 million. In addition, the baby boomer cohort will reach age 65 between 2020 and 2030, which means that 1 in 5 Americans will be aged 65 and over.

2.2 Economics

According to data from the Pew Research Center (Jan 2020), from 1983 to 2016, the aggregate wealth of upper-income households increased from 60% to 79%. Likewise, the U.S. Social Security Administration reported total social service benefits to low-income families have increased from \$304.30 (in 1983) to \$733.00 (in 2016). However, poverty and substandard living continue to prevail. According to the United States Census Bureau (2020), the national poverty rate in 2020 was 11.4%, which means 37.2 million people were living in poverty. However, this number doesn't represent the homeless or those who do not receive social service benefits. Economic insecurity among the elderly is becoming critical as the U.S. population ages. The

divide in financial status within the U.S. has also consistently grown wider, resulting in the growth of the number of older people living in poverty (Special Report, 2018). According to the Pew Research Center's (2020) analysis of government data, in 2018 about half of U.S. adults (52%) lived in middle-income households. Roughly three in ten, or 29%, of the U.S. population, were classified as lower-income. This data considers a person's geographic location and population densities. Hence, these statistics account for regional differences.

According to the U.S. Census Bureau, the average retirement income for Americans over 65 is \$47,357, and the mean retirement income is \$73,288. However, half of the aging population had less than \$27,398 in yearly income from all sources (Pension Rights Center, April 2021), and 4.9 million people aged 65 and older lived-in object poverty.

Congressional Research Service (April 2021) reported that seniors aged 80 and older were more apt to live in poverty than their younger counterparts. To put this into context, roughly 11.1% of seniors aged 80 and older, 9.2% of individuals aged 75 to 79, 7.4% among those aged 70 to 74, and 8.4% among those aged 65 to 69 live below the U.S. poverty line. In addition, seniors who were not married generally had a higher poverty rate than those who were married or living with a significant other (Congressional Research Service, April 2021).

Retirement communities once provided a viable residential alternative for the middle- and upper-income populations (Pearson et al., 2019). However, a recent CNBC (2020) report states that the cost of living has outpaced earning potentials and social security benefits. This means that many within the middle class are losing wealth annually. These individuals cannot afford an environment that promotes all aspects of health, safety, and wellbeing. Without a viable solution, Generations (2020) reports that many within the elderly population could end up homeless, living in substandard conditions, or dying prematurely from a common accident or illness. Thus,

an entire segment of society will not be given the necessary support needed to remain active and healthy during their golden years.

2.3 Family Structure

The modern family structure has been changing in many countries throughout the world. Families are smaller (Pew Research Center, 2015), and children move far from their parents to secure better employment opportunities. The 2020 U.S Census indicates there were 3.15 family members per household. This number is down from the average family size of 3.7 in the 1960s. By the 1970s, roughly 56% of all households had children under eighteen. But by 2019, only 40.66% of households had children under the age of eighteen. While the parents of the baby boomers often had multiple children who could care for the elderly, the baby boomers, Generation X, and millennials have fewer children and higher divorce rates.

The cultural phenomenon where career became the primary focus of many young Americans means that several younger baby boomers, Generation X, and millennials have chosen to remain single or have divorced. The emphasis on career means that many within these generations will have a greater probability of being single as they enter their senior years. Single people often rent their homes or live in condominiums because these housing types offer freedom from maintenance and upkeep. People who have rented their homes throughout their lives however, tend to have a poverty rate, much higher than that of a widowed or married older persons, because they do not have the home as part of their assets. Those who have chosen to live in a condominium tend to receive a lower-than-average return of their asset. Married people often have significantly more retirement benefits than do single people (Poterba, et. al. 2012). Among the 90% of wealth earners aged 65 to 69, two-person households average \$878,000 in assets, while single-person households in the same population average only \$380,000 in total assets.

One factor for this discrepancy is that couples tend to own homes that carry a higher value than do condominiums. However, those aged 70-80 and 80-90 will be more likely to be widowed, and single older people tend to be more vulnerable to financial and health insecurities because they are not able to share routine living expenses (Lamagna, 2017).

An additional phenomenon that has affected the family structure is an overall decline in wealth by the middle- and lower-income populations, which has resulted in the need for two or more income households, thus, preventing the ability of the family to provide care to elderly parents. In the past, single-income households could sustain the family, with the partner who did not work being able to care for older parents. However, the requirement for dual incomes that began in the 1980s has significantly affected the family structure and left many older people with no one to care for them.

A third contributing factor effecting the family structure is the increased incidents of addiction by many within the younger baby boomer, Generation X, and millennial generations. Increases in drug and alcohol usage among these generations have resulted in the need for some grandparents to assume custody and raise their grandchildren. Substance Abuse and Mental Health Services Administration (SAMHSA, 2017) reported that 1 in 10 children (7.5 million) lived in households with at least one parent who had a past-year alcohol-related disorder, and about 1 in 35 children (2.1 million) lived in households with at least one parent who had an illicit drug use disorder. The increases in drug and alcohol usage among younger generations have significantly affected the family structure and overall family wealth.

As the composition and structure of the family continue to evolve, there will be greater needs for alternative housing options to support the growing populations who are in the lower

socioeconomic classes and who are charged with raising their grandchildren. These social forces will affect the design and composition of future retirement community developments.

2.4 Families Where Children Leave for Work

According to Our World in Data (2018), more than half of the world's population lived in urban areas, which contributes to higher density levels. In 2020, as much as 82% of the U.S. population lived in urban areas which is up from 70% in the 1960s. This is partly due to children moving away from their parents' home to secure better employment opportunities. By 2050 more than two-thirds of the world's population, or 66.6%, is projected to live in a city.

With the development of transportation and communication, younger generations are willing to relocate to the bigger cities or more developed countries to obtain better job opportunities. This means that many within the older generations are left by themselves. Unfortunately, current employment demands often prevent regular and meaningful communication with the older generation thus facilitating loneliness and isolation. Researchers have reported that social isolation and loneliness physical and psychological negativity affect the health of elderly individuals. Individuals experiencing isolation have higher risks for high blood pressure, obesity, weakened immune system, anxiety, depression and cognitive decline, such as Alzheimer's disease. Roughly 24% of older people live alone and suffer the effects of isolation (NCBI, 2022). Alzheimer's Disease International (2022) reported 55 million people worldwide living with dementia in 2020 and expect double this number very twenty years, reaching 78 million in 2030, and 139 million in 2050. Therefore, we can conclude that older people who live alone and are isolated from others are more likely to develop symptoms related to dementia and will require social services paid for by tax dollars.

Chapter 3 – Concerns Among the Elderly

3.1 Decrease of Elderly Wealth

Traditionally, the belief has been that with age comes experience and wisdom. Older employees command higher salaries than younger people. Due to inflation, the defunding of affordable housing, and rising rents many people are no longer able to remain in their homes. Many homeless older people currently living in poverty face unique challenges because of the natural aging process. Ferguson (2020) found that the average older worker earns less than \$40,000 a year and has no retirement savings to supplement social security benefits. The average median retirement savings for older workers who earn between \$40,000 and \$115,000 annually was roughly \$60,000. According to Porell & Bond (2020), a retiree should have an additional retirement income from a defined benefit plan, in addition to a personal contribution account which is then supplemented with social security. However, roughly 40% of Americans rely solely on Social Security for their retirement income.

For those who earned more than \$115,000 per year, the median savings doubled to \$200,000. This means that if the person wanted to maintain their quality of life upon retirement, they would be able to live for roughly two years. If a person makes \$100,000 per year, their cost to maintain their lifestyle should be around \$100,000 per year. If they only have \$200,000 in savings then they will only be able to maintain their current lifestyle for two years. The National Low Income Housing Coalition (2017) estimates one must earn a minimum of \$21.21 per hour in order to meet the monthly expenses associated with housing. Housing costs should not account for more than 30% of a household's gross monthly income. This means 30% of a two-person family's annual wage in Alabama will be roughly \$11,151.88 to \$33,289. However, in 2020, the average cost for senior housing was approximately \$3,250 a month, or \$39,000 a year. When compared

to average low-income earner in the United States who makes only \$16.38 per hour, we can start to see how a \$5 per hour deficit can be catastrophic for the older person; especially considering that costs for food, clothing, or medication have not yet been included. As the above example demonstrates, a person, who is considered middle income during their working years can drop to lower-income if they are not able to participate in a supplementary retirement plan.

Approximately 90% of the elderly population living below the poverty level in 2019 received Social Security Income (SSI) as their primary income which causes them to be financial vulnerable to economic forces such as inflation and market fulgurations.

3.3 Homelessness among the Elderly

Another reason why the elderly population in the United States struggle financially is because many of their medical expenses are not covered by insurance. Many older people require more healthcare visits, treatments, and prescriptions, each of which requires a copay. These fees add up and often cause the person to exceed their monthly budgets. Eventually, many older people end up homeless. The top causes of homelessness include lack of affordable housing, unemployment, poverty. Additionally, lack of needed services, mental illness, or substance abuse may be major factors in the population being unhoused (Nation Homeless, 2020). In 2018, roughly half of homeless adults were aged 50 and older, and almost half of those people became homeless after the age of 50. Those who are homeless and over the age of 50 experience various health conditions that may have caused them to become homeless, or have resulted because of being homeless (Kushel, 2018). Many of these health conditions have a profound effect on memory and cognition. Likewise, many elderly people who are homeless have high infection rates and shorter life expectancies because poor nutrition, and harsh living conditions make chronic medical conditions worse (National Coalition Homeless, 2018).

3.4 Nutrition

The elderly population needs to supplement external vitamins and calcium to prevent the loss of bone strength. Their diet should be balanced and rich in calcium and vitamin D. Fruits, vegetables, and dairy products should also be consuming in the recommended amounts daily. Furthermore, to enhance bone strength and relieve muscle, the elderly also needs Omega-3 or calcium supplements. For the elderly below the poverty line, their daily food is simple, and they will not consider whether they contain calcium or other vitamins, let alone buy supplements or nutrients. Generally, the price of supplements and nutrients will be relatively high, and increasing bone strength requires a long time of nutritional intake, and the low-income elderly population can't afford a high cumulative price. Inadequate nutrition intake in the elderly negatively affects muscle mass and strength. Therefore, middle- and lower-income families who do not have adequate nutrition are more likely to develop chronic muscle and bone illnesses. The decline of muscle quality will cause the symptoms of muscle loss and other muscle-related physiological functions will also change, which is also one of the signs of people entering old age. European Working Group on Sarcopenia in Older People (EWGSOP) believes that the decrease of human muscle will gradually lead to the loss of systemic function because the decline in muscle mass will lead to the loss of bone strength; there is a causal relationship between them (Colón et al., 2018). The main reason for the decline of muscle quality is human aging. In addition, the production of nitric oxide will also decline due to human aging, and the capillaries of muscle will be produced due to nitric oxide. The decrease of volume reduces the fluency of vascular circulation. For the elderly person who has poor muscle strength and limited mobility, overall quality of life will be decreased and a physical disability may be possible in severe cases.

Poverty forces poor nutrition because of a lack of money to purchase healthy food options. Poor nutrition is caused by under- or over-eating, not having enough healthy foods such as vegetables and fruits for daily consumption, or eating too many types of food and drink that are low in fiber or high in fat or sugar. On the contrary, healthy nutrition is essential to remaining healthy and active for the elderly population. The Center for Disease Control and Prevention (2021) reported that a healthy diet promotes older people to live longer and reduces the risk of chronic diseases, obesity, heart disease, stroke, type 2 diabetes, certain cancers, and other illnesses. Providing a healthy nutrition pattern is suitable for managing people who already have these chronic diseases and preventing complications. Robinson, et al. (2019) stated that high energy food, proteins, and amino acid supplements intake have the potential to slow down the development of sarcopenia and other muscle and bone issues. To maintain or alleviate muscle degradation or increase bone strength, the elderly individual needs physical exercise and vitamin supplements to protect the whole body.

3.5 Physical Decline

The loss of physical function is inevitable within the natural aging process. Older people are more prone to physical disorders because of wear and tear on the body, and the greater likelihood of acquiring a disease. There are several common types of chronic illnesses that contribute to physical disability in older people who are over 65 and older. These conditions include, but are not limited to:

- Peripheral Vascular and Neurological Disorders
- Joint disorders
- Cardio Pulmonary Heart Disease
- Declined Sensory Detection and Processing abilities (Institute of Medicine [U.S.] 2008).

Medical treatment for physical disorders in the United States is heavily dependent upon financial status. Elderly populations who fall below the poverty limit, are more likely to suffer from physical disabilities, and receive less care thereby causing them to experience higher levels of suffering. Chronic pain and inability to perform routine tasks cause many older people to self-isolate. This isolation increases the generalized decline of the person through loss of energy and a further weakening of their immune system.

Peripheral Vascular and Neurological Disorders

Chronic unhealthy habits common with poverty have left many older people with diabetes, high blood pressure, and vascular diseases which often translates into peripheral vascular and neurological disorders related to poor circulation, pain, and weakness when walking. Roughly 6.5 million people age 40 and older in the United States suffer from peripheral artery disease. In the more severe cases of peripheral artery disease, loss of feeling, development of sores, or lack of blood flow can lead to amputation.

Joint Disease

According to World Health Organization data (February 2021), approximately 1.71 billion people world-wide have musculoskeletal conditions that limit mobility, dexterity, and range of motion. Arthritis is the most common joint disease. However, it is a broad term that is used to denote conditions that affect joints or issues related to connective tissues. Joint inflammation will lead to joint pain, which greatly influences movement in daily life. Two forms of arthritis include osteoarthritis and rheumatoid. The former is more common among older people, especially those in poverty because it occurs as a result of wear and tear on the joints. Many people who live in poverty were employed in occupations involving repetitive body movements, which can result in

osteoarthritis. Research suggests that around 8 million people in the US are affected by osteoarthritis (Nichols, 2017).

Rheumatoid arthritis is caused by the immune system attacking the tissues surrounding the joints. Three common symptoms of rheumatoid arthritis include:

1. Joint pain;
2. Tenderness in the tissues surrounding the joint;
3. Joint stiffness.

The potential for falls and other movement related accidents increases when a person is affected by arthritis. Thus, casual assistance may be required by those affected by arthritis.

Cardiopulmonary Disease

Many within the elderly population tend to lose muscle mass leading to generalized weakness and have increased body fat which can increase the potential for an ischemic or hemorrhagic stroke. Ischemic strokes have a high morbidity rate, where are hemorrhagic strokes have a high mortality rate. Some of the comorbidities that can lead to an ischemic stroke include:

- Hypertension (high blood pressure);
- High cholesterol;
- Heart disease;
- Angina (Severe chest pain);
- Heart attack;
- Chronic obstructive pulmonary disease (COPD); and
- Diabetes.

Those who survive an ischemic stroke will often require assistance for activities of daily living because they likely experience generalized weakness and fatigue, paralysis, problems with

balance or coordination along with possible pain, numbness, or burning and tingling sensations following the episode.

Activities of Daily Living (ADL) can be broken down into three levels (Kopeck, 2020). For a person who has suffered a stroke, essential Activities of Daily Living (eADL) are those that allow the person to take care of themselves. For the generalized population of a retirement community, probable and discretionary activities of daily living have greater meaning. A probable Activity of Daily Living (pADL) allows one to interact seamlessly with the general population, whereas a discretionary Activity of Daily Living (dADL) is an activity that gives life meaning such as engaging in a sport or a creative activity.

Declined Sensory Detection and Processing abilities

Vision impairment among the elderly population is a major healthcare problem, roughly one in three elderly people has vision declined by age of 65 (CDC, 2021). Vision problems can limit elderly people's ability to be independent and increase risk of falls, fractures, injuries, and social isolation. Hearing impairment is another significant problem in the elderly population leading to communication difficulties and social isolation.

Summary

The Centers for Disease Control and Prevention (2018) reports that 1 in 7 adult Americans have a physical disability. Roughly 2 in 5 adults aged 65 and older have physical ailments that require caregiving by another. The overall percentage of adults with physical disorders can be correlated to an over lack of wealth. People who live below the poverty level have five times more disabilities related to mobility as do their wealthier counterparts. Additionally, those who live in poverty are more likely to be in substandard conditions and have less access to help. Hence, one's ability to work, or perform routine eADL can be severely compromised resulting in

declined muscle and bone mass, which then intensifies an inactive lifestyle leading to higher probabilities of vascular, joint, cardiovascular, and sensory decline.

3.6 Cognitive Decline

Senior citizens who live at home have been shown to have a decrease in physical ability along with a decline in cognitive performance, thus resulting in the onset of Alzheimer's and other forms of cognitive disorders (ACL, 2016). Dementia can be defined as a syndrome that deteriorates normal speed of an individual's cognitive function, which exceeds the usual consequence of biological aging (World Health Organization, 2021). Dementia weakens the ability to manage their lives while also impeding rational thoughts and ranks seventh among all diseases which contribute to death. It is also one of the leading causes of disability of older people worldwide.

Dementia impacts the patients themselves, careers, families, society, etc. The lack of awareness and understanding of dementia leads to barriers to identifying the disease. Symptoms of dementia can be comprehended in three stages. In most cases, the common symptoms presented in the early stages include forgetfulness, becoming lost in familiar places, etc. (World Health Organization, 2021). This stage is often neglected. While dementia proceeds to the middle stage, its signs are easy to identify, the forgetful frequency increases.

Moreover, dementia patients have difficulty communicating with others. As their illness worsens, their behaviors will change gradually, and they will wander habitually and repeat the same statements or ideas. The late stage of dementia is the most serious one, one of the obvious symptoms in this stage is memory disturbances. In this period, they are unaware of time and place and cannot recognize their relatives and friends. What's worse, they have difficulty

walking. Even though dementia is unavoidable to some degree, people can have a basic knowledge of its treatment and care as part of the human aging process.

However, knowing more information is beneficial to inhibit dementia and slow the speed of each stage. The anti-dementia medicines and therapies developed to cure dementia are not yet reliable due to their limited efficacy. However, there should be efforts made to promote the progress of curing dementia to help support and improve the lives of people suffering from dementia and their families. First, family members or patients themselves should try to figure out the early signs of dementia, which can benefit from early and optimal management. Second, they can search for more information about the associated behavior changes, which lay a foundation for the treatment of dementia. Finally, individuals should begin or continue exercise early and often, optimizing physical health. The combination of positive physical and cognitive health is the outcome individual's desire.

Another cognitive impairment among the elderly is hallucination. Hallucination refers to feelings about the nonexistent object or event. Moreover, it includes sensory experiences unrelated to the stimulation of the relevant sensory organs (Purse, 2020). Hallucination is a typical cognitive disorder; it is a possible symptom for older people. All individuals have the possibility to hallucinate. However, older people suffer hallucinations in various social, physical, and mental health backgrounds. Hence, the hallucinations that happen in older people are often ignored. Hallucinations are challenging to identify and diagnose, so many family members ignore some symptoms in older people. For example, older people will show drastic changes in behavior and mood or feel anxious. At the same time, older people may also show signs of weakened judgment and illusions. Based on the severity of hallucinations, there are suggestions for treating hallucinations. The pivotal step is to identify the root cause. For instance, patients

with Charles Bonnet Syndrome can reduce the appearance of hallucinations by improving the environment (Purse, 2020). If the root cause of the patient cannot be recognized, the use of anti-anxiety drugs and anti-depressants is also essential, which is beneficial to relax the patient's mood. Cognitive disorders can impede the rational thoughts of people to some extent, especially for older people. Therefore, people should recognize the significance of cognitive disorders.

The elderly population who has cognitive impairments requires special care. Many senior living communities have specialized care units for residents with dementia or Alzheimer's. These units usually provide 24-hour care along with all the therapies and amenities of memory care.

The absence of human contact will increase the risk of declines in cognitive function. For example, one study conducted by European Law Students' Association (ELSA) investigated more than 6000 older individuals who were isolated to demonstrate the declined function of cognition (Shankar et al., 2013). Offord (2020) explains social isolation may negatively affect certain brain structures. The findings cannot conclude the definite relationship between social isolation and brain structure for all individuals. However, isolation can impair cognitive function in individuals who suffer from isolation. This impairment includes reduced brain volumes in the prefrontal cortex and declined functioning of the amygdala which is where emotions are regulated. The evidence suggests that the smaller the amygdala, the more isolated people maintain. Moreover, during periods of isolation, the psychological stress of the elderly can increase, which leads to memory loss and amnesia. They become less able to remember information and access it. However, despite best efforts at maintaining social contact, various cognitive problems may older people are forced to give up on social activities, resulting in increased isolation.

As a vulnerable group, the elderly is often physically disadvantaged, and the government's availability of social health services is inadequate. Numerous elderly people lose support and feel increasingly lonely as their families focus on their careers and personal life goals. At the same time, the rapid development of social and technological advancements results in the elderly population falling behind, thereby increasing their isolation. The development of social networks makes people communicate more on the network platform. Most of the elderly do not know much about social networks, which results in fewer opportunities to obtain external information. According to a 2018 study by the National Development Council of Taiwan, the main problem facing the elderly is loneliness caused by reduced social capital. With the rapid development of social networks, many elderly people in Taiwan gradually lose their interpersonal networks. Although some older people are experimenting with social media, older social media users are more likely to feel lonely than younger people. When the elderly starts to use the internet to find new friends, it may weaken the relationship with the original friends and make them feel more isolated, thus reducing personal happiness (Hsu et al., 2021).

In addition, numerous older people feel increasingly lonely as their families leave for career or other opportunities. With the development of transportation and communication, many young people go to more developed countries and cities to find more job opportunities, which leads to their parents living alone. The faster pace of life causes them to have less contact with their parents. This can be problematic because many children of the elderly are forced to live within urban environments away from the family's homestead. This means that elderly people who do not have social networking opportunities are further isolated from their children and grandchildren. The decline of social activities and the great distance between people and their

families has led many older people to become trapped in isolation and unable to stimulate thinking.

Isolation also affects the lifestyles of older people. When they are isolated from society, they will not develop further, maintaining the same lifestyle, knowledge, and skills as time goes by. They cannot acquire information from beyond their immediate context or others and live in their own world. Gradually, this may result in physical and mental problems. Prolonged loneliness can lead to decreased reaction speeds in older adults. Their cognitive abilities decline as their health problems, including physical inactivity and depression, worsen. The psychological distress faced by older adults increases with repeated negative thoughts of loneliness, which leads to the accumulation of beta-amyloid and tau proteins in the brain. These two neurological changes increase the likelihood of dementia in older adults (Harrington & Sliwinski, 2020). In addition to the brain's cognitive decline that comes with isolation, more senior people face many financial problems, including high medical costs. During the pandemic, many people became isolated from society. Older people are at a higher risk of developing health conditions due to isolation. When older people are isolated, they are more likely to sit or lie down for long periods, and partake in unhealthy eating habits including drinking alcohol too much and smoking.

The elderly population has specific needs that relate to the natural aging process. These needs must be addressed if we are to ensure health, safety and wellbeing. When these needs are not met, the older person may start to experience cognitive decline, which can make their overall health decline faster and compromise their activities of daily living and thus their quality of life.

Chapter 4 – Home for Elderly

4.1 Independent Living Community

Many older people will spend their retirement years in a senior living community because of the higher quality of life offered. These facilities are appealing because of their ability to meet physical and mental expectations. Additionally, many of these facilities contain support systems readily available to assist residents in managing their medications, performing eADL, pADL, and dADLs, and maintaining social connections. These factors have been shown to increase one's quality of life and help people live longer and happier (Independent Living, 2020).

An independent living community is defined as an age-restricted community that offers housing to only those aged 55 or older. These communities are designed for elderly residents who can generally care for themselves but consider the declining needs that some residents may experience. Services and amenities allow for ease and convenience for the older person. Housekeeping, linen service, meal, transportation services, and security are often standard amenities offered to the residents. Common amenities often include fitness centers, pools, dining venues, beauty, and personal grooming salons. Other features relate to recreational and personal enrichment such as woodworking, arts and crafts, and spaces for entertainment such as auditoriums, game rooms, and movie theaters.

The range of independent living community prices depends upon the location, floor plan, and the number of occupants. Another factor affecting cost is the requirement of an entrance fee and monthly associations fees. Some of the independent living communities in Massachusetts, for example, cost as much as \$4,000 per month, whereas a similar community in South Dakota costs only \$1,400 per month (Shelton & Watts, 2022). When an independent living community does not need to offer healthcare services on-site, the monthly costs tend to be much lower.

4.2 Life Plan Community

A life plan community offers the same service as an independent living community and has healthcare service. A life plan community is usually designed for middle- and higher-income levels, thus commanding a much higher upfront entrance fee of \$100,000 or more. Like independent living communities, the costs associated with a life plan community depend on location, floorplans, and a specific residential contract that allows for specific medical services or accommodations. When people move into a life plan community, they often sell their homes, which pays for the entrance fee, subsequent monthly fees, and future medical costs that have been prepaid. According to the National Investment Center, the average independent living monthly rate is around \$3,200 – although monthly fees can range from \$1,500 to \$5,000 or more.

4.3 Assisted Living Community

The assisted living community is also known as a continuing care retirement community. This model provides independent living options and assisted living. Some also offer memory care units, skilled nursing facilities, and on-site rehabilitation services. The assisted living community is designed for people who no longer engage in eADL without assistance. The assisted living community maintains the resident's independence in a private apartment while providing support from nearby professional caregivers. In addition, special services such as medication reminders, transportation services, and personal care for bathing, grooming, and dressing are also included.

The national median price for a one-bedroom assisted living apartment for a single occupant was \$3,628 per month in 2016; this fee did not include memory and rehabilitation service costs. According to the American Health Care Association (AHCA, 2022), approximately 28,900 assisted living communities to have nearly one million licensed beds in the United States. This

number accounts for less than one-fifth of the total 54.1 million Americans aged 65 and older. The average size of an assisted living community is 33 licensed beds. Therefore, four-fifths of the elderly population is left without services because the cost of assisted living communities exceeds the average income of many within the elderly population.

Homes for the elderly must be designed to accommodate the person's differing abilities. To date there are different ideas and models as to what these homes look like. However, the majority of these homes are financially prohibitive to the older adult who has a limited income.

Chapter 5 – Activities

5.1 Physical Activities

The Center for Disease Control and Prevention (CDC, 2022) reported that physical activity is an important and easy way to reduce the risk for chronic disease and injury, and to improve one's quality of life. Benefits from exercise include brain health, weight management, and reduced disease potential, such as heart disease and stroke. Other benefits of physical activity include reduced risks for specific cancers that include: bladder, breast, colon, endometrium, esophagus, kidney, lung, and stomach (CDC, 2022).

With the recommendation of 150 minutes of moderate-intensity aerobic activity per week, the CDC states that blood pressure and cholesterol levels can be reduced. Additionally, thirty minutes of yoga, walking or other weight-bearing activities can further assist to maintain bone and muscle strength which aid in the prevention of osteoporosis, pain management, and balance. Greater muscle strength helps to support activities by minimizing stress placed on tendons and ligaments and decreasing pressure on joint cartilage. People who are physically active, and have been able to maintain muscle strength, have been shown to be at lower risk for hip fractures, have better vestibular systems that aid in balance, and to be at a lower risk for autoimmune disorders such as rheumatoid arthritis.

5.2 Social Activities

Socialization is an important factor for one's quality of life. The maintenance of social connections can also reduce the risk of premature death due to isolation (Hudson, 2017), along with the reduction of hypertension, coronary artery disease, cardiac failure, depression, anxiety, Alzheimer and other forms of dementia (Steptoe et al., 2013; Blazer et al., 2015). Likewise, social interaction can help stabilize moods, foster higher self-esteem, and promote a sense of

safety, belonging, and security. When older people remain socially engaged, they can reduce their mortality rates by 50% or more (Luther Manor, 2020). However, more than 8 million older adults in the United States experience loneliness and social isolation. Chronic loneliness has been shown to double the mortality rate in older adults.

Since the arrival of the COVID-19 virus, the elderly population has experienced a dramatic decline in social opportunities resulting in social isolation and decreased mental stimulation which is a precursor to dementia, and premature death. A Healthline (2015) study of 8,300 adults 65 and older tested in memory over 12 years found that lonely people experienced 20% faster cognitive decline than those who weren't lonely. Loneliness is a leading factor for depression which has been shown to accelerate cognitive decline (Barclay, 2015). Long-term social isolation for the elderly can further develop into psychological dependence or a distorted distrust of others which can negatively affect their desire for social interaction.

Isolation is often a precursor to cognitive decline and the onset and progression of dementia which may require assistance from a professional healthcare provider. Alzheimer's disease and other neurodegenerative diseases develop in response to limited thinking and memory use (NIA, 2019). Elderly people who have developed Alzheimer's disease or dementia are often forced to stay at home which adds to their loneliness and can accelerate the disease that causes dementia. Some estimates state that isolated older persons are 29% more likely to require care in a professional nursing facility (Sullivan et al., 2020).

AARP (2017) reported American retirees estimated the annual cost to Medicare resulting from social isolation to about \$6.7 billion. Low-income elderly people are often afraid to invite their friends to cultural activities due to their limited financial resources thereby further isolating them from friends and family. This is because there are costs associated with inviting people to

one's home, and to attend routine social ceremonies and traditions. For example, a social activity proven to curtail the onset of dementia symptoms is the participation in book clubs. However, most book clubs have a membership fee that averages \$30 a year to pay for refreshments, and there are also transportation costs to get to a book club meeting. While these costs in their singularity may not seem like much, when added together, and in relation to other bills, they can be cost-prohibitive. Similarly, people who live on tight budgets often forgo select social situations that could benefit their mental health because they lack the financial resources. Combined, we can see that the elderly population can become stuck in a cycle of loneliness, disease, and despair. Finding cost effective and affordable solutions is there for the key to better health and wellbeing for the elderly population.

5.3 Enrichment Activities

According to the National Institute on aging enrichment activities related to physical and mental exercise can help prevent cognitive decline. Therefore, amenities within a retirement community are an important feature. Additionally, more attention needs to be placed on increasing wellbeing as a means to increase satisfaction. The National Wellness Institute (2022) defines wellness as an active process through which people become aware of, and make choices toward, a more successful existence. This is done by addressing wellbeing in six dimensions of wellbeing which include:

1. Physical
2. Social
3. Intellectual
4. Spiritual
5. Emotional

6. Occupational

5.3.1 Physical

Physical activities help increase subjective well-being, happiness, and self-esteem. This may be further impactful when an individual reaches their physical goals such as achieving the goals of weightlifting or weight control. These activities could be done by providing exercise classes, dance classes, and acting classes on campus to elderly individuals.

5.3.2 Social

The social dimension encourages contributing to one's environment and community, and allows expression. This could be accomplished by providing multiple activity and collective spaces on site enhance personal relationships and important friendships.

5.3.3 Intellectual

The intellectual dimension recognizes one's creativity and encourages chances to continue learning and stimulating mental activities. Intellectual activity relates to problem solving, creative expression and learning in daily activities. Increasing satisfaction in these aspects could be through provision a book club for reading and expressive writing, art classes, music classes, and cooking classes.

5.3.4 Spiritual

The spiritual dimension in wellbeing is finding something that has a deeper meaning in life and search a purpose in human existence. It includes the development of deep appreciation for the depth and expanse of life and natural forces that exist in the universe. Provision of a meditation room or pray room will meet these needs for individuals.

5.3.5 Emotional

The dimension of emotional wellbeing occurs while being aware of and accepting one's natural feelings and staying positive and enthusiastic in life. Increasing wellbeing in capacity to manage emotions and related behaviors is better to understand human's feeling in different situations and how to react it. Many older people suffer from a flat affect which diminishes their ability to feel emotion and to empathize with others. Reading, watching television, or a movie may be able to assist the person to rediscovers how to feel and experience emotion. Therefore, providing a theater on campus could increase satisfaction of emotional wellbeing.

5.3.6 Occupational

Promoting a meaningful life with a sense of purpose brings about happiness. This is important because negative perceptions of aging have been associated with poor physical and cognitive functioning and increased mortality (Levy et al., 2002). The AARP (July 2017) found that seniors who volunteer experience multiple health benefits, including decreased incidence of anxiety and depression along with decreased feelings of loneliness and isolation. Occupational health is the ability to achieve personal satisfaction and enrichment through one's lives to work, for retirees the ability to volunteer can satisfy one's occupational health. Volunteerism has been shown to enhance physical capacity and bring about higher life satisfaction. According to the Corporation for National (2020) and Community Service Census (2020), senior citizen volunteer activities might include collecting, preparing, distributing, food, along with tutoring, teaching, and mentoring youth.

Seniors can find the opportunities they need for learning, exercising, and self-enrichment when living in existing senior living communities. But many within the elderly population do not take interest in art, music, literature, or physical education. Therefore, these residents are limited

in their enrichment options due to a lack of more diverse activities. Allowing them to serve as a receptionist, classroom monitor, or to function in other service positions will provide enrichment while concurrently subsidizing the monthly housing fee. Work is necessary to help seniors build social relationships, reduce destructive emotions such as isolation and anxiety disorders that facilitate physical and mental decline, and encourage them to do basic daily physical activities. Hence, a new way to conceptualize senior housing to include lower-income populations might be subsidizing residents who participate in income-generating services for the community.

Chapter 6 – Safety

6.1 Safety, Physical, and Cognitive Decline

Safety has a direct relationship with physical disabilities making it an important factor for elderly people who live alone. Rosen et al. (2013) stated that roughly 37,991 adults age 65 years or older were treated in U.S. emergency departments for fall-related injuries stemming from area carpets and rugs. In 2015, 26.5% of community-dwelling older adults had clutter or tripping hazards in the home (Gell, N. M., Brown, H., Karlsson, L., Peters, D. M., & Mroz, T. M., 2020), which led to increased incidents of falls.

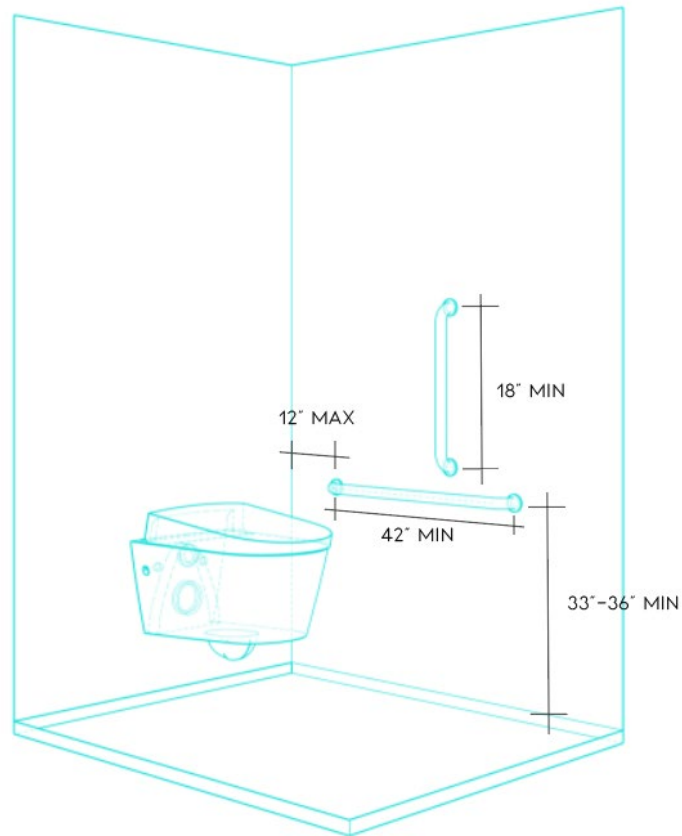
The bathroom ranks as the most dangerous room in the home, with falls accounting for 80% of the accidents that occur in this space (Sagon, 2011). Women were injured at a rate of 72% more often than men, and the predominant accidents occurred when getting on to, or off of a toilet. The second area where falls in the bathroom are more likely to occur are in the tub or shower (Sagon, 2011). Another location in the home where accidents occur most often is in the kitchen. More than 1,200 Americans aged 65 and over die each year because of fire (Commonwealth of Pennsylvania, 2021). Kitchens are used for cooking and require the person to lift, twist, and reach. All of these of these actions can result in a fall.

Some of the design methods used to compensate for a physical disability and accident prevention includes the installation of grab bars. These bars are often placed within bathrooms and kitchens. In the bathroom, grab bars should be (see figure 6.1.1).:

- 42 inches in minimum length and required to be mounted on the side wall.
- A maximum of 12 inches from the back wall and extending a minimum of 54 inches from the back wall at a height of 33-36 inches from the floor.

- A vertical grab bar of 18 inches minimum placed above the horizontal grab bar is also required.

Figure 6.1.1: Toilet Grab Bar Location



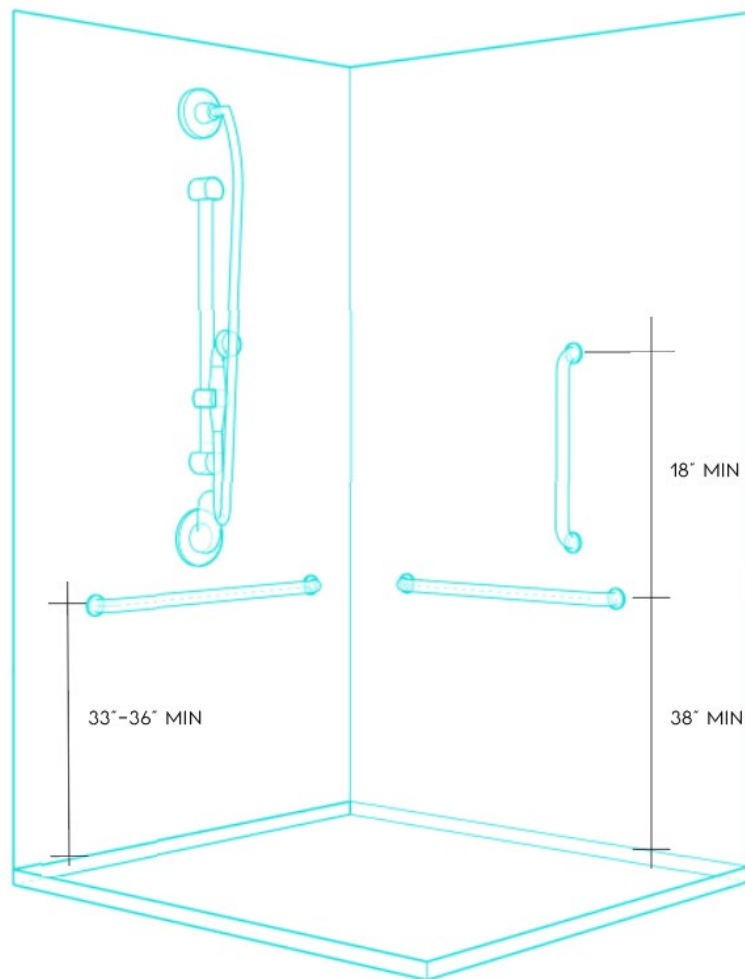
This figure demonstrates the ideal size and location of grabs placed within a toilet area.

Source: Image drawn by author.

In the shower stall, ADA compliant grab bars should be:

- in showers at 33-36 inches above the floor and be positioned on the plumbed control and corresponding perpendicular wall (see figure 6.1.2).

Figure 6.1.2: Show stall Grab Bar Location



This figure demonstrates the ideal size and location of grabs placed within a shower stall.

Source: Image drawn by author.

Another cause of accidents within the home is the use of step stools and the need for reaching. Many elderly people are affected with assorted joint conditions that negatively affect their range of motion. To address this hazard retractable cabinetry should be used in the kitchens, bathrooms, and laundry areas. Additionally, items that need to be cleaned, such as windows and window treatments should not be placed higher than the average person's reach when standing.

Lastly, ample shelving or cabinetry should be placed at waist height so that heavier objects do not have to be lifted up or down.

Stairs and elevation changes can be beneficial to the older person because the movements required help to sustain muscle strength and bone mass. Bone mass and muscle strength peak around age 35, and require regular use to maintain existing strength. Osteopenia is a factor in the development of osteoporosis later in life. Hence, when possible, the use of stairs should be encouraged, but the designer must also be aware that stairs and other elevation changes can pose a hazard for people who have compromised depth perception, limited mobility, or are affected by a disease or other health condition compromising their ability to use all areas of a home. To address these concerns, ramps can be added to areas where elevation changes are found.

However, the Americans with Disabilities Act (ADA) requires a 1:12 ratio. This means that for every one inch of elevation there needs to be 12 inches of runway. Where elevations exceed the ability for a ramp, lifts or elevators need to be installed. If elevators or lifts are required, there should be some form of backup system, either battery operated or from a generator, to enable the occupant to safely exit the building should an emergency arise.

6.2 Campus Wide Safety

Based on Maslow's hierarchy of needs, a house is an essential requirement, and everyone needs a safe and comfortable shelter to eat, sleep, dress, and perform intimate acts. Most Americans spend roughly 90 percent of their time indoors (APE, 2022), and two-thirds of their time is spent in their home. A healthy home environment can promote optimal physical and mental health if designed appropriately. A poor-quality living environment however, contributes to an assortment of health conditions arising from pathogens, injuries, and substandard living.

In addition, low-income housing developments tend to have inferior construction quality because of the use of lower-quality materials as a means to reduce overhead and maximize profits. To build a safe and stable house, high quality materials are needed for better and longer performance. Conversely, low-budget, inferior construction materials cause many problems that can compromise health and safety. These include plumbing and roof leakages, cracks in concrete slabs, and inadequate functioning of mechanical and electrical systems. Using low-quality materials in the construction of a house can reduce the up-front cost, but require more maintenance fees in the future.

Poor-quality window frames, for example, can bend or contort while in transit thereby compromising the installation process. Poorly installed windows are more likely to leak and break in the future. This can lead to the build-up of dust and dander in the carpeting, along with the growth of mold and mildew on wood and drywall. Dust, mold, and dander often results in headaches, fevers, nausea, vomiting, and sore throats. Continued exposures could lead to a chronic disease, such as asthma, allergies, and other forms of hypersensitivities.

People who live below the poverty standard often become displaced from their home which can negatively affect their mental and physical health through stress and exposure to the elements. Among the factors that affect low-income housing include:

- Inadequate square footage
- Construction quality
- Increased maintenance requirements

Physical and mental health issues are a significant concern for the elderly population. The design of senior living spaces must include greater attention to the prevention and maintenance of the older person's health and safety while engaged in eADL, pADL, and dADL's.

Chapter 7 – Methods

To acquire additional knowledge pertaining to the design of an affordable continuing care retirement community, a total of six collective case studies were performed. A collective case study is an extension of an instrumental case study but applied to multiple cases concurrently. The advantage of collective case studies is that it allows for simultaneous comparisons while analyzing and exploring individual features with differing possibilities. This comparison can then be used to test or build a theory pertaining to a particular phenomenon. The variables of analysis for each case study will focus on the design features used to promote beliefs in perceived safety and actual safety. The notions of safety and security are important for the encouragement of physical and social activities that support wellbeing.

Case study data was collected from five different regions within the U.S. and then cross analyzed with a single case study in Japan. The purpose of the Japanese case study was to identify differences in the approach for senior living communities. Like first-world western countries, Japan has an elderly population that is growing exponentially. In terms of population percentages, Japan has the highest proportion of elderly citizens of any country in the world (PRB, 2019). As an eastern nation, Japan is the most similar to western nations in terms of its elderly population, but retains much of the eastern culture pertaining to the way elderly people are seen by the larger society. Currently 28.4% of Japan's population is over the age of 65 (Statista, 2022). This is similar to the elder population in the states of Maine (21.8%) and Florida (21.3%) (PRB, 2021).


The five case studies from the United States came from the southeast, southwest, west, northeast, and midwest. The additional case study came from Japan and it was analyzed to

identify possible outlying characteristics from the case studies of the US-based Senior Living Communities.

	Southeast	Southwest	West	Northeast	Midwest	Tokyo, Japan
	Century Village	Quail Estates	Panorama Village	Green Hill Condominium	Sun City Huntley	Morinokaze
	Pembroke Pine, Florida	Las Vegas, Nevada	Hemet, California	Wynnewood, Pennsylvania	Huntley, Illinois	Tokyo, Japan
Housing safety	✓	✓	✗	✓	✗	✗
Exercise	✓	✓	✓	✓	✓	✓
Activities	✓	✓	✓	✓	✓	✓
Gathering Space	✓	✓	✓	✓	✓	✓
Opportunities	✗	✗	✗	✗	✗	✓
Personal Growth	✓	✓	✓	✗	✓	✓

7.1 Century Village - Pembroke Pines, Florida, USA

Site Analysis

 Factors can be cross referenced

	Pembroke Pines, Florida, USA	Highland, California, USA (Comparison)
Location	<ul style="list-style-type: none"> ▪ Pembroke Pines, Florida, USA ▪ Southeast region of USA 	
Population/Density	<ul style="list-style-type: none"> ▪ 173,591 (2019) ▪ 100 % Urban ▪ 0% Rural 	
	Males	82,003 (47.2%)
	Females	91,588 (52.8%)

	Median Age	40.7 Years	
	Races		
	Hispanic	83,153 (47.9%)	
	White	39,300 (22.6%)	
	Black	36,593 (21.1%)	
	Asian	6,894 (4%)	
	Two or more races	6,481 (3.7%)	
	Native Hawaiian and other Pacific Islander	590 (0.3%)	
	American Indian	308 (0.2%)	
	Others	272 (0.2%)	
Economic	Average income	\$33,539	
	Median Household income	\$68,745	
	Median House Value	\$324,200	
	Poverty Rate (2019)	9.2%	
Size	<ul style="list-style-type: none"> ▪ 34.76 mi² 		
Geography (Access)	<ul style="list-style-type: none"> ▪ 2 High school ▪ 2 College ▪ 10 Parks 		<ul style="list-style-type: none"> ▪ 1 High school ▪ 1 College ▪ 2 Parks
Topography (Elevation)	<ul style="list-style-type: none"> ▪ 12 feet 		
Climate	<ul style="list-style-type: none"> ▪ Humid subtropical 		<ul style="list-style-type: none"> ▪ Subtropical temperature ▪ 283 Sunny days ▪ 42-92 Degrees
	Sunny Days	243 Days	
	Precipitation Days	136 Days	
	Highest Temperature	90.8 Degrees	
	Lowest Temperature	57.3 Degrees	

Building Description

Name: Century Village

Owner: Irwin Levy

Address: 12950 SW 4th Ct

Occupied Since: 1970

Number of Units: 7,700

Number of Occupants: 13,200

Funding Options: Resale home and \$406 HOA fees (including building exterior and landscape maintenance, trash, water, and cable fee)

Overview

Century Village is a retirement community that offers residents safety and a range of amenities to keep residents socially and physically active. Located in Pembroke Pines, Florida, this senior living community was built by a Delray Beach-based company in 1970 and followed similar design principles that prevailed during the mid-century. The community was then renovated in 1995 with a Mediterranean theme. However, the dominant foot prints of the era include two- and four-story buildings that were placed around a common area consisting of a planned water feature in the form of a lake. This community is comprised of 7,700 studio and two-bedroom, two bath condominiums ranging from 600 square feet to 1,500 square feet and commanding roughly \$100,000 to \$180,000 per unit.

Based on a 30-year mortgage at 3.75% interest rate, a person's mortgage would be roughly \$833 per month plus the \$406 HOA fee means that the person would expect to pay \$1,239 per month just for housing. This translates to \$14,868 per year which is rough 50% of the annual low-income reports of \$27,398. Hence, this community is deemed affordable and a viable case for these case studies.

Housing safety (see table 7.1.1)

- Bathroom

Table 7.1.1: Pembroke Pines, Florida – Housing Safety

Bathroom

Pro

- Enough storage spaces

Con

- No grab bar (safety)





*Cons are based only on what is visible from the image.

Source: Century Village Listing (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: <https://www.centuryvillage.com/listing/fl0319523-4002-farnham-n-4002-deerfield-beach-fl-33442>

Exercise (see table 7.1.2)

- Cardio room
- Fitness room

- Indoor swim pool


Table 7.1.2: Pembroke Pines, Florida – Exercise	
<p>Cardio Room</p> <p>Pro</p> <ul style="list-style-type: none"> • Size • Flooring • Ballet Bars <p>Con*</p> <ul style="list-style-type: none"> • Ventilation • Acoustics • Mirrors 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Century Village Listing (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: https://www.centuryvillage.com/listing/f10319523-4002-farnham-n-4002-deerfield-beach-fl-33442</p>
<p>Fitness Center</p>	<p>No Image Provided.</p>
<p>Indoor Swim Pool</p> <p>Pro</p> <ul style="list-style-type: none"> • Size <p>Con</p> <ul style="list-style-type: none"> • Ventilation • Privacy 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from:</p>


<https://www.55places.com/florida/communities/century-village-at-pembroke-pines>

Activities (see table 7.1.3)

- Meeting room
- Library

Table 7.1.3: Pembroke Pines, Florida – Actives

Meeting Room	
<p>Pro</p> <ul style="list-style-type: none"> • Comfortable seating • Size <p>Con</p> <ul style="list-style-type: none"> • Ventilation • Need larger screen 	
<ul style="list-style-type: none"> • Seating layout 	<p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: https://www.55places.com/florida/communities/centuryvillage-at-pembroke-pines</p>



<p>Library</p> <p>Pro</p> <ul style="list-style-type: none"> • Size • Organization • Allow for small group communication <p>Con</p> <ul style="list-style-type: none"> • Privacy • Acoustics • Ventilation 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: https://www.55places.com/florida/communities/century-village-at-pembroke-pines</p>
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Gathering spaces (see table 7.1.4)

- Private Patio
- 900-seat ballroom
- Performance Theater
- Game room

Table 7.1.4: Pembroke Pines, Florida – Gathering Spaces

<p>Private Patio</p> <p>Pro</p> <ul style="list-style-type: none"> • Privacy • Accommodate small groups • Covered seating area • Railing (safety) <p>Con</p> <ul style="list-style-type: none"> • Seating (uncomfortable) • No screens option (Bugs) 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Century Village Listing (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: https://www.centuryvillage.com/listing/fl0319523-4002-farnham-n-4002-deerfield-beach-fl-33442</p>
<p>Ballroom</p> <p>Pro</p> <ul style="list-style-type: none"> • Size (900 seats) • Ceiling height • Muti-use tables <p>Con</p> <ul style="list-style-type: none"> • Privacy • Acoustics 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from:</p>

	https://www.55places.com/florida/communities/century-village-at-pembroke-pines
<p>Performance Theater</p> <p>Pro</p> <ul style="list-style-type: none"> • Size (300) • Large stage <p>Con</p> <ul style="list-style-type: none"> • Ventilation • Walk-way lighting 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: https://www.55places.com/florida/communities/century-village-at-pembroke-pines</p>
<p>Game room</p> <p>Pro</p> <ul style="list-style-type: none"> • Size <p>Con</p> <ul style="list-style-type: none"> • No windows (Ventilation & natural light) • Lack of seating • Only pool table (lack of diversity) 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Century Village at Pembroke Pines - Pembroke Pines, FL, Retrieved March 8, 2022 from: https://www.55places.com/florida/communities/century-village-at-pembroke-pines</p>

Opportunities (Volunteer)

- Unfortunately, Century Villas does not offer volunteer opportunities.

Personal growth (see table 7.1.5)

- Art & Crafts Studio
- Cooking Class

Table 7.1.5: Quail Estate West – Personal Growth	
Art & Craft Studio	No Image Provided.
Cooking Class	No Image Provided.

7.2 Quail Estate West – Las Vegas, Nevada, USA

Site Analysis

Factors can be cross referenced

Table 7.2: Quail Estate West - Site Analysis & Comparison			
	Quail Estate West Las Vegas, USA	Highland, California, USA	
Location	<ul style="list-style-type: none"> ▪ Las Vegas, Nevada, USA ▪ Southwest region of USA 		
Population/Density	<ul style="list-style-type: none"> ▪ 651,319 (2019) 	<ul style="list-style-type: none"> ▪ Mostly Hispanic population ▪ Median age around 30’s 	
	Males		329,493 (50.6%)
	Females		321,826 (49.4%)
	Median Age		36.8 Years
	Races		
	Hispanic		266,899 (41%)
	White		231,225 (35.5%)
	Black		75,473 (11.6%)
	Asian		44,900 (6.9%)

	Two or more races	23,459 (3.6%)	
	Native Hawaiian and other Pacific Islander	5,214 (0.8%)	
	American Indian	1,864 (0.3%)	
	Others	2,263 (0.3%)	
Economic	Average income	\$30,571	<ul style="list-style-type: none"> ▪ Same Median Household income ▪ Roughly same Median House Value \$53,385 ▪ Poverty rate 17.9%
	Median Household income	\$56,354	
	Median House Value	\$305,900	
	Poverty Rate (2019)	14.9%	
Size	<ul style="list-style-type: none"> ▪ 135.9 mi² 		
Geography (Access)	<ul style="list-style-type: none"> ▪ 1 Elementary school ▪ 1 High school ▪ 1 College ▪ 2 Parks ▪ 1 Church 		<ul style="list-style-type: none"> ▪ 1 Elementary school ▪ 1 High school ▪ 1 College ▪ 2 Parks ▪ 1 Church
Topography (Elevation)	<ul style="list-style-type: none"> ▪ 2,001 feet 		
Climate	<ul style="list-style-type: none"> ▪ Hot desert - Subtropical 		
	Sunny Days	344 Days	
	Precipitation Days	21 Days	
	Highest Temperature	92.8 Degrees	
	Lowest Temperature	59 Degrees	

Building Description

Name: Quail Estate West

Owner: Unknow

Address: 2851 S Valley View Blvd, Las Vegas, NV 89102

Occupied Since: 1988-1993

Number of Units: 216

Number of Occupants: 282

Funding Options: Resale home and \$310 monthly HOA fees (includes common area maintenance, trash removal, water fee, and clubhouse)

Overview


Quail Estate West is a retirement community for people who aged 55 or above. The subject of this case study is located in Las Vegas, Nevada. The community is built in the entertainment capital of Las Vegas. Just a 15-minute drive from the famous Las Vegas Strip and airport, providing big city convenience and attractions for homeowners is Quail Estates West. Quail Estate West built in 1989 renovated in 1991. Homes in Quail Estate West generally range in size from 1,036 to 1,442 square feet and have two or three bedrooms, two or two-and-a-half bathrooms, and covered parking is available in front of each building. The price of homes is less than \$200,000.

Based on a 30-year mortgage at 3.75% interest rate, a person's mortgage would be roughly \$833 per month plus the \$310 HOA fee, therefore a person would expect to pay \$1,143 per month just for housing. This translates to \$13,716 per year which is roughly 50% of the annual low-income reports of \$27,398. Hence, this community is deemed affordable and viable case for these case studies.

Housing Safety (see table 7.2.1)


- House
- Patio


Table 7.2.1: Quail Estate West – Housing Safety

<p>Patio</p> <p>Pro</p> <ul style="list-style-type: none">• Covered• Railing (safe) <p>Con</p> <ul style="list-style-type: none">• Bug	 <p>*Cons are based only on what is visible from the image.</p>
<p>Source: REMAX Advantage. Listed By Leo Mendoza, Keller Williams Southern Nevada Retrieved from: https://www.remax.com/nv/las-vegas/home-details/2851-s-valley-view-blvd-unit-1050-las-vegas-nv-89102/17841997235570970128/M00000466/2378623</p>	

Exercise (see table 7.2.2)

- Walking & Biking Trails
- Workout Stations
- Community Pool and Spa

Table 7.2.2: Quail Estate West – Exercise	
Walking Biking Trails	
Pro	
<ul style="list-style-type: none"> • Grass & trees 	
Con	
<ul style="list-style-type: none"> • No walk way 	
<ul style="list-style-type: none"> • Small (size) 	
	<p>*Cons are based only on what is visible from the image.</p>
	<p>Source: REMAX Advantage. Listed By Leo Mendoza, Keller Williams Southern Nevada Retrieved from: https://www.remax.com/nv/las-vegas/home-details/2851-s-valley-view-blvd-unit-1050-las-vegas-nv-89102/17841997235570970128/M00000466/2378623</p>
Workout station	No image provided

<p>Outdoor pool and Spa</p> <p>Pro</p> <ul style="list-style-type: none"> • Seating <p>Con</p> <ul style="list-style-type: none"> • Bugs • No cover for seating area 	 <p>LVR, 2022</p> <p>*Cons are based only on what is visible from the image.</p>
	<p>Source: REMAX Advantage. Listed By Leo Mendoza, Keller Williams Southern Nevada Retrieved from: https://www.remax.com/nv/las-vegas/home-details/2851-s-valley-view-blvd-unit-1050-las-vegas-nv-89102/17841997235570970128/M00000466/2378623</p>

Activity (see table 7.2.3)


- Billiards

Table 7.2.3: Quail Estate West – Activity	
Billiards	No image provided

Gathering Space (see table 7.2.4)

- Library
- Clubhouse & Meeting Room
- Community Park

Table 7.2.4: Quail Estate West – Gathering Spaces

Library	
Pro	 <p>GLVAR 2020</p>
<ul style="list-style-type: none"> • Large window (Natural lighting) • Comfort seating 	
Con	<p>*Cons are based only on what is visible from the image.</p>
<ul style="list-style-type: none"> • Size (small) • Ventilation • Lack of seating area • No privacy 	<p>Source: EstateLy. MLS# 2165080. Retrieved from: https://www.estateLy.com/listings/info/2851-valley-view-boulevard--44</p>

Clubhouse & Meeting

Pro

- Floor (easy to clean)
- Privacy (social distance to each table)

Con

- No games
- Lack of ventilation
- Lack of lighting



*Cons are based only on what is visible from the image.

Source: Estately. MLS# MLS# 2165080. Retrieved from: <https://www.estately.com/listings/info/2851-valley-view-boulevard--44>

Community Park

Pro

- Seating (rest)
- Walking trail (exercise)
- Landscape

Con

- No cover



	*Cons are based only on what is visible from the image.
	Source: Estantly. MLS# 2298424 Retrieved from: https://www.estate.com/listings/info/2851-valley-view-boulevard--63

Opportunities

- Unfortunately, Quail Estate West does not offer volunteer opportunities.

Personal growth

- Library

7.3 Panorama Village - Hemet, California, USA

Site Analysis

Factors can be cross referenced

Table 7.3: Panorama Village - Site Analysis & Comparison		
	Panorama Village Hemet, California, USA	Highland, California, USA
Location	<ul style="list-style-type: none"> ▪ Hemet, California, USA ▪ West region of USA 	<ul style="list-style-type: none"> ▪ West region of USA
Population/Density	<ul style="list-style-type: none"> ▪ 84,542 (2019) 	<ul style="list-style-type: none"> ▪ 55,049 (2019)
	Males	39,209 (45.9%)
	Females	46,125 (51.1%)
	Median Age	40 Years
	Races	
	Hispanic	40,545 (46.8 %)
	White	33,819 (39%)
	Black	6,130 (7.1%)
	Asian	2,721 (3.1%)
	Two or more races	2,032 (2.3%)

	Native Hawaiian and other Pacific Islander	486 (0.6%)	
	American Indian	343 (0.4%)	
	Others	114 (0.1%)	
Economic	Average income	\$21,677	<ul style="list-style-type: none"> ▪ Same average income ▪ Poverty rate 17.9%
	Median Household income	\$39,726	
	Median House Value	\$231,900	
	Poverty Rate (2019)	19.1%	
Size	<ul style="list-style-type: none"> ▪ 29.28 mi² 		<ul style="list-style-type: none"> ▪ 18.67 mi²
Geography (Access)	<ul style="list-style-type: none"> ▪ 3 Elementary school ▪ 1 Middle school ▪ 3 Parks ▪ 1 Church 		<ul style="list-style-type: none"> ▪ 1 Elementary school ▪ 2 Parks ▪ 1 Church
Topography (Elevation)	<ul style="list-style-type: none"> ▪ 1,594 feet 		<ul style="list-style-type: none"> ▪ 1,309 feet
Climate	<ul style="list-style-type: none"> ▪ Mountain - Subtropical 		<ul style="list-style-type: none"> ▪ Low mountain area – subtropical ▪ 283 Sunny days ▪ 40 precipitation days ▪ 40-95 degrees
	Sunny Days	312 Days	
	Precipitation Days	32 Days	
	Highest Temperature	99 Degrees	
	Lowest Temperature	37 Degrees	

Building Description

Name: Panorama Village

Owner: Panorama Village of Hemet, Inc

Address: Panorama Golf Course, 1401 Teakwood Pl, Hemet, CA 92543

Occupied Since: 1962 -1968

Number of Units: 501

Number of Occupants: N/A

Funding Options: Resale home and \$84 monthly HOA fees (includes recreation room, pool, spa, and golf fee)

Overview


Panorama Village community is an active adult neighborhood that provides a vibrant social atmosphere within an intimate and peaceful setting. This case study subject is located in Hemet, California. Panorama Village and was developed in 1962 by developers Walter and Calland. This community consists of 501 single-family homes available on resale only. Home size ranges from approximately 912 to 2,371 square feet. Options included two to three bedrooms and two to three bathrooms. Single-family homes typically feature covered front porches and beautiful backyards. A monthly homeowners' (HOA) fee covers standard ground maintenance and access to all amenities. The home command roughly \$200,000 to \$300,000 each.

Base on a 30-year mortgage at 3.75% interest rate, a person's mortgage would be roughly \$926 to \$1,389 per month plus the \$84 HOA fee which means that the person would expect to pay \$1,010 to \$1,473 per month just for housing. This translates to \$12,120 to \$17,676 per year which is rough 50% of annual low-income reports of \$27,398. Hence, this community is deemed affordable and a viable case for these case studies.

Housing Safety (see table 7.3.1)

- House


Table 7.3.1: Panorama Village – Housing Safety


<p>Bathroom</p> <p>Pro</p> <ul style="list-style-type: none"> • Size <p>Con</p> <ul style="list-style-type: none"> • No grab bar (safety) • Lack of Storage • Ventilation 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Realtor.com MLS number:PW22045687 Retrieved from: https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave Hemet CA 92543 M27849-77020</p>
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Exercise (see table 7.3.2)

- Exercise Room
- Indoor Spa
- 9-Hole Golf Course

Table 7.3.2: Panorama Village – Exercise

<p>Exercise room</p> <p>Pro</p> <ul style="list-style-type: none"> • Floor (easy clean) • Window (natural lighting) 	
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<p>Con</p> <ul style="list-style-type: none"> • Lack of equipment • Lack of yoga space 	<p>*Cons are based only on what is visible from the image.</p> <p>Source: Remax.com (n.d.). Panorama Village, Hemet, California. MLS# PW22045687 Listed By Anthony Arana, Statewide Brokers. Retrieved March 9, 2022 from: https://www.remax.com/ca/hemet/home-details/530-s-lyon-ave-hemet-ca-92543/16448018853683942349/M00000093/PW22045687</p>
<p>Indoor Spa</p>	<p>No image provided</p>
<p>9-Hole Golf Course</p> <p>Pro</p> <ul style="list-style-type: none"> • Lake (good atmosphere) • Outdoor (ventilation) <p>Con</p> <ul style="list-style-type: none"> • No seating • No walking trails 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place (n.d.). Panorama Village, Hemet, California Retrieved March 9, 2022 from: https://www.55places.com/california/communities/panorama-village</p>

Activity (see table 7.3.3)

- Lounge
- Auditorium
- Billiards Room

Table 7.3.3: Panorama Village - Activity

Lounge

Pro

- Large window
- Comfortable seating
- Fireplace (cozy)

Con

- Privacy
- No table



*Cons are based only on what is visible from the image.

Source: Realtor.com MLS number:PW22045687 Retrieved from: [https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave Hemet CA 92543 M27849-77020](https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave_Hemet_CA_92543_M27849-77020)

Billard room

Pro

- Size (walk way for wheel chair)

Con

- No window
- No storage





*Cons are based only on what is visible from the image.

Source: Realtor.com MLS number:PW22045687 Retrieved from: [https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave Hemet CA 92543 M27849-77020](https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave_Hemet_CA_92543_M27849-77020)

Gathering Space (see table 7.3.4)

- Outdoor Patio
- Parks & Natural Space
- Auditorium

Table 7.3.4: Panorama Village – Gathering Spaces	
<p>Outdoor Patio</p> <p>Pro</p> <ul style="list-style-type: none"> • Screen cover (bug) • Covered patio (sun protection) • Seating for amount people • Outdoor locker • Railing (safety) <p>Con</p> <ul style="list-style-type: none"> • Lack of lighting 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Realtor.com MLS number: SW21248534 Retrieved from: https://www.realtor.com/realestateandhomes-detail/1661-W-Mayberry-Ave_Hemet_CA_92543_M27765-54917</p>
<p>Park & Natural Space</p>	<p>No image provided.</p>

<p>Auditorium</p> <p>Pro</p> <ul style="list-style-type: none"> • Open • Open to different layout <p>Con</p> <ul style="list-style-type: none"> • Acoustic • No screen • No storage 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Realtor.com MLS number:PW22045687 Retrieved from: https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave Hemet CA 92543 M27849-77020</p>
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Opportunities

- Unfortunately, Panorama Village does not offer volunteer opportunities.

Personal growth (see table 7.3.5)

- Library & Craft room
- Hobby Shop
- Computer Lab

Table 7.3.5: Panorama Village - Site Analysis & Comparison

<p>Library and Craft room</p> <p>Pro</p> <ul style="list-style-type: none"> • Window (natural lighting) • Sole seating <p>Con</p> <ul style="list-style-type: none"> • Privacy • Ventilation • Lack of organize • Lack of seating 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Remax.com (n.d.). Panorama Village, Hemet, California. MLS# PW22045687 Listed By Anthony Arana, Statewide Brokers. Retrieved March 9, 2022 from: https://www.remax.com/ca/hemet/home-details/530-s-lyon-ave-hemet-ca-92543/16448018853683942349/M00000093/PW22045687</p>
<p>Hobby shop</p> <p>Pro</p> <ul style="list-style-type: none"> • Storage • Table top (easy clean) <p>Con</p> <ul style="list-style-type: none"> • No screen 	 <p>*Cons are based only on what is visible from the image.</p>

	Source: Realtor.com MLS number:PW22045687 Retrieved from: https://www.realtor.com/realestateandhomes-detail/530-S-Lyon-Ave Hemet CA 92543 M27849-77020
Computer Lab	No Image Provided.

7.4 Green Hill Condominium - Wynnewood, Pennsylvania, USA

Site Analysis


 Factors can be cross referenced

Table 7.4: Green Hill Condominium - Site Analysis & Comparison		
	Green Hill Condominium Wynnewood, Pennsylvania, USA	Highland, California, USA
Location	<ul style="list-style-type: none"> ▪ Wynnewood, Pennsylvania, USA ▪ Northeast region of USA 	
Population/Density	<ul style="list-style-type: none"> ▪ 14,262 (2019) 	
	Males	6,651 (46.63%)
	Females	7,611 (53.37%)
	Median Age	44.7 Years
	Races	
	Hispanic	3.3%
	White	77.9%
	Black	3.4%
	Asian	12.7%
	Two or more races	Unknown
	Native Hawaiian and other Pacific Islander	0%
	American Indian	0%
	Others	206%
Economic	Average income	\$66,304
	Median Household income	\$112,351
	Median House Value	\$667,102

	Poverty Rate (2019)	Unknown	
Size	▪ 3.5 mi ²		
Geography (Access)	<ul style="list-style-type: none"> ▪ 1 High school ▪ 1 College ▪ 1 music school ▪ 3 Parks ▪ 1 Church 		<ul style="list-style-type: none"> ▪ 1 High school ▪ 1 College ▪ 2 Parks ▪ 1 Church
Topography (Elevation)	▪ 295 feet		
Climate	▪ Humid continental climate		
	Sunny Days	205 Days	
	Precipitation Days	117 Days	
	Highest Temperature	87 Degrees	
	Lowest Temperature	26 Degrees	

Building Description

Name: Green Hill Condominium

Owner: Green Hill Condominium Associates, Inc

Address: 1001 City Ave, Wynnewood, PA 19096

Occupied Since: 1964

Number of Units: 543

Number of Occupants: N/A

Funding Options: Resale home and \$872 monthly HOA fees (includes recreation room, pool, spa, and golf fee)

Overview

Green Hill Condominium is an active lifestyle retirement community offered to individuals aged 55 or above. The subject of this case study is in Wynnewood, Pennsylvania, and built-in 1962. Green Hill Condominium is a 24-hour security, gated community with bus transportation. Green Hill Condominium also has a community shuttle bus to help residents easily access the surrounding area. The condo home features include marble flooring, in-unit washers and dryers,

walk-in closets, and terraces for residents to enjoy the warm summer months. Green Hill Condominiums consists of 543 condominiums. The condo homes' sizes range from 910 to 1,910 square feet with one to three bedrooms and one or two bathrooms, which provide options for residents to downsize or expand their living space. The parking spaces are available but cost an additional fee. The condos command roughly \$100,000 to \$300,000 per unit.

Base on a 30-year mortgage at 3.75% interest rate, a person's mortgage would be roughly \$463 to \$1,389 per month plus the \$872 HOA fee which means that the person would expect to pay \$1,335 to \$2,261 per month just for housing. This translates to \$16,020 to \$27,132 per year which is rough 50-100% of annual low-income reports of \$27,398. Hence, this community is deemed affordable and a viable case for these case studies.

Housing safety (see table 7.4.1)

- Home

Table 7.4.1: Green Hill Condominium – Housing Safety

Bathroom

Pro

- Tile (easy to clean)
- Slip carpet

Con

- No grab bar (safe)





*Cons are based only on what is visible from the image.

Source: neighborhoods.com Green Hill Condominium
Wynnewood, Pennsylvania Homes for Sale. Rederived from:
<https://www.neighborhoods.com/green-hill-condominium-wynnewood-pa>

Exercise (see table 7.4.2)

- Fitness Center
- Indoor Pool


- Outdoor Pool

Table 7.4.2: Green Hill Condominium – Exercise	
Fitness Center	No image provided.
Indoor Pool	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Zillow (n.d.). 1001 City Ave #EE524, Wynnewood, PA 19096. MLS #PAMC2025972 by the real estate brokerage company Keller Williams Main Line. Retrieved March 9, 2022 from: https://www.bexrealty.com/Pennsylvania/Wynnewood/1001-City-Ave-Ee524/home/</p>
<p>Pro</p> <ul style="list-style-type: none"> • Good length • Seating <p>Con</p> <ul style="list-style-type: none"> • Lack of ventilation • No storage 	
Outdoor Pool	 <p>*Cons are based only on what is visible from the image.</p>
<p>Pro</p> <ul style="list-style-type: none"> • Umbrella (covered) • Seating • Covered patio <p>Con</p> <ul style="list-style-type: none"> • No storage 	

	Source: Zillow (n.d.). 1001 City Ave #EE524, Wynnewood, PA 19096. MLS #PAMC2025972 by the real estate brokerage company Keller Williams Main Line. Retrieved March 9, 2022 from: https://www.bexrealty.com/Pennsylvania/Wynnewood/1001-City-Ave-Ee524/home/
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Activity (see table 7.4.3)

- Card game table

Table 7.4.3: Green Hill Condominium – Activity	
<p>Card game table</p> <p>Pro</p> <ul style="list-style-type: none"> • Comfort seating • Large window • Carpet (comfort) <p>Con</p> <ul style="list-style-type: none"> • Lack of seating • privacy 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: BEX Realty. Green Hill Condominiums 1001 City Ave #EE827 Retrieved March 9, 2022 from: https://www.bexrealty.com/Pennsylvania/Wynnewood/1001-City-Ave-Ee827/home/rental/</p>

Gathering Space (see table 7.4.4)

- Outdoor patio
- Outdoor Gather space
- Outdoor Grandkids play area

Table 7.4.4: Green Hill Condominium – Gathering Spaces

Outdoor Patio

Pro

- Railing (safe)



Con

- No covered
- No seating
- No lighting



*Cons are based only on what is visible from the image.

Source: Zillow (n.d.). 1001 City Ave #323, Wynnewood, PA 19096. MLS#: PAMC2028714 WYNNEWOOD, PA 19096 Retrieved March 9, 2022 from: https://www.zillow.com/homedetails/1001-City-Ave-323-Wynnewood-PA-19096/2067608395_zpid/

<p>Outdoor-Garden</p> <p>Pro</p> <ul style="list-style-type: none"> • Lawn • Ventilation <p>Con</p> <ul style="list-style-type: none"> • No seating • No covered • No walking trail 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). 1001 CITY AVENUE EE-323, WYNNEWOOD, PA 19096 Retrieved March 9, 2022 from: https://www.55places.com/pennsylvania/wynnewood/1001-city-ave-ee-323/property/26220102</p>
<p>Outdoor Ground kid play area</p> <p>Pro</p> <ul style="list-style-type: none"> • Playground for kids • Fence • Trees <p>Con</p> <ul style="list-style-type: none"> • Lack of seating 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). 1001 CITY AVENUE EE-323, WYNNEWOOD, PA 19096 Retrieved March 9, 2022 from: https://www.55places.com/pennsylvania/wynnewood/1001-city-ave-ee-323/property/26220102</p>

Opportunities

- Unfortunately, Green Hill Condominium does not offer volunteer opportunities.

Personal growth

- Unfortunately, Green Hill Condominium does not offer personal growth activities or space.

7.5 Sun City Huntley - Huntley, Illinois, USA

Site Analysis

Factors can be cross referenced

	Sun City Huntley Huntley, Illinois, USA	Highland, California, USA
Location	<ul style="list-style-type: none"> ▪ Huntley, Illinois, USA ▪ Midwest region of USA 	
Population/Density	<ul style="list-style-type: none"> ▪ 27,228 (2019) 	
	Males	12,818 (47.1%)
	Females	14,410 (52.9%)
	Median Age	49 Years
	Races	
	Hispanic	2,897 (10.8%)
	White	21,076 (78.8%)
	Black	696 (2.6%)
	Asian	1,633 (6.1%)
	Two or more races	369 (1.4%)
	Native Hawaiian and other Pacific Islander	0%
	American Indian	0%
	Others	7 (0.03%)
Economic	Average income	\$40,307

	Median Household income	\$75,100	
	Median House Value	\$264,390	
	Poverty Rate (2019)	5.2%	
Size	▪ 14.35 mi ²		▪ 18.67 mi ²
Geography (Access)	▪ 1 High school		▪ 1 High school
Topography (Elevation)	▪ 889 feet		▪ 1,309 feet
Climate	▪ Continental with cold winters, warm summer		
	Sunny Days	186 Days	
	Precipitation Days	110 Days	
	Highest Temperature	82 Degrees	
	Lowest Temperature	63 Degrees	

Building Description

Name: Sun City Huntley

Owner: Green Hill Condominium Associates, Inc

Address: 12880 Del Webb Boulevard, Huntley, IL 60142

Occupied Since: 1998

Number of Units: 5,489

Number of Occupants: N/A

Funding Options: Resale home and \$134 - \$ 322 monthly HOA fees (includes recreation room, pool, spa, and golf fee)

Overview


Sun City Huntley is a retirement community for individuals aged 55 and above and is the most amenity-rich case. The subject of this case study is located in Huntley, Illinois. Sun City Huntley was developed in 1999 and completed in 2013 with 5,489 homes. The community is located about 50 miles northwest of Chicago provides 37 different single-family home models

that range from 1,130 square feet to over 3,000 square feet. Sun City Huntley allows residents to choose from many condominiums, townhomes, and single-family homes. All homes feature a minimum of two bedrooms, two bathrooms, and attached garages. With over 5,400 homes sitting on 2,200 acres, amenities include golf, tennis, and a thoughtfully designed 94,000 square foot clubhouse. There are also over 80 different clubs and interest groups in the community. This also allows easy access to social amenities and interaction of residents living within the homes. These homes command roughly \$100,000 to \$300,000 each.

Base on a 30-year mortgage at a 3.75% interest rate, a person's mortgage would be roughly \$463 to \$1,389 per month plus the \$872 HOA fee meaning that the person would expect to pay \$1,335 to \$2,261 per month just for housing. This translates to \$16,020 to \$27,132 per year which is roughly 50-100% of annual low-income reports of \$27,398. Hence, this community is deemed affordable and a viable case for these case studies.

Housing Safety (see table 7.5.1)


- Home



Table 7.5.1: Sun City Huntley – Housing Safety	
<p>Bathroom</p> <p>Pro</p> <ul style="list-style-type: none"> • Grab bar (safe) • Easy access to bedroom <p>Con</p> <ul style="list-style-type: none"> • No window 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: neighborhood.com 11364 Bellflower Lane</p>

<ul style="list-style-type: none"> • Lack of night lighting 	<p>Huntley, Illinois 60142. Retrieved March 9, 2022 from: https://www.neighborhoods.com/il/huntley/11364-bellflower-ln/property/26547792</p>
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Exercise (see table 7.5.2)

- Golf Course
- Fitness Center
- Indoor Pool
- Yoga
- Tennis


Table 7.5.2: Sun City Huntley – Exercise	
<p>Golf Course</p> <p>Pro</p> <ul style="list-style-type: none"> • Lawn • Artificial lake • Ventilation <p>Con</p> <ul style="list-style-type: none"> • No walking trails • No seating 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>
<p>Fitness Center</p>	<p>No image provided.</p>

<p>Indoor Pool</p> <p>Pro</p> <ul style="list-style-type: none"> • Large window • Ventilation • Size • Seating <p>Con</p> <ul style="list-style-type: none"> • No shade (direct sunlight) • No storage 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>
<p>Yoga room</p> <p>Pro</p> <ul style="list-style-type: none"> • Size • Large mirror • Soft wood floor <p>Con</p> <ul style="list-style-type: none"> • Ventilation • Acoustic 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>

<p>Tennis</p> <p>Pro</p> <ul style="list-style-type: none"> • ventilation <p>Con</p> <ul style="list-style-type: none"> • No storage • Size (1) 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>
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Activity (see table 7.5.3)

- Meeting room


<p>Table 7.5.3: Sun City Huntley – Activity</p>	
<p>Meeting room</p> <p>Pro</p> <ul style="list-style-type: none"> • Large window • Outdoor & indoor seating <p>Con</p> <ul style="list-style-type: none"> • No shading (direct sunlight) 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from:</p>

<https://www.55places.com/illinois/communities/sun-city-huntley>


Gathering Space (see table 7.5.4)

- Meeting room
- Library
- Performance theater
- Playground for Grandkids

Table 7.5.4: Sun City Huntley – Gathering Space

<p>Meeting room</p> <p>Pro</p> <ul style="list-style-type: none"> • Seating • Size <p>Con</p> <ul style="list-style-type: none"> • No screen • Lack of privacy • Ventilation 	
<p>*Cons are based only on what is visible from the image.</p>	
<p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>	

<p>Library</p> <p>Pro</p> <ul style="list-style-type: none"> • Comfort seating • Fireplace (comfort, cozy) • Carpet <p>Con</p> <ul style="list-style-type: none"> • Lack of privacy • Lighting 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>
<p>Performance Theater</p> <p>Pro</p> <ul style="list-style-type: none"> • Stage (height) • Seating • Audio <p>Con</p> <ul style="list-style-type: none"> • No window • Ventilation 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>

<p>Playground for grandkids</p> <p>Pro</p> <ul style="list-style-type: none"> • Park <p>Con</p> <ul style="list-style-type: none"> • No seating 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley</p>
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Opportunities

- Unfortunately, Sun City Huntley does not offer volunteer opportunities.

Personal growth (see table 7.5.5)

- Sewing Studio
- Craft Studio
- Gardening Plots

Table 7.5.5: Sun City Huntley – Personal Growth

Sewing studio

Pro

- Large window
(natural lighting)
- Shading (direct sunlight)
- Individual work station
- Storage
(organization)



*Cons are based only on what is visible from the image.

Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: <https://www.55places.com/illinois/communities/sun-city-huntley>

Con

- Ventilation
- Acoustics

Craft studio

Pro


- Ventilation

Con

- Acoustics (noisy)
- No storage



*Cons are based only on what is visible from the image.

	Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley
<p>Gardening</p> <p>Pro</p> <ul style="list-style-type: none"> • Storage (small shed) <p>Con</p> <ul style="list-style-type: none"> • Not covered • No signage 	 <p>*Cons are based only on what is visible from the image.</p>
	Source: 55Place.com (n.d.). Sun City Huntley - Huntley, IL. Retrieved March 9, 2022 from: https://www.55places.com/illinois/communities/sun-city-huntley

7.6 Morinokaze Nursing Home - Tokyo, Japan

Site Analysis

Factors can be cross referenced

Table 7.6: Morinokaze Nursing - Site Analysis & Comparison		
	Morinokaze Nursing Tokyo, Japan	Highland, California, USA
Location	<ul style="list-style-type: none"> ▪ Tokyo, Japan ▪ East Asia 	
Population/Density	<ul style="list-style-type: none"> ▪ 123.12 million (2019) 	
	Males	61.36 (49.83%)
	Females	64.76 (52.6%)
	Median Age	48.4 Years
	Races	

	Japanese	99%	
	Others	1%	
Economic	Average income	\$21,158	\$21,578 \$53,385
	Median Household income	\$49,477	
	Median House Value	\$285,480	
	Poverty Rate (2019)	15.6%	
Size	▪ 847 mi ²		
Geography (Access)	▪ 1 Elementary school		▪ 1 Elementary school
Topography (Elevation)	▪ 131 feet		
Climate	Humid subtropical		▪ Humid Subtropical
	Sunny Days	229 Days	
	Precipitation Days	136 Days	
	Highest Temperature	93 Degrees	
	Lowest Temperature	36 Degrees	

Building Description

Name: Morinokaze Nursing Home Tokyo-Japan

Owner: State

Address: Shibuya

Occupied Since: Unknown

Number of Units: 80- 100

Number of Occupants: Unknown

Funding Options: Resale home and \$84 monthly HOA fees (includes recreation room, pool, spa, and golf fee)

Overview


Morinokaze Nursing Home is an assisted living community that offers services for dependent elderly who need skilled nursing care. This community is funded and built by the government,

run by a non-profit organization, and costs \$84 in monthly HOA fees. The subject of this case study is in Shibuya, the northern part of Tokyo, which provides easy access to any medical care and shops. Each client has a private room secured with a door that keeps their space personal, allowing only the facility staff to have access. Morinokaze sits on an old high school site. The Morinokaze Nursing Home is designed as a one-block building with a fence surrounding it and has a gate; the facility is secure.

Japan sets disposable income below \$14,424 as the poverty level (Borgen project, 2021). Morinokaze cost \$84 per month, this translates to \$1,008 per year which is only 10% of the annual low-income reports of \$14,424 in Japan. Hence, this community is deemed affordable and a viable case for these studies.

Housing Safety (see table 7.6.1)

- Home

Table 7.6.1: Morinokaze Nursing – Housing Safety	
<p>Bathroom</p> <p>Pro</p> <ul style="list-style-type: none"> • Grab bar (safe) • Back support on toilet <p>Con</p> <ul style="list-style-type: none"> • Small (space) • Small sink 	 <p>*Cons are based only on what is visible from the image.</p>

	Source: A CHANCE TO GET BETTER, NOT WORSE Retrieved March 9, 2022 from: http://www.genkikaki.com/episodes/5/1
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Exercise (see table 7.6.2)

- Indoor Spa
- Exercise room/gym

Table 7.6.2: Morinokaze Nursing – Exercise	
Indoor Spa	No image provided.
Exercise room/gym	No image provided.

Activity (see table 7.6.3)



- Game room


Table 7.6.3: Morinokaze Nursing - Activity	
Game room	No image provided.

Gathering Space (see table 7.6.4)

- Park
- Lounge
- Meeting room


Table 7.6.4: Morinokaze Nursing – Gathering Spaces	
Outdoor Patio	No image provided.

<p>Park</p> <p>Pro</p> <ul style="list-style-type: none"> • Lighting • Ramp (wheelchair accessible) <p>Con</p> <ul style="list-style-type: none"> • Size (small) • No seating • Not covered 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: A CHANCE TO GET BETTER, NOT WORSE Retrieved March 9, 2022 from: http://www.genkikaki.com/episodes/5/1</p>
<p>Lounge</p> <p>Pro</p> <ul style="list-style-type: none"> • Comfort seating • Large window • Shading • Storage <p>Con</p> <ul style="list-style-type: none"> • Size (small) • Lack of privacy • Acoustics 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: A CHANCE TO GET BETTER, NOT WORSE Retrieved March 9, 2022 from: http://www.genkikaki.com/episodes/5/1</p>

<p>Meeting room</p> <p>Pro</p> <ul style="list-style-type: none"> • Accessible (close to kindergarten) • Large window <p>Con</p> <ul style="list-style-type: none"> • Acoustics 	 <p>*Cons are based only on what is visible from the image.</p> <p>Source: Genkikaki (n.d.). A Chance to Get Better, Not Worse. Retrieved March 9, 2022 from: http://www.genkikaki.com/episodes/5/1</p>
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Opportunities (see table 7.6.5)

- Teaching classes

<p>Table 7.6.5: Morinokaze Nursing - Opportunities</p>	
<p>Teaching class</p> <p>Pro</p> <ul style="list-style-type: none"> • Large window • Acoustic <p>Con</p> <ul style="list-style-type: none"> • Size (crowded) • Lack of organize 	 <p>*Cons are based only on what is visible from the image.</p>

	Source: Genkikaki (n.d.). A Chance to Get Better, Not Worse. Retrieved March 9, 2022 from: http://www.genkikaki.com/episodes/5/1
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Personal growth (see table 7.6.6)

- Library
- Dance class

Table 7.6.6: Morinokaze Nursing – Personal Growth	
Library	No image provided.
Dancing class	No image provided.

Chapter 8 - Results

8.1 Literature Review Results

An exceptional senior living community must ensure optimal health, safety, and wellbeing for its residents. Therefore, three aspects are needed to meet this goal: physical, social, and mental or psychological health. To achieve this within a senior living community, amenities must be reconceptualized as a necessity, and not merely a desire.

The physical aspect includes providing a high quality of living for its residents. Enough living space with good ventilation is required. A community must offer a safe walking trail on-site. A gate and on-site security are additional benefits that can provide extra protection for its residents. Healthy nutrition is an essential requirement for the elderly population. Especially for someone who is not able to cook on their own, on-site dining areas must be provided. Therefore, kitchen and dining spaces are necessary for a senior community. Physical activity space is another fundamental area for the elderly that increases subjective wellbeing, happiness, and self-esteem with daily exercise. Thus, providing a fitness center or exercise space, such as a swimming pool, yoga room, and game room is beneficial for elderly people.

The social aspect pertains to the arrangement of social activities that enhance motivation, inhibit cognitive deterioration, and improve physical and mental health. Participating in an event, joining a club, or enrolling in a class can help increase social engagement. Therefore, a senior living community needs a great range of gathering spaces to meet their daily social connection needs. Areas like meeting rooms, lounges, game rooms, billiards rooms, and libraries are required when designing the senior living community.

Mental and psychological health comprises recognizing one's creativity, allowing individual growth, increasing satisfaction, and staying positive and enthusiastic. On these factors, providing

spaces and opportunities facilitate activity in a meaningful way must be available. A library, art studio, woodshop, and reading and writing clubs can help residents check into their mental health. In addition, providing a volunteer activity, including a small preschool for elderly people to watch or teach kids will bring more happiness for its residents.

8.2 Case Study Results

Incorporating architectural, master planning, and interior design make it possible to develop healthy and suitable establishments for residential living spaces and community amenities. The main objective of following up and being keen on the architectural aspects is to ensure that the needs and requirements of the prospective elderly residents are met. However, several design aspects are required from the houses' affordability, given that most of the occupants of the residences who are from middle and lower-income households. These amenities possess unique architectural traits.

8.2.1 Housing Safety (see table 8.2.1)

Table 8.2.1: Safe Housing Comparison		
		
<ul style="list-style-type: none"> • Storage 	<ul style="list-style-type: none"> • Clear sight lines 	<ul style="list-style-type: none"> • Slip prevention



The bathroom is a space that needs to be considered from the perspective of safety standards in the home with falls accounting for 80% of the accidents in this room (Sagon, 2011). Some design methods used to compensate for a physical disability and accident prevention include installing grab bars and providing enough storage. Important design aspects include:

1. Roll-in shower
2. Grab bars
3. Anti-slip tiles
4. Under lighting
5. Clear sight lines

8.2.2 Exercise (see table 8.2.2)

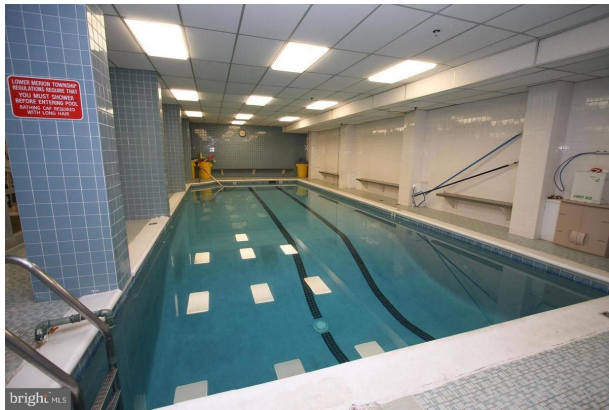
Table 8.2.2: Exercise Comparison



- Acoustical control
- Climate control



- Entry ramp



- Continuous depth



- Respite areas



- Natural lighting
- Laps swimming

Elderly people require physical exercise space in their surroundings to boost their health and wellness. These physical activity spaces include a fitness center, indoor or outdoor swimming pool, aerobics spaces, dance classroom, table tennis or tennis courts, and a golf course. The fitness center's central location is needed for the convenience of accessibility inside the community. A good quality health or fitness center provides a safe and comfortable workout environment. It will enable residents to use specialized exercise equipment and offer a great range of activities to meet personal fitness goals. The floor materials used for the courts should be made of high standards to prevent injuries and slippery during exercise. Windows must be made large enough to allow ample sunlight. The outdoor pools should be convenient to influence people in need of swimming or exercise and require less maintenance fees than the indoor pools because of natural ventilation. Indoor pools that are intended inside facilities and are small compared to the outdoor pool for convenience of use in sporting and practice by the residents. The indoor pool area design aspects include:

1. Acoustical control
2. Anti-slip tiles
3. Climate control
4. Natural lighting
5. Entry ramp
6. Continuous depth (4ft)
7. Respite areas

8.2.3 Activity (see table 8.2.3)

Table 8.2.3: Activities Comparison





		
<ul style="list-style-type: none"> • Meeting area 	<ul style="list-style-type: none"> • Board or card games 	<ul style="list-style-type: none"> • Pool leagues
		
<ul style="list-style-type: none"> • Conversational seating 	<ul style="list-style-type: none"> • Comfortable seating 	<ul style="list-style-type: none"> • Pool leagues
		
<ul style="list-style-type: none"> • Natural lighting 		

The social activity space includes a meeting room, lounge area, library, ballroom, performance theater, and game room. Meeting rooms with open and private conversation options in mind increase people's social health because they can convey and exchange their ideas through meetings. Library with private seating space provides residents privacy for learning and discussion. Designing a library in a community can grow connections and community engagement. The ballroom for residents provides space for holiday parties, which improves socializing and also can help with psychological restoration. The game room is designed for residents to play with others which helps the elderly build focus and improve stretching and

balancing power. These designs ensure that the adult community enjoys enough comfortable spaces and can allow large gatherings or activities that might require many individuals. The cost of maintenance is low for designing these gathering spaces. In addition, a design is in line with senior living's affordability because their room uses are multifunctional. The meeting room is not just a room for meetings, but a space for creativity and writing. Century Village has designed meeting rooms with open and private conversations in mind, which increase the social health of people because they could convey and exchange their ideas through meetings. Therefore, in the design space of the meeting room, it is equipped with sofas, soft chairs, and coffee tables. It cleverly uses the use of furniture to create a sense of privacy in the space, thereby ensuring everyone's work experience (branch furniture, 2021). The lighting of the meeting room is a key consideration when designing it in the Century Village. Century Village provides a mild color temperature in the lighting design of the meeting room (Century Village, 2001). Cool white lighting keeps employees alert during meetings. At the same time, the overall design of the meeting room takes into account the participation of natural light. In the design of the floor-to-ceiling windows, the application of curtains is also added to avoid the stimulation caused by strong natural light. On the other hand, the color design of the meeting room uses calming colors, which is attributive to the maintenance of mental health (branch furniture, 2021). In addition, such a design is in line with senior living's affordable because their room uses are multifunctional. The activity area design aspects include:

1. Board or card games
2. Conversational seating
3. Sports viewing
4. Pool leagues

8.2.4 Gathering Space (see table 8.2.4)

Table 8.2.4: Gathering Spaces Comparison	
	
<ul style="list-style-type: none"> • Small group gathering 	<ul style="list-style-type: none"> • Covered area • Allows for games or discussion
	
<ul style="list-style-type: none"> • Railing (safety) 	<ul style="list-style-type: none"> • Privacy

People's social health improves since they may express and communicate their thoughts through gatherings. Therefore, providing spaces that can be gathered in and allow for organic conversation is required for the senior living community. The outdoor patio is another significant building design aspect that cannot be ignored. An outdoor patio design can provide more space for residents to relax and entertain. In addition, the outdoor patio was designed with a connection to the house in mind. The outdoor patio looks along the length and width of the house, echoing

the outline of the house, and can reflect the natural look of the outdoors and indoors (Taylor, 2019), and bring natural indoor. The gathering space design aspects include:

1. Small group gathering
2. Privacy
3. Covered area
4. Comfortable seating
5. Allows for games or discussion

8.2.5 Opportunities (see table 8.2.5)

Table 8.2.5: Opportunities Comparison		
		
<ul style="list-style-type: none"> • Walking trails 	<ul style="list-style-type: none"> • Lawn 	<ul style="list-style-type: none"> • Lawn • Golf course for visitor options
		
<ul style="list-style-type: none"> • Lawn 	<ul style="list-style-type: none"> • Playground 	<ul style="list-style-type: none"> • Lawn • Park for visitor options

		
<ul style="list-style-type: none"> • Kids playground 	<ul style="list-style-type: none"> • Gardening 	<ul style="list-style-type: none"> • Intergenerational learning




Only Morinokaze Nursing Home provided a diversity of opportunities for its residents.

Opportunities include volunteer activity, which increases happiness and self-esteem for elderly people. For instance, offering the elderly opportunities to watch or teach preschool kids engagement improves elderly social connections. On the other hand, providing elderly people with a teaching job can help the elderly increase their income and build social relationships.

The parks and natural space offer a conducive environment for the elderly who may wish to relax or walk around the community. Providing lawn spaces can provide enough room for playgrounds to ensure that the zones are ample to accommodate many people and be vigilant in advocating for general social health of the elderly residents. The walking trail required on-site provides easy access for the residents to enjoy during their time off or exercise time and offers its residents beautiful scenery. The opportunities space design aspects include:

1. Community services
2. Volunteerism
3. Visitor options
4. Intergenerational learning

8.2.6 Personal Growth (see table 8.2.6)

Table 8.2.6: Personal Growth Comparison		
		
<ul style="list-style-type: none"> • Small group conversations • Shared interests 	<ul style="list-style-type: none"> • Comfortable seating for relaxation 	<ul style="list-style-type: none"> • Active and passive activities

Personal growth improves early mental and psychological health by recognizing one’s creativity and allowing individual development. Therefore, providing spaces and opportunities that bolster personal growth is needed to facilitate activity in a meaningful way. Designing a space like a library, art and craft studio, cooking class, computer lab, performing arts theater, sewing studio, and gardening space can help residents meet their needs and learn new skills. The personal growth space design aspects include:

1. Intellectual discussions
2. Book clubs
3. Personal development
4. Privacy
5. Shared interests

Chapter 9 - Design

9.1 Site

Table 9.1: Highland, California - Site Analysis		
	Highland, California	
Location	<ul style="list-style-type: none"> ▪ Highland, California, USA ▪ West region of USA 	
Population/Density	<ul style="list-style-type: none"> ▪ 55,049 (2019) ▪ 100 % Urban ▪ 0% Rural 	
	Males	27,507 (49.6%)
	Females	27,910 (50.4%)
	Median Age	31.4 Years
	Races	
	Hispanic	31,079 (55.7 %)
	White	13,600 (24.4%)
	Black	4,456 (8%)
	Asian	4,141 (7.4%)
	Two or more races	1,611 (2.9%)
	Native Hawaiian and other Pacific Islander	763 (1.4%)
	American Indian	201 (0.4%)
	Others	118 (0.2%)
Economic	Average income	\$21,578
	Median Household income	\$53,385
	Median House Value	\$372,154
	Poverty Rate (2019)	17.9%
Size	<ul style="list-style-type: none"> ▪ 18.67 mi² 	
Geography (Access)	<ul style="list-style-type: none"> ▪ 1 Elementary school ▪ 1 High school ▪ 1 College 	

	<ul style="list-style-type: none"> ▪ 2 Parks ▪ 1 Church 		
Topography (Elevation)	<ul style="list-style-type: none"> ▪ 1,309 feet 		
Climate	<ul style="list-style-type: none"> ▪ Low mountain area - subtropical 		
	Sunny Days		283
	Precipitation Days		40
	Highest Temperature		95 Degrees
	Lowest Temperature		42 Degrees

Finding a site is the first and most important step in design. The most suitable site for a project plays a significant role in enhancing the efficiency of the building, reduces development and maintenance cost, and improves the living quality of its residents. The method of designing an affordable senior living community requires choosing a proper location to define the size of the site. Research and understanding a place’s geography, topography, and climate, the direction of the sun path and position can help building provide natural lighting and shade for the design, which reduce the energy cost and maintenance fees in future.

9.1.1 Location

4500 Via Marisol - 4500 Via Marisol (See figure 9.1.1)

Figure. 9.1.1 Site Location



Site image at 4500 Via Marisol, Los Angeles, CA 90042

Source: Genkikaki (n.d.). 4500 Via Marisol - 4500 Via Marisol Retrieved March 23, 2022 from: <https://www.loopnet.com/Listing/4500-Via-Marisol-Los-Angeles-CA/24272704/>

The site is located in California, because it has the highest elderly population at roughly 5.1 million (APR, 2022). Highland, California had an elderly population of 55,049 in 2019.

The site is located in the heart of highly desirable northeast Los Angeles. It is less than half a mile away from the 110 freeway, nestled between downtown Los Angeles, South Pasadena, and Eagle Rock. The site is a 12-minute drive (5.4 miles) from the commuter rail and 27-39 minutes from three different airports. It is also 15 minutes from the Hospital of USC and 20 minutes from Hospital Helipad, which provide community access to medical care.

9.1.3 Geography

Figure. 9.1.3 Site Geography



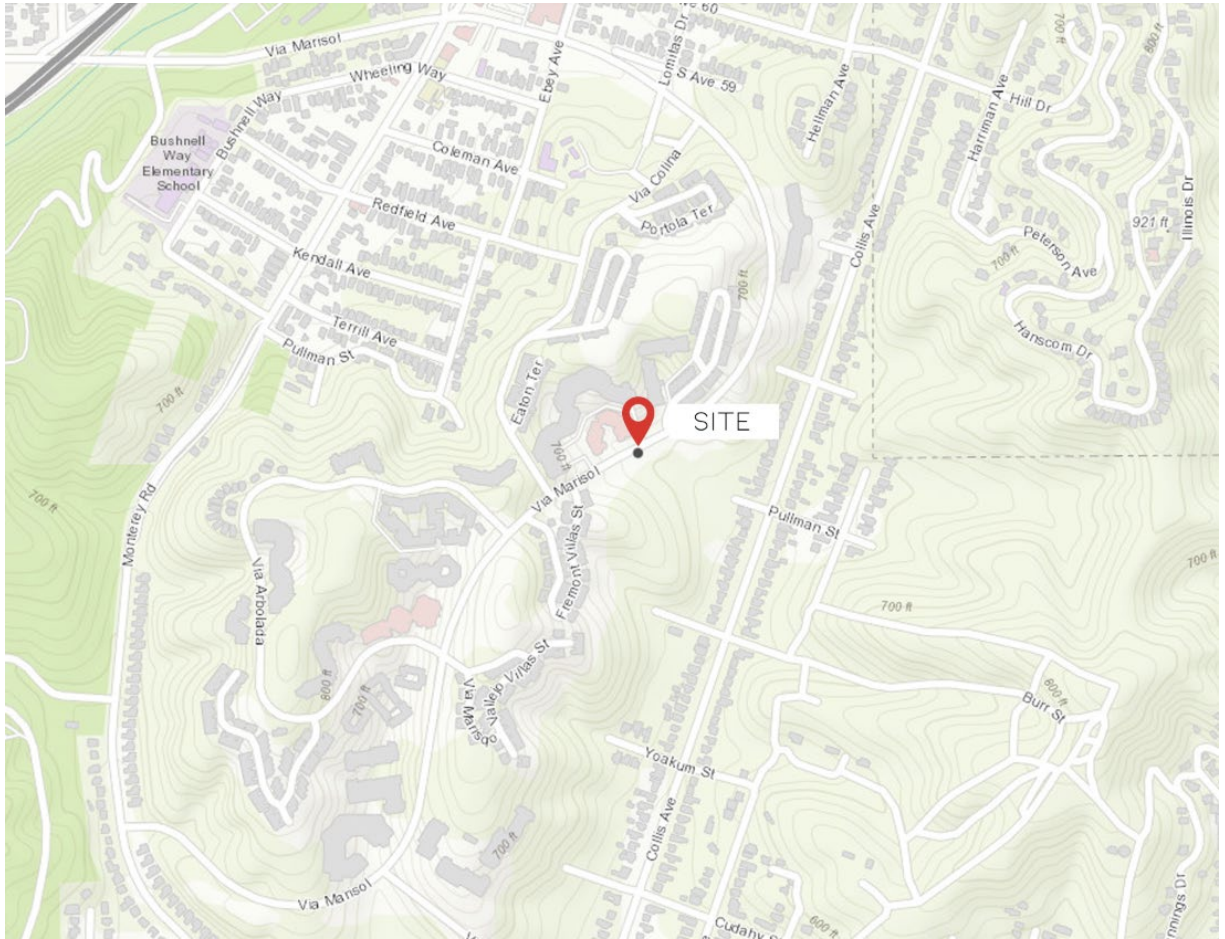
Human geography at 4500 Via Marisol, Los Angeles, CA 90042

Source: Image drawn by author.

Human geography incorporates the social aspects of a surrounding area, including culture, population, and buildings. These factors influence society and culture that reflect local elements in designing architectural motifs. Living in Highland offers residents many necessary infrastructures, including parks, churches, and schools. Therefore, the location of this site affords a lower front-end construction fee.

9.1.4 Topography

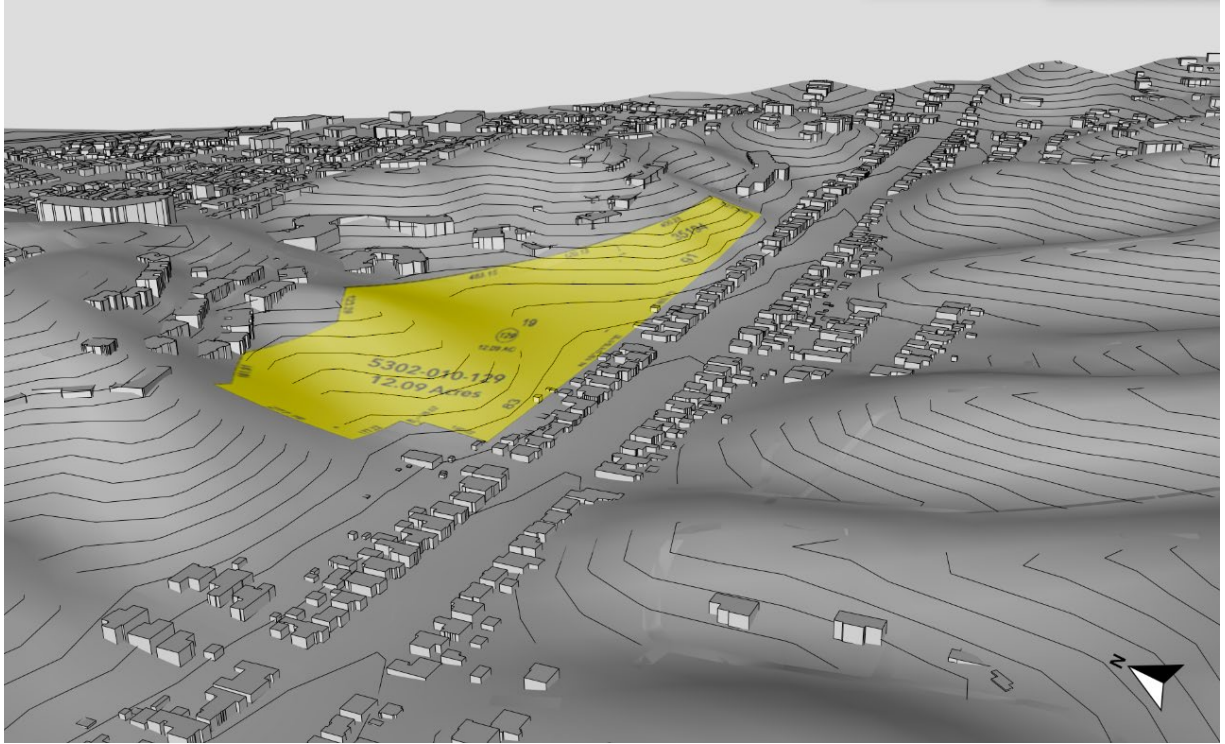
Figure. 9.1.4.1 Site 2D Topography



2D Topography. The contour lines on the map help in determining the elevation.

Source: Image drawn by author.

Figure. 9.1.4.2 Site 3D Topography



3D topography at 4500 Via Marisol, Los Angeles, CA 90042

Source: Image drawn by author.

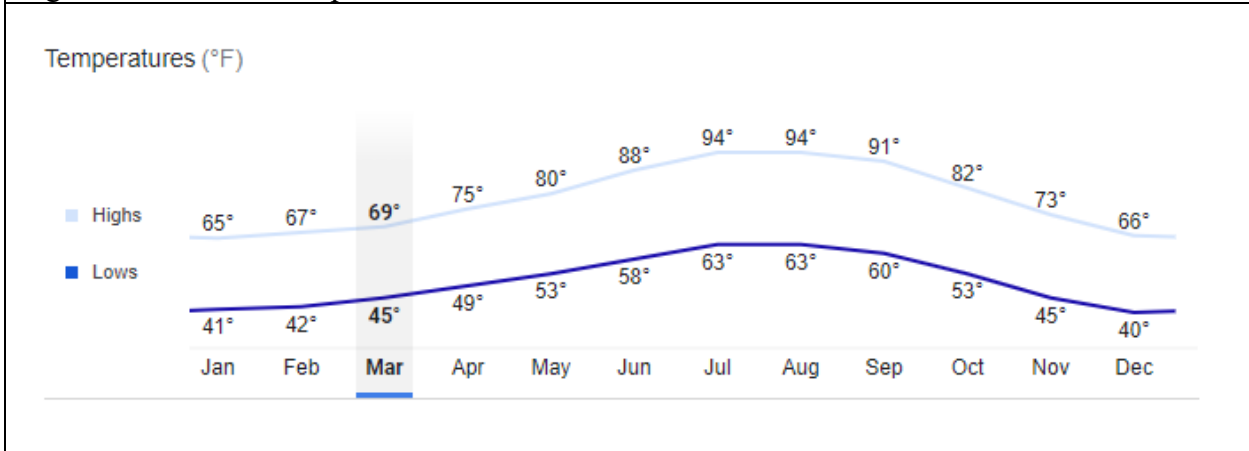
Topography is the study of the land surface that shows elevation changes, which helps to find an ideal spot for construction. The slope of a place and adjacent areas may affect access to sun and views. In this particular case, designing a senior community face to lower elevation can provide a satisfactory view for its residents.

9.1.5 Climate

There are 283 sunny days and 40 precipitation days in Highland, California. Precipitation includes rain, snow, sleet, or hail that falls to the ground. Highland records 13 inches of rain annually and zero inches of snow per year. The highest summer temperature is around 95 degrees in July, and the lowest temperature is around 42 degrees in January. The climate analysis shows Highland, California is a low mountain area, providing its residents a comfortable living

temperature. Living in an area where rain and now are unlikely helps reduce the up-front development materials cost.

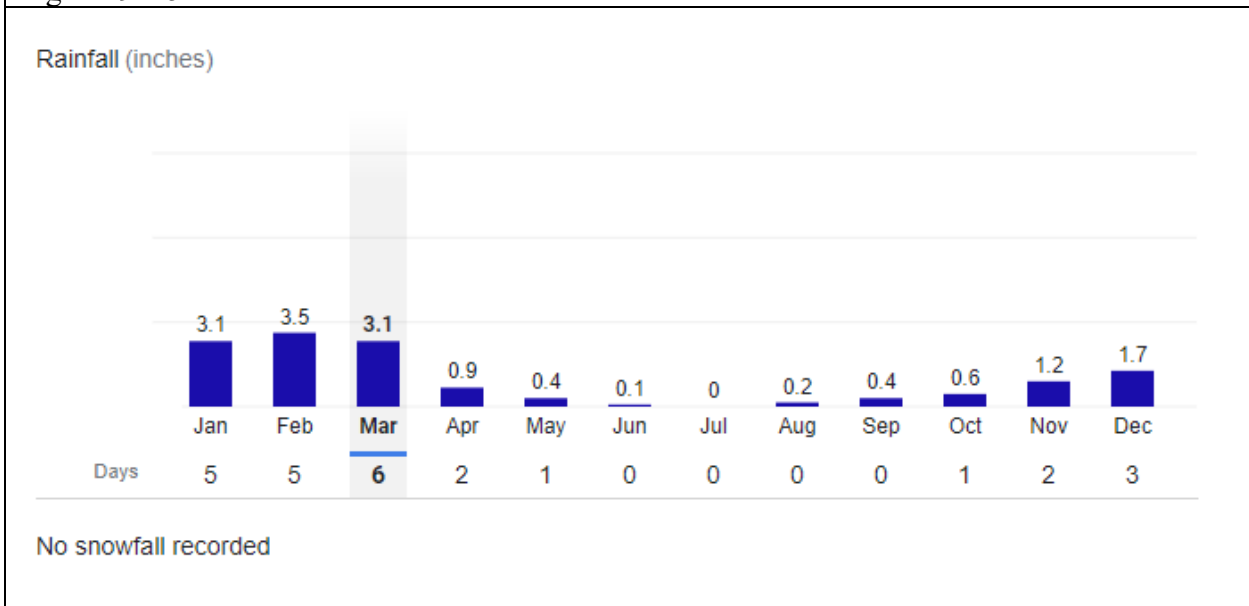
Figure. 9.1.5.1 Site Temperature Chart



Temperature Chart at 4500 Via Marisol, Los Angeles, CA 90042

Source: National Center for Environmental Information (n.d.). Climate in Highland, California. Retrieved March 23, 2022 from: <https://www.ncei.noaa.gov/>

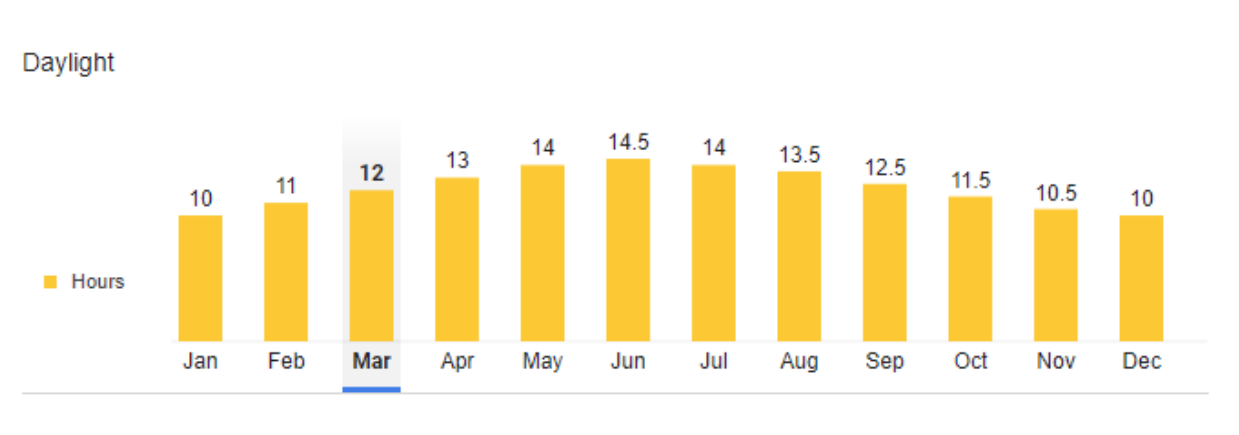
Figure. 9.1.5.2 Site Rainfall Chart



Rainfall Chart at 4500 Via Marisol, Los Angeles, CA 90042

Source: National Center for Environmental Information (n.d.). Climate in Highland, California. Retrieved March 23, 2022 from: <https://www.ncei.noaa.gov/>

Figure. 9.1.5.3 Site Daily light Chart



Daily light at 4500 Via Marisol, Los Angeles, CA 90042

Source: National Center for Environmental Information (n.d.). Climate in Highland, California. Retrieved March 23, 2022 from: <https://www.ncei.noaa.gov/>

9.2 Space Planning

Space planning determines how the spaces should be laid out and used. An adjacencies matrix helps develop the space distances. Ingress and egress plan helps determine the main road in the community. Outdoor recreation planning helps layout the green and park space in the community. These plans can help improve the well-being and productivity of occupants of the space.

9.2.1 Adjacencies

The adjacencies matrix table (See 9.2.1.1) helps the designer see the connection between the space to develop and the needs of residents.

Figure. 9.2.1.1 Adjacencies Matrix Table



Adjacencies matrix table

Source: Image drawn by author.

The bubble diagram (see 9.2.1.2) helps identify the location of each building to be included in the floor plan for the senior living community. The bubble diagram size helps the designer visualize each building's footprint and connections.

Figure. 9.2.1.2 Bubble Diagram

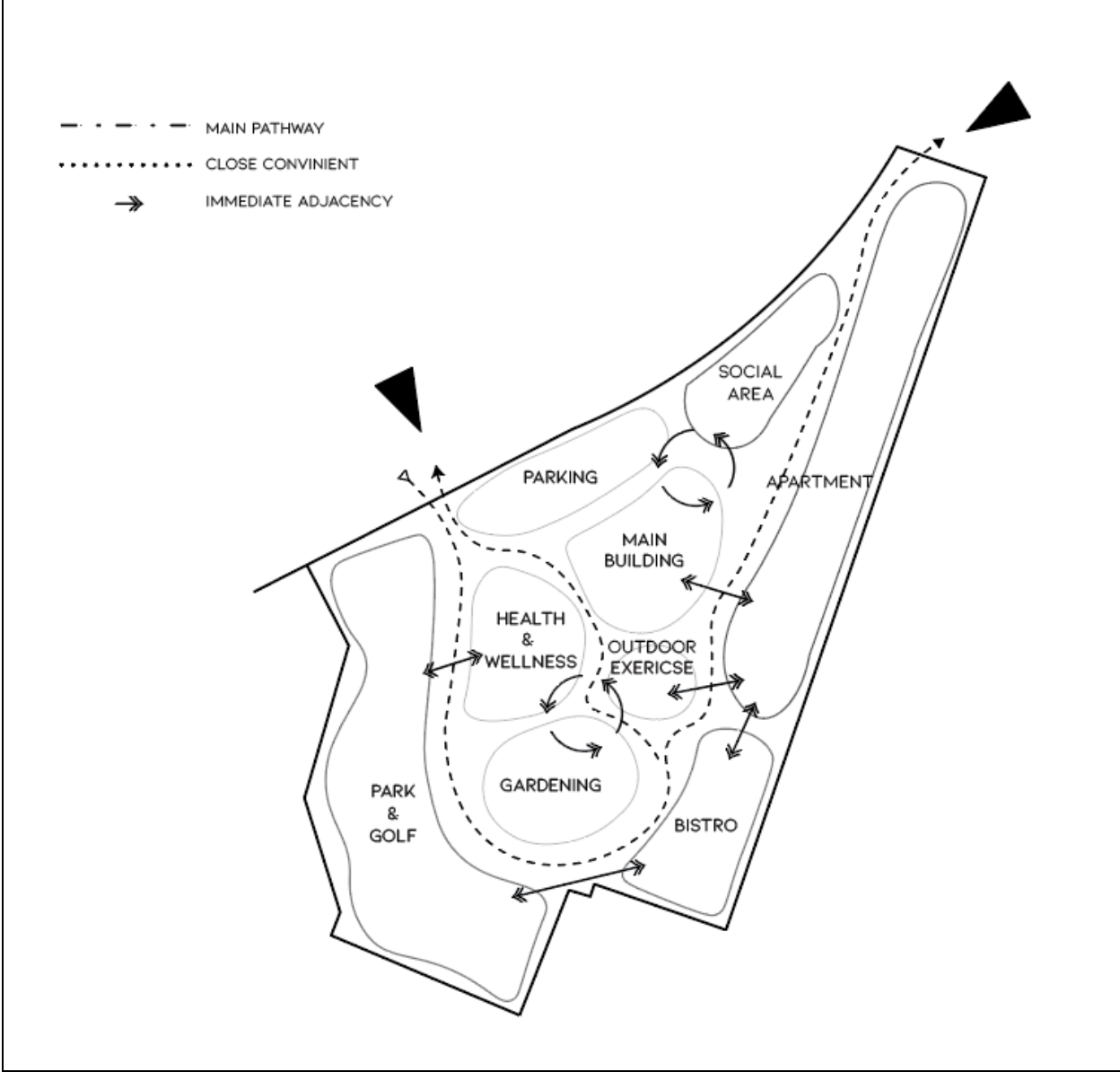


Bubble Diagram

Source: Image drawn by author.

The site diagram (See 9.2.1.3) helps determine the area and connections of each building on the site and defines the main pathway for the whole community.

Figure. 9.2.1.3 Site Diagram

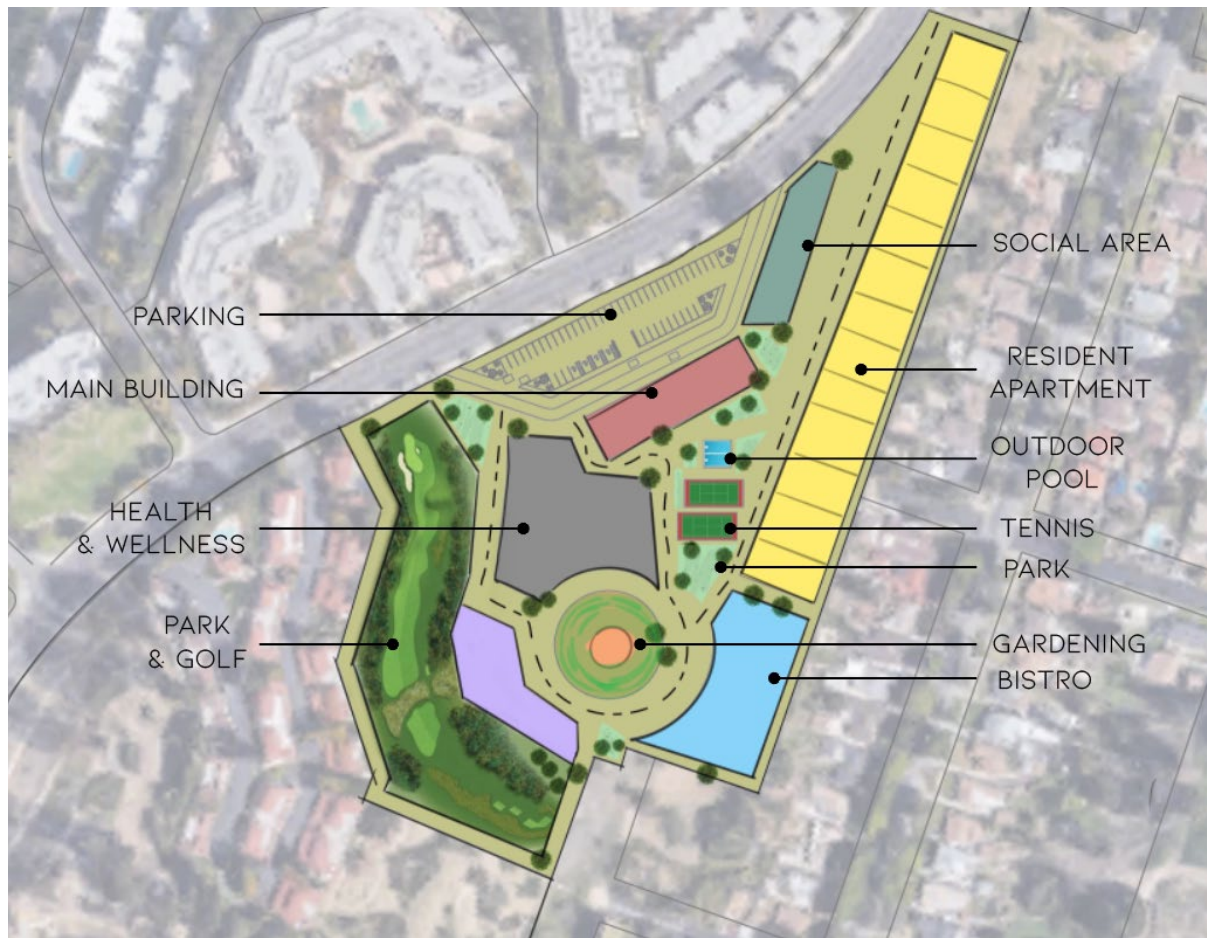


Site Diagram

Source: Image drawn by author.

9.2.3 Outdoor recreation

Figure. 9.2.3 Outdoor Recreation Plan



Outdoor recreation plan

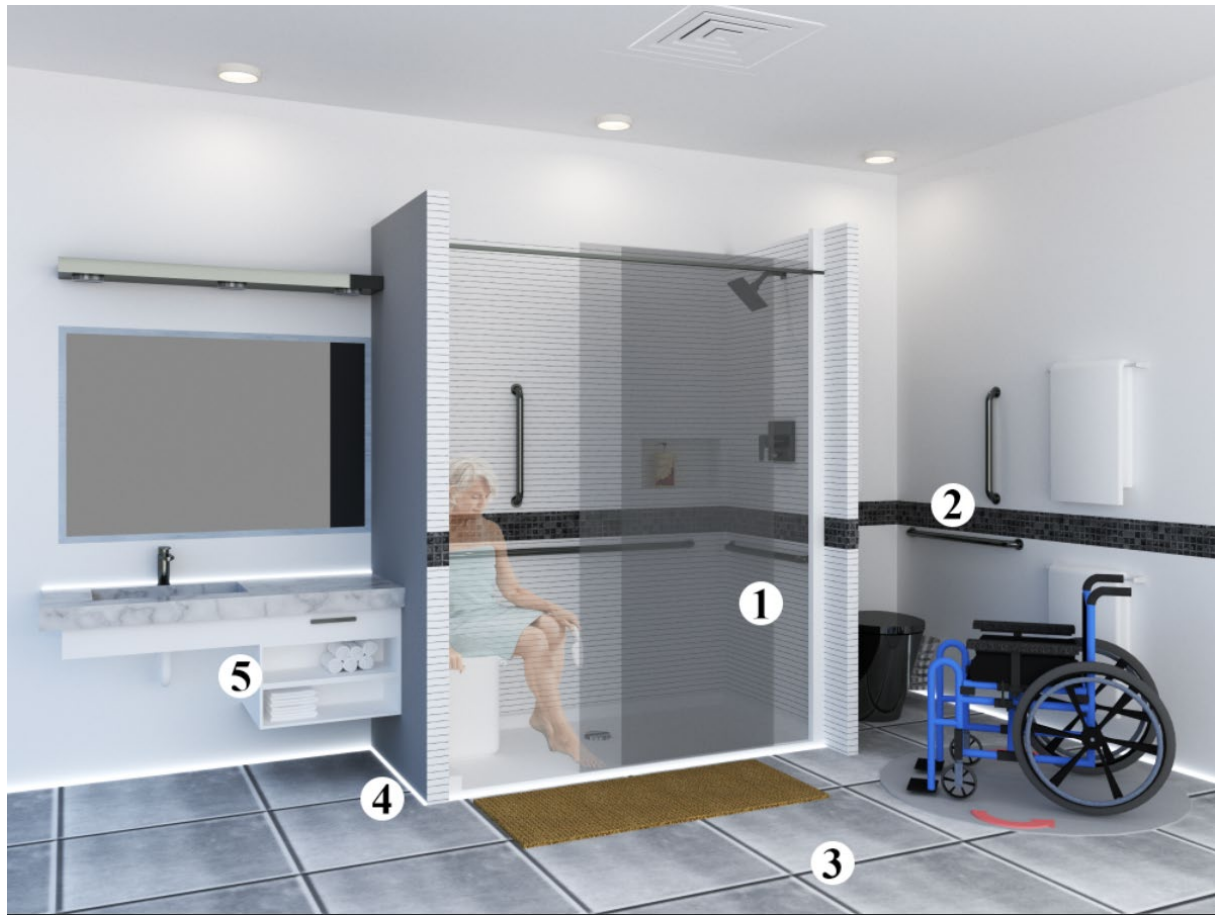
Source: Image drawn by author.

9.3 Interior Design

The design of this community is based upon the results collected from case studies based on six factors: housing safety, exercise activity, social activity spaces, gathering spaces, opportunities for volunteerism, and personal growth.

9.3.1 Housing Safety

Figure 9.3.1 Housing Safety – Bathroom Design



Housing Safety – Bathroom design

Source: Rendering drawn by author.

1. Roll-in shower
2. Grab bars
3. Anti-slip tiles
4. Under lighting
5. Clear sight lines

9.3.2 Exercise

Figure 9.3.2 Exercise – Indoor Pool



Exercise – Indoor Pool

Source: Rendering drawn by author.

1. Acoustical control
2. Anti-slip tiles
3. Climate control
4. Natural lighting
5. Entry ramp
6. Continuous depth (4ft)
7. Respite areas

9.3.3 Activity

Figure 9.3.3 Activity – Game room



Activity – Game room

Source: Rendering drawn by author.

1. Board or card games
2. Conversational Seating
3. Sports viewing
4. Pool leagues

9.3.4 Gathering Space

Figure 9.3.4 Gathering Space - Patio



Gathering Space – Patio

Source: Rendering drawn by author.

1. Small Group Gathering
2. Privacy
3. Covered Area
4. Comfortable seating
5. Allows for Games or Discussion

9.3.5 Opportunities

Figure 9.3.5 Opportunities - Playground



Opportunities – Playground

Source: Rendering drawn by author.

1. Community Services
2. Volunteerism
3. Visitor Options
4. Intergenerational Learning

9.3.6 Personal Growth

Figure 9.3.6 Personal Growth - Library



Personal Growth – Library

Source: Rendering drawn by author.

1. Intellectual Discussions
2. Book Clubs
3. Personal Development
4. Privacy
5. Shared Interests
6. Lighting

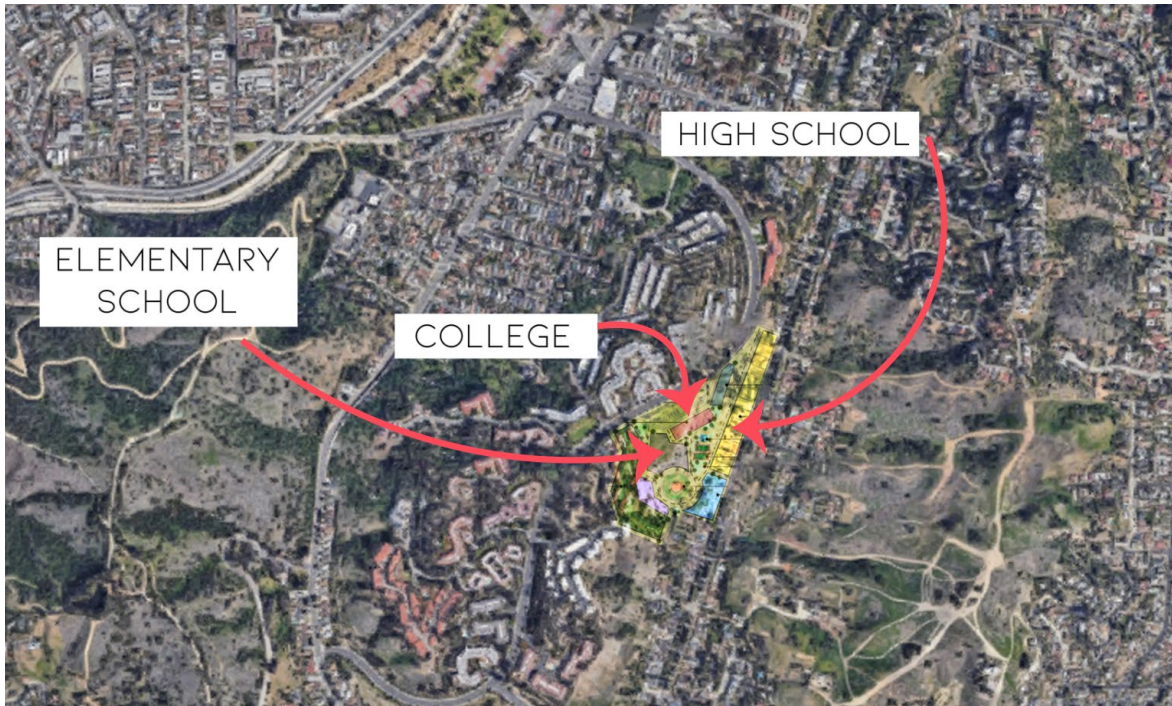
Chapter 10 - Conclusion

Population aging is one of the most significant issues of the 21st century. It has crucial implications for society, the economy, and all other aspects of civilization. Additionally, aging people without family support pose a greater demand for senior living communities, and declining wealth among our elderly populations means that many seniors have limited access to these communities. With the increased elderly population without much family support and a decline in wealth, there is a need for affordable senior living communities. Therefore, an affordable senior living community model needs to be developed to ensure the elderly population can have a place that promotes their health, safety, and wellbeing. Health, safety, and wellbeing depend on an equal measure of physical health, social health, and mental or psychological health support mechanisms. This model also included stimulating personal growth and promoting activities through creative and educational activities. This model can be developed for an affordable senior living community that can allow for these types of provisions. In that case, we can meet the needs of the growing senior population and ensure their health, safety, and wellbeing in the U.S. The main benefits of this model are built into its interaction with the external world where residents engage in the community periodically.

The literature review addressed factors related to societal trends, current concerns among the elderly, some of the different housing types that elderly people tend to occupy, activities that foster health and wellbeing, and common safety concerns. These factors influenced the case study analysis and helped determine programming needs for an affordable senior living community that promotes health and wellbeing. Completing the literature review and understanding the potential issues helped me understand how an affordable senior living community model could be developed. This study's method relied on examining six case studies

of existing senior living communities to gain more background information and assess each of these communities based on six factors: housing safety, exercise opportunities, social activities, social gathering spaces, opportunities for volunteerism, and personal growth. Based on the case studies, the results weighed each case's pros and cons to improve the specific area for the hypothetical design for the senior living community. The development model offers amenities that could be rented out or engaged in by the community including a childhood care facility with senior living residents serving as volunteers to support these activities, including tutoring, acting as a mental advisor, and social activity coaching. At the same time, this could provide services for the external community to reduce the cost of rent for senior living residents (see Figure 10.1). The main benefits of this model are installed from the external world because residents may interact with the elderly living community periodically. The design integrates the senior living community into the greater community by providing support that can be unified to the surrounding the public, providing elderly people with diverse volunteer opportunities to give them a sense of purpose. This affordable development model offers amenities that could be rented out in a childhood care facility with occupants serving as volunteers to support activities, such as tutoring, mental advisor, and social activity coaching.

Figure 10.1 External & Internal Interaction



Source: Rendering drawn by author.

At the same time, this could provide services for the external community to reduce the cost of rent for its occupants. Services may include:

- The pool might be rented out to a nearby elementary or high school. The pool is available to students for water aerobics and lap swimming. The elderly people may be able to act as assistant coaches.
- Elderly people may be able to provide a lesson or teach visitors or students to play billiards in the game room.
- Meeting rooms could be rented out for local community meetings or discussion.
- Playground could be rented out for daycare or after school care for school kids. Elderly people may be able to provide services to watch or play with younger generations. At the

same time, this provides a daily exercise opportunity for elderly people to maintain their bone and muscle strength.

- The library might be rented out to nearby schools and for close residents. Elderly people may be able to provide tutoring services and host a book club for reading or writing.
- A nine-hole mini golf course and park might be rented out for visitor and player to host an event and games to reduce the cost for its elderly residents.

This study could be an intensive study into the front-cost and maintenance fees in the case studies, to understand their amenities costs, and help future designs reduce the unnecessary potential expense. Because this is an exploratory study, this will have to be built out and tested to determine if this is true. I learned that through community design, we could enhance affordability by not requiring these amenities on the site and utilizing existing resources of the surrounding area.

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Curriculum Vitae

Nyx Wenlin Zhu

znyxxx88@gmail.com

Department of Architecture
University of Nevada, Las Vegas
Las Vegas, Nevada 89154
Email: zhuw5@unlv.nevada.edu
Znyxxx88@gmail.com

EDUCATION

Master of Design - Healthcare interior Design, May 2022

University of Nevada, Las Vegas

Master's Thesis Title: Development A Model of Affordable Senior
Living Community

Bachelor of Science – Interior Architecture and Design, May 2020

University of Nevada, Las Vegas

Honors College