SENIOR CITIZEN CENTER

(Brahmayani , Bhaktapur)

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ABSTRACT

Aging is a natural and inevitable process. As people grow older, they often face physical weakness and emotional vulnerability. During this phase of life, they require love, care, and support more than ever. In today's fast-paced world, where family structures are shifting towards nuclear setups and many children live abroad or remain occupied with their careers, the elderly are frequently left alone. This leads to feelings of isolation and neglect among the senior population. With advancements in healthcare, people are living longer, making it crucial to create spaces where the elderly can spend their later years with dignity, comfort, and joy.

The Senior Citizen Centre is envisioned as a space where the elderly can lead a peaceful, engaging, and respectful life. To understand their needs, field visits to existing senior citizen homes, studies on the living conditions of the elderly, and reviews of research papers related to aging and elderly care have been carried out. These efforts help in designing a center that promotes emotional well-being, physical care, and meaningful daily engagement for senior citizens.

This project aims to create an elderly-friendly environment that supports the aging population through thoughtful planning and inclusive design. Comfortable living spaces, areas for social interaction, healthcare services, and activity zones where they can learn, share stories, and relive memories are integral parts of this centre. Overall, the goal is to ensure that the elderly not only feel cared for but also valued and connected in the later stages of their life.

DECLARATION

I declare that this dissertation has not been previously accepted in substance for any degree and is not being concurrently submitted in submission for any degree. I state that this dissertation is the result of my own independent work/investigation, except where otherwise stated. I hereby, give approval for my dissertation, to be available for photocopying and understanding that any reference to or quotation from my thesis will receive an acknowledgment.

…….
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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

A Senior Citizen Center is a facility designed place which offer daily supevised, care and support older adults in their later years. It provides social, recreational, and wellness activities for active seniors and promotes engagement, reduces loneliness, and supports independent living. It provides a safe and comfortable environment where senior citizens can spend their time meaningfully talking with friends, joining activities, learning new things, and staying active. These centers make the elderly feel valued and connected to the community. More than just a building, a Senior Citizen Center is a space where older people can live with dignity, joy, and a sense of purpose.

Day Care Center offers supervised care, medical assistance, and daily support for elderly individuals. It helps families by ensuring seniors receive proper care during the day before returning home in the evening. These centers provide a safe, engaging environment where older adults can participate in social activities, light exercise, and wellness programs. They promote mental and physical well-being, reduce isolation, and offer a sense of community. Day care centers for the elderly support independence while also giving relief to caregivers, balancing care needs with dignity and respect.

The Senior Citizen Centre is a culturally grounded institutional and community focused project designed to address the growing needs of the elderly population aged 70 and above. It proposes a multifunctional complex that combines residential care, medical support, recreational, cultural, and vocational spaces within a unified architectural framework that is both contextually sensitive and socially inclusive. The project envisions a secure and dignified environment where senior citizens can age with comfort, independence, and purpose, particularly in a time when traditional family support structures are weakening due to urban migration and global mobility.

1.2 BACKGROUND

Human life encompasses various stages from birth to death, namely: infancy, adolescence, youth, and old age. Every single individual finds themselves in different positions and struggles with different issues in each of these stages. The process of getting older is called aging. Every person experiences natural aging as they proceed through their life cycle. People often experience a gradual decline in their physical strength as they age, which might make them more vulnerable to several health problems. The operational geriatric threshold differs

among the countries and substantially, it is considered 65 years in developed countries and 60 years in developing countries. In context of Nepal, the Senior Citizen Act, 2063 has defined individual aged over 60 years, or more as elderly citizens or older adult (lawcommision, 2063).

Globally, the population of older adults is witnessing a rapid demographic shift. Global ageing is the success story of the 21st century because of which declining fertility and mortality as well as improved public health interventions, aged population has been a world-wide phenomenon (Nepal, 2010). In Nepal, studies show the country is also entering a phase of demographic transition and in the next few years, the over-60 population is projected to reach 10 percent of the overall population (UNFPA, 2022). In Nepal in 2021, the older adult's population aged 60 years and above comprised 6.05% of the total population and this population is more likely to increase considerably in the future (CBS, 2021). These demographic changes entail numerous challenges, one being the increased demand for health services.

We are rich in the culture of paying respect to our elders and aged, however, our social culture is being broken by the changing context of the world, desire for a small family, poverty, and urbanization process. In Nepal tradition, son is morally obliged to provide care and support to their elderly parents, however, living with the married daughter are still considered a cultural taboo. The economic pressure resulting in migration of youth across the border in search of work has raised the elderly people being left at home alone or with the in-laws who perceive them inactive and burdensome individuals of helping hands. In consequence, the elderly is more susceptible to mental problems like depression, loneliness, and many other diseases.

Consequently, an senior citizenhome can provide a safe, healthy, and adaptable community where elderly can live with dignity and pride with no exploitation, physical and mental torture, and fair treatment. The qualitative environmental issue is required for elderly by recognizing their mental, emotional and personality characteristics and their physical limitation. Today, many individuals choose and prefer senior citizenhomes as long as there is assurance of safety, security and service.

1.3 PROBLEM STATEMENT

In the present context of Nepal, the social system is changing. Due to modernization and urbanization, the family system and orientation has undergone dramatic changes. Older adults long for love, affection, and proper nourishment from their family members. However, busier lifestyle or change of perception to the elderly from sign of God to general unproductive

people has secluded elderly from the love and care from their own family members. As a result of this isolation, one may experience loneliness, sadness, and a lack of emotional support. Hence, the ageing, senior citizenand problems of senior citizen are much more associated with spiritualism or spirituality rather than merely with the medical, economic, and social issue.

The currently operating senior care facilities or senior citizenhomes have a few issues. However, most elderly residents of the care home seek social connection. The residents of numerous care homes are kept apart from the surrounding community and have limited access to public amenities. Many residents are always looking for activities outside the confines of eldercare home. They feel constrained by the walls of the care home. The nursing home may come to represent a place, a way of life, or even a person's preference. It can end up being the centre of the extended family that governs the neighbourhood.

1.4 OBJECTIVES

The main motive of this project is to develop comprehensive guidelines for the designs that enhance the sensory experience of the elder who are sick, abandoned by their family and homeless. Namely the objectives are:

- To create a navigable barrier-free design, home-like, socially active, and independent lifestyle.
- Incorporate the safety and security features in the building such as emergency response systems, proper lighting facilities, smart technology, and clear wayfinding.
- Establish daycare and part-time support programs to integrate with the community

1.5 PROJECT JUSTIFICATION

senior citizenis a difficult time, and healthy aging necessitates comfort and care. without stresses and uneasiness. Absence of mindfulness in regards to the changing social Abuse of elderly people by family members results from routines at home. Thus, the issues arise that are related to psychological and physiological issues. The most important phases of a person's life are their birth, childhood, adolescence, adulthood, and old age. man's life. Each of these stages has its own set of problems. As each level passes the actual strength disintegrates as well as the psychological steadiness decreases. Since early advances, different clinical issues occur.

There are a variety of other factors that govern the aging process, not disease. destruction of the soundness of the elderly folks' individuals. One of the central concerns is the carelessness

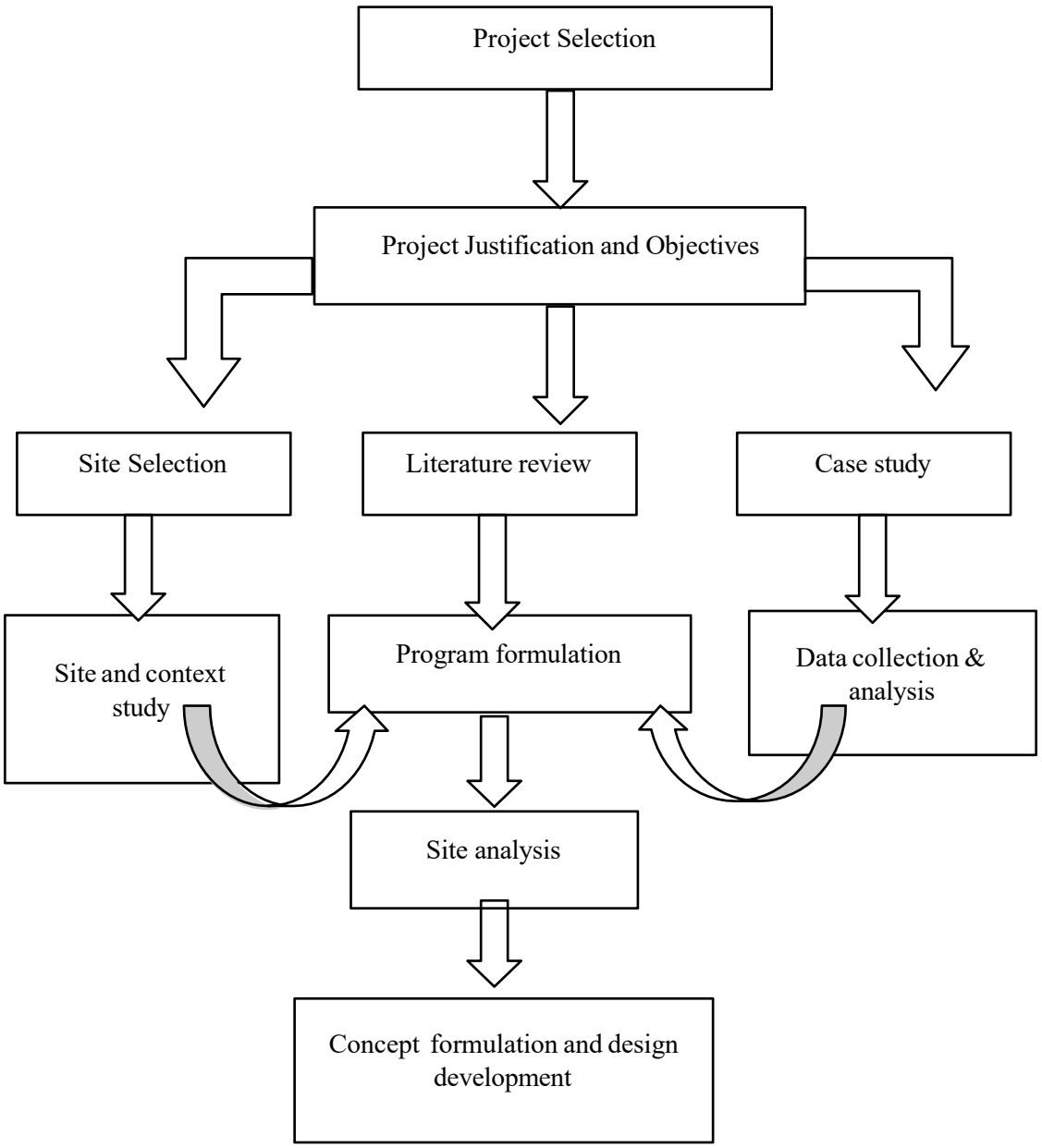
from the newest generation. Elderly folks' individuals need oversight, the laxity to figure out the necessities Additionally, elders' worries make them appear alien to younger generations, who later consider them a burden. Elderly folks' individuals are liable to maltreatment from relatives over property debate, some of them are even compelled to sell their possessions and live in penury till death. A significant number of them are afraid of being humiliated by their loved ones or too afraid to speak up. Elderly folks want an existence with great wellbeing, pride, monetary freedom lastly a peaceful passing They yearn for affection, love, and care. Recognizing their requirements and concerns, will guarantee their great wellbeing. Loaning a basic encouragement to the elderly folks keep them cheerful, which is unavoidably the ideal way to maintain good health. Notwithstanding, for some People, due to work priorities, it is impossible to provide elders with care and attention. Seniors experiencing mental difficulties go through serious character changes; at this point they need care and consideration.

The majority of them are dangerous when left unattended. overwhelmed by feelings of hopelessness and dejection; some of them indeed, even turn rough. Despite the fact that many of us are aware that aging is an inevitable movement and it has its own inadequacy, a large portion of us will generally overlook this and resort to a wild methodology. As a result, the day care center and elderly home come into play. They are intended for Seniors who are either homeless or unable to live with their families. for seniors elderly people who don't have a place to go and no one to help them, senior citizenhomes place of refuge. These homes likewise make a family like climate among the inhabitants. Senior residents experience a feeling of safety and companionship when they share their delights and sharing their sorrows with one another will have a significant impact on the elderly and assist them in refreshment, recreation, a safe place to live, and health.

1.6 SCOPE AND LIMITITATION

Creating the aged friendly home comes with different challenges and limitations that requires careful planning of spaces. The relationship between the built environment and ageing is the main topic of this thesis. It focuses on studying and analyzing elderly communities, and their ways of living. It will establish the socializing space and intergenerational activities. The space created would facilitate in promoting physical,mental, and social wellness. The planned area would serve as a hub for education, teamwork, self-engagement, participation, etc. the spaces will be created using a universal design that is accessible to all. the space that is created incorporate architectural features that provide safety, and comfort and are inclusive. Spaces are designed for people of the age group of 60 and above. the project will be guided by architectural expression

1.7 METHODOLOGY



1.7 METHODOLOGY

The research project that is successfully completed adheres to a set of methodologies that form the project's framework. The following research methods will be employed to gather the relevant information, statistics, codes of behavior, and standards that will be analyzed and used to build an elderly home and day care center.

1.7.1 TOPIC SELECTION

Firstly, the current issues and problems occurring in society related with elderly people were identified. By browsing the internet and books, the topic was selected. Then, the topic of my thesis became:Senior Citizen Center.

1.7.2 LITERATURE REVIEW

For the review of the literature, a variety of books, journals, and online resources were looked at. Numerous statistics about the senior population were gathered, plans and strategies pertaining to the elderly were examined, and the state of the elderly along with the appropriate environment was researched.

1.7.3 CASE STUDY

The case studies aid in understanding the planning, designing, and construction of the elderly- friendly space. Many primary, secondary, and tertiary case studies were examined in order to develop the program. The National senior citizen home is the subject of the primary case study, which also includes visits, questionnaires, and photos. Regional and international case studies are covered in the secondary case study, and the study of additional programs that will be incorporated into the design is covered in the tertiary case study

2. LITERATURE REVIEW

2.1 HISTORY

2.1.1 IN CONTEXT OF WORLD

About 500,000 BCE is when the earliest records of elder care were found. With the evidence of the elder's bones, senior consideration was discovered. At that point, in the year 22 BCE, the Roman logician Cicero writes his essay "On Advanced Age." One of the earliest writings on elder care, the Arabic "Canon of Medicine," is completed in 1025 by Ibn Sina. 1823: Possibly the first mature open home in the United States. (indigent widows and sigle women, n.d.). One of the in 1853 On the Decline of Life, written by Barnard Van Oven, is one of the earliest books on aging. In 1853, Germany initially began to found an advanced age benefits. In 1893, nurture society formed to help elderly people who don't have much money by providing care at home. In 1909 Promotion, the term Austrian doctor Ignatz Nascher invented the term "geriatrics." In 1901, 10% of elderly people 6 percent of elderly English women and men lived in workhouses or poorhouses.

During nineteenth hundred years, advanced age homes worked to separate the deserving of a specific religion or ethnic gathering from the neediest and dejected of the matured population. In 1880-1923, Charity house old populace expanded to 33% and further to 67%. Almshouses became a symbol of failure and despair in the 20th century, revealing the failure of the old to prevail in the modern world. In 1965-1970's, number of by 1979, private industry had simulated the government's ability, nursing homes had increased by 40%. 79% of all institutionalized elderly people resided in care homes. The In the United States, senior citizen issues were discussed in the general assembly. Countries in 1979. The Overall Get together presented an activity plan for the freedoms, government assistance also, interest of the senior residents in 1992. Then, at that point, by 2000, Nursing homes had become a billion industry, paid for generally by Federal health care.

2.1.2 IN CONTEXT OF NEPAL

In the history of senior citizen home of Nepal, before 19th century, there was no age restrictions for long-term care.Based on documents and other data, the elderly population of Nepal is estimated. The earliest dwellings emerged and prospered circa 1938 BC. In 1968, Nepal's government designed the country's first old house, Pashupati Briddhasram. The old ages past This remark suggests that home is fairly recent. Still, the Pati, Pauwa, and Sattal resting places were the first from Nepal's old homes.) Shortly after Pashupati Briddhasram (Pashupati) was founded, in 1938, senior citizen officially began in Nepal. Briddhasram

Central Social Government Support Center (Briddhasram, 2013). This advanced age home for the during the reign of the King, elderly were constructed as the Panchdeval (five shrines) Pakshala. Surendra Bir Bikram Shah during the mid-to late nineteenth hundred years. Then, at that point, the issues and issues connected with old individuals began to get perceived and different demonstration, rules and Regulations regarding their importance, safety, and security began to emerge, are: (the self-governance, n.d.)

2.2 POPULATION SCENARIO

2.2.1 IN CONTEXT OF WORLD:

Population ageing is a global phenomenon: virtually every country in the world is experiencing growth in the size and proportion of older persons in their population. There were 703 million persons aged 65 years or over in the world in 2019. The number of older persons is projected to double to 1.5 billion by 2050.Globally, the share of the population aged 65 years or over increased from 6 percent in 1990 to 9 percent in 2019. That proportion is projected to rise further to 16 percent by 2050 meaning one in six people in the world will be aged 65 years or over.

Throughout most of the world, survival beyond age 65 is improving. Globally, a person aged 65 years in 2015–2020 could expect to live, on average, an additional 17 years. By 2045–2050, that figure will have increased to 19 years. Between 2015–2020 and 2045–2050, life expectancy at age 65 is projected to increase in all countries.

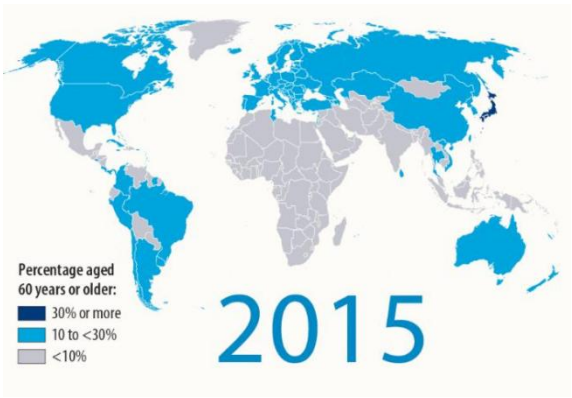


Figure 1:world population in 2050

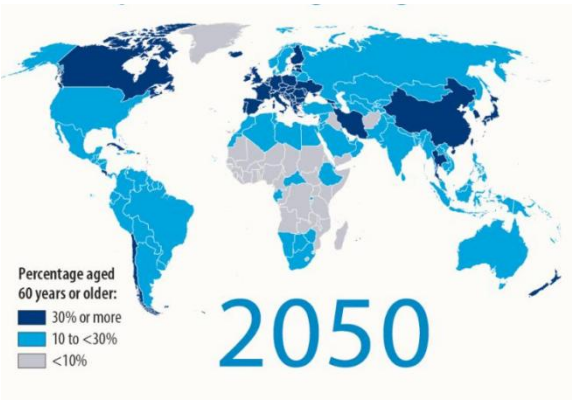


Figure 2: world population 2015

2.2.2 IN CONTEXT OF NEPAL:

In Nepal, there were 1.5 million in 2001 and 2.1 million in 2011, elderly inhabitants, which constitute 6.5 percent and 8.1% of the total population in the country. It is accounted that 2.1 million elderly inhabitant constitutes 8.1 percent of the total population in 2011, which increased from 5.8 percent in 1991 (ageing asia, n.d.). The total population growth rate

decreased from 2.25 percent to 1.35 percent in census 2001 and 2011 while the elderly population growth rate increased from 3.40 percent to 4.4 percent in census 2001 and 2011 (Central Bureau of Statistics, 2011. As of 2019, over 2 million people living in Nepal are aged over 60 which is almost 9% of the country's total population. The proportion of older people is expected to double to 18.6% in 2050 with 36 million people aged over 60. (population pyamid, 2023)

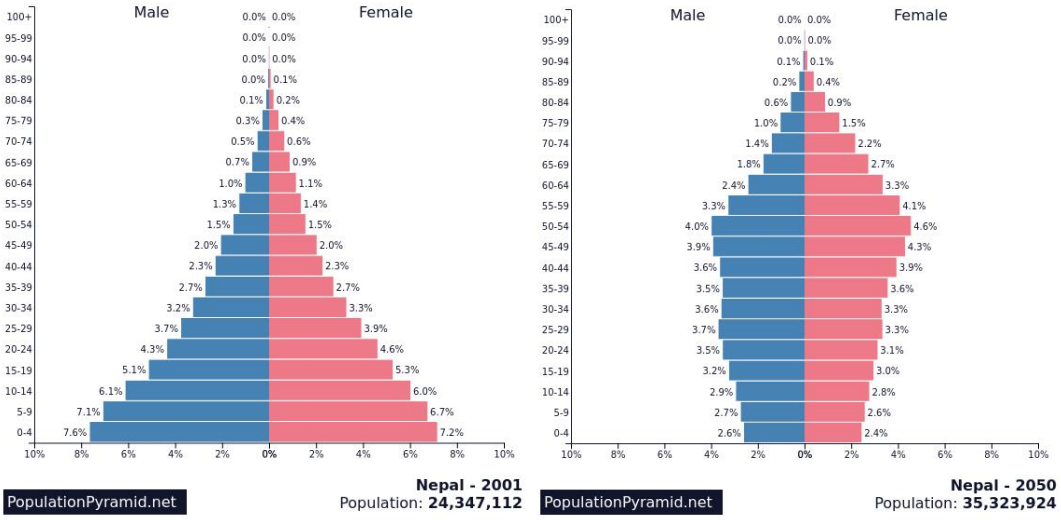


Figure 3: Population pyramid

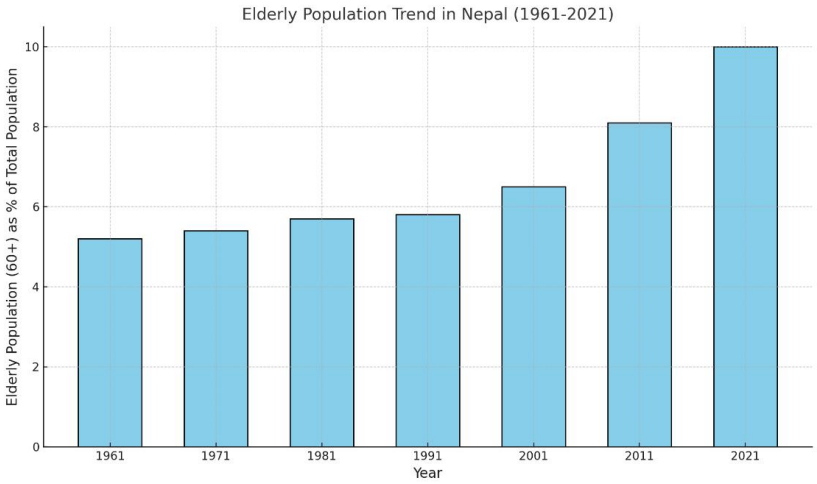


Figure 4: Rate of senior citizen in different census

2.2.3 IN CONTEXT OF BHAKTAPUR:

The senior citizen population in Bhaktapur has been gradually increasing over the years, reflecting a broader demographic shift toward an aging society. In 2001, the total population of Bhaktapur was 225,461 out of which 14,655(6.5%) individual are age above 60. By 2011, the population raised to 304,651 in which perople age above 60 is 24,076 (8.1%) and. According to the 2021 census, Bhaktapur had a total population of 432,132, out of which 16,042 individuals were aged 60 and above, comprising approximately 5.9% of the total population. While the overall population growth rate has slowed over time, the growth rate of the elderly population has steadily increased.

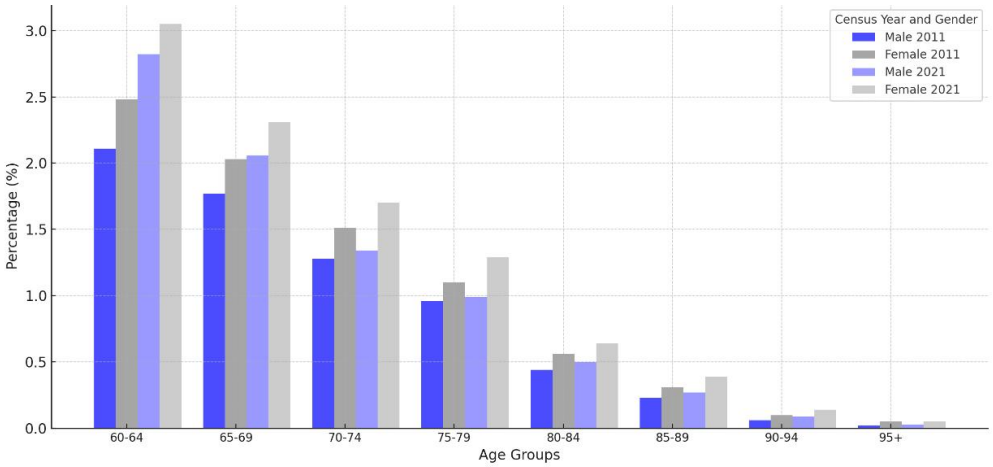


Figure 5: bar graph of people age above 60 years during 2011 and 2021

2.3 KEY CONCEPT

2.3.1 ACTIVE AGING

"Active aging is the process of optimizing opportunities for health, participation, and security to enhance the quality of life as people age"(ACTIVE AGEING: A POLICY FRAMEWORK Active Ageing, n.d.). It helps to realize their physical, social, and mental potential and gives opportunity to participate in society as needed. It also provides proper security, safety, and protection to individuals and provides assistance facilities for care as well. Its main objective is to improve the quality-of-life aging for all kinds of elderly people including those who are frail and disabled. The active aging concept was adopted by the World Health Organization (WHO) in the late 1990s. This concept is based on the recognition of the human rights of elderly people and the United Nations Principles of independence, participation, dignity, care, and self-fulfillment. Active aging policies and programs focus on intergenerational connectedness, age- friendly environments, and independence. (ACTIVE AGEING: A

POLICY FRAMEWORK)The WHO is trying to implement this approach in all nations for the welfare of elderly people.

2.3.2 AGING IN PLACE

Elderly people who are less physically capable often need to adjust to new living situations, either by moving to a more supportive area or by making adjustments to their current home (Perry, Andersen, & Kaplan, 2014). The effect of aging population can be felt in different areas such as economic public policy, health services and social services (WHO, 2018). Older adults frequently consider the benefits of preserving a sense of familiarity, security, and connection in their current home or community when making housing decisions because these factors are linked to their sense of identity and autonomy (Wiles, Leibing, Guberman, Reeve, & Allen,2012) .

Creating environments that are age-friendly and facilitate mobility, as well as basic activities for older adults, can further promote ageing in place. Future advancements in technology could make this goal easier to achieve, especially in the areas of promoting interaction and communication, offering educational opportunities, and monitoring the security and safety of senior citizens (WHO, 2015).Older people who age in place can stay in familiar surroundings and maintain high degree of control over their lives. Those who are used to fulfill their basic needs in their own neighborhoods find comfort to manage their requirements independently.

Older adult can live independently with the right home and lifestyle modifications, then aging in place might be a good option for them. Older adults might integrate social interactions into their daily lives by staying in their communities. Maintaining community ties and meaningful friendships can improve health and quality of life, as an active social life can help older adults avoid dementia. Moving into an assisted living facility may be beneficial for people with physical disabilities or cognitive impairments (Leonard Davis School of Gerontology, 2024).

2.3.3 SENSE OF PLACE

Sense of Place is the relationship between human beings and the surrounding environment which is built by the interaction between human beings and the surrounding environment over a while. It is formed by the experiences of people such as memories, traditions, history, culture, and society, and the environment of place such as landscape, smell, sound, flora and fauna, etc. Christian Norberg-Schultz described the idea of dwelling as something that does

not only represent "shelter" but rather places where life occurs (Norberg-Schultz, 1980). Place and life are two key elements that define dwelling and when combined add value to its inhabitants. 'Sense of place' is the one's particular emotional experience one felt in a certain place. Culturally rich places carry a sense of place. Architects must be aware of a sense of place otherwise they will destroy the authenticity of the place. The built environment also evokes a sense of place for eg. the Newari architecture of Bhaktapur gives a sense of place to Bhaktapur. Thus, architect must give proper attention while making the building in a particular place.

2.4 STATUS OF ELDERLY PEOPLE

In Nepal, the Vedic tradition still governs family values and the elderly citizens are largely loved, revered and taken care of. However, with economic pressure resulting in migration of youth across border in search of works, the elderly population are left at home in rural hills, and the in laws consider them inactive, burdensome and passive recipients of love and support (MOWCSW, 2002). One of the major functions of a universal socio-cultural institution family is to provide due care of children and the elderly and it is a fact that almost senior citizens of Nepal seem to have been taking care by their family. However, noted that older people in Nepal live in a state of paradox. On the one hand, the traditional culture accord respect, deference and status to elderly persons to such a high degree those younger persons often feel suffocated and repressed by the presence of older generation. Nuclear families have come into being probably because of material aspects and growing tendency of individualism among people rather than spiritualism. The concept of elderly people living peacefully with the family has become a thing of the past. Family cohesion is coming under pressure of generation gap between parents and children especially in urban areas. This reality further intensifies the issue whether the family or some other institution should take care of the senior citizens of a society i.e., family or the elderly homes.

2.4.1 TYPES OF LIVING ARRANGEMENT

1. **INDEPENDENT LIVING COMMUNITIES**: Independent living communities are for elderly people, who want to live in a community with others of their own age group.
2. **TEMPORARY OR DAYCARE**: Temporary or daycare often involves residential care home where the person stays for a short period of time, known as respite care, or where they visit during the day.
3. **ASSISTED LIVING**: It is for elderly people who want some backup if they have

problems or the reassurance that someone is around (single senior citizen residential care home with a few residents or a large complex of apartments with on-site medical facilities and recreational centers).

4. **NURSING OR CARE HOMES**: It is for elderly people who need general old-age care and respite care as well as special care with particular needs such as: Dementia care, Mental health condition care, Physical disability care, Sensory impairment care, In-home care.
5. **IN-HOME CARE**: This is the type of care where either a family or friend or a professional carer spends part or all of the day in the home of the elderly person to support them. This can be done with many people who have sometimes complex health issues as long as treatment can be successfully given in the home.
6. **CONTINUOUS OR HYBRID CARE**: It involves using a range of different care options to best suit the needs of the period. For example, it may involve using outpatient day medical care and independent living facilities as well as short periods in a full-time care home.

7. **PALLIATIVE CARE**: Palliative care is the specialized care for those with serious long-term illnesses, or untreatable or terminal conditions. It offers help with pain management and the various issues that affect elderly people in their day-to-day life.

2.4.2 SOCIAL SECURITY SYSTEM FOR ELDELRY PEOPLE

Social security refers to the financial support action programme directed to vulnerable segments of society such as children, the elderly, the sick and the unemployed to enhance population welfare. According to the Universal Declaration of Human Rights, everyone has the right to social security to live in justice, equality, and dignity (Bhandari, 2075).It includes various laws and policies which are described below:

1) The Constitution of Nepal: It has recognized and ensured social security as a fundamental right of the people.
2) Five-year Periodic Plan (1955-1997/ 1997-2002): It has focused on granting monthly allowance and facilities, provision of geriatric ward in all zonal hospital, concession for senior citizen in hospital including private ones and emphasized on guaranteeing social security provision for the senior citizens.
3) Three-year Interim Plan (2007/08—2009/10): It has incorporated senior citizen as a

separate chapter and focused on legal provision to ensure the rights of senior citizen, their participation in relevant institution, establishment of senior citizen fund to run the programmed for senior citizen.

4) The Civil Code 1963: It has provisions for elderly people in its section on property rights distribution. In Civil Code1963 sec. 10, it is stated that, "If the parents want to live with a particular son or daughter, it has to be clearly stated in the Banda Patra (the legal note on property distribution) and that son and daughter should take care of the parents.
5) Senior Citizen Policy 2058: It has envisaged incorporating economic benefit, social security, health service facilities and honor, participation and involvement, and education as well as entertainment aspects to support the elderly people in having prestigious livelihood.
6) Senior Citizen Act 2063: It has provision for the establishment of the senior citizen welfare fund at Central level and District Senior Citizen Welfare Committee at the community level for the protection and social security of senior citizen. it has created Care Centers and Day Service Centre for the senior Citizen and also provision to provide allowance.

7) Senior Citizen Regulation 2065: It provides guidelines for the implementation of the Senior Citizen Act. It also provides the detailed procedure to be fulfilled to established and run geriatric home, senior citizenhome, and day care center in the country. In relation to senior citizen, Nepal is also committed to the United Nations Principles for Older Persons 1991, Macau Plan of Action of Aging for Asia and the Pacific 1999 and Madrid International Plan of Action on Aging,2002 to ensure the social security of elderly persons. In accordance with these commitment government of Nepal has formulated and promulgated separate policies, act, rule and regulation for elderly people in Nepal.

2.5 STATUS OF ELDERLY HOME IN NEPAL

1	Social welfare center briddhaashram	Kathmandu	230	Both sex/free
2	Matatirtha briddhashram	Kathmandu	20	Women Only/free
3	Divine service home	Kathmandu	20	Women Only/free
4	Tapasthali briddhashram	Kathmandu	12	Women Only/free
5	Nisahaya sewa sadan	Shantinagar	37	Both sex/paid
6	Siddhi shaligram briddhashram	Bhaktapur	30	Both sex/paid
7	Bouddha briddhashram	Kavrepalanchowk	10	Both sex/paid
8	Naman care center	Kathmandu	30	Both sex/paid
9	Abenteurland senior citizen home	Godawari	32	Both sex/paid
10	Panchawoti home	Bhaktapur	26	Both sex/paid
11	Nrn briddhashram	Devghat	58	Both sex/paid

Source: (social welfare council, 2020)

In Nepal, traditional senior citizen Homes (OAHs) were primarily established by the government to accommodate elderly individuals without children to care for them. Many of these homes are located near religious sites. However, due to the growing effects of modernization, urbanization, nuclear family structures, and the migration of youth to urban areas and foreign countries, the number of elderly individuals choosing to live in OAHs is steadily increasing.

Despite this rising demand, the availability of such homes remains limited in both capacity and number. As a result, community members have begun establishing OAHs in various parts of the country. In recent years, the number of privately-run OAHs has grown, particularly in Kathmandu, where many elderly individuals have started residing in these facilities.

A study indicates that approximately 1,500 elderly people currently live in about 70 registered organizations across Nepal (Social Welfare Council, 2020, n.d.). However, many of these residents still lack proper care, support, and access to the basic necessities required for a comfortable and dignified life. The quality of these facilities, in terms of services and infrastructure, remains inadequate. It is important to note that the health and independence of elderly individuals are closely linked to the availability of a supportive environment—one that includes well-designed living spaces, economic opportunities, and a reliable healthcare system.

2.6 THEORETICAL FRAMEWORK

2.6.1 SOCIOLOGICAL THEORY OF AGING

2.6.1.1 ACTIVITY THEORY

Havighurst and Albrecht (1953) proposed one of the first aging theories by studying a group of adults. They concluded that society expects retirees to remain active in their communities. This states that staying occupied and involved is necessary to have a satisfying late life (Havighurst, Neu Garten, & Tobin, 1963). Activities that connected people socially, such as meeting friends for lunch or pursuing hobbies through group activities were more likely to improve life satisfaction than formal or solitary activities (Longino and Kart, 1982). These studies suggest that the type of activity may be an important consideration rather than merely the frequency of engagement.

2.6.1.2 DISENGAGEMENT THEORY

In stark contrast to activity theorists, sociologists Cumming and Henry (1961) asserted that aging is characterized by gradual disengagement from society and relationships. The authors contended that this separation is desired by society and older adults, and that it serves to maintain social equilibrium. They proposed that by disengaging, older adults are freed from social responsibilities and gain time for internal reflection, while the transition of responsibility from old to young maintains a continuously functioning society unaffected by lost members. The outcome of disengagement is a new equilibrium that is ideally satisfying to both the individual and society.

2.6.1.3 CONTINUITY THEORY

In the late 1960s, Havighurst and colleagues recognized that neither activity, subculture nor disengagement theories fully explained successful aging (Havighurst, Neu Garten and Tobin,

1968). Borrowing from psychology. They created Continuity Theory, which hypothesizes that personality influences the roles we choose and how we enact them. Continuity Theory suggests that personality is well developed by the time we reach senior citizen and tends to remain consistent throughout our lives. They identified four personality types from observations of older adults: Integrated, Armored-defended, Passive dependent, and unintegrated. Integrated personality types have adjusted well to aging, more selective, or disengaged. Armored-defended individuals tend to continue the activities held during the middle age, whereas passive- dependent people are either highly dependent or exhibit disinterest in the external world. Least well-adjusted are unintegrated personality types who fail to cope with aging successfully.

2.6.1.4 PERSON-ENVIRONMENT-FIT THEORY

Following the broader view of aging that emerged in the 1970s, another shift occurred in the early 1980s that blended existing theories from different disciplines. The theory proposed that capacity to function in one's environment is an important aspect of successful aging, and that function is affected by ego strength, motor skills, biologic health, cognitive capacity, and sensory-perceptual capacity, as well as external conditions imposed by the environment.

2.6.1.5 GEROTRANSCENDENCE THEORY

One of the newest sociological aging theories is Torn Stam’s (1994) theory of Gero transcendence. This theory proposes that aging individuals undergo a cognitive transformation from a materialistic, rational perspective toward "oneness" with the universe. Characteristics of successful transformation include a more outward or external focus, accepting impending death without fear, an emphasis on substantive relationships, a sense of connectedness with preceding and future generations and spiritual unity with the universe.

2.6.2 PSYCHOLOGICAL THEORY OF AGING

2.6.2.1 HUMAN NEED THEORY

Maslow (1954) surmised that a hierarchy of five needs motivated human behavior: physiology, safety and security, love and belonging, self-esteem, and self-actualization. These needs are prioritized such that more basic needs like physiological functioning or safety take precedence over personal growth needs (love and belonging, self-esteem, and self-actualization). Movement is multidirectional and dynamic in a lifelong process toward need

fulfilment. Self- actualization requires freedom to express and pursue personal goals and be creative in an environment that is stimulating and challenging. Human beings are complicated creatures which have moral and material motivation at every age. Motivation is a force which conducts behavior, i.e., behaviors form to meet human needs. Thus, recognition of human needs, especially at the elderly is of great importance in design based on making a suitable relationship with life and surrounding environment and such patterns which have psychological background and associated to the qualitative discussions on space.

Physiological Needs: Older adults might face challenges related to health, nutrition, and mobility. Ensuring access to medical care, a balanced diet, and appropriate housing becomes crucial.

Safety Needs: Concerns about physical safety, financial security, and health stability often become more pronounced. Creating a safe living environment and addressing financial planning are essential.

Love and Belongingness Needs: Social connections may change due to retirement, relocation, or the loss of loved ones. Maintaining relationships through community engagement, family interactions, and social activities helps fulfill this need.

Esteem Needs: Opportunities for recognition and a sense of accomplishment might diminish after retirement. Encouraging involvement in volunteer work, hobbies, or mentorship roles can help sustain self-esteem.

Self-Actualization: Later life can offer time for personal growth, learning, and pursuing passions. Engaging in creative endeavors, education, or spiritual practices supports this pursuit.

2.6.2.2 FACTORS AFFECTING QOL:

The factors responsible for affecting quality of life are listed below:

Social and instinctive factors

Health (biological, psychological and social):architectural Sook Yin Lee (2012) design, Interior space design, design factors Sports, education, environment, sleep, temperature, care

Life, health, social relationships, homes and neighborhoods,independence and control over life, liberty, Mental and emotional comfort.

Psychological Comfort, behavioral competencies,objective environment, perceived quality of life.

Qualification and access, safety, comfort, dynamism and charm, Alignment with nature, symbolism and ambiguity, identity, freedom, contingency, ecologism, Unity, discipline, mental memory.

Accessibility, sensory stimulation, cognitive ability, sense, conformity, individuality, privacy, socialization, aesthetics.

Figure 6: Basic human needs

2.7 DESIGN FEATURE FOR A SENIOR CITIZEN HOME

2.7.1 SOCIALIZING SPACE

A socializing area serves as a vital space where elderly individuals can engage in leisure activities and interact with people of their own age as well as with members of younger generations. These spaces play a crucial role in reducing feelings of loneliness and isolation, which often arise due to lifestyle changes experienced during the transition from middle age to old age, particularly those caused by physical or cognitive decline.

COURTYARD

A courtyard is a space that is enclosed by a structure or wall yet is open to the sky. The courtyard space is incorporated into the structure from the start of its construction for practical reasons (to preserve the microclimate), but it also influences the style of life. It can be utilized for mingling during festivals and other family gatherings, as well as recreational activities like playing or planting (The Culture of Courtyards: Exploring Shared Spaces in Diverse Climates, n.d.). Sound Retirement Community in Copenhagen, Denmark is an example of incorporating courtyard space into a senior living facility. It features three indoor courtyards with recreational facilities and greenery to stimulate intergenerational interactions, as well as creating internal garden space for the elderly to roam around without stress or trouble.

Figure 7:Courtyard as socializing space

PATIO

A patio is an outdoor space generally used for dining or recreation that adjoins a residence and is typically paved. It may also refer to a roofless inner courtyard or a paved area between a residence and a garden. It offers opportunities for interaction via meeting and chatting among the elderly in retirement homes/communities.

PROMENADE/WALKWAYS

The promenade is a paved path for walking. It offers opportunities for interaction, i.e., opportunities for chatting, meeting with people while walking, jogging, taking a nature walk, etc. Both active and passive types of activities are performed on promenades. They should be wide enough to accommodate a wheelchair user and a helper.

COVERED PATHWAYS COLONNADE

A colonnade is a structure with a roof structure over a walkway supported by a sequence of columns, often freestanding or enclosed by walls. It provides opportunities for interaction, i.e., chatting, meeting with people while walking, etc

PLAZA SPACE

Plaza refers to any gathering open space, particularly at the front of buildings. Plaza space includes sitting areas, landscapes, and recreational features. It offers opportunities for interaction, i.e., chatting, meeting with people while walking, etc. Both active and passive types of activities are performed.in plaza spaces.

COMMUNITY GARDEN

A community garden is a single piece of land gardened collectively by a group of people. It provides opportunities to be engaged, providing freshness in contact with nature. It also offers opportunities for neighbourhood improvement, a sense of community through social interaction, and a connection to the environment. Alternatively, community gardens can be

seen as a health or recreational amenity along with the interacting places. Seniors can work easily in a garden with raised beds, either sitting or standing, and working with plants is a good way to improve motor skills. Working with plants is helpful in reducing depression, stress, and anxiety.

Figure 8:plaza space

Figure 9:Covered walkways

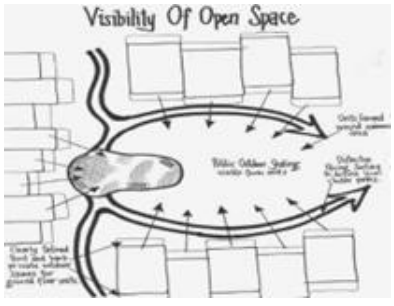
2.7.2 DESIGN CONSIDERATIONS TO MAKE THE SPACES MORE SOCIALLY INTERACTIVE

Visibility of open spaces

Outdoor spaces must be easily visible from common spaces/circulations areas and residential areas within the care community. This elicits curiosity, encourages engagement and interaction, and increases independent use.

Clustering of units

Small, defined comfortable outdoor spaces support intimate sociability. Exterior common or shared spaces surrounded by clusters of dwellings provide openness and sense of security at the same time enhancing interaction. A sense of openness and security both are required at the same time for elderly people. Comfortable seating in open spaces should be provided.



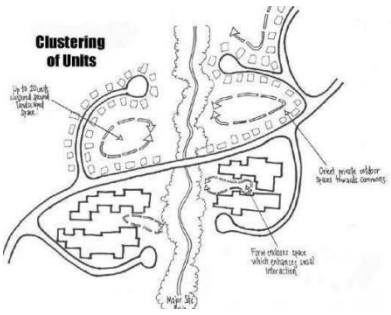


Figure 10: Clustering of building forming courtyard

Building layout

U shape layout is supposed to increase the interaction because it provides a common entry point for everyone. But, the excessive dimensions of the space between the blocks can make them too open and uncontrolled leading to a total confusion of use. If the blocks are not arranged appropriately to form small neighborhood grouping, as a consequence a high degree of opening may be predominating in the study area. This discourages the low rate of social interaction and use of shared outdoor spaces. Social interaction and the layout of space reciprocally influence each other. It is thus important to consider the nature and function of work processes within and between groups or teams when designing work areas to support them.

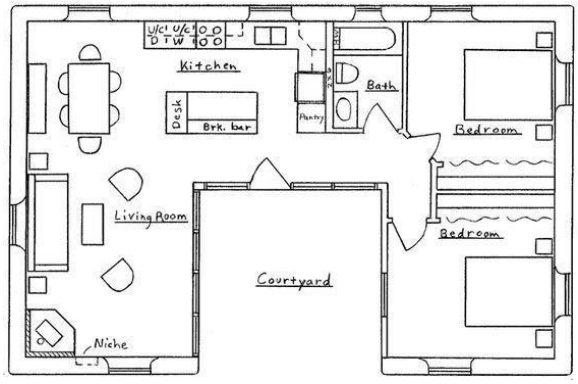


Figure 11: U Shaped layout

Views of areas from paths:

The spaces must be designed in such a way that there must be a view of active and passive areas from pathways. Path should go to but not through the activities.

Views of areas from paths:

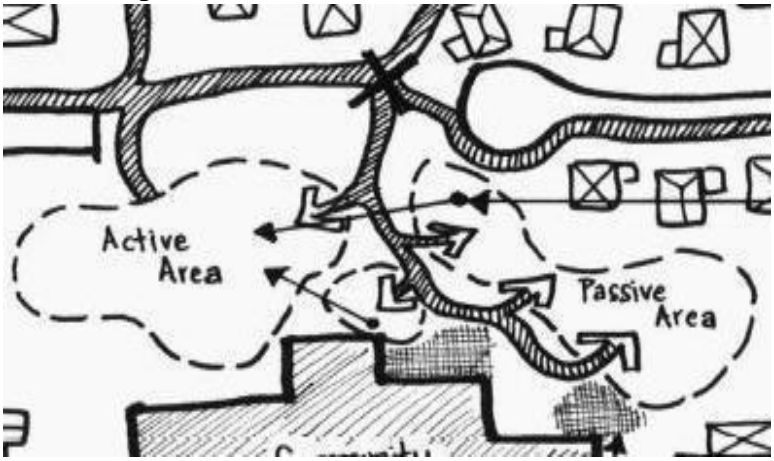


Figure 12: Views of area from path

2.7.3 SUSTAINABLE DESIGN
UNIVERSAL DESIGN

The concept of universal design was first used in the 1970's. In 1985, it is reinterpreted by the American architect Ronald Mace. It is called as: 'inclusive design' or 'design for all.' Ronald Mace defined it as "Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. It is also called design for-all and lifespan design."

Accessibility is a term which acts as an umbrella issue for all parameters that influence human functioning in the environment. Therefore, the universal design concept promotes a shift to more emphasis on a user-centered design by following a holistic approach and aiming to accommodate the needs of people of all ages, sizes, and abilities, including the changes that people experience over their lifespan.

PRINCIPLE OF UNIVERSAL DESIGN

At the Centre for Universal Design at North Carolina State University, a group of architects, product designers, engineers, and environmental design researchers established seven principles of universal design to provide guidance in the design of products and environments (Connell, Jones, Mace, Mueller, Mullick, Ostroff, Sanford, Steinfeld, Story, & Vanderheiden, 1997). The main principles of universal design and examples of their possible application designing the environment for the aging population:

	PRINCIPLES	SOLUTION
1	Equitable use, meaning the design should be useful to people with diverse abilities.	Automatically opening door threshold, zero step entrance Wider than standard doorways and corridors
2	Flexibility in Use, meaning the design should accommodate a wide range of individual preferences and abilities.	Open floor plan
3	Simple, Intuitive Use, meaning the design that is easily understandable and intuitively usable	Various instructions presented in series of clear illustrations instead of use of text

4	Perceptible information, meaning the design that effectively communicates the necessary information to user	Information provided in contrasting colors, large letters, audible feedback of appliances
5	Tolerance for Error, defining the design that minimizes hazards and the adverse consequences of accidental actions	The layout of hallways and corridors allowing the user to return to the common area
6	Low physical effort, meaning design that can be used efficiently and comfortably	Installation of downstairs bathroom Planning promoting compactness and walkability, creating short drives and walking distances
7	Size and space for Approach and Use, meaning the design that provides appropriate size and space for approach, reach, manipulation and use.	Items and appliances easily reachable Staircase with consistent treads that are straight and provide a stopping place in the middle between levels.

2.7.4 BIOPHILIC DESIGN

Biophilic design is a concept used within the building industry to increase occupant connectivity to the natural environment using direct nature, indirect nature, and space and place conditions. Stephen Kellert, who is regarded as one of the founders of biophilic design, developed a framework where nature in the built environment is used to meet human needs. His guiding principles are intended to celebrate and show respect for nature, as well as to create a rich, multisensory urban environment. The following are the parameters and characteristics that make up Kellert's biophilic framework.

1. Direct experience of nature:

It refers to tangible contact with natural features such as:

Light: Use of light to form natural patterns, forms, movements and shadows which provides interest and comfort to occupants.

Air: It carries the sensations of temperature, ventilation and humidity.

Water: It helps in providing movement, sound, touch and sight.

Plants: Helps in creating direct connection with nature.

Animals: Interaction to animals through aquariums, gardens, animal feeders, etc promotes interest, mental stimulation and pleasure.

In addition, Weather, natural landscape and fire helps to have direct contact with nature.

2. **Indirect experience of nature**:

It refers to contact with representations of our images of nature and is referred to as an indirect experience. It includes images of nature, natural materials, natural colors, simulations of natural light and air, naturalistic shapes. Natural geometry, etc.

3. Experience of space and place:

The experience of space and place uses spatial relationships to enhance well-being. They are:

Prospect and Refuge: Refuge refers to the building's ability to provide comfortable and nurturing interiors (alcoves, dimmer lighting), while prospect emphasizes horizons, movement, and sources of danger. Examples of design elements include balconies, alcoves, lighting changes, and areas spaciousness (savannah environment).

Organized Complexity: This principle is meant to simulate the need for controlled variability: this is done in design through repetition, change, and detail of the building's architecture.

Integration of Parts: When different parts comprise a whole, it provides satisfaction for occupants: design elements include interior spaces using clear boundaries and or the integration of a central focal point.

Transitional Spaces: This element aims to connect interior spaces with the outside or create comfort by providing access from one space to another environment using porches, decks, atriums, doors, bridges, fenestrations, and foyers.

Mobility: The ability for people to comfortably move between spaces, even when complex; it provides the feeling of security for occupants and can be done through making clear points of entry and egress.

Cultural and Ecological Attachment to Place: Creating a cultural sense of place in The built environment creates human connection and identity. This is done by incorporating the area's geography and history into the design. Ecological identity is done through the creation of ecosystems that promote the use of native flora and fauna.

2.7.5 PASSIVE DESIGN

‘Passive design’ is a design that works with the local climate to maintain a comfortable temperature in the home. Good passive design should reduce or eliminate the need for additional heating or cooling depending on your location and often relies on an active occupant to work properly.

With passive design, building features such as orientation, thermal mass, insulation and

glazing work together to take advantage of natural sources of heating and cooling, such as sun and breezes, and to minimize unwanted heat gain and loss. It is best to use passive design principles when designing or building a new home, but many features of passive design can be added through renovations or simple home improvements.

METHODS

Building orientation:

The building will gain more solar energy if the orientation of the building is south and building axis is East- West. In the hot region, north orientation is preferred and in cool and cold region, south orientation is preferred. In the context of Kathmandu, south orientation is preferred.

Planning and designing:

The open and free planning, narrow streets, small squares shaded by tall vegetation, courtyard and water bodies help to protect from hot and dusty wind and modify microclimate.

Roofs, walls and openings:

The roof should be designed in such a way that's its projection won't allow summer sun to enter inside the building but winter sun to enter. To achieve the desirable heat in day and night, there should be the use of large openings in walls with shutters. Thus, placement of window so that cross ventilation is possible.

External spaces:

To carry out the day-to-day activities outdoors, the pavement and dry ground absorbs the head and reradiate the heat stored at night. The trees, plants and water bodies provide shade and help to bring calming effect

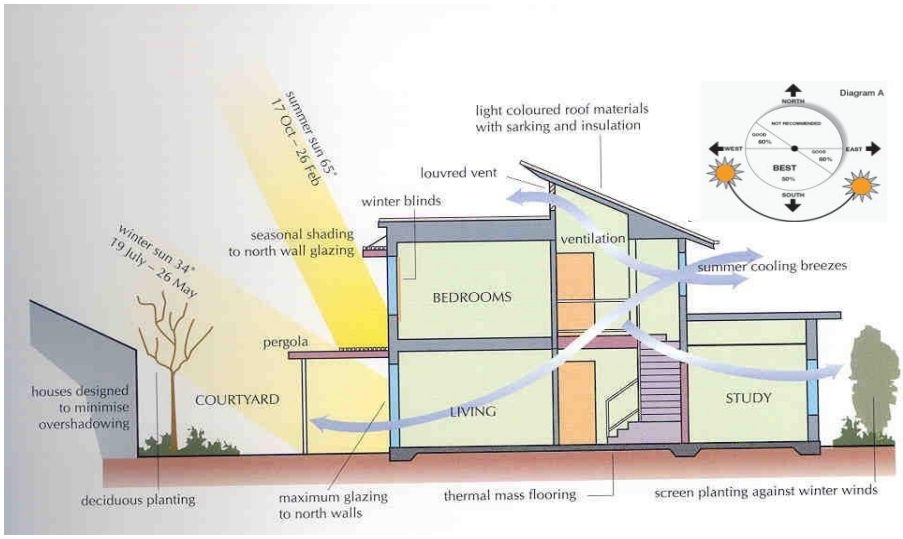


Figure 13: Method of passive design

2.7.6 SENSORY DESIGN CONSIDERATION

As people age, their senses and preferences start to change. Daily activities may carry new challenges for seniors including seeing, walking, hearing, or eating. That's why it's important to consider how design can address some of these physical, emotional, and mental changes to ensure seniors feel as comfortable as possible. When senior citizen arrives, the sensory organs become weak and vulnerable. To make elderly people comfortable in an environment, the experience of light, Color, sound, material, and temperature should be pleasant and calming. Thus, they are described below:

LIGHT

With the arrival of old age, eyesight deteriorates due to age or illness, it has far-reaching consequences for independence. Those affected quickly become anxious and increasingly insecure about moving around. Light cannot correctly deteriorate eyesight, but it can help to compensate, restoring self-confidence. Proper illumination helps avoid visual missteps and prevent falls.

The sharp transition of shadow interpreted as obstacles and reflections on the floor are confusing and misinterpreted. Light creating positive and negative space:

Figure 14: Positive light

Figure 15: Negative light

In senior citizen home, a resident's room becomes a multi-functional area: it is the real living area for the resident, in which care and medical treatment are also administered. Statistically, falls most often occur in residents' rooms. A versatile lighting system meets diverse requirements. These include a room light, a reading/care light and orientation lights.

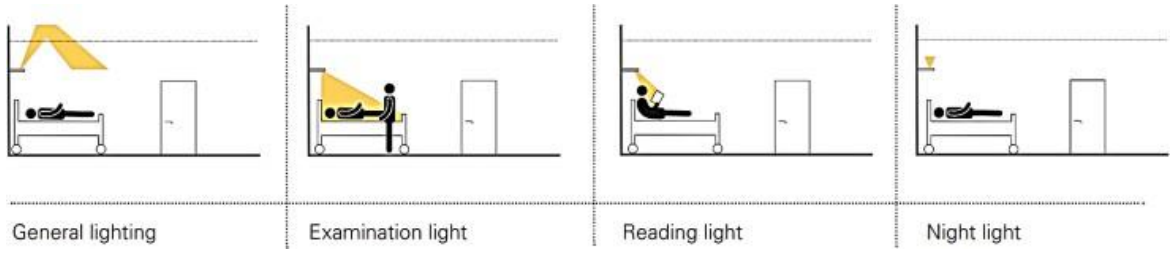


Figure 16: Light consideration in bedroom

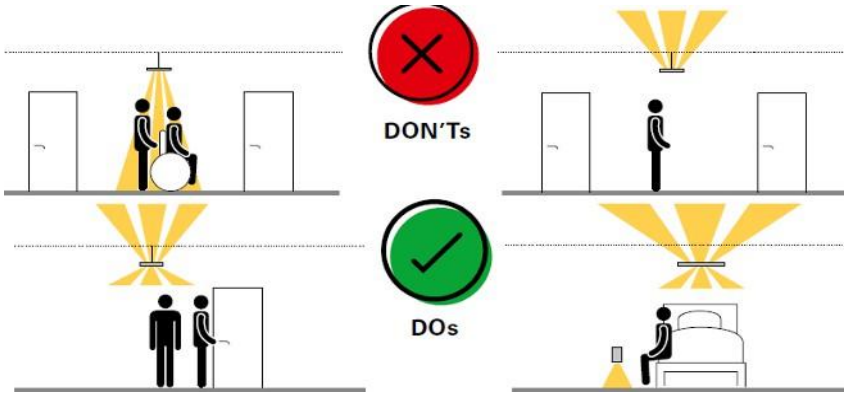


Figure 17: Use of lighting in proper ways

SOUND

The normal process of ageing leads to a natural deterioration in human hearing ability. Also, the research found that older adults became more sensitive to the sound as they get older (Mishler, 2019). Therefore, the focus needs to be given on managing acoustic intrusion. Hence, the following are the considerations that need to be made.

Planning: The arrangement of the layout of the rooms in a building so that quiet areas, bedrooms, quiet lounges, small wards or sitting areas are located well away from plant rooms, stairs, lifts, slices, laundry etc.

Size of residential units: It has been found that residents in small-scale and homelike environments experience fewer changes in behavior as small generally
means quieter. Residents should also have a choice of small rooms for quiet conversation or reflection.

Interior design consideration: The use of soft furnishings and sound absorptive finishes to control reverberation and noise (e.g., cushioned floorings, curtains, table mats). Hard surfaces (e.g., tiles) should be used only when essential, to minimize noise reflection. Most of the

sound comes from the bathroom, thus, the assisted bathrooms having hard interior surfaces for hygiene reasons should have additional sound absorbency by such means as acoustic panels can be incorporated to reduce harsh reverberation.

Landscaping: Planting beds and other soft landscaping located close to windows will help to absorb external noise which would otherwise be reflected off hard surfaces into the building.

COLOR

Color plays a significant role when designing senior living communities. Seniors may struggle with glare and distinguishing colors between rooms. Visual cues are also necessary to help reduce confusion when distinguishing rooms such as the bathroom and the bedroom. This is where contrasting colors are important. If the bedroom is white, then the bathroom should be ocean blue, for example, so that it's easily differentiated. As seniors age, their eyes harden and become yellow. The colors appear greyer. That's why pastels are not typically recommended when designing a senior living community since they can be difficult to distinguish. Color also impacts emotion. Here are a few of the most popular colors used by senior living communities and their emotional benefits:

Green – Earthy and forestry greens are known to promote healing, relaxation and serenity.

Blue – Studies show that shades of water and beachy blues help make people feel more at peace. It's a calming color and tends to reduce stress.

White – Light and bright shades of white and cream promote hope and spirituality. It's also known to be cleansing and calming.

Yellow – Yellow is often associated with happiness and is seen as a cheerful color.

Red – Red is known to be a stimulating Color that signifies strength and alertness.

Brown – Earthy tones and espresso shades of brown are known to stimulate balance.

TEMPRATURE

Maintaining optimal temperature regulation in elderly care facilities is essential for the health, comfort, and cognitive well-being of residents. Older adults often have diminished thermoregulatory responses, making them more susceptible to temperature fluctuations. Federal regulations, such as Title 42 of the Public Health Code of Federal Regulations, mandate that nursing homes maintain ambient temperatures between 71°F and 81°F to ensure resident comfort and safety. (CRUMP, 2004)

2.7.7 DESIGN CONSIDERATION FOR SENIOR CITIZEN CENTER

While designing an senior citizen home, the location for elderly people should focus on safety, security, calming, peaceful and pollution free neighborhood. The factors such as Site, Access, Surrounding, Infrastructure, Topography, etc. need to be carefully considered which finalizing that the site is suitable for building and constructing an senior citizen home. The necessary factors are described below:

Site: The land chosen for housing an OAH should not be in a crowded/congested locality. At the same time, it should not be in a secluded/isolated area either. Also, in context of Kathmandu, the site which is south oriented is mostly preferable.

Topography: The land should not be undulated but level. This applies to new sites.

Sloping land should be avoided as a steep gradient will adversely affect older person's mobility. This will also greatly add to construction costs. If the land is

Concerning then the focus needs to be given to the accessibility of elderly people.

Access to road: The location should be such that it is well connected by roads. This will enable the residents, workers, visitors and all others to have easy access to and from home. Also, public transport should be easily available.

Access to Infrastructure: Good accessibility to local facilities, health services, markets, shops, educational institutions and religious centers should be their Basic amenities such as water, sewage and electricity should preferably exist in the area. Also, the location should be able to incorporate the futuristic amenities, services and needs as per the needs and demand of elderly people.

Surroundings: The human behavior around the surrounding should be positive and healthy. The residential area should surround the site and the surrounding

should be peaceful, non- disturbing, calming, safe, secure and homely.

CIRCULATION

STAIRCASE:

In designing an senior citizen home, the young old and the middle old will be able to use staircase for vertical circulation. Thus, the designed staircase should be senior citizen friendly. The following are the criteria that need to be followed:

On any given flight of stairs, all steps shall have uniform riser heights and uniform tread width.

Stair tread shall not be less than 300mm wide, measured from riser to riser.

Open risers are not permitted on an accessible stair.

Width of the staircase shall not be less than 1350mm.

DETAILINGS: Nosing should be avoided, but if it is inevitable, it should follow the following specifications:

The undersides of the nosing shall not be abrupt. The radius of curvature at the The leading edge of the tread shall be no greater than 13 mm.

Risers shall be sloped or the underside of the nosing shall have an angle not less than 60 degrees from the horizontal.

Nosing shall project no more than 40 mm.

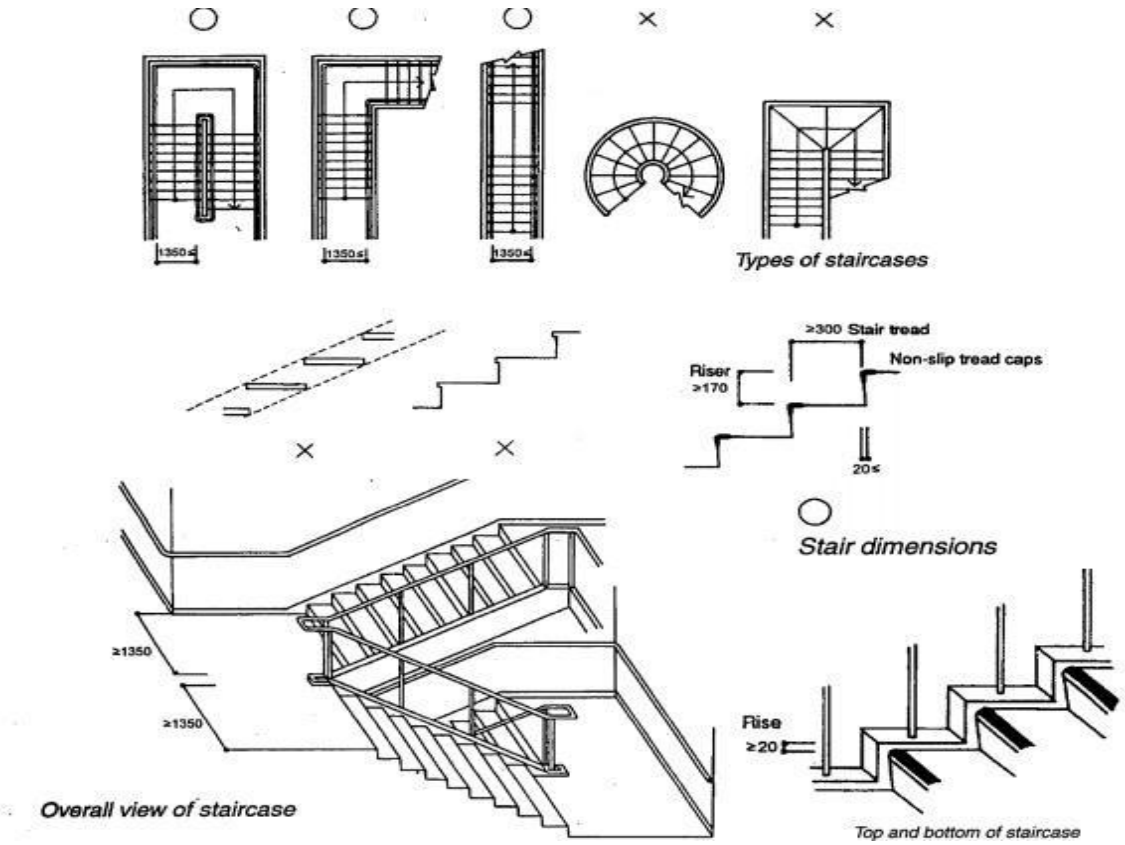


Figure 18: Staircase and it's detail

RAMPS

Elderly people feel comfortable using ramps compared to staircases because of their declining physical abilities. Therefore, having a vertical circulation ramp is preferred more than staircase. Thus, the material and the slope on which the ramp is going to be built is important to consider.

Ramp shall be finished with non-slip material to enter the building. Minimum width or ramp

shall be 1800 mm. with maximum gradient 1:12, length of ramp shall not exceed 9.0 M having double handrail at a might of 800 and 900 mm on both sides extending 300 mm. beyond top and bottom of the ramp. Minimum gap from the adjacent wall to the handrail shall be 50 mm.

STEPPED APPROACH

For stepped approach size of tread shall not be less than 300 mm. and maximum riser shall be 150 mm. Provision of 900 mm high handrail on both sides of the stepped approach like the ramped appRoach

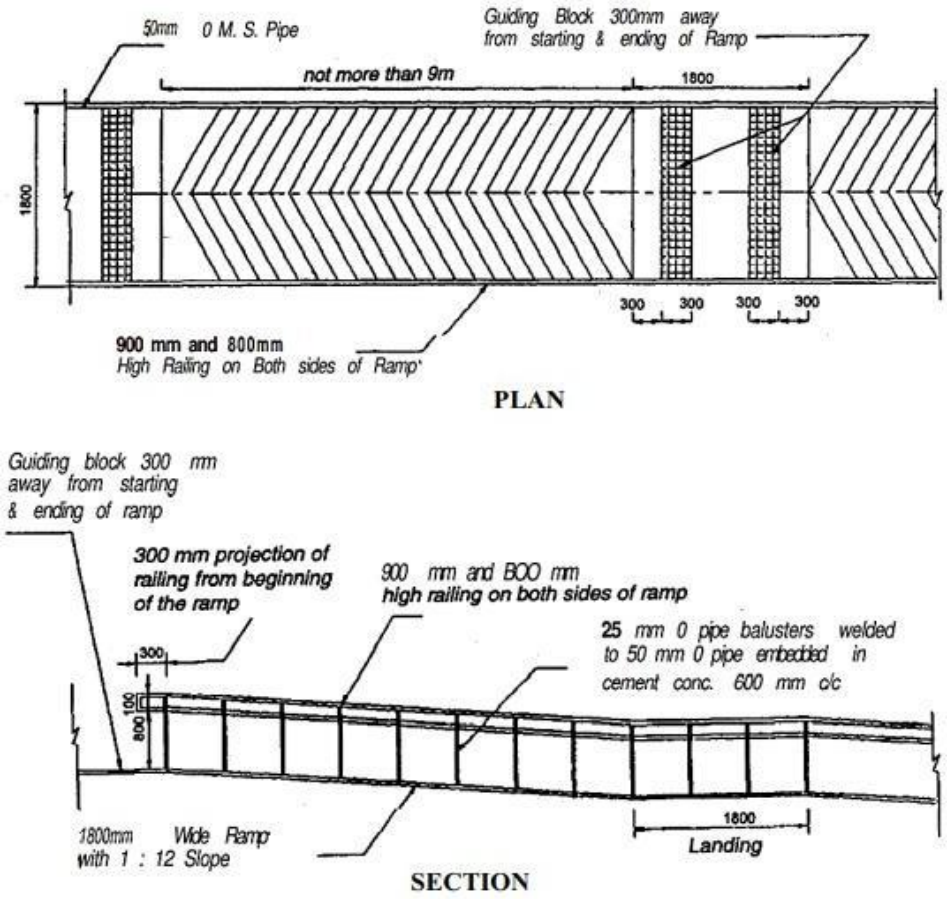


Figure 19: Ramp and it's detail

CORRIDOR:

The access route to various rooms should be interesting, with natural light wherever possible. Steps should not be introduced into corridors. If a change in level is unavoidable, then a ramp

may be provided. For general circulation, the minimum corridor width should be 1200 mm.

Required width for passage of wheelchairs are:

The wheelchair body itself is about 650 mm wide. Allowing for the use of hands and arms outside the wheelchair, the passage must be as wide as 900 mm or more.

Locations such as entrances and exits can be 900 mm wide. However, a continuous passage (e.g., a corridor) must at least be 900 mm wide to allow for slight side-to-side movement of the wheelchair as it travels.

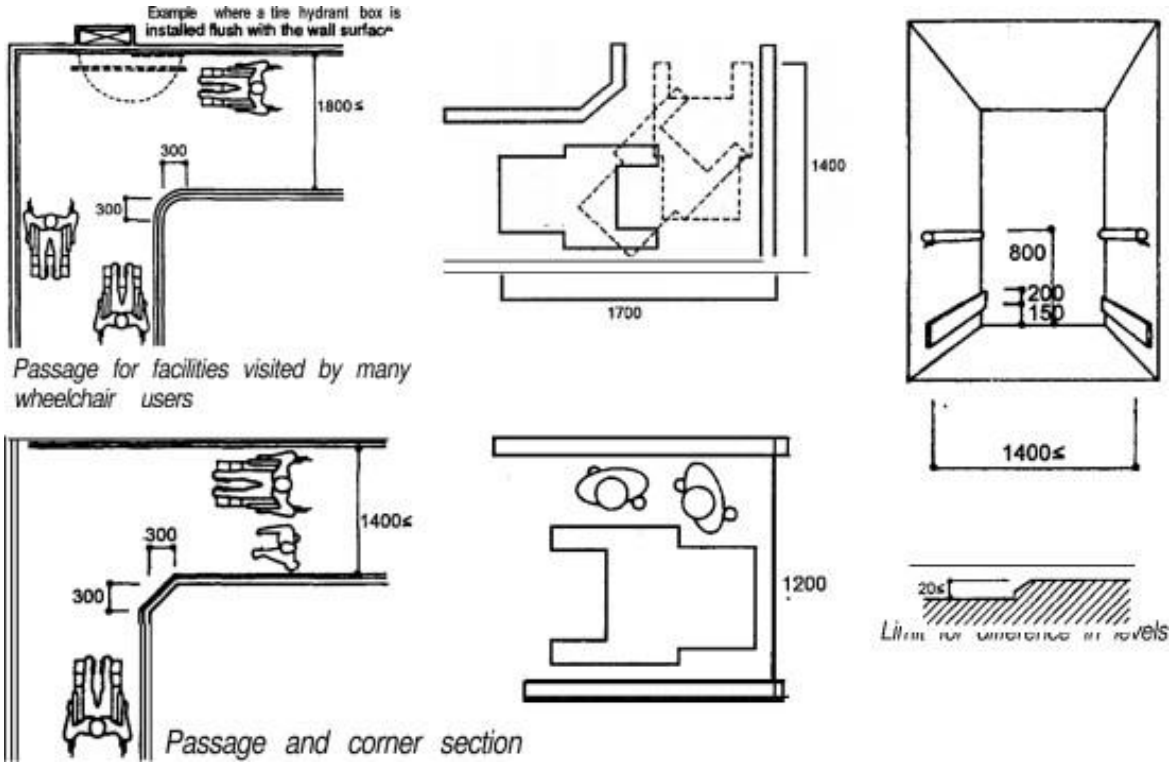


Figure 20:Corridor and it's detail

DETAILINGS: Handrails/grab bars

Handrails/grab bars are extremely important features and must be designed to be easy to grasp and to provide a firm and comfortable grip so that the hand can slide along the` rail without obstruction. Grab bar shall be:

Be slip-resistant.

Have a diameter of between 32 mm to 38 mm or a shape that provides an equivalent gripping surface.

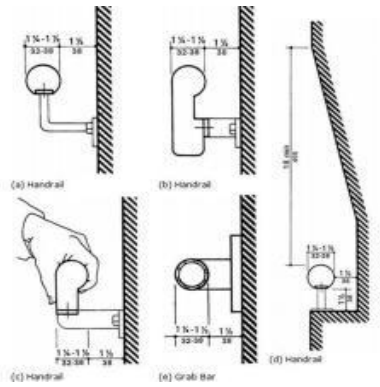


Figure 21: Detail of handrail

ENTRANCE LANDING

Entrance landing shall be provided adjacent to ramp with the minimum dimension 1800 x 2000 mm. The entrance landing that adjoins the top end of a slope shall be provided with floor materials with finishes shall have a non- slip surface with a texture traversable by a wheelchair. At the head and foot of every ramp or section of ramp a level platform of the same width as the ramp itself clear of cross traffic shall be avoided. Such platforms and intermediate landings shall be at least 1000 mm wide, 150 mm long and at least 1300mm clear of any door swing

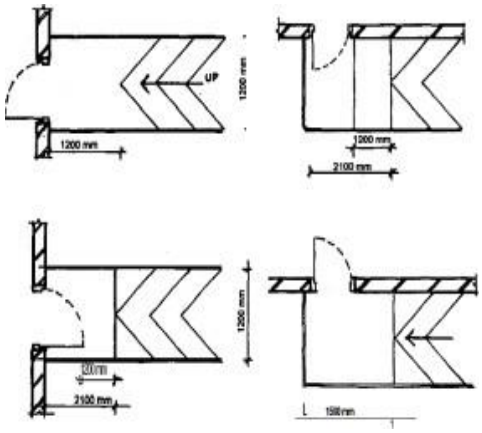


Figure 22:Entrance Landing Details

PARKING

Accessible parking spaces shall be at least 2400 mm wide. Parking access aisles shall be part of an accessible route to the building or entrance facility. Two accessible parking spaces may share a common access aisle. Parked vehicle overhangs shall not reduce the clear width of an accessible route. Parking spaces and access aisles shall be level with surface slopes not exceeding 1:50 (2 per cent) in all directions.

Categories:

For housing not subject to the following exceptions, parking spaces numbering more than 30 percent of the total number of dwelling units should he provided. Where service by public transportation is very poor, parking spaces, numbering more than 30 percent, but less than 50 percent, of the total number of dwelling units, should be provided. For housing located in or easily accessible to the central city or located in or adjacent to regional shopping centre, parking spaces numbering at least 15 percent of the total number of dwelling units should be provided.

For public housing for the elderly, parking spaces, at least 10 percent of the total number of dwelling units, should be provided.

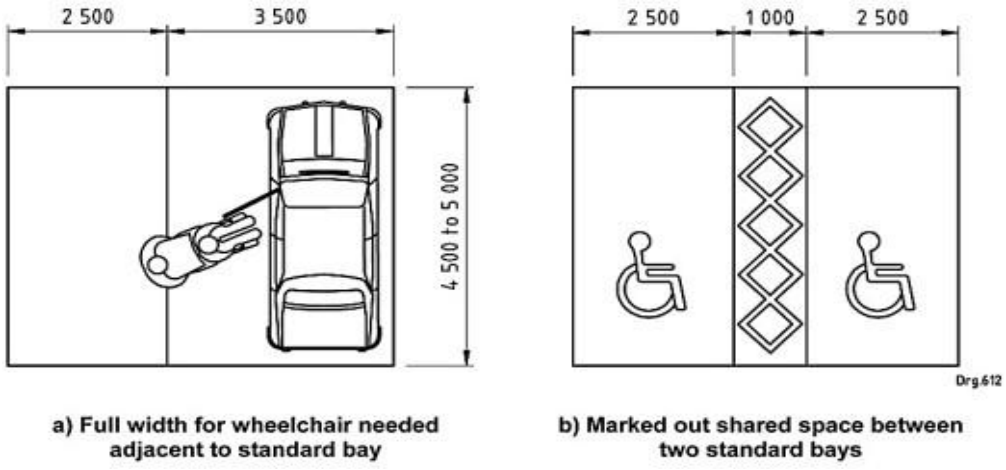


Figure 23:Parking Details

WALKWAYS:

The land should have enough space for walkways as the residents would like to take a stroll during leisure time. In any case, walking should form part of the daily routine of an OAH resident as this would keep him physically fit. The walkways should be clearly marked with hedges. If the area permits, it will be desirable to have a jogging track.

The walkway should be constructed with non-slip material & different from the rest of the area. The walkway should not cross vehicular traffic. The manhole, tree or any other obstructions in the walkway should be avoided. A guided block at the starting of the walkway & finishing of the walkway should be provided.

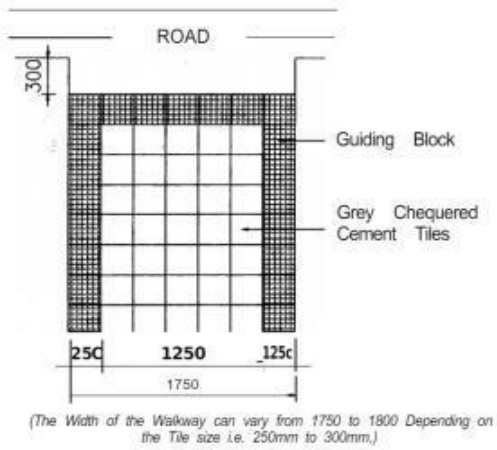


Figure 24: Walkway Detailing

Guiding block-can be of red checkered tile, smooth rubble finish, prima regina, Naveen tiles or any other material with a different texture as compared to the rest of the area.

2.7.8 OPENINGS

1. ENTRY / EXIT DOOR:

The maximum travel distance to exits or stairways from any point within the single floor level shall not be more than 30m for all types of building except when external corridor of 15m or more is part of the route, in which this distance may be increased to 40m and the minimum clear opening of the entrance door shall be 900 mm. and it shall not be provided with a step that obstructs the passage of a wheel chair user. Also, the threshold shall not be raised more than 12 mm.

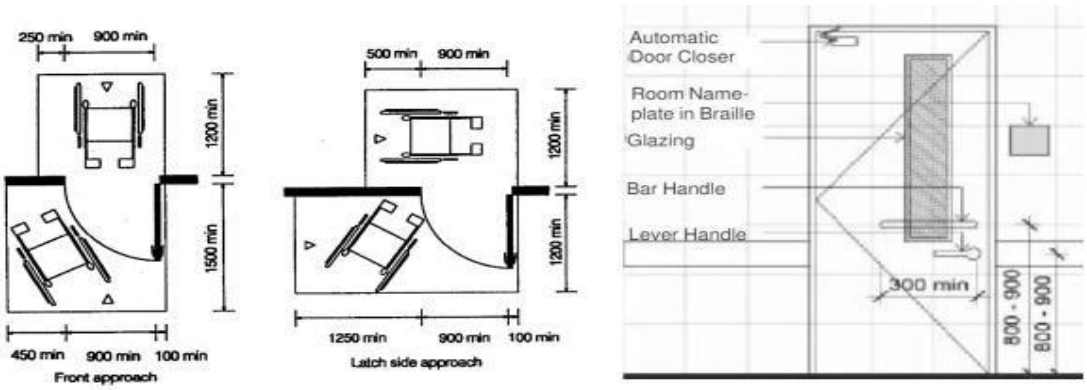


Figure 25: Door detailing

WINDOW:

Windows should be equipped with handles and controls positioned at a height that accommodates wheelchair users. It is essential for windows to provide an unobstructed viewing area for individuals in wheelchairs. Controls for curtains or Venetian blinds must be accessible to these users. Additionally, any auxiliary hardware, including blinds and locking mechanisms for shutters, should be installed at a height ranging from 900mm to 1200mm. Windows situated below 900mm must be designed to be non-operable. Categories:

Living Room: Windows in the living room should be positioned low enough to allow individuals seated in lounge chairs to have a clear view outside. The bottom edge of the window should not exceed 3 feet 2 inches from the floor and may be as low as 1 foot for window walls. It is advisable to incorporate a guard rail at a height that does not obstruct the view while providing a sense of security; thus, the window should extend to a height of 6 feet 8 inches.

Dining Hall: In dining areas, the eye-level zone is determined by the height of the seating. The window sill may be set at 2 feet 6 inches from the floor. For bathrooms and kitchens, the eye-level zone is based on standing height, with window openings recommended to be between 3 feet 6 inches and 6 feet 8 inches from the floor.

Bedroom: In bedrooms, at least one window should be low enough to allow a person in bed to look outside. This not only enhances the room's ambiance but also serves as an emergency exit. The eye-level zone suggested for dining areas is also applicable to bedrooms. It is preferable to have window arrangements that ensure a uniform distribution of light rather than a sporadic placement of openings.In hard-to-reach areas, windows that can be opened and closed by turning a crank are more user-friendly.

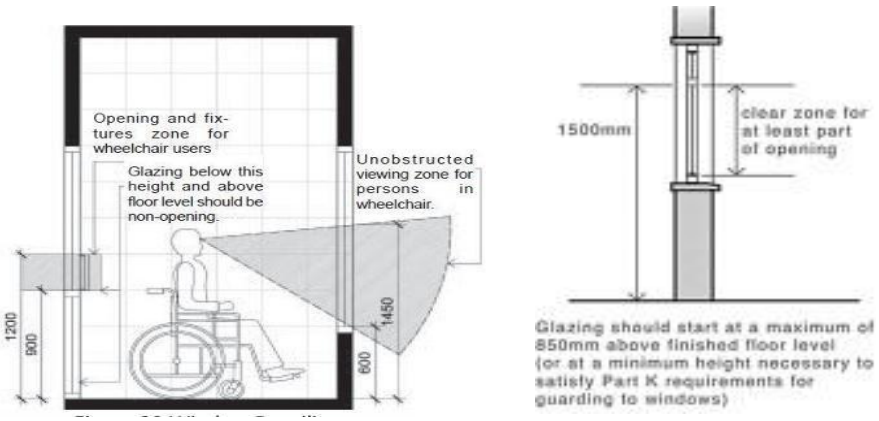


Figure 26:Window Detailing

Therefore, southerly orientation is most desirable, but provision should be made for shading devices. Roller shades should be avoided because of the danger involved in retrieving a released shade. In housing for older people, the height of the windows is important, particularly in the living room, dining area, and bedroom. Sitting and looking out of the window is a daily activity for many of the elderly.

2.7.9 ROOMS

BEDROOM:

When senior citizen arrives, people mostly become inactive and would like to spend most of the day sleeping in bed. Hence, as most of the time is spent in the bedroom in bed, so, it should be as comfortable as possible. Thus, following standard requirement shall be followed:
At least 1500 mm turning in space for wheelchairs should be kept near all entry points to the living area.
The bedroom layout should be such that the bed should not be in a corner of a wall. At least 900 mm should be provided for a wheelchair from the side of the wall for access and there should be large enough space for transfer by a wheelchair user, or
for a helper to assist in the transfer.
A min. 900 mm width should be kept in front of bedroom closet and any other furniture.
The bed should not be stuck to the wall, a minimum gap of 900 mm must be
provided this gap would allow enough space for the wheelchair user to transfer to the bed easily.
Clothes hanger rod should be at a height between 1050 mm - 1200 mm. The max. and min. height of shelf should be 1400 and 300 mm, and the recommended zone is from 450 mm to 1200 mm.
Orientation: The orientation of the bedroom should be southwest, south or west.

FURNISHABILITY

In addition, Bedroom should have provisions for such passive living activities as: Television viewing, Reading, Sewing etc. The minimum amount of furniture to be provided for is as follows:
Twin beds (3'3" x 6'6") or Double bed (4'9" x 5'6")
Dresser ('6" x 4'4")
Chair (1'6"x 16”)
Table (1'6"x 2'6") for sewing or other work (optional)

Nightstands (16" a 6")

Portable television set

A secondary bedroom for single occupancy should have circulation space and furniture of the following sizes:

Twin bed (3'3" x 6'6") (1'6" x 3'6")

Dresser

Chair (1'6" x 1'6"), Nightstand (16" x 1'6")

For reasonable access to and use of bedroom furniture and equipment, the following minimum clearances should be observed:

24" clearance for least used side of double bed

6" clearance from side of bed to side of dresser or chest of drawer

30" clearance for major circulation path (door to closet etc)

24" clearance between twin beds

18" clearance between twin bed and wall for ease of bed making.

ACCESSIBILITY:

Access to private outdoor space: As the bedroom requires privacy and safety, the access to the private outdoor space helps to create a refreshing experience and connection to nature as well.

Access to a common living hall: With the access to common living hall, it creates a sense of safety and connectivity within the people residing there. Hence, aged

people need to have someone to continuously put an eye on them directly or Indirectly, this helps to check on elderly people.

Visual access to surroundings: Windows should be placed so that a person can easily See out while lying in bed. This space requires direct exposure to the use of at least 30 percent of the day.

TYPES OF BED-ROOM:

Since an inmate spends a major part of his time in the bedroom it should be maximally convenient for the user. It should have all the required furniture and other arrangements.

Single Room: The older person will have complete privacy, sufficient storage space, a sense of safety and a “feeling of own” The disadvantage is that the older person may not like to come out of the room and may generally “withdraw”.

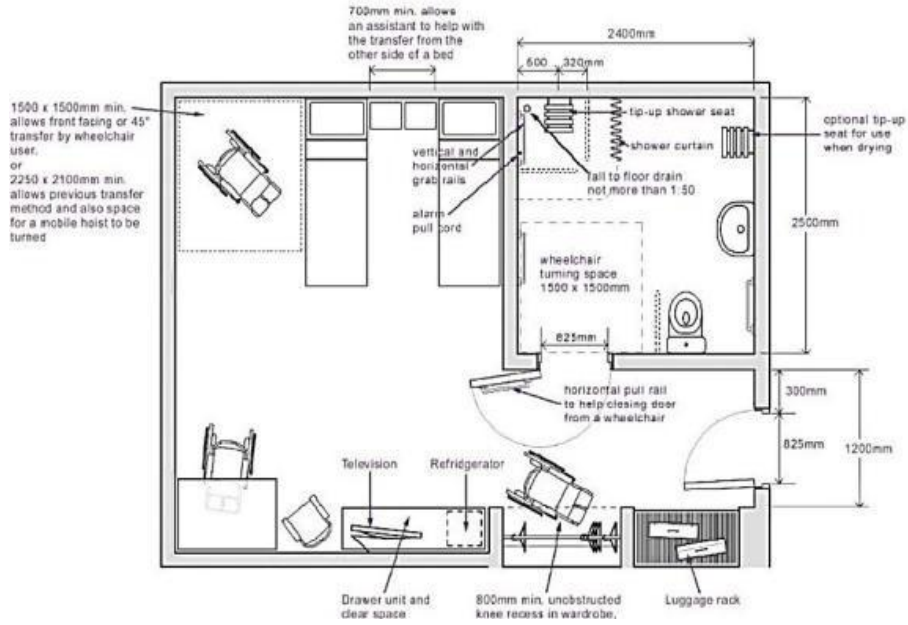


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Figure 27: Bedroom

Double Occupancy Room: It has most of the advantages of an individual room and at the same time it is economical. Care should be taken on selection and pairing of room partners.

Dormitory Room: A dormitory is a big room in which 6 to 10 older people can be accommodated together. Temporary/permanent partitions may be put up between beds to provide privacy to each older person. It will be desirable to have a dormitory type arrangements for OAHs. This will be more convenient for observation of the inmates, rendering service and above all reduce construction and maintenance costs.

LIVING ROOM

Every residing unit shall have an area or areas which are organized and furnishable for a wide range of activities such as: Chat, entertaining, reading, television viewing, radio/record listening, contemplation and lounging. Most units will also have space for multiples of these activities in a single location. However, it would be preferable to offer more specialized rooms in larger-than-standard units. Thus, following standard requirement shall be followed:

A minimum turning space of 1500mm must be provided in and around the living area.

A living dining combination is preferable to a kitchen dining combination.

A min. gap of 900mm should be provided around the furniture such as dressing table, closet etc.

The closet can be customized according to the need and requirement. Advisable height of hang rods for clothes is 1050mm – 1200mm.
Orientation: The orientation of the North-west, north, east, or west.

FURNISHABILITY:

Furniture should be accommodated in the living area with easy accessibility. Because of the diversity of activities which may occur in this space or space, and because provision must be made for a wide variety of lifestyles, special provision should be made in the design process to allow for many alternate furniture types and arrangements. The location of doors, windows, and other openings should be carefully considered so as not to unnecessarily limit furniture arrangement. A substantial amount of uninterrupted wall length is required. Furniture that should be accommodated in the living area should include the following items (Sizes are minimums) for one-bedroom units:

Couch: 3'0" x 6'10"
Easy chairs: 2'6" x 3'0"
Television set :1'4" x 2'8"
Table :1'-6" x 2'6"

The following clearance could be provided between facing seating:

30" minimum clearance is required for use of a desk
60" minimum distance is necessary between the television set and seating. The Designer should make sure that it is possible to locate the set opposite the main seating area.

People gather during social activities in rather small groups and a desirable conversation distance is rather short, an area approximately 10 feet in diameter is workable. The living area or areas will most probably have to sustain both intra and interspaced circulation. Adequate circulation space, which is direct and non-disruptive, is important because of the tendency toward infirmity of movement and loss of visual acuity in the elderly. The following criteria pertain:

36" minimum clearance should be possible for main traffic paths. This dimension will also accommodate a wheelchair.
30" minimum clearance should be allowed where secondary circulation occurs between furniture.

ACCESSIBILITY:

Access to outdoor spaces: Living room having connection with the outdoor spaces helps to extend the living room as well as make the elderly people engage in the nature for refreshing purposes.

Access to Dining: Dining and living room connection is preferred.

Visual and audio relationship: It is advisable to promote visual and aural contact with equally busy locations (entry/exit and private outdoor). The amount of visual and aural interaction with the kitchen should be kept to a minimum or controlled so that the resident can adjust it as needed. Depending on where the dining room is,

the visual and aural connections between the living and dining areas will change.

Reduce visual and aural intrusion into areas used for sleeping, dressing, and personal hygiene.

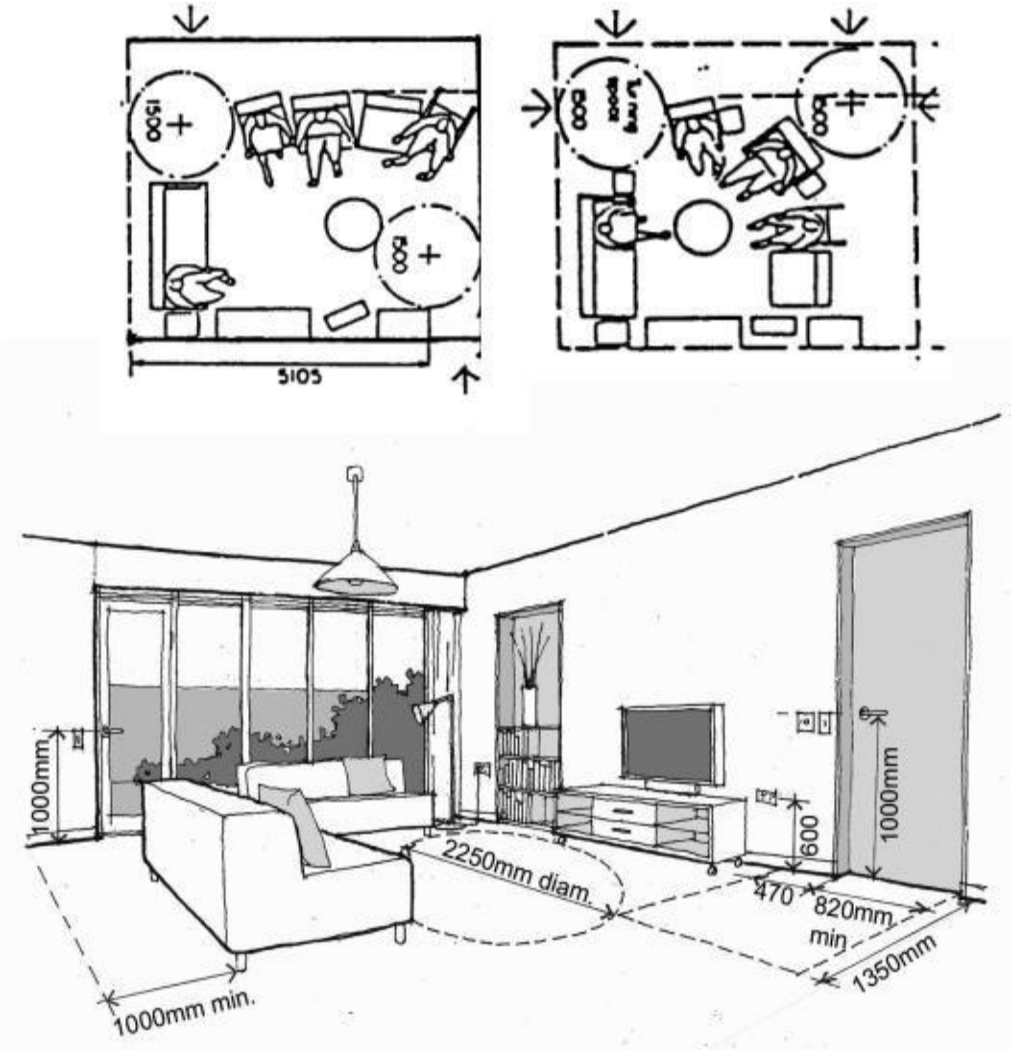


Figure 28: Living Room Detailing

TOILET AND BATHROOM

The toilet and bathroom area are accident-prone areas. In general, bathrooms in developments for the elderly should be given great care in design as this space can, if poorly conceived, cause both serious health hazards and, through its inconvenience, great frustration. Thus, the following are the standards to be followed:

- The minimum size shall be 1500 x 1750 mm.
- Minimum clear opening of the door shall be 900 mm., and the door shall swing out.
- Suitable arrangement of vertical/horizontal handrails with 50 mm. clearance from walls shall be made in the toilet.
- The W.C. seat shall be 500 mm. from the floor
- Toilet floor shall have a non-slip surface without any level difference.
- Guiding block near the entry should have a textural difference, (e.g., Diamon Tiles, Prima Regina Tiles, Undressed Granite)
- The basin should be installed at a height and sufficient clear space for wheelchair users should be provided in front of the basin.
- Shower cubicles should have grab rails at a height and position that allows for easy gripping by wheelchair users and should have call buttons.

FURNISHABILITY

All personal hygiene spaces should be provided like: Lavatory basin, water closet, bath or shower, appropriate grab bars, storage space and mirror, toilet paper holder, towel bars. It is essential for the successful functioning of the bathroom or lavatory that certain minimum clear working areas be provided around fixtures. These requirements are:

Lavatory basins: 3'-6" X 3'-6", the sink shall be centered on one dimension and at the extreme of the other.

Water Closet: 2'-6" X 4'-4"; the water closet shall be centered on the 2'-6" dimension.

Tub and /or shower: 2-4" clear dimension extending out from access point of fixture and at least 2'-8" along its length; the length dimension shall begin from the central end of the fixture.

An emergency call system shall be included in all developments. An alarm button should be placed in the bathroom in a convenient place, but not where it can be set

off accidentally. All bathrooms, whether naturally ventilated or not, shall have air exhaust fans venting to the outside and sized according to the code for an interior bathroom.

ACCESSIBILITY

Access from bedroom and bathroom: Consideration should be given to direct accessibility between the bedroom and the bathroom. This accessibility would not require passage through an intervening circulation space. If it does, the route shall be direct, unobstructed and of sufficient width for a wheelchair to pass easily.

Access from Living room and dining room: Indirect accessibility should also exist between the living room and dining room.

Access from outdoor spaces: As the design should encourage aged people to have more outdoor and nature interaction. Hence, toilets should be provided outside the building premises as well.

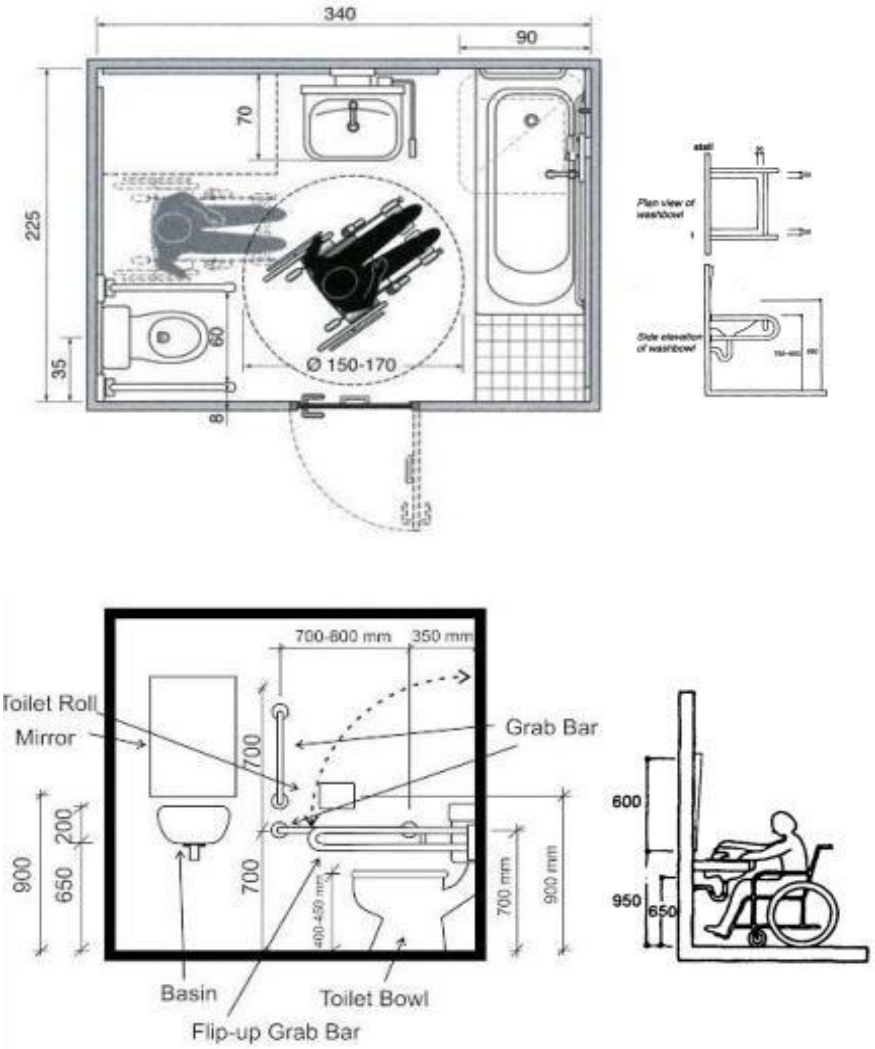


Figure 29 : Detail of toilet and bathroom

KITCHEN AND DINING

Kitchens are potentially as dangerous as bathrooms; equal care should be given to their layout and design. In locating the kitchen in the plan, provide easy access to the outside and direct access to the dining space, which could be a portion of the living room. In some plans space can be provided in the kitchens for dining. In some cases, an additional 20 to 40 sq. ft is necessary. Thus, following are the Kitchen Standard to be followed:

1. Floor space should allow easy wheelchair movement between worktop, sink and cooking stove.
2. A 1500 mm min. width should be provided for wheelchair turns between counters and opposite wall.
3. Worktops, sinks, and cooking area should be at the same level at a height of 780 mm - 800 mm high from floor.
4. A knee room of 700 mm high should be provided under the sink.
5. Base cabinets storage space with hinged doors and fixed or adjustable shelves should be avoided. Base cabinets are most usable with drawers of various depth. Pull-out vertical units at one or both sides of the work centers are desirable.
6. Maximum height of shelves over worktop is 1200 mm.
7. A min. gap of 400 mm. should be provided between the edge of work top and top shelves. The side reach for low shelf height should be 300 mm.
8. The following are the Dining standards to be followed:
9. To able to eat comfortably, one person requires a table area of around 60cm wide by 40cm deep. This provides sufficient clearance between adjacent diners.
10. Round tables or tables with six or eight sides, with a diameter of 90-120 cm are ideal for four people and can also have one or two more dinners.
11. The kitchen storerooms, delivery points, toilets and other service areas should be grouped around the dining room, although toilets can be on another floor.
12. Ceiling height should be 3m or more for floor area 100sqm or more
13. Provision of vertical & horizontal rail as 40 mm C.P. Steel Pipe.

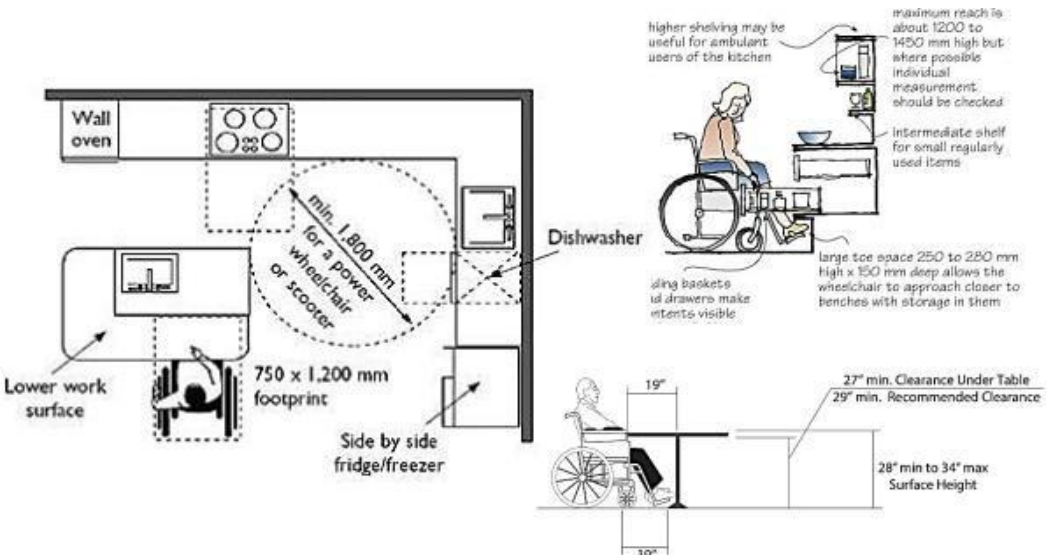


Figure 30:Kitchen Detailing

OTHER AREAS OF KITCHEN:

General Storage

Ample, lighted closets should be provided for clothes, linens, and miscellaneous household items. Closets should either have sliding doors or be arranged for the use of curtains or screens, Provision must also be made for general storage of bulky items, such as trunks and furniture.

Food Preparation

The physical characteristics of the aged hamper the normal functions of food preparation, cooking, food and utensils storage, trash disposal, dish washing and drying, and eating. If appropriate physical design adaptation is not made to the food preparation space and facilities, cooking and related activities will become unpleasant, tedious, and possibly dangerous. The net effect will be the creation of a psychological barrier, which deters the user from cooking and eating. This situation is particularly unacceptable because dietary problems can become acute for the aged.

2.7.10 OTHER AMINITIES

LAUNDRY:

Since the old are by and large frail, they may not be able to wash their clothes by themselves. Hence power laundry or washing machines should be provided. Laundry should always be separated from the bathrooms. Manual laundry should have enough space to enable the older people to do their own personal washing. It should be ensured that the laundry has the following areas:

A sink: 18”x11”

Space for the machines: 44”x32”

Space for ironing clothes: 48”x 15”

Space for washing clothes

Space for rinsing and drying clothes

A table or bench for folding clothes

The laundry floor should have nonskid floors: ceramic and porcelain tiles.

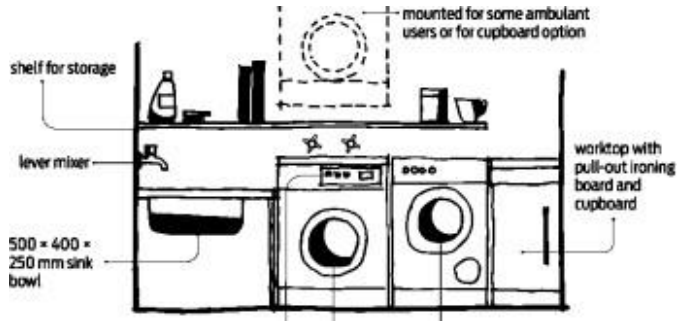


Figure 31: Laundry Component

GATHERING HALL:

The gathering hall is required for entertaining and for communicating with elderly or aged people. It will be a means of entertainment. Layout of the simple auditorium hall:

Basic theatre form: End Stage

Space per seat: 10.4 Sq. Ft

Row spacing: 3’-0”

Stage elevation: 12”

Floor design: Flat

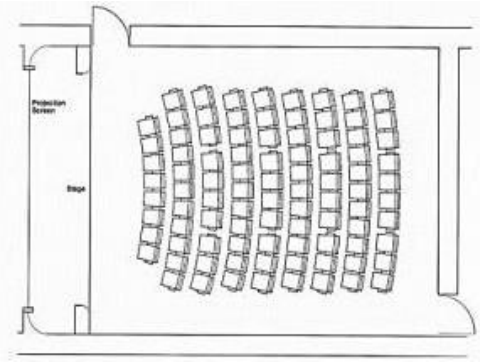


Figure 32:Rectangular Hall Section

CLINIC ROOM:

When senior citizen arrives, people become physically and mentally weak, delicate and vulnerable. So, many older people are vulnerable to multiple health problems and need extensive care and support for quality of life. The clinic room is provided with the facilities required to maintain basic health of the people.

In an elderly care center and senior citizen home, the nursing unit or clinic room is important. It helps the elderly people to treat their disease and health problems. In old homes, at least one clinical room should be available as aged people are vulnerable to health problems.

The clinic room consists of doctor cabin, wash basin, chairs, exam table, exam area, bed, wardrobe, etc. The general dimension of the clinic room is 10'x 13'.

ACCESIBILITY AND LOCATION:

The clinic room should be accessible from almost every space and area possible such as bedroom, dining, outdoor space, etc. It should be in such a way that the aged patient can rush to the hospital if needed. Thus, it should be carefully planned within the premises.

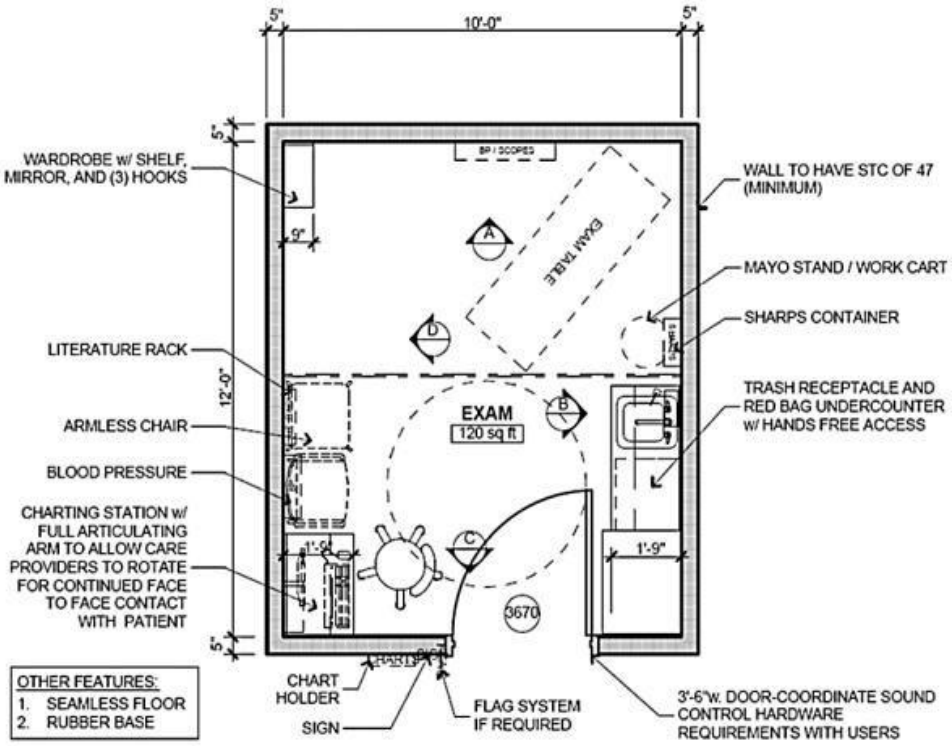


Figure 33: Examination Room of Clinic

DETAILINGS
CORNERS AND EDGES:

The focus needs to be provided in the corners of furniture and edges of wall. The sharp and pointy edges need to be avoided as far as possible to reduce the accident and hazards to occur

FURNITURE:

The edges of the furniture's such as bed, table, sofa, chair, and wardrobe need to be rounded and the materials used should be soft and fle

Figure 34: Furniture Detailing

WALL:

The edges of the walls are guarded using plastics and wood. Also, it is finished by using pop or plaster with rounded corners.

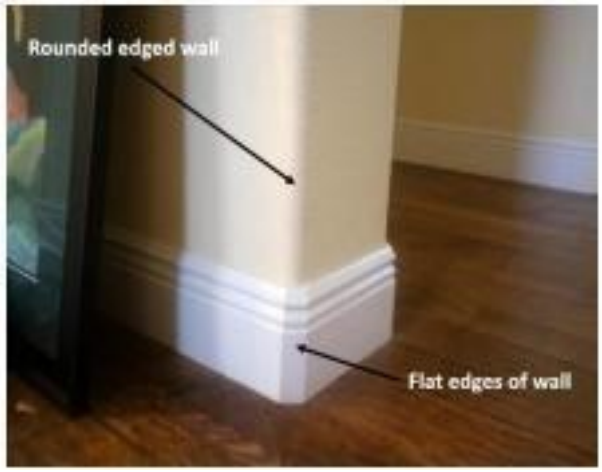


Figure 35: Texture and visual variety

Figure 36: Wall Details

CHAPTER -3 CASE STUDY

3.1 NATIONAL CASE STUDIES

3.1.1 SOCIAL WELFARE CENTER BRIDDHASHRAM

Project brief:

Location: Pashupati, Kathmandu

- Site area: 4,500 sq.m. appx.
- Established date: 2032 B.S.
- Number of Elders: 70

Figure 37 :Location map

Figure 38 :Social welfarcentre Briddha Ashram

Introduction

In the association with Women, Children, Social Welfare Ministry office it is only senior citizen home that is run by the government. The covered sattal surrounds the Panchadeval premise in four directions. At first these sattals functioned as a Paksala (community kitchen) for serving meals to the underprivileged and homeless. With time, the Panchadeval Paksala expanded its services to include providing food and shelter to women who were homeless or in threat. It has been converted into a Briddha Ashram, an elderly residential facility for both men and women, since 2032 BS (1975 AD).

Site and Surrounding

Social Welfare Centre Briddha Ashram lies near the Hindu's sacred temple Pashupatinath, Panchdewal. It lies in the holiest and most religious place of Nepal. The senior citizen home is surrounded by the Pashupatinath temple complexes, and the topography of the site is plain and flat.

Planning and Design

Social welfare center Briddha ashram is a two-story traditional building consisting of a square courtyard with Pachdeval in the center. For enhancing the facilities, the premises have added truss roof structures for the purpose of dining, dormitory and hall. It consists of traditional straight staircase for circulation and has the facilities such as residential facilities, bhajan patis, Clinic room.

The main entrance leads directly to the administrative area, which includes the Chief Officer's office and staff facilities. The residential section is divided into two main dormitories: a 14-bed men's dormitory on the right and a 16-bed women's dormitory in the lower right corner. Both dormitories are equipped with adjacent restrooms and have access to shared common areas, including a TV room for recreation. A centrally located tap-wash area serves the general washing needs of the residents.

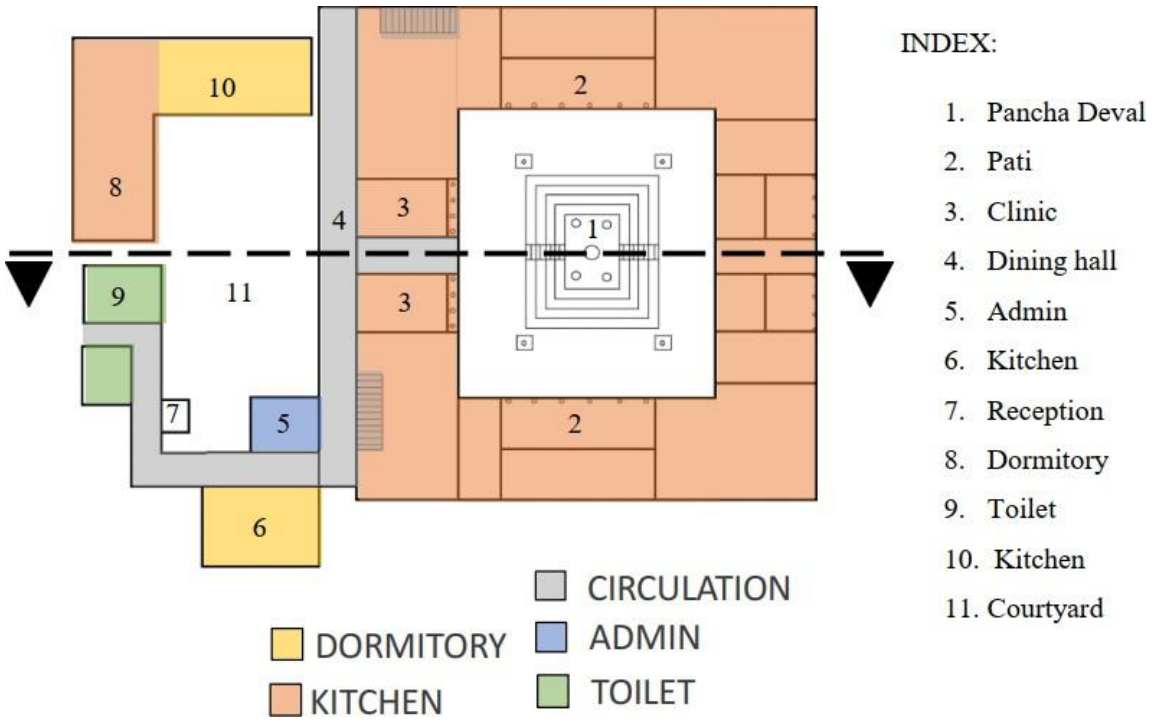


Figure 39 : Plan of Social welfarcentre

At the center of the layout stands a Panchadewal temple, offering a spiritual space for the residents. It is surrounded by open pathways, ensuring accessibility from all sides. The

temple itself is elevated on tall plinths, forming the raised core of the courtyard. However, despite its prominent presence, the temple is infrequently visited by residents, as the steep steps make access challenging. Instead, residents tend to prefer and appreciate the lower-level public areas of the courtyard, which are more easily accessible and comfortable for daily use.

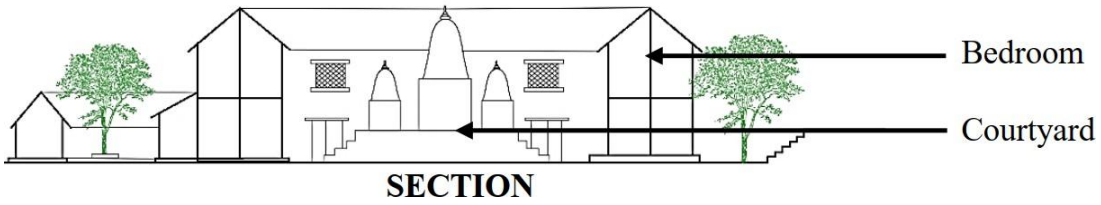


Figure 40 : Section of Social welfarcentre

In the middle of the dormitories is a dining and seating area where residents can gather and eat. The open spaces on the sattal is also used as gathering space and people who are interested in sewing, making dhup and batti perform their work in this space. A medical room is provided to ensure the medical and health services are readily available.

Figure 41: Dining Aear

Figure 42: Panchadewal temple

Social space and Interaction

Indoor courtyard: The complex has a courtyard and tapered platform and panchadeval temple on the top which acts as a major social space. Lack of other common platforms like living areas where elder can sit and interact. The residents use this indoor courtyard for various purposes like talking and sitting. strolling, washing clothes etc.

Transition space: To connect this courtyard a transition space, Pati is provided which connects the indoor and outdoor. Open spaces at the front and back act as outdoor socializing space.

Architectural Style

This building represents the Newari Architecture which is deeply rooted in the Kathmandu Valley of Nepal. This style is notable for its integration of artistry and functionality.

Architectural Features

The use of finely carved timber elements and red brick. Extensive carvings, including Tiki Jhya and San Jhya designs decorates the wooden windows and door frames. Its main features are symmetry and repetition, and its elegant appearance is enhanced by the proportionate placement of the arches, windows, and doors.

Services Provided by the Elderly Home

Basic Needs – Provides shelter and food for elderly residents.

Healthcare – Offers medical treatment and maintains a clean environment.

Special Care – Has a dedicated ward for disabled elderly individuals seperately for both male and female.

Clothing – Residents receive a new pair of clothes twice a year.

Festivals & Cultural Activities – Celebrates various festivals according to tradition.

Activities include:

Watching TV.

Performing devotional songs

cultural program occassionally

Figure 43: Activities in courtyard

Figure 44 :Dining and TV Watching

Inference:

Consisting of temple complex is creating a psychologically peaceful environment.

Lack of universal design

Use of pati and courtyard as spaces for social interaction

Indoor areas are uncomfortable with less light and ventilation, so elderly are using courtyard, pati, dalan etc and outdoor spaces more than indoor spaces

3.1.2 SIDDHI SHALIGRAM SENIOR CITIZEN'S HOME

Project brief:

Location : Bhimsenthan, Bhaktapur

Area: 1136 sq.m.

Project year: 2005 A.D. (2061 B.S.)

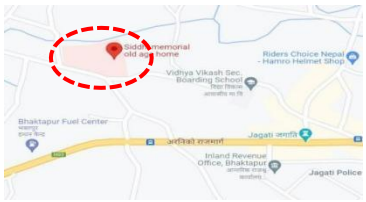


Figure 45: Location map

Total capacity : 60

Target population: 60 yrs and above

Type: Paid senior citizen home

Figure 46: Front facade of Siddhi Saligram

Introduction:

Siddhi Saligram senior citizen Home In loving memory of Siddhi Saligram Dhaubadel, a home was built next to Siddhi Memorial Hospital. The main objective of the center is to give the elderly a nurturing home where they can live peaceful, fulfilling, and happy lives. The facility provides senior citizens withsupport without regard to their financial situation, caste, religion, gender, relationship, or ethnicity. People over the age of 60 who meet requirements such not having family or local assistance, having physical constraints, living in poor conditions, or not knowing much about the social resources that are available are eligible for facilities.

The range of services provided by SSSCH includes both residential and daycare options.

Honoring the legacy of Siddhi Saligram Dhaubadel and improving the lives of older residents via its many services, the Siddhi Saligram senior citizen Home is an exemplar of compassionate service.

Planning & Design:

The senior citizen's home of Siddhi Saligram has a courtyard layout that blends well with the

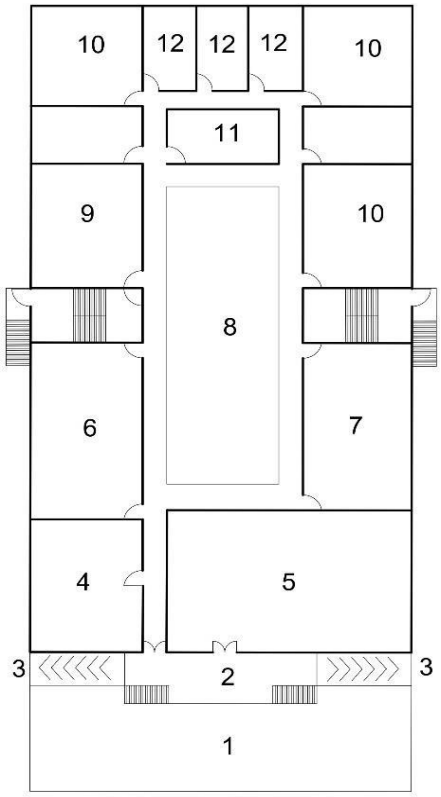
neighborhood's architectural style, with a brick façade and sloping roof. Given that the hospital and senior citizen center share the same grounds, the facility conveniently offers entry from the Southern main gate or from the hospital grounds. The building's front yard features a garden and a daycare facility, and a ramp that leads people into the interior courtyard makes it easier for people to access.

Ground floor: Dormitory, Kitchen & Dining hall, Nursing station, X-ray, ward

First floor: Store, Bedrooms, Sun terrace

Second floor: Bedrooms, Library

Third floor: Administrative, Training rooms



1. Front yard
2. Front porch
3. Ramp
4. X-ray room
5. ICU ward
6. Dormitory for 6
7. Kitchen & dining
8. Courtyard
9. Dormitory for 5
10. Dormitory for 4
11. Nursing station
12. Single cabin

Figure 47: Plan of Siddhi Saligram

There are many different types of bedrooms in the residential complex, including Single-bed units, Twin- bed units, Four-bed units, five-bed units,Eight-bed units. For convenience, there is a bathroom attached to each unit. The lower floor is designated for senior residents who need nursing care, while the upper floor is designated for independent old people. The two-bedded room is 169.884 square feet, whereas the four-bedded room is 291.3 square feet, and the five-bedded room is 370.26 square feet.

Socializing spaces:

Indoor: Entry porch, Courtyard, Library, Terrace,

Corridor Outdoor: Front yard

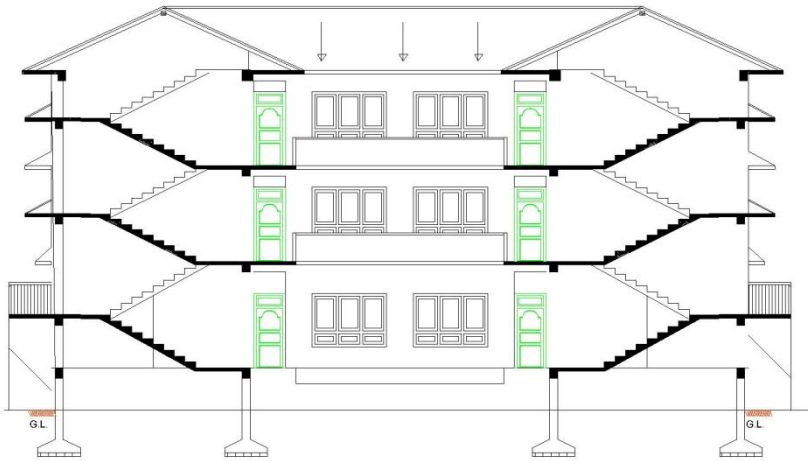


Figure 48: Profile Section

Design elements:

i. Central courtyard for social interaction of elderly people.
ii. Use of guide rails for guiding elderly people along with ramp in courtyard.
iii. Open spaces for elderly people's interaction and programmes.
iv. Sun basking terraces for elderly people in southern part of building.

Services Offered for Residential Care:

a) Regular health check ups
b) 24-hour nursing and caregiver services
c) Specialized doctor visits and ambulance services: medical, orthopedic and psychological etc.
d) Nutritious food
e) Internet and telephone service (as needed)

Zoning

Public Zone

This area includes the reception area, courtyard, and walkways. It functions as the primary interface between the facility and its visitors, providing a welcoming environment that facilitates interaction, orientation, and movement throughout the site.

Residential Zone

Comprising rooms for residents and toilets/bathrooms, this zone is dedicated to providing

comfortable accommodation and essential personal care for the elderly. The design emphasizes accessibility and safety, particularly for those with physical limitations.

Service Zone

This zone features the kitchen, dining area, and storage room, supporting the preparation and serving of meals, as well as the organization and management of supplies necessary for daily operations.

Spiritual/Relaxation Zone

Including the prayer/meditation room and courtyard, this zone provides a environment for spiritual practices, reflection, and relaxation, promoting emotional well-being and peace of mind for residents.

Figure 49: Regular health checkup

Figure 50: Cultural program

Figure 51:Dining Area

Inferences:

Due to vertical height of the building, courtyard has become well like structure with inadequate light.

3.1.3 BHAKTAPUR AADAR NIKETAN

Project Brief

Location: chyamasingh , Bhaktapur

Total Area: Around 370 sq.m.

Built Year: 2079

Total Capacity : 45

Target population : 68+ in yrs.

Type : Male/ Female

Working Staff : 3

Figure 52:Front facade of Bhaktapur Aadar Niketan

Introduction:

Bhaktapur Aadar Niketan is a day care center for the elderly located in Bhaktapur, Nepal. It operates from 10 am to 5 pm, providing various facilities . The center welcomes the elderly with tea and engages them in activities suited to their skills, allowing them to relax, play sports, and watch television programs of their interest.

Concept

Comfort & Safety: Designed for the well-being of elderly residents.

Accessibility: Ramps, wide corridors, and accessible bathrooms.

Natural Light: Maximizes daylight and ventilation.

Functional Zoning: Clear areas for socialization, dining, and private spaces.

Social Interaction: Common areas encourage community engagement.

Design and Planning

Designed with a south-facing orientation to maximize natural daylight and warmth, especially in seating areas and landscaped zones that enhance comfort and well-being for the elderly. The layout promotes cross-ventilation through strategically placed openings, ensuring fresh air circulation throughout the facility. Functional zoning clearly separates social,and private spaces, with open sitting areas and gardens .Common areas such as living areas, sitting spaces are integrated to encourage social interaction and foster a strong sense of community, creating a safe, vibrant, and supportive environment for senior citizens.

Services

- Health and Care Services:Medical Assistance: Regular health check-ups and monthly checkup .
- Recreational and Social Activities:Indoor activities Board games,Performing devotional songs,waving, and other activities to keep residents engaged.
- Comfort and Living Spaces:Common Areas: Social spaces such as a living room, garden, and recreational spaces for group activities.
- Accessibility Features:Ramps : For easy movement, particularly for residents with mobility challenges.

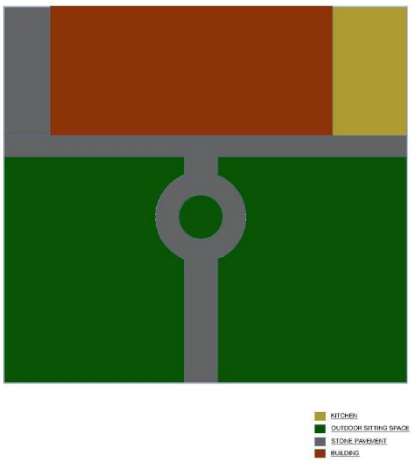


Figure 53:Plan of Bhaktapur Aadar Niketan

Zoning

Public Zone

The public zone consists of the garden and seating area, which serves as an open space for relaxation and social interaction. It is designed to be welcoming and accessible to both residents and visitors a sense of community.

Semi-Public Zone

The ground floor functions as the semi-public zone, acting as a transitional space between the exterior public environment and the private interiors.

Private Zone

The private zone comprises the office and kitchen areas. The office provides a dedicated area for administrative tasks and management activities, while the kitchen facilitates food preparation in a secure and efficient environment.

3.2 REGIONAL CASE STUDY

3.2.1 MANTRI'S PRIMUS EDEN

Project Brief:

Location: Kanakapura Road, Bangalore, India

Area: 18210 sq.m.

Architects: Adarsh Narahari, Mantri Developers

Year: 2014

Target Age Group: 55+

Capacity: 75

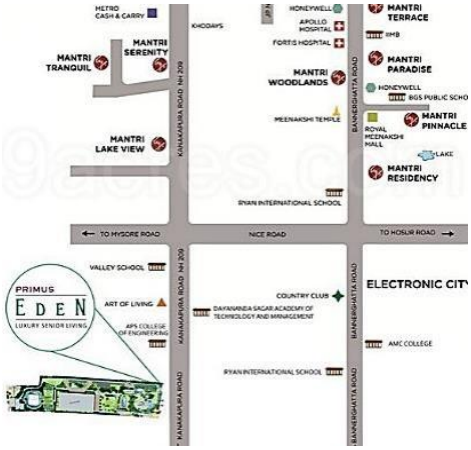


Figure 54:Location map

Introduction

Mantri's Primus Eden is the luxuries senior living home which has a resort style facility in the midst of serene surroundings, in the company of like-minded people and without the worries of mundane chores like cleaning the house, cooking, laundry etc. The senior citizen home consists of the range of facilities over the stretch of the site with the intention of creating a barrier free environment and universal design approach. The luxurious senior citizen living focus on the physical, mental health and social interaction among the residing senior, also, the proximity with the sports and nature is highly intergraded in the senior living home.

Design Approach

The aim was to create a environment that allows seniors to be independent yet supported with daily activities, including housekeeping and healthcare, and recreational activities. It focuses on mental well-being, natural surroundings, meditation spaces, and social interaction. The layout that is community-oriented to make sure there is interaction without hurting the privacy of the individual**.**

Planning

The layout adopts a zoned planning approach, clearly delineating areas for living, wellness, recreation, and spiritual needs. The main entrance, located on Kanakapura Main Road, ensures convenient vehicular access for both residents and visitors. Just inside the entrance stands a Ganesh temple, offering a serene and spiritual retreat, particularly for elderly residents, and underscoring the value of cultural and religious practices within the senior community. Adjacent to the entrance is the health centre, providing timely and easy access to essential services, including medical consultations, physiotherapy, and emergency response. Nearby, a spa equipped with a swimming pool offers both hydrotherapy and recreational opportunities, promoting holistic wellness for all residents.

Figure 55:Master plan

Concept

Community Spaces: Centralized areas like the clubhouse and dining encourage socialization.

Private and Connected: Apartments provide privacy while staying visually connected to public spaces.

Nature Interaction: Indoor-outdoor flow with gardens and walkways fosters informal socializing.

Accessibility: Barrier-free design ensures easy movement and interaction for all residents.

Technology: Smart systems keep residents digitally connected.

Features

a. Accessibility and Mobility

The design incorporates universal design, enabling wide corridors, ease of use of doors, ramps, and lifts. Pathways and walkways have been laid out to be easy to walk and especially wheelchairfriendly. Seating is abundant in all outdoor areas, inviting one to rest and relax.

Figure 56:Indoor spaces

Connection to Nature and Culture

This building brings a balance to the man-made structure with nature. Large greenery and gardens create a sense of serenity and well-being. The herbal and flower gardens interact directly with nature. The temple and meditation hall represent spiritual culture in the lives of Indian communities. The pyramid shape is meant for energy and concentration of the meditation centre. The design incorporates natural elements, with vegetation, water bodies, and outdoors inviting the occupants to interact with nature.

Figure 57:Meditation pyramid

Safety Features and Design

The central atrium allows natural light to flood the building, making it bright and open. Bridges connect different parts of the building, improving navigability while maintaining visual connectivity. Every aspect of Primus Eden has been thoughtfully designed with the elderly in mind and includes wide corridors, grab bars, wheelchair-accessible rooms, and anti-skid flooring for fall prevention. A variety of activities, workshops, and group discussions are socially and mentally engaging for the residents.

Color Schemes

Interiors are designed to be soothed with a neutral color palette, with major usage of soft pastel tones of grays and whites. Healthcare is painted light, comforting colors signifying healing, while the public spaces like the central atrium are designed with warm tones creating social interaction among the people. The library and indoor recreational spaces utilized wood finishes to create a comforting and inviting ambiance.

Figure 58:Dormitory

Figure 59:Dining space

Inferences

Spaces that encourage social interaction while respecting individual privacy.
Non-slippery materials, grab bars, and passive surveillance are implemented.

3.3 INTERNATIONAL CASE STUDY

3.3.1 NURSING AND RETIREMENT HOME

Project Brief

Location: Leoben, Austria

Total Area: 3024 sq.m

Project Year: 2014

Total cottage : 49

Architect : Dietger Wissounig Architekten

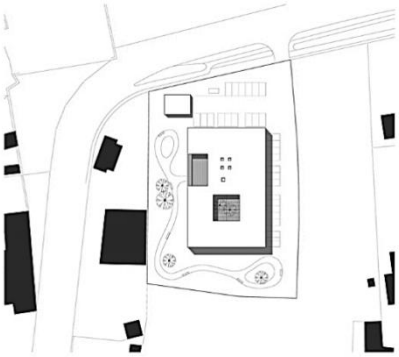


Figure 60:Location map

Figure 61:Front facade

Introduction

The nursing and retirement home of Leoben, Austrian is located near the historic Goss Monastery, the site is surrounded by mature trees and greenery, creating a calm and therapeutic setting for elderly residents .It is three-storey building with a partial basement and was constructed a solid concrete structure with wood-frame elements and a different space allocation on each floor. The building complex consists of the outdoor walkways and indoor covered atrium.

Concept

The space allocation enabled a smaller footprint for the ground floor, leading to the realisation of projecting upper floors along the north and south side. The result is beautiful and sheltered outdoor areas and the possibility of integrating the emergency staircases within the outer edge of the building. The use of each individual floor is reflected in a playful design on the façade.

PLANNING AND DESIGNING

The ground floor hosts public and semi-public zones, the kitchen and services areas, administration, storage and side rooms, the laundry, therapy and seminar rooms, a chapel, as well as consultation rooms used by the Österreichische Krebshilfe Steiermark. It also boasts a cafe offering access to the enclosed conservatory that extends to the full height of the building. Opening the sliding doors enables different spatial configurations for events or festivities. It also boasts a cafe offering access to the enclosed conservatory that extends to the full height of the building. Opening the sliding doors enables different spatial configurations for events or festivities

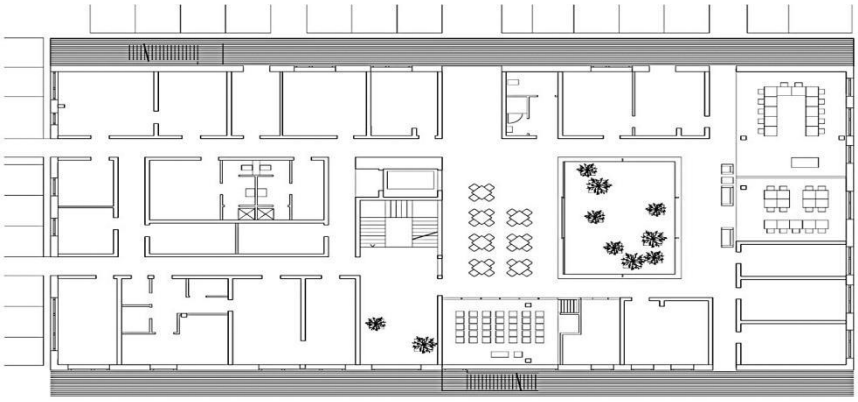


Figure 62: Ground floor plan

The first floor includes private residential units, a wide central corridor for easy movement, and several common lounges that encourage social interaction. A communal dining area and adjacent kitchen provide meal services, while staff rooms ensure ongoing care and supervision. The floor also connects to a covered indoor atrium, offering a year-round space for relaxation and gatherings. With barrier-free design and easy access via stairs and elevators, the layout prioritizes safety, accessibility, and well-being.

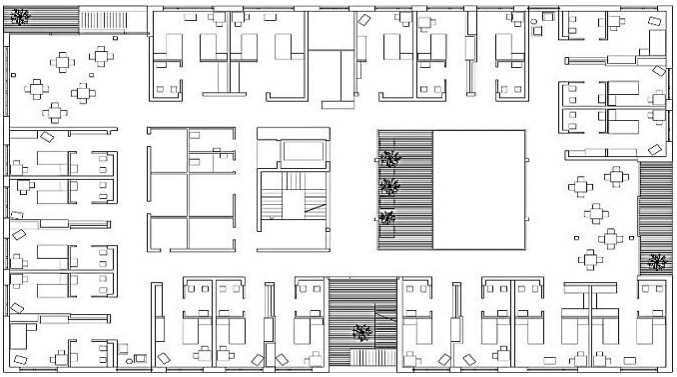


Figure 63:First floor plan

The second floor contains a further ward for 25 residents, a common area for dining and recreation, and a south-facing terrace of almost 150 square metres. On the two upper floors, two balconies which are positioned at right angles to each other complement the network of paths in the area of the conservatory and thus provide a vertical spatial perception within the building's interior.

An important design parameter was illumination and unobstructed views that are also appreciable from the outside. Attention was paid to avoiding dark spaces which could only be lit artificially and to directing daylight into the building through the conservatory and terraces, as well as through strategically placed openings in the corridors.

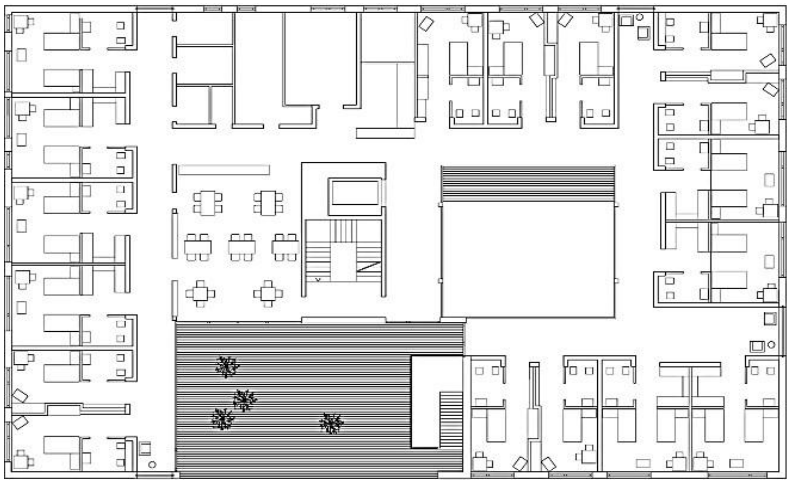


Figure 64:Second floor plan

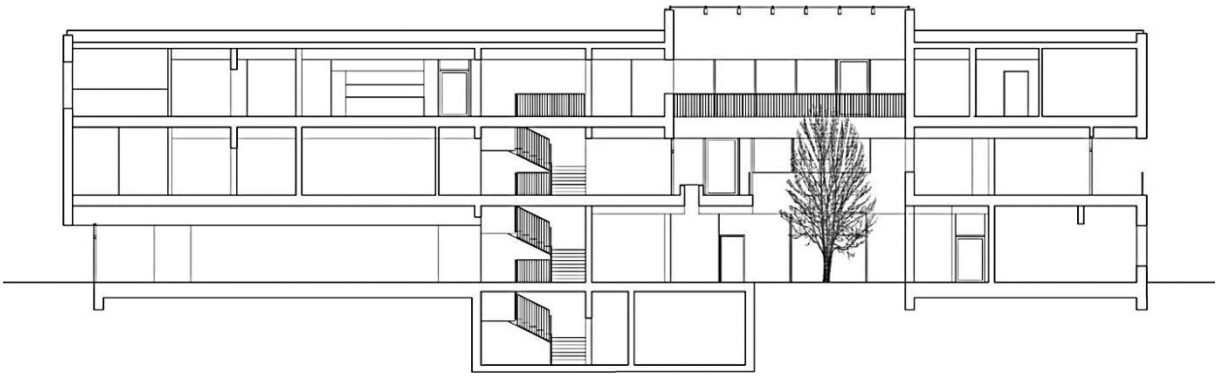


Figure 65:Section

The varied yet peaceful appearance is conveyed by a combination of plastered solid structural elements and untreated elements of larch within the wood construction and on the façades on

the ground floor. The interior is dominated by wood and light- coloured surfaces. The entire chapel is lined with ash wood, while a slat screen provides subdued light, adding to the contemplative atmosphere in the interior.

FACILITIES

The facilities provided in this nursing and retirement home are the residential and nursing facilities. They consist of well-equipped and designed bedroom, hall, atrium and outdoor spaces.

Figure 66Atrium

Figure 67:dormitory

Figure 68:Outdoor Spaces

INFERENCE

Proximity to nature.

Rooms facing beautiful views.

Atrium and outdoor space as the socializing space

4. PROGRAM FORMULATION

The proposed senior citizen home and day care centre will house the elderly people of age 70 years and above. he project will include the residential facilities, Recreational facilities, Relaxation facilities and Health care facilities.

The division of the program is categorized into four categories. They are:

1. Public Space
2. Semi- Public Space
3. Private Space
4. Outdoor Spaces

Total population-160,00
Capacity –0.0032% of total population
= 52
Male no. - 35% =17
Female no. - 60% =35

Guard house

S.N	Particular	NO. of Units	Total Area(sq.m)
1	Guard house	1	9

Administrative Block

S.N	Particular	NO. of Units	Capacity	Area per preson	Total Area(sq.m)
1	Reception	1	2	**4**	**8**
2	Account office	1	2	**8**	**16**
3	Manager's office	1	1	**-**	**25**
4	Meeting room	1	11	**2.5**	**42**
5	Counseling room	1	2	**2**	**30**
6	Computer's room	1	2	**2**	**30**
7	Pantry	1		**-**	**8**
8	Restroom	4		**1.2**	**20**
	Total				**179**

Health Club & DayCare Center

S.N	Particular	NO. of Units	Capacity	Area per preson	Total Area(sq.m)
1	Meditation room	1	15	**2.5**	**52**
2	Yoga room	1	20	**3.5**	**75**
3	Gym	1	**15**	**5**	**75**
4	Sauna	3	**3**	**5**	**15**
5	Living space	2	40	**1.2**	**100**
6	Day care room	3	**30**	**10**	**300**
7	Staff room	1	**-**	**-**	**25**
8	Rest room	3	**14**	**1.5**	**65**
	Total				**707**

Medical Block & Dormitory

S.N	Particular	NO. of Units	Capacity	Area per preson	Total Area(sq.m)
1	Waiting	1	16	**1.2**	**30**
2	Examination room	1	1	**15**	**15**
3	Doctors room	1	**-**	**5**	**25**
4	Physiotherapy	1	**10**	**5**	**50**
5	Store	1	-	**-**	**12**
6	Sick bay	2	**5**	**11**	**55**
7	Nurse station	1	**3**	**1.2**	**10**
8	Single room	12	**1**	**25**	**300**
9	Twin room	8	**2**	**40**	**320**
10	Quarter room	6	**4**	**60**	**360**
11	Living area	8	**-**	**-**	**280**
12	Laundry	3	**2**	**3**	**54**
13	Library	3	**10**	**3**	**105**
	Total				**1616**

Cafeteria

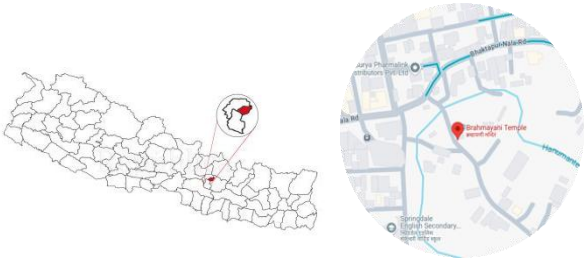
S.N	Particular	NO. of Units	Capacity	Area per preson	Total Area(sq.m)
1	Kitchen	1	-	**-**	**70**
2	Dining	2	180	**1.2**	**300**
3	Dish washing	1	**-**	**-**	**30**
4	Dry Store	1	**-**	**-**	**12**
5	Cold Store	1	-	**-**	**9**
6	Staff room	1	**-**	**1.2**	**25**
7	Preparation area	1	**-**	**-**	**30**
8	Restroom	2	**4**	**1.5**	**20**
	Total				**496**

Total builtup area

Category	Area (sq.m)
Guard house	9
Administrative Block	179
Health Club & DayCare Center	707
Medical Block & Dormitory	1616
Cafeteria	496
Total built up area	2998
circulation (30%)	899
TOTAL AREA	3897

5. SITE ANALAYSIS

5.1 SITE DESCRIPTION



General Information

Location:Bramayani,Bhaktapur
Latitude(deg/min): 27°35'8.35"N
Longitude(deg/min): 85°31'7.54" E
Sitearea: 27 ropani (approx.)
Orientation:Along South -West
Cuurrent Use:Agriculture

The proposed site for the Senior Citizen Center is located in Bramayani, Bhaktapur. The site is oriented along the south-west direction, maximizing exposure to sunlight during the day. Currently, the land is used for agricultural purposes, providing a natural and open landscape. Its location near the historic Bramayani Temple enhances the site's cultural and spiritual significance for elderly residents who often seek peace and religious connection.

5.2 SITE SELECTION CRITERIA

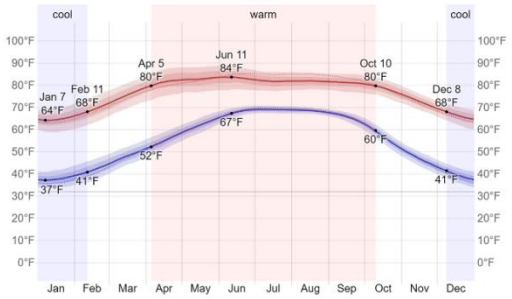
The selected site for the Senior Citizen Center is located in a newly developed settlement predominantly occupied by migrant populations. One of the major advantages of the site is its close proximity to Khwopa Hospital, just 220 meters away, ensuring quick and convenient access to healthcare services. The site is also wellsituated in terms of atmosphere,it is removed from the noise and bustle of the city, offering a peaceful environment, yet it remains close to essential urban amenities such as markets, public transport, and other services. Additionally, the site provides suitable space for cultural and social activities, encouraging active participation and interaction among residents. Most importantly, it is located just 62 meters from the Bramayani Temple, reinforcing spiritual well-being and allowing easy participation in religious rituals and cultural traditions that are important to elderly individuals.

5.3 PHYSIC ASPECT

The site experiences a moderate and pleasant climate throughout the year, typical of the mid-hill regions of Nepal. The maximum average temperature reaches approximately 25°C in June, while the minimum average temperature drops to around 4.6°C in January, reflecting a comfortable seasonal range suitable for both indoor and outdoor hospitality activities. Wind conditions remain generally mild, with the maximum average wind speed recorded at over 8 km/hr in April, and the lowest at around 4.9 km/hr in August. These climatic conditions support natural ventilation strategies and passive cooling, making the site favorable for

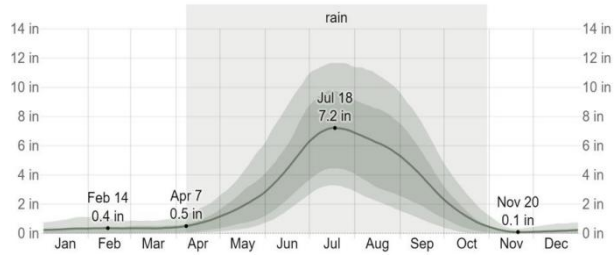
sustainable architectural design.

Temperature



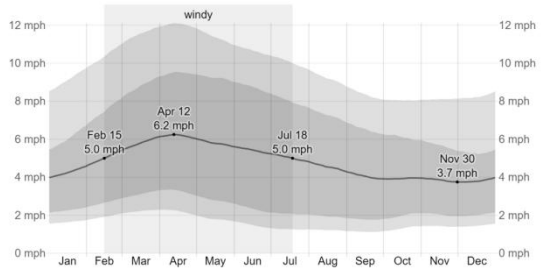
Max temp:- 29 degrees (Jun)
Min. temp:- 4.6 degrees (Jan)

Wind Speed



Max:>8km/hr [Apr]
Min:>4.9km/hr [Aug]

Monthly Rainfall



Max:30.8 days [Jul] 519mm
Min:4 days [Dec] 8mm

Humidity Comfort Level

Max:87% [July-Aug]
Min:40% [Mar]

5.4 SITE AND SURROUNDINGS

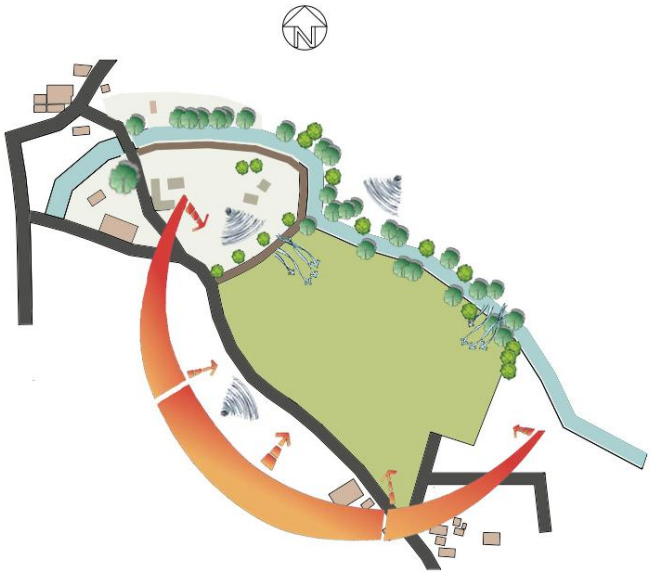
The site is located in the sub urban area of Bhaktapur. The surrounding of the site is peaceful and pollution free. The site is surrounded by the residential area and lies nearby Bramyani river. Currently, the site is used as the agricultural land. The surroundings of the site are listed below:

North : Bramyani River

South : Agricultural Land, Road

East : Residential area,Agricultural Land

West : Bramyani Temple prmises



To the site

3. East direction(agricultural land)

From the site

1. West (Bramayani premise)

2. South (Agricultural land)

3. East(Brick making area)

4.North (Agricultural land and river)

5.5 FIGURE GROUND

Figure 69 : Figure ground

5.6 DETAILED MEASURED DRAWING OF SITE

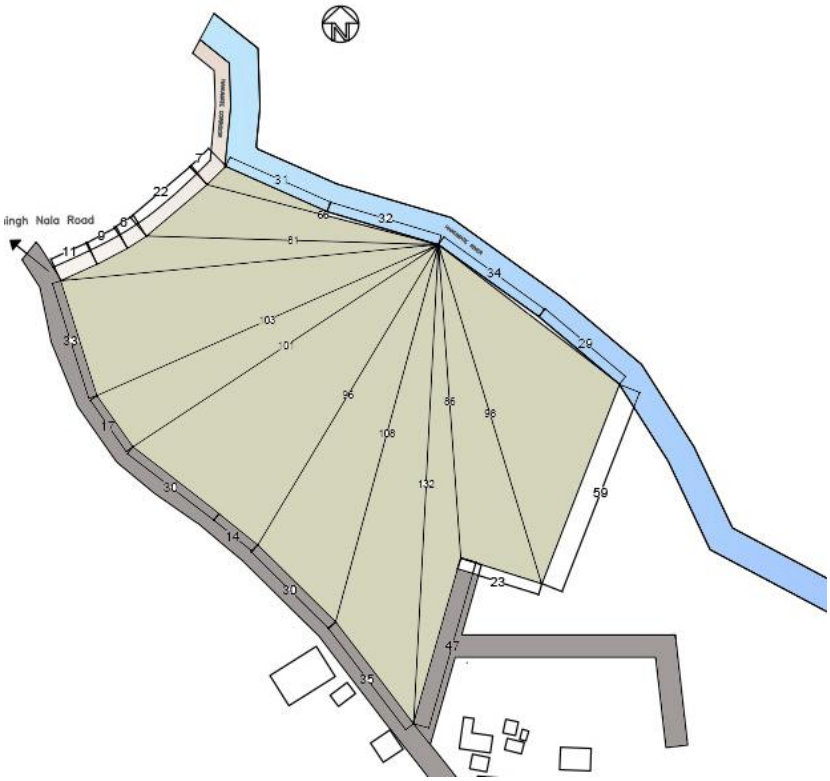


Figure 70 :site plan

5.7 BYE LAWS

SWOT ANALYSIS

Right of Way (ROW):3 meters

Setback Requirements:

Neighbor's Boundary: 3 meters

Roadside Setbacks: 3 meters

Ground Coverage:50%

Floor Area Ratio (FAR): 2

Building Height: 17 meters.

River setback: 20 meters fom centerline.

Parking: 20% of the built-up area

Strength

Lies in the residential area which is calm, peaceful and pollution free.

Proper access to infrastructure such as hospitals, communication, transportation, etc

Temple premises are located near to the site.

Trees along site boundaries reduce noise and dust, regulate microclimate.

Weakness

Narrow and indirect road acces to the site.

Oppoutunity

As the site is oriented towards South direction, greater potentiality of using sunlight.

The river enhances the site's natural beauty.

Threats

The cremation ground is just 22m away from the site so chace of direct odour from cremation ground

6 CONCEPT

The project aims to design a living space for aged people who needs companion, assistance and day care. The project vision is to design an environment which incorporates connectedness among people, nature and activity along with the sense of homeliness among the elderlies. Therefore, the project's objective is to provide the essential care, assistance and support to help them lead a comfortable life which eventually enhance their quality of life by fulfilling physical, social and psychological needs of elderly people.

6.1 LINKAGE

Linkage refers to the thoughtful connection between spaces, people, and context. In this project, it means creating visual, social, and emotional connections, linking the Bramayani Temple with the site visually, connecting people and community through social spaces along the road, and linking users to nature through calm, private riverside areas. These layers of linkage create a cohesive environment that supports cultural identity, social interaction, and personal well-being.

The most significant is the visual linkage with the Bramayani Temple, which reinforces the spiritual and cultural identity of the place. By carefully aligning sightlines and orienting important spaces toward the temple, the design creates a constant visual relationship that offers a sense of continuity, reverence, and comfort,especially important for elderly users who seek familiarity and spiritual connection in their daily environment.

Social and functional linkage along the roadside, which acts as a transition space between the active outer world and the quieter internal areas of the site. This edge is designed to support community interaction, incorporating semi-open gathering zones, seating areas, and open spaces that invite both users and visitors to connect.

Emotional and psychological linkage with nature, which is established through the site's riverside edge. This zone is designed as a calm, private space for reflection, healing, and engagement with natural elements. Gardens, shaded walkways, and views to the river are integrated to support mental wellness, reduce stress, and enhance sensory experience.

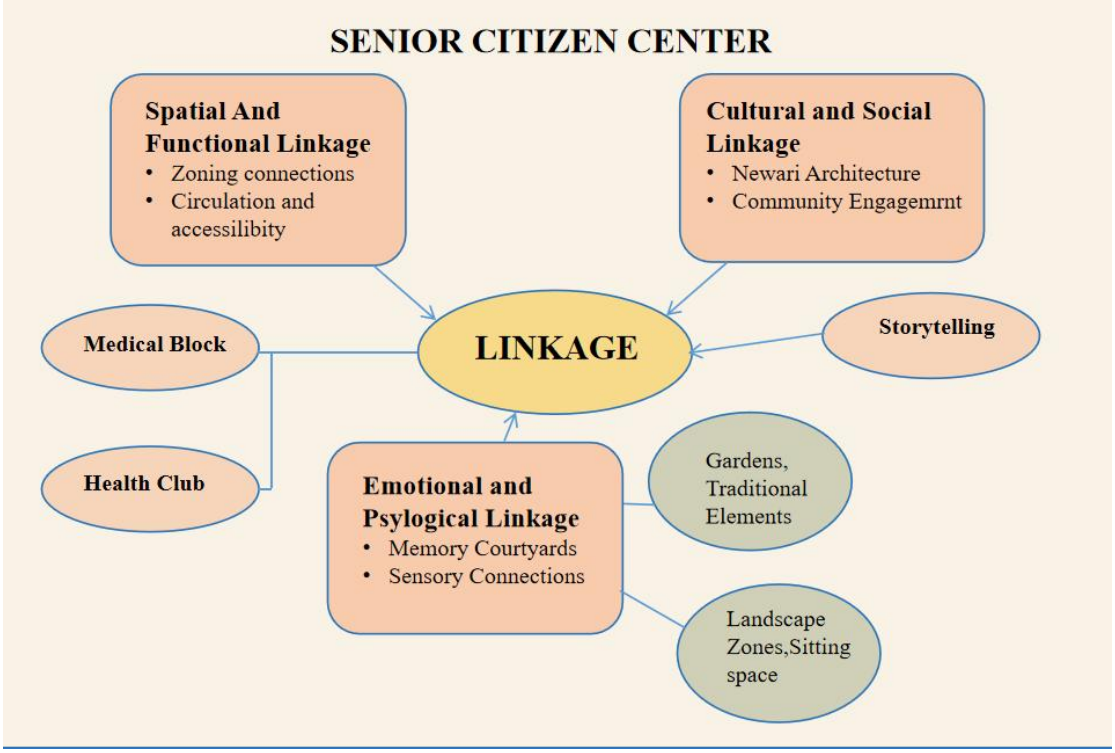


Figure 71 :concept drawing

Spatial and Functional Linkage

The site is located between the dense urban fabric of Bhaktapur and the more open, natural riverside. This unique position requires a strong zoning strategy and circulation plan.This reinforces your thesis idea of linking inner (private) and outer (social) zones,especially along the road-facing side, which acts as a public threshold.

Cultural and Social Linkage

The cultural and social linkage supports goal of preserving and celebrating local identity through design. Spaces like storytelling areas, community courtyards, and vernacular architectural details invite engagement from both residents and the broader community—strengthening the intergenerational and social connections.

Emotional and Psychological Linkage

The riverside, as highlighted serves as a calm, nature-linked private zone. This part of the design focuses on the emotional and psychological well-being of the elderly. Incorporating healing gardens, memory courtyards, and sensory-rich spaces supports mental health and cognitive stimulation.

ZONING

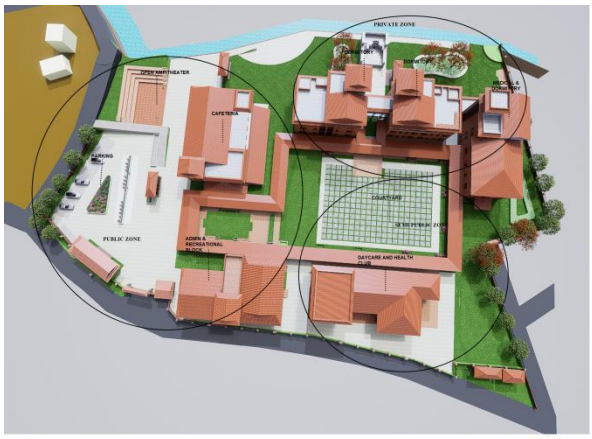


Figure 72 Zoning of concept

DEVELOPING INTERCONNECTING SPACES

In order to develop the interconnectivity, the rooms in the residential blocks are faced at each other with the greeneries in the central space. Thus, use of the central space for nature and activities. Also, Pati and OAT spaces are developed for the social interaction and incorporation of differently able friendly garden, so that there will be connection between the people as well. In this way, the connection has been developed.

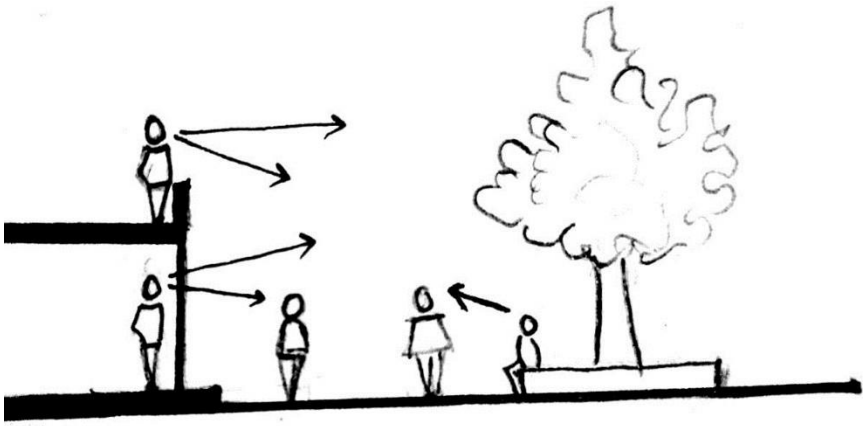


Figure : Connectivity between nature, people, activity

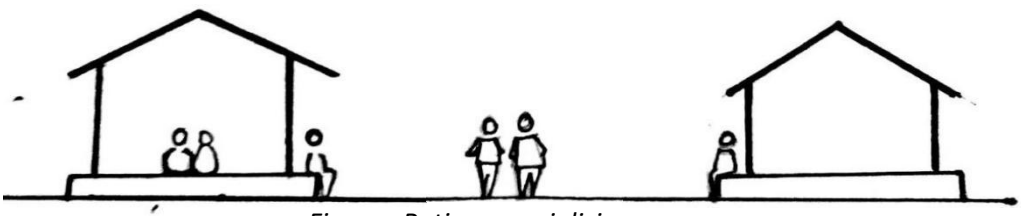
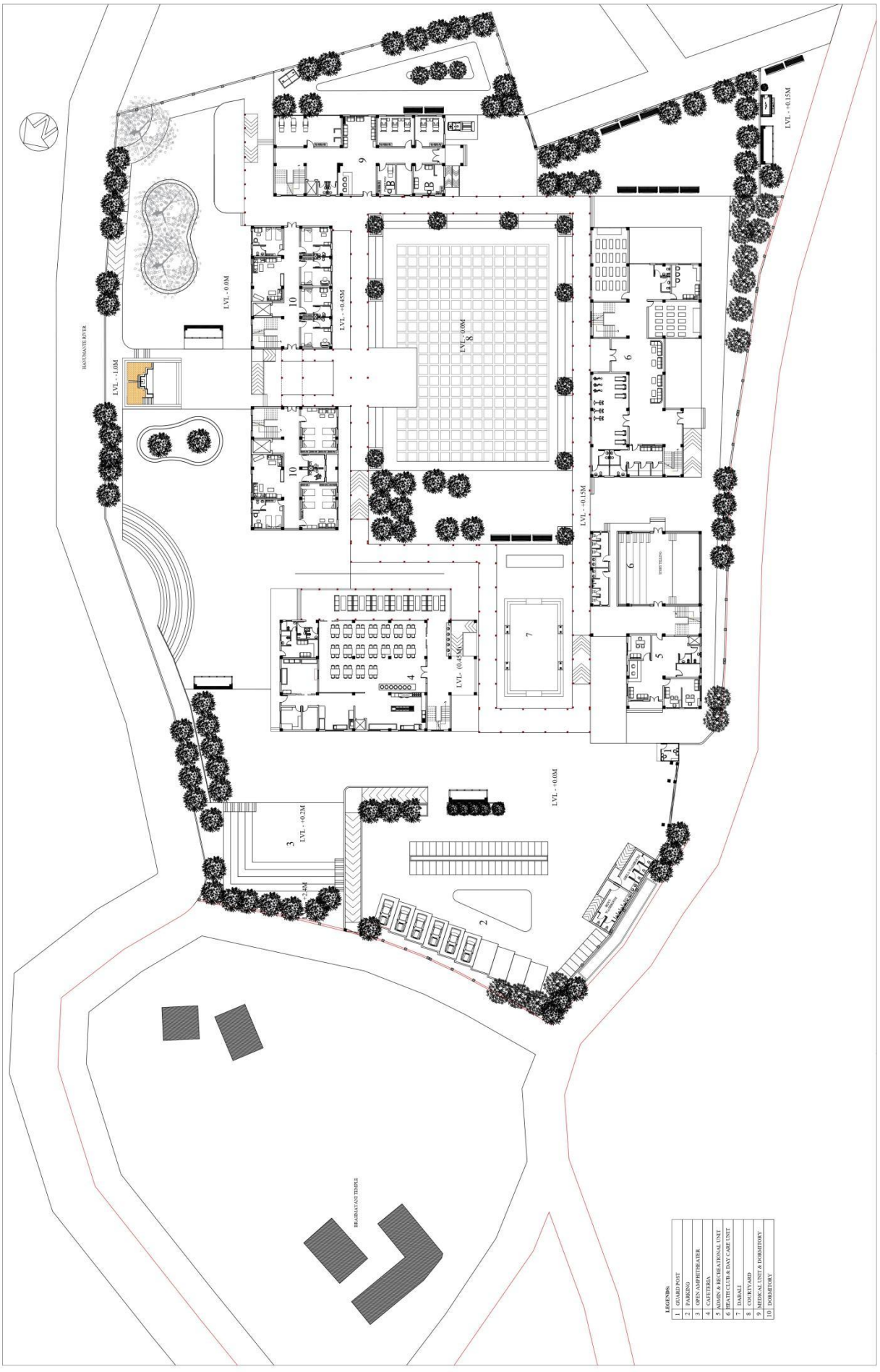


Figure : Pati as a socializing spac

MASTERPLAN


LEGENDS:
1 GUARD POST
2 PARKING
3 OPEN AMPHITHEATER
4 CAFETERIA
5 ADMIN & RECREATIONAL UNIT
6 HEALTH CLUB & DAY CARE UNIT
7 DARSALI
8 COURTYARD
9 MEDICAL UNIT & DORMITORY
10 DORMITORY
LVL - +1.0M
LVL - 0.0M
LVL - +0.45M
LVL - +0.0M
LVL - +0.15M
LVL - +0.2M
LVL - (0.45M)
2.4M
BHARHAYAD TEMPLE

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