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A THESIS REPORT

ON

GRUHAM: LIVING FOR THE ELDERLY

SUBMITTED BY

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DATE: 2079-12-30

CERTIFICATE

This is to certify that this thesis entitled - "GRUHAM: LIVING FOR THE ELDERLY"submitted by Shivani Karn (074-BAE-234) has been examined and it has been declared successful for the partial fulfillment of the academic requirement towards the completion of the degree of Bachelor of Architecture.

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DECLARATION

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

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ACKNOWLEDGEMENT

ABSTRACT

Aging is a natural part of the human life cycle. Nobody can escape becoming old if they live a long life. People gain experiences and wisdom at the price of their age. We might think of an aged person as book rich with life wisdom. The entire globe is currently experiencing global aging. The population of older citizens over the age of 60 is expected to double in the next ten years. Old people's homes are socio-cultural institutions having economic, psychological, and spiritual components. The care of a society's older citizens has been a societal priority since ancient times. To achieve such social ideals, society has established rules such as "we must respect the elderly and love the juniors." furthermore, society accepts it because everyone will become old one day. However, in practice, values might conflict owing to numerous socioeconomic conditions, between individuals and society, and between generations. This difference in values is what makes older citizens a concern and their care a difficulty. As a result, the greatest choice is to support and create an atmosphere conducive to the formation of elderly homes at the community level.

This study demonstrates the lack of older persons in public discussions concerning age-appropriate design. The overarching conclusion of this report is that architecture for the elderly is a unique type of space that necessitates a multidisciplinary approach involving dependent seniors, architects, building contractors, and care planners to create empathic architectural designs for aging. This technique is active both conceptually and in terms of implementation.

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INTRODUCTION

1.1.   BACKGROUND

"The more one studies space and the longer one contemplates it (not only visually and intellectually but involving all the human senses and the entire body), one acquires a better broader understanding of the conflicts that are active in space. These conflicts aim to dismantle the existing abstract space and to realize another space."

(LEFEBVRE, 1985, P. 450)

The aging process is a continuous biological process of survival and prosperity that begins at birth and lasts until death, through childhood, adulthood, and inevitably old age. Aging is the physiological changes that occur gradually over time and result in senescence or a loss in biological processes and the organism's capacity to respond to metabolic stress. (sooden, 1975) due to better medical treatment and family planning initiatives that have both reduced fertility and raised life expectancy, there are substantial demographic shifts in the number of older people throughout the world. In a few decades, half of the world's population is expected to be over 50, while the elderly population in developing nations is expected to grow by a factor of four. This change will provide numerous new difficulties for nepal because aging is accompanied by a loss of physical and mental capabilities brought on by medical problems. Modernization has boosted the availability of transnational labor and accelerated migration to metropolitan areas, which affects family dynamics in favor of the nuclear family structure and creates an uncertain allocation of caregiving duties among the family, the individual, the government, and the community. Since these responsibilities cover social, medical, and financial demands, one party can't carry the full load; this highlights the significance of a network support structure that adequately handles these overlapping responsibilities.

The population pyramid with a broad base and a tapering end that has traditionally been used to represent the distribution of a population's age groups is set to take on the appearance of an onion. It is also known as a constrictive or stationary pyramid, and it represents an aging population with a high life expectancy but low fertility and death.

A look back at how architecture was designed to accommodate an aging society is provided in the second subheading. A typology of spatial prototypes may be traced from the year 1571 to the present using successive social laws, suggesting that architects were involved in developing the aging society. (andersson, 2011)

1.2.   PROBLEM STATEMENT

The elderly is an integral part of the population of any country who owe respect and attention equally to any other section. However, due to changing family structure and modernization, elderly population is facing inevitable challenges to live their life respectfully. Since the aging process is accompanied by the loss of physical and mental abilities due to health-related issues, this shift will create many new challenges for nepal.

- Loneliness, negligence and less importance, illness due to ageing and against lack of treatment are the most of the treacherous conditions which elderly are facing.

- Modernization has increased the presence of globalized labor and migration to urban settings, which shifts family dynamics towards the nuclear family structure thus presenting an ambiguous division of caregiving responsibility between the family, the individual, the government, and the community. As these responsibilities encompass financial, medical and social needs, it is impossible for one party to address the entire burden; hence the importance of a network support system that sufficiently addresses these overlapping responsibilities.

- An aging population puts an increased burden on the resources of a country and has raised concerns at many levels for the government. The aging population is both medical and sociological problem. The elderly population suffers high rates of morbidity and mortality due to infectious diseases. The demographic transition in nepal shows unevenness and complexities within different states. This has been attributed to the different levels of socio-economic development, cultural norms, and political contexts. Hence it will be a herculean task for policy makers to address the geriatric care that will

take into account all these determinants. Care for the elderly is fast emerging as a critical element of both the public and private concern. (mane, 2016)

- Further, the prevailing old age homes in nepal are not designed considering the architectural guidelines with the exception of few. Hence, with the increase in elderly population and lack of proper built environment for them it is necessary to have specialized environment solely designed for them and that caters for their needs.

1.3.   RATIONAL OF THE PROJECT

Having been grown up under the love and compassion of grandparents, i have developed an affinity towards elderly people over the time. Few years down the line, i see myself actively working for the betterment of elderly community. This thesis is a medium to explore my inclinations towards them and to polish my knowledge and understanding of their special needs.

1.4.   OBJECTIVES

 "It's not how old you are. It's how you are old." - jules renard

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 understand the specific needs of elderly person to provide a psychologically, physically, and economically sound environment and to acknowledge the challenges of senior and help meet those challenges with adequate resources.
- To act as a center where the knowledge and experience of life of the senior are utilized in a constructive manner so as to contribute more meaningfully to both, the residents and the society.
- To provide specialized environment solely designed for them and that caters for their required needs.
- To design healing landscape and building as well.

- To provide companionship, emotional support, therapeutic occupation, recreation facilities and activities to overcome social isolation and also to age in place.

- To create a definite program of action formulated to utilize their talents, energies and experience.

1.5.   RESEARCH PERSPECTIVE

"Architecture is an outcome of its constituents, culture, building material, nature and topography" (norberg-schulz, 1980).

The phenomenological perspective on how people engage with architecture is adopted in this report. There is no tendency toward normative architecture in the selected approach to human interactions with architecture. The phenomenology of architecture changes when any of the aforementioned factors shifts because of new human interactions with the built environment result. The current study's empirical results are understood using a phenomenological method and a transactional worldview. This point of view encourages a connection between architecture, social customs, culture, and human behavior. Aging is considered an essential component of being in the context of the architectural profession. It is a requirement for a living since it necessitates ongoing skill development and the integration of new information to improve one's competencies.

Therefore, beyond broad spatial changes to satisfy the requirement for an accessible and useful built environment, aging and age-related difficulties have an unclear function in the profession of architecture. This prompts the profession of architects to take a serious approach to evaluating the built environment for diverse human goals in terms of excellent and bad architectural quality.

1.6.   TARGET GROUP

HOMELESS ELDERS

ELDER WHO NEEDS
SPECIAL CARE

DAYCARE CENTRE FOR
LOCAL ELDERLY

ELDERLY WANTING TO
LIVE INDEPENDENT LIFE

1.7.   METHODOLOGY

A successful execution of any research follows certain methodologies that becomes the backbone of the whole project. Hence, review of basic prerequisites is mandatory. Following research methods will be pursued out of which required facts, data, codes of conduct and standards will be gathered, analyzed and employed in designing a better space.

I.   RESEARCH PHASE

a) Literature review

b) Case study

1.1.1.1   LITERATURE REVIEW

Reading, analyzing, and categorizing literature are all parts of the literature research approach used to determine the key characteristics of materials. (lin, 2009)no matter the discipline, the foundation of all academic research efforts is drawing on and connecting to existing knowledge. Therefore, accuracy in doing so ought to be a top priority for all academics. However, the difficulty of this endeavor has risen. The rate

of knowledge production in the field of business research is increasing dramatically, yet it is still fragmented and interdisciplinary. This makes it challenging to stay on top of cutting-edge research, to be at the forefront, and to evaluate the body of evidence in a given field of study. A broad definition of a literature review is a more or less methodical method of compiling and summarizing prior research. (snyder, 2019)

Providing an overview of the many transdisciplinary research topics can also be helpful. Additionally, a literature review is a great approach to summarize study results to demonstrate evidence on a meta-level and identify areas in which additional research is required, which is an essential step in developing theoretical frameworks and conceptual models. (snyder, 2019)

Several actions must be completed and choices must be made to produce a review that satisfies the requirements, regardless of the method chosen to conduct the literature review. The integral stages and crucial decisions involved in doing a literature review will be recommended and explored in the following utilizing four phases:

(A) designing the review,

(b) conducting the review,

(c) analysis, and

(d) writing up the review.

This method was created from practical experience and is a synthesis of and influenced by numerous standards and guidelines recommended for literature reviews. (snyder, 2019)

1.1.1.2 CASE STUDY

Through summaries of prior studies, case study research enables the examination and comprehension of difficult subjects. It can be regarded as a reliable research technique, especially when a comprehensive, in-depth inquiry is needed. The case study approach is used in many social science studies but becomes increasingly important when questions about sociology, education, and community-based concerns like poverty,

unemployment, drug abuse, illiteracy, etc. Are raised. (zainal, 2007)a researcher can go beyond the quantitative statistical findings and comprehend the behavioral conditions from the actor's point of view by using case study approaches. Through meticulous observation, reconstruction, and analysis of the cases under research, case studies assist explain both the process and outcome of a phenomenon by using both quantitative and qualitative data. (tellis, 1997)

An in-depth analysis of the data within a particular context is made possible by the case study method. The majority of the time, a case study method chooses a small geographic area or a relatively small group of people to study. In their purest form, case studies study and examine contemporary real-life phenomena by carefully examining the background of a small number of circumstances or occurrences and how they relate to one another. (zainal, 2007)yin (1984:23) defines the case study research method "as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not evident; and in which multiple sources of evidence are used."

II.   VISIT PROPOSED SITE

- Site analysis

III.   DESIGN PHASE

- Program formulation
- Planning
- Conceptual design development
- Zoning
- Preparation of drawings
- Architectural plans/ elevations/ sections
- Perspectives, 3ds and models

Data Collection

⇩

Primary/secondary data Literature Review Case Studies

⇩

Analysis

⇩

Functional Analysis/ Program formulation

⇩

Site Analysis

Climatic Study and Climatic response to design

⇩

Conceptual frameworks/ Design issues

Conceptual Planning

⇩

Design Concept

⇩

Planning, zoning, infrastructures,

Movement patterns, material and technology

⇩

Master Plan and

Architectural Design

Figure 1 Methodology chart

1.8. KEY CONCEPTS

In analyzing a specific feature of the aging process, the interaction between the elderly and the built environment, or other phenomena largely related to the architectural profession, some themes will be repeated in this report in a random sequence. The understanding and application of these major principles in this study are summarized in the list that follows.

I. **AGING**: this refers to two facets of human aging, either to the psychological expansion of the mind due to the accumulation of new experiences and knowledge on the one hand and on another hand to the physical aging process of the human body. Due to aging, the body's physiology and composition alter during this process. Aging frequently affects one's independence in movement, reaching, thinking, hearing, vision, and dexterity first. (andersson, 2011)

II. **AGING IN PLACE**: the individual sense of place is made up of scattered architectural elements and undeveloped natural landscapes, which results in a process of place-making that is influenced by the rhythm of being. However, physical access to these locations gets restricted as a result of aging, which is not largely brought on by age-related issues but rather by the older person's increasing workload of personal and professional duties. The imagination plays a significant part in making up for this loss by allowing us to revisit former locations and identities. This is a requirement for comfortable aging in place: to age in a location that is known to you and that you constructed yourself many years ago. (andersson, 2011)

III. **ARCHITECTURE**: the term "architecture" refers to any sort of built environment for human use. The architecture profession encompasses the four architectural disciplines of architectural design, interior decoration, landscape architecture, and physical and urban planning. Architecture is the process of designing environments for certain objectives. Architecture is influenced by cultural and social attitudes. (andersson, 2011)

IV. **ARCHITECTURE FOR FRAIL SENIOR PEOPLE**: a concept created just for this report. It refers to designed space for elderly people who require

frequent care and attention delivered around the clock by properly trained members of care staff. The main element of this design is the integration of a condensed private space, the individual flat, with a communally shared space and spatial changes to produce a supporting atmosphere for the elderly and an acceptable work environment for the staff. If this balance proves to be beneficial to both the older residents and the staff, then an acceptable architecture for fragile older persons has been attained. (andersson, 2011)

V. **EMPATHIC ARCHITECTURE:** this alludes to a belief that this report's conclusions have come to. This kind of architecture implies that an extensive conversation on an equal footing between dependent seniors, families, architects, construction contractors, care planners, and members of the care staff will be part of the design process of the future residential care facility. In contrast to the latter actors, who can transform these interactions into a suitable space for the frail older person suffering from long-term conditions, the former actors explain how human interactions with the architectural space are conditioned by the frail aging, the older person, care, and caring. To foster cross-professional exchanges about the design challenge and consider the long-term impacts of the selected solution, this exchange presupposes a prolonged collaboration. (andersson, 2011)

VI. **FRAIL SENIOR PEOPLE**: this is used to describe older people who have had one or more medical diagnoses as a result of age-related issues. The range of medical issues is different for older persons than for younger people. At least two diagnoses point to a long-term condition (ltc) that includes cognitive decline, dementia of any sort, a noticeable functional impairment that calls for assistive technology, or any other respiratory or malignant deterioration. The word "comorbidity" refers to this medical condition. In each scenario, the disease causes the older person's capacity to carry out adls to gradually deteriorate. The elderly person's ongoing survival depends on the care and attention provided by family carers or an eldercare agency. Ages 65 and older make up this group. (andersson, 2011)

VII.   **HOME CARE SERVICE**: an individual without a medical license provides this type of custodial care. They work for a commercial business or the government and are experienced in domestic and social care. They offer this kind of service to senior citizens with minor, temporary disabilities. The word "caregivers" is used to describe those who offer home care services as well as relatives and friends. During convalescence or the latter phases of life, medical care may occasionally be offered in the patient's home. Then, doctor, nurse, or other licensed medical personnel working for the local primary health care service provides this kind of in-home treatment. (andersson, 2011)

VIII.   **INCLUSIVE DESIGN**: this is the process of applying thought to the design of an architectural space or any other object intended for use or display. The ultimate goal of this approach is to create constructed environments, items, or goods that anybody can utilize, regardless of age, gender, ethnic origin, or any cognitive or functional impairments. It is a barrier-free design that facilitates widespread access to physical environments, infrastructure, information and communication technologies, and social involvement. (andersson, 2011)

LITERATURE REVIEW

1.9.   HISTORY

I.   GLOBAL AND REGIONAL TRENDS IN POPULATION AGING:
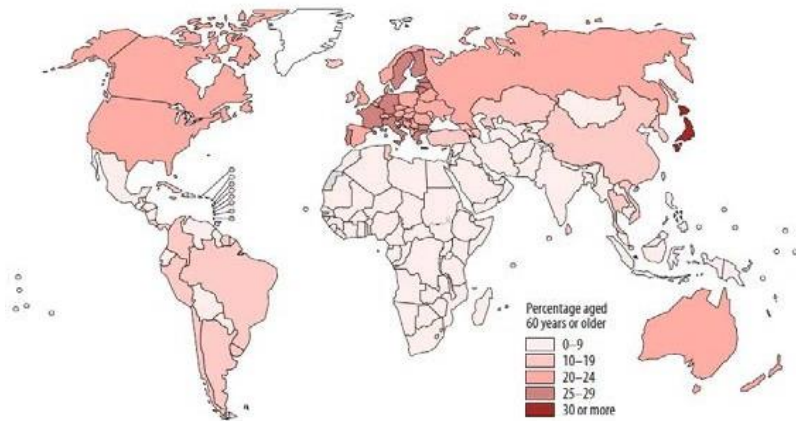
Figure 2 Maps of the percentage of population aged 60 years or over in 2015
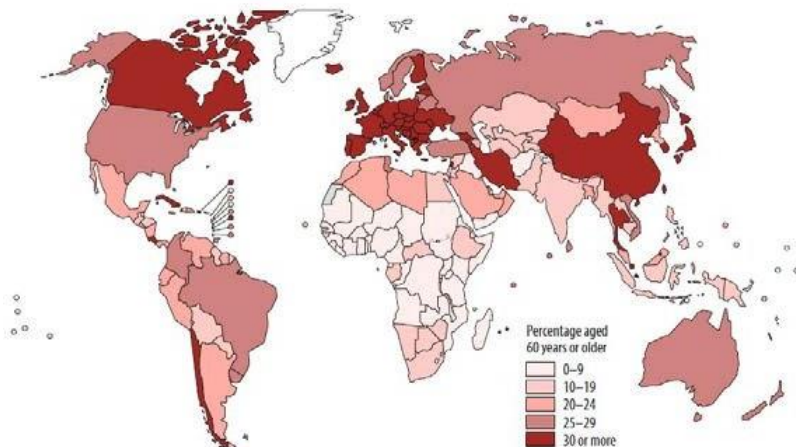
Figure 3 Maps of the percentage of population aged 60 years or over in 2050

In 2017, there were 962 million people in the globe who were 60 years of age or older, more than double the 382 million people in this age group in 1980. By 2050, when it is anticipated to reach about 2.1 billion, the population of elderly people will have more than doubled once again. Compared to industrialized nations, elderly people are populating the developing world at a considerably higher rate. As a result, a significant portion of the world's elderly population lives in emerging nations. Those 60 or older made up 56% of the population in developing regions in 1980. The developing world was home to more than two-thirds of the globe's elder population in 2017. The number of people aged 60 or over is projected to more than double in developing regions

between 2017 and 2050, rising from 652 million to 1.7 billion, while it is predicted that older people will increase by 38% in more developed regions between 2017 and 2050, rising from 310 million to 427 million. According to projections, 79% of people in the globe over the age of 60 would live in developing countries by 2050. (nations, 2017)

II.AGING IN NEPAL

In nepal, those above 60 are regarded as elderly. 1.5 million senior people were living in nepal as per the 2001 census, or 6.5 percent of the overall population. The annual growth rate of the old population was 3.39 percent between 1991 and 2001, which was greater than the yearly population growth rate of 2.3 percent. Nepal is seeking to implement population control programs despite the country's rapid population expansion. These initiatives have reduced the birth rate, which will lead to an increase in the number of old people. Unfortunately, there aren't many actions being taken to address aging-related problems globally. The older population of the country is increasing both in terms of absolute number and as a proportion of the total population. It is accounted that 2.1 million elderly inhabitants constitute 8.1 percent of the total population in 2011, which increased from 5.8 percent in 1991. 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. Figure 4 and figure 5 illustrate the age and sex structure of a country's population according to the census in 1991 and 2011 and may provide insights into the social structure. While figure 6 and figure 7 show the population projection for 2021 and 2031. (hn, 2006)
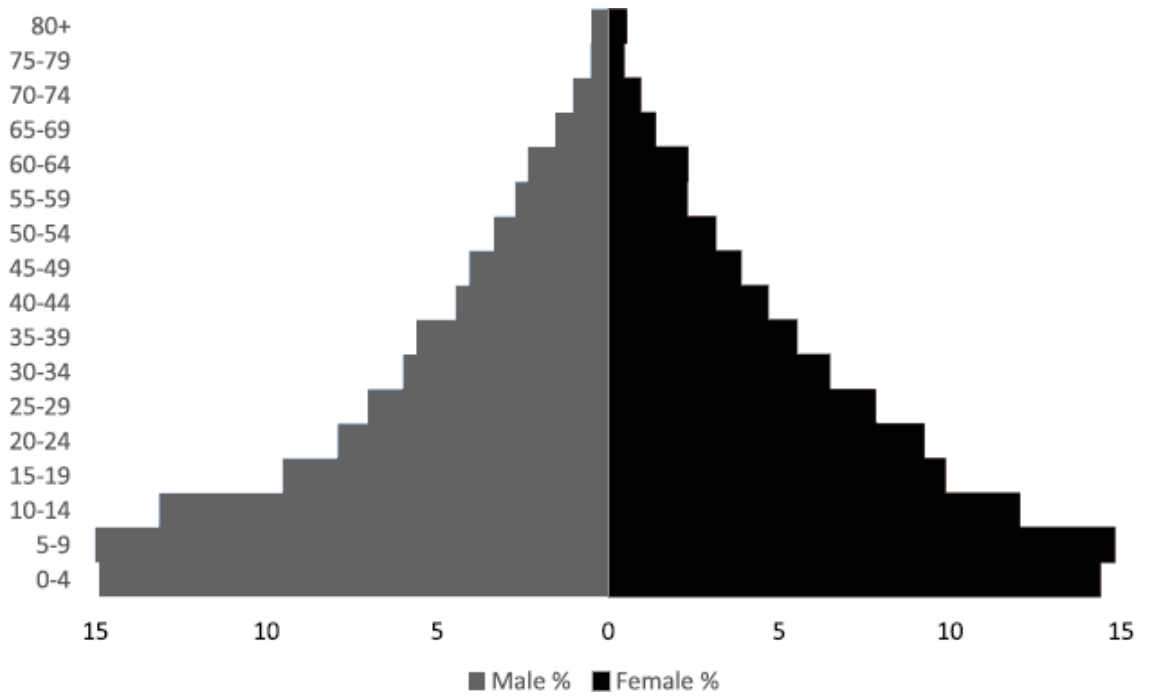
Figure 4 Population Pyramid 1991
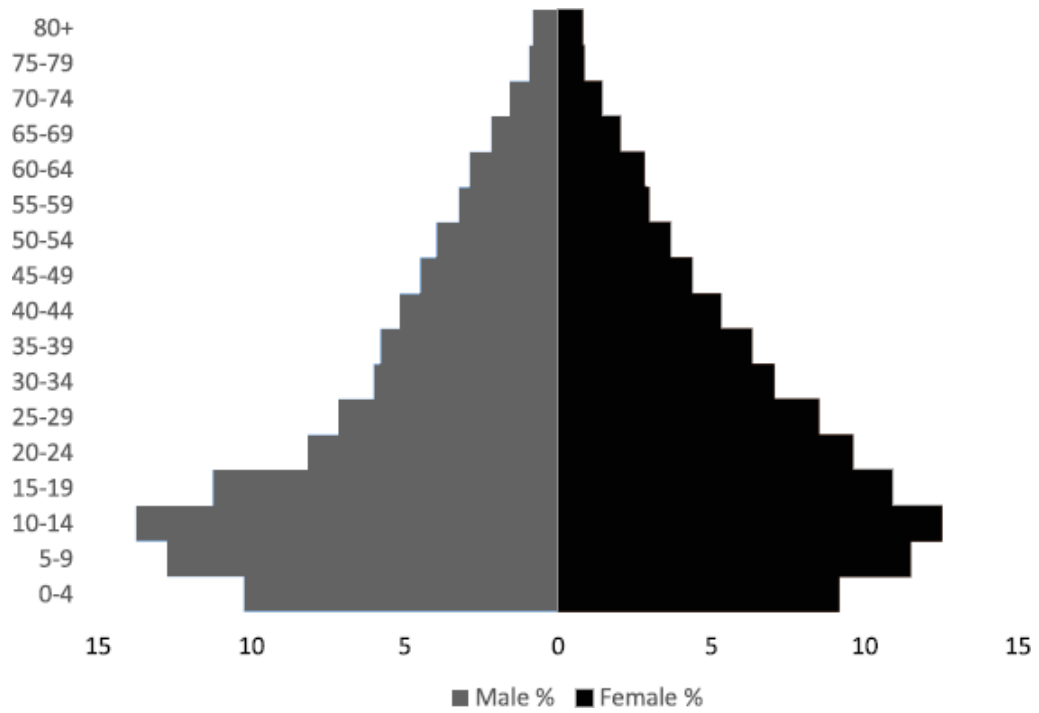
Figure 5 Population Pyramid 2011
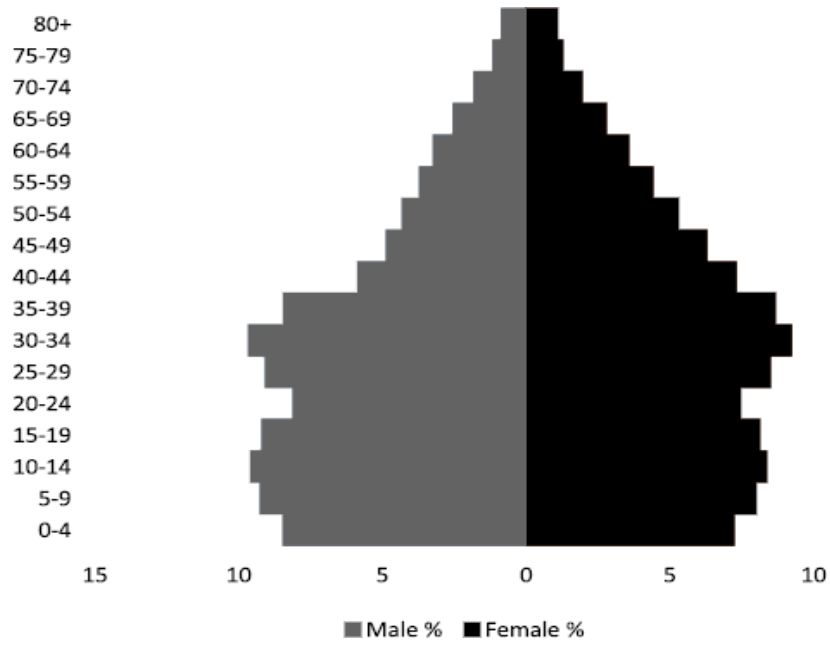
Figure 6 Population pyramid 2021
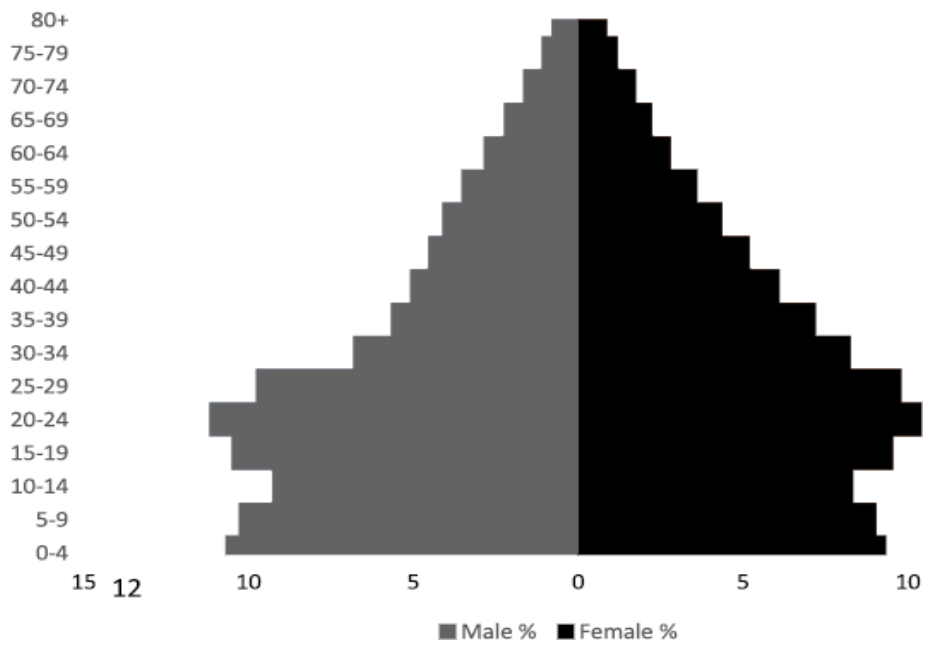
Figure 7 Population pyramid 2031

Table 1 ageing population reported in different censuses of nepal 1991-2011

Source: (central bureau of

AGE IN YEARS	1991			2001			2011		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
60-64	31645	215479	216166	520908	262255	258653	756827	368451	388376
65-69	270472	141707	128765	387223	196053	191170	554449	277782	276667
70-74	183952	94230	89722	273789	141678	132111	395153	199610	195543
75-79	81999	41981	40018	165764	82335	83429	235135	117358	117777
80-84	58809	27927	30882	84255	41192	43063	128777	62787	65990
85-89	20725	10116	10609	27947	13630	14317	52526	25810	26716
90+	18188	7932	10256	17493	7697	9796	31543	13141	18402
TOTAL	**665790**	**539372**	**526418**	**1477379**	**744840**	**732539**	**2154410**	**1064939**	**1089471**

Statistics, 2017)

Below are the key statistics on nepal's population of older people:

Table 2 aging population, life expectancy, dependency ratio of nepal 2019, 2050

	2019	2050
Population aged 60 and above (total)	2,521,000	6,568,000
Population aged 60 and above (% of the total population)	8.7	18.6
Older women aged 60+ (% of the total population)	4.69	11.14

Life expectancy (males)	68.83	75.45
Life expectancy (females)	71.72	78.98
Old-age dependency ratio (age 65+ / age 15-64)	8.9	18.1
Rural older people (% of the total population)	4.47	
Urban older people (% of the total population)	0.83	
Older persons living alone aged 60 and above (% of the total population aged 60+)	3.9	

1.10. DIVERSITY IN AGING

The physiological and functional states that an elderly person experience is incredibly diverse. All individuals above the age of 60 are frequently categorized as old and grouped. However, a 90-year-perspective old's life is very different from that of a 60-year-old. Three life-stage subgroups of older adults may be identified: the young-old (about 60–74), the middle-old (ages 75–84), and the old-old (above 85). Young adults nowadays are usually happier, healthier, and in better financial shape than young adults in past generations. Because resources are more broadly accessible than in earlier generations, these young-old age groups are better equipped to plan for aging. Additionally, a lot of individuals are proactively planning for their quality of life in old age while they are still young. When an elderly person experienced a health crisis in the past, family members would decide how to handle the situation, frequently giving the elderly person little control. Nowadays, senior citizens have a choice of care facilities, giving them some independence while also offering assistance when required. Other issues that are more frequently handled beforehand include living wills, retirement planning, and medical powers of attorney. The physical and mental abilities of some 80-year-olds will be comparable to those of many 20-year-olds. A large number of other people will start to lose a lot of their capacity considerably earlier in life. To do simple tasks, some 60 or 70-year-olds will need assistance from others. Some individuals have a stereotypical perception of elderly people as a homogenous "group of 'deserving poor' unable to work" or even as a "more negative image of 'greedy geezers' who are reluctant to work." these misconceptions are incorrect since older age experiences and health conditions vary greatly. Many people continue to grow

personally as they age, while some people stop. Some people are in good health, while some people lose a lot of ability and need a lot of care. (shrestha, 2021)

1.11. GOVERNMENT PLANS AND POLICIES FOR AGED PEOPLE

Following the first and second world assembly on aging, which was held in vienna, austria, and madrid, spain, respectively, in 1982 and 2002, nepal created several law measures to address the many issues facing the aging population (poudel & magar, 2019). Senior citizen nepal is also committed to the madrid international plan of action on aging, 2002, and the macau plan of action of aging for asia and the pacific, 1999, to protect the social security of senior citizens. By these objectives, the nepali government has created and implemented specific laws, policies, and guidelines just for senior citizens. (bhandari, 2019)

I. NATIONAL PLANS

Elders are among the social categories that are protected under **the local self governance act of 1998's** provisions. The ministry of local development's regulations states that:(a) people over the age of 60 who are unemployed, have no family support, no personal assets, or are widows who do not receive their husband's pension are eligible for a monthly allowance of rs. 150; and (b) people over the age of 75 who are eligible for a monthly allowance of rs. 200. Nevertheless, due to cumbersome processes, 26% of older adults who are eligible are denied access to these social security programs. Government employees such as teachers, police officers, and civil workers are all eligible for pensions, and the official retirement age for public servants is presently 58 years old. (nations, 2017)

The senior citizen policy of 2002, which addressed the institutional framework, designated all 75 women's development offices as centers of expertise on aging concerns. In addition to government institutions, there are 50 distinct non-governmental organizations (ngos) that are actively concerned with issues relevant to older people that manage around 50 daycare centers, 20 old age homes, and more than 100 elderly clubs. (nations, 2017)

The government created a **national plan of action for senior citizens in 2005** in response to the passage of the madrid international plan of action on aging. The plan

covers legal matters together with concerns of social security, nutrition, health, and participation. In collaboration with ngos, ministries and authorities are to carry out the strategy in an effective manner. Identification cards are being distributed to elderly people in conjunction with the national action plan. A high-level senior citizen coordination committee was created to do policy and advisory work. In each of the five development regions, the committee proposes and directs initiatives to enhance senior citizens' quality of life. (nations, 2017)

Parliament also passed **the applied senior rule in 2008** and **the applied senior citizen act in 2006**. "each entity offering health services shall provide health care by giving precedence to older persons," the applied senior citizen act states. The act also established a senior citizen fund and organized national and local district senior citizen welfare committees. (nations, 2017)

The three-year plan approach paper (2010/11-2012/13) has adopted the following strategy for older persons:

(a) make policy and institutional provisions to utilize the knowledge, skills, and experience of senior citizens;

(b) expand access of older persons to economic and social security programs;

(c) promote and expand economic and social security programs by enhancing coordination among government, non-government, private cooperative, and community sectors as well as local government bodies;

(d) launch special programs targeting senior citizens who are abandoned, victims of violence, and those with some degree of disability and vulnerability. (nations, 2017)

II.   HEALTH AND CARE

A rural community public health program was to be established as part of the thirteenth plan to address the concerns of healthy aging and the threat of non-communicable illnesses. To national community care for the aged, the strategy also placed a priority on enhancing treatment services for the elderly and adopting prevention for non-communicable illnesses in primary health services. The thirteenth plan sought to

guarantee that all residents had simple access to the resources available to them, and primary health care provided by the government is now free in rural regions.

III. ASSOCIATIONS OF SENIOR CITIZENS

Senior citizens clubs in nepal are kept under observation by the centre for welfare of senior citizens to foster dependence and moral character while also encouraging their engagement in their communities.

IV. GOVERNMENT PENSION

In nepal, there is a social pension program in existence for elderly persons with modest incomes. A pension provides security for the elderly. Pensions provide a secure income for the rest of one's life after retirement. Pensions are provided by the nepalese government for government employees. Civil employees, military people, police officials, and teachers are all eligible. For public officials, the retirement age is presently 58. However, at universities, the retirement age for instructors and administrators is 63, whereas it is 46 to 48 for lower ranks of military and police officials. Although the age of eligibility is lowered to 60 for dalits and people living in the karnali zone, the old age allowance is offered to individuals above 70. Among those who are qualified and older than 70, 79.9% of the population receives the old age allowance, which pays 2,000 rupees per month.

Table 3 pensioner list of nepal 2007

Sector		Month and Year	Pensioners
Civil servants		Jul – 03	28,542
Police personnel		Jul – 02	20,497
Army	Personnel	Jul – 02	30,166
	Family	Jul – 02	6,198
School teachers		Jul – 03	8,334
Tribhuvan university		Jul – 03	1,200
Constitutional bodies		Jul – 02	107
Palace and others		Jul – 02	448
Banks	Nepal rastra bank	Jul – 03	1,707

	Rastriya banijya bank	Jul – 03	630
Corporation	Nepal electricity	Jul – 03	1,332
	Nepal telecom	Jul – 03	558

1.12.   SEMANTICS OF AGEING

Comprehending the cultural background and connotations of the numerous phrases used in nepali to describe the old, as well as understanding cultural perceptions of aging, are crucial while exploring the issue of aging. The phrase "senior citizens" or "jestha nagarik" is frequently used by ngos, the government, and official community organizations. The most formal contexts accept this phrase because it is politically correct. Boudha (man) or boudhi (female) is a word of affection for an old person that is used in casual contexts, particularly in families and amongst spouses. The phrase "boudhaboudhi" is not as politically correct when used in combination but may be used to refer to older folks in general. Finally, the word briddha, which is also translated as "old people," has a very bad connotation in nepali culture since it is connected to the word "old age home," or briddhashram. Because they symbolize a family's incapacity to keep their civic obligation to care for their family, old age institutions continue to be seen badly in cultural context. (sanner, 2013)

While doing research, it was discovered that multiple phrases were being used to describe persons who lived in oahs; these semantics contain varied viewpoints on the homes themselves. The majority of people refer to these people as residents, especially the management of the houses, which wants to be seen as a formal enterprise where residents are a member of a community. To foster a sense of family among the inmates and employees, some homes even employed the nepali words for mother (tamara) and father (baa). People who live in "barrack-like" dwellings are referred to as inmates by one group. When a person who is very sensitive to the semantics of aging makes a comparison to jail, it draws attention to the perceived unfavorable social climate in nepal's old-age homes. (sanner, 2013)

1.13.   OLD AGE HOME

An old age home is a shelter where elderly individuals who have been abandoned by their family members or who voluntarily enter it to combat loneliness during this pivotal

stage of life live together with other older people. The staff of the old-age home is responsible for providing these older folks with timely meals and attending to their medical requirements. By cleaning their belongings and kitchenware, they assist them in adjusting to the routine and enable them to spend their final days in the company. Additionally, they engage in a variety of leisure activities to diversify their lives and prevent monotony. Additionally, the residents of the house remain together, share their experiences, and develop strong friendships.

Children's misbehavior and financial hardship can cause older people to feel ignorant and without emotional support, which frequently forces them to choose other locations where they may live without problems. And in the current environment, oahs is being thought of as a superior option to living, in addition to other factors. The government and nonprofit organizations in nepal must set up institutional support and care for the elderly, and these homes must create emotional support services.

I.   TYPES OF OLD AGE HOME:

For some, old age is a highly diversified time of life; they are in good health and enjoy an active and lively lifestyle. Others find it more difficult owing to health ailments or physical limitations. Whatever the case, as we age, the demands of our living conditions might alter, which is why there are several forms of senior and geriatric care to assist in making the appropriate option. The most frequent forms of elderly care are: -

1.1.1.3   INDEPENDENT LIVING COMMUNITIES

Individuals and couples who can care for themselves and desire to live in a neighborhood with others their age can move into an independent living community. It is a small step from house ownership and provides a sense of community and togetherness that might benefit older people who struggle with loneliness.

1.1.1.4   ASSISTED LIVING

The next stage is assisted living, which can include a range of services. People who want the confidence that someone is there or some backup in case they run into issues should use it. It might be a solitary senior living facility with a small number of

inhabitants or a sizable apartment complex with nearby healthcare and entertainment amenities.

1.1.1.5   NURSING OR CARE HOMES

They can provide basic senior care, short-term respite care, and specialized care for those with specific requirements, such as:

- Dementia care;
- Mental health condition care;
- Physical disability care;
- Sensory impairment care.

1.1.1.6   IN-HOME CARE

The elderly person receives this sort of care when a member of their family, a close friend, or a professional caregiver spends the day with them in their home, supporting them. As long as therapy can be administered successfully at home, this may be done with a variety of people who occasionally have difficult medical conditions. It frequently represents the priciest form of treatment.

1.1.1.7   TEMPORARY CARE DAYCARE

When someone needs temporary daycare, they usually attend a residential care facility during the day while a caregiver is at work or stay there for a little length of time (known as respite care). It is also a wonderful method to receive specialized treatment following surgery or a period of illness.

1.1.1.8   CONTINUOUS OR HYBRID CARE

Because it uses a variety of care alternatives to best satisfy the demands of the time, this is more of a care plan than a singular choice. For instance, it could entail using independent living facilities, outpatient daycare, and short stints in a full-time care facility.

1.1.1.9   PALLIATIVE CARE

Palliative care is specialized medical attention for those with significant chronic diseases, incurable ailments, or terminal illnesses. It assists with managing pain and other problems that persons with the most severe disorders face. A hospice is a sort of palliative care facility where patients are housed as they approach the end of their life to and support them during this difficult period.

II.   OLD AGE HOME IN NEPAL

According to documents and other data, nepal's old age homes were first established and developed around 1938 b.s. however, it was fou030 b.s. the first conference on the aged held in vienna did not have an impact on nepal, but when the un proclaimed 1999 ad as the international year of elders, nepal's ngos and civil society began to exhibit interest in this field. Care centers and day service centers were allowed to be established by the senior citizen act of 2065. Only 230 senior citizens can be accommodated in the old age home, which is run by the ministry of women, children, and social welfare. The government alone operates this one facility for senior citizens, which opened as the first residential facility in 1976. Established in 1976 as the first residential home for the elderly, this is the sole senior home maintained by the government. Around 1,500 senior citizens reside in the roughly 70 recognized groups around nepal. Since then, this number has been increasing. The following is a list of some of the senior living facilities in the kathmandu valley.

The first senior residence built by the nepalese government was named pashupati briddhasram. From this comment, it appears that old-age homes have a fairly recent history. However, the last resting sites (pati, pauwa, and sattal) originated from nepal's old people's dwellings. Age restrictions at almshouses (houses established by charitable organizations for the needy) were said to have begun in the 20th century (fate). The pashupati briddhasram was established in 1938, marking the formal beginning of old age in nepal (pashupati briddhasram- social welfare center briddhasram, 2013) during the middle to end of the 19th century, during the reign of king surendra bir bikram shah, this old-age residence for the elderly was constructed as the panchdeval (five shrines) pakshala.

Table 4 listing of old age homes in nepal

Sn	Name	Address	capacity	Remarks

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)

1.14.   ENVIRONMENT FOR THE CARE OF ELDERLY

An elderly home's planning and design should be centered on current demands as well as be able to accommodate any future residents' existing needs. Both the constructed environment and the natural environment have an impact on behavior, interpersonal interactions, and psychological states. Therefore, while designing for the older population, the solution should aim to fully meet their behavioral demands rather than only focusing on practical difficulties like universal designs.

I.   NATURAL ENVIRONMENT

Even in our contemporary urban culture, maintaining one's physical and mental well-being remains heavily dependent on interaction with the natural world. This contact is a requirement rather than a luxury for leading healthy and fulfilling lives. It has been demonstrated that exposure to nature enhances cognitive abilities including focus and

memory. The attention restoration theory, as presented by rachel and stephen kaplan, relates an increase in focus and attention span to contact with nature, both passively observing it and actively participating in it. This is crucial for seniors who are coping with memory loss as they age since it demonstrates that exposure to nature may be able to enhance memory or at the very least, lessen aspects that may contribute to memory impairment. According to several studies, views of the outdoors from inside a building's circulation may help people find their way around and navigate space more efficiently. An old idea that has been around for more than a thousand years is that of nature's therapeutic benefits. The greeks were one specific civilization that utilized nature as a therapeutic factor. The greeks had one of the first networks of healing locations called epidaurus where they utilized water from a natural spring in cleaning rites and other healing ceremonies. Monasteries were among the earliest places where gardens were utilized as therapeutic spaces. Large trees on the monastery grounds provided shade for the pathways and provided visual stimulation for the patients within the building. According to clare cooper marcus, three sorts of healing occur by being exposed to nature. First, there is "relief from bodily symptoms," or at the very least, "relief from the consciousness of those symptoms." stress reduction represents the second form of healing. An increase in general well-being would be the third sort of healing. There is growing evidence that being active and outside is vital as people age, thus older people should be encouraged to participate in nature-related activities while designing and planning the outdoor environment. (shrestha, 2021)

II.   BUILT ENVIRONMENT

The idea of a constructed environment refers to the material, spatial, and cultural byproducts of human effort that integrate energy and physical materials into forms for habitation, employment, and recreation. The human-made place in which people regularly live, work, and have fun is referred to as the built environment. Designing a constructed environment that can assist mitigate some of the biggest issues for individuals as they age requires an understanding of how our environment affects us both physically and psychologically. To comprehend how the physical environment affects the users, it is necessary to investigate both human behavior and the situations in which humans reside. Regardless matter whether it is a group or individual behavior, it can only be understood in the context of the environment in which it takes place.

Given that we spend much of our time in constructed environments, the link between people and places is important. Within the constructed environment, we study, work, play, and live. We spend a lot of time surrounded by man-made structures even while we are outside. Despite being built using natural materials, parks and gardens are nevertheless planned and cultivated by the people who built them and utilize them every day. The effectiveness of a retirement facility is influenced by the planning of the built environment, but it also affects how older people who are not suffering from serious illnesses may effectively age in place and traverse their separate living communities. When it comes to amenities, accessibility, and welcoming surroundings, seniors and non-seniors have distinct perspectives on the physical environment around them. It's important to realize that when thinking about seniors, it's not only about whether those services and facilities are available in a community; it's also about whether the elders can use them. An individual must be able to continue doing routine activities in their community in addition to being able to carry out daily tasks at home to age effectively and productively. (shrestha, 2021)

1.15. RETHINKING ARCHITECTURE OF OLD AGE HOME

Figure 8 Rethinking Architecture Of Oah

Seniors cannot be left alone very often since they will grow dependent and need care and attention for their welfare. Older people who find it difficult to live alone or with their children or, occasionally, when they are penniless, can live in an old age home. The unavoidable process of aging means that family members may not always be available to provide the necessary care and love.

Many times, elderly folks who need care from another person are placed in nursing facilities. A complex featuring accommodation options for older persons is known as an old age home. Although it is intended to create a home for the elderly, old age homes frequently resemble hospital facilities due to inadequate infrastructure or a lack of funding.

The following are some factors to take into account while building senior housing:

I.   USER-FRIENDLY DESIGN

Figure 9 Entrance

Living in an elderly care facility may be difficult for seniors who have always been independent or in families. It will take some time to become used to the new norms and people. The setting's ambiance and ambiance play a significant part in making this process simple and easy. Comfort and user-friendliness should be emphasized in the design of the senior living facility. When building a place for older adults, several guidelines and regulations must be observed.

Narrow entrances and staircases, which make wheelchair accessibility challenges, are some prevalent issues with some of the existing old-age home designs. When facilities are hard to reach or improperly placed, and staircases are small and steep. These potential design flaws frequently fail to consider the demands of senior citizens or individuals with impairments.

II.   LANDSCAPE DESIGN

Figure 10 Landscape Design

Landscapes tend to calm and relax people. One of the most popular pastimes for seniors is taking a stroll around a park or garden. Additionally, it keeps children busy and healthy. Slow exercises are beneficial for improving both physical and mental health, and performing them with other residents would make the activities more enjoyable.

The majority of the time, elderly people feel cooped up in their homes. Therefore, including landscape design in the construction of old age homes would be a crucial element that would significantly alter the atmosphere for the elderly. It has been demonstrated that being near nature helps patients heal. The use of organic landscape components will improve their mood and give them reviving energy.

III.   ENTERTAINMENT AND RECREATION SPACE

Figure 11 Recreational Space

Old age gives individuals the impression that they have a lot of free time. Among seniors, passing the time appears to be a fairly common problem. They seldom lose their focus due to weariness brought on by boredom. One method of passing the time is through hobbies. Making time for rediscovered interests like reading, watching movies, or knitting will enrich their daily routine.

Games are played with and among the older persons to provide amusement and relaxation. An approach used in old age homes for recreational purposes is to schedule a shared activity each week. The essential demand for this cause to be able to function would be a sizable gathering location accessible conveniently from their dwellings when this is taken into account in the design. The demands of the people must be taken into consideration while designing multipurpose confined or semi-open areas.

IV.   SAFETY

Figure 12 Safety

A few typical old age issues include memory loss, eyesight loss, and limb weakness. Regardless of the problem, elderly individuals tend to grow weak and more prone to danger. They have a propensity to wander off when left alone. They frequently trip or slip due to negligent design and infrastructure, which may not be a big deal for young people but may be more perilous for elderly individuals who recover more slowly.

Therefore, building areas with good viewing ranges will make it simple to see people across rooms or hallways. To decrease confusion, it is necessary to avoid blind spots and negative gaps. In case the elderly become lost, there have to be clear signs at gathering places and communal spaces like gardens. Since older individuals sometimes have weaker limbs and find it difficult to climb up, levels and stairs are not advised as a design rule.

V.   HEALTH

Figure 13 Medical Room

As people become older, it's harder to predict when and what sort of health problem may occur. The need for medical support increases as people age. Emergent medical conditions necessitate prompt attention and treatment. The old age home must have the very minimum in terms of medical facilities and gear, if not a hospital.

There must be simple access and enough beds for treatment. In case of crisis equipment and medication must be transportable to the patient's home. For the architecture of healthcare facilities in old age homes, large lobbies, interconnected blocks, and ease of mobility across transition areas become essential.

VI.   LIGHTING

Figure 14 Lighting Of Oah

Another significant design element that has to be included in senior housing is good lighting. To have freedom of movement and clear vision, sufficient lighting must be given, and the areas must be brightly illuminated. For example, table tops, cupboards, the tops of switches, and other nooks and corners frequently have lighting.

Warm colors and nothing visually startling should be used for the lighting. During the evening, lighting fixtures on lawns are crucial. Glowing must be prevented, and all places must have adequate lighting with no dark spots.

VII.   PERSONAL SPACE

Figure 15 Bedroom

They must be given personal space even when they share a home with numerous other older folks who are strangers. They must believe that the nursing home may be their home, where they are free to do as they like. They can be given private rooms as a design solution so they can perform different tasks on their own, rather than in groups. For individuals to relate to each place uniquely and feel like it's their own, a design must attempt to engage the audience on a subjective level.

Old age homes are notoriously difficult to design since the occupants' mindsets are frequently fluid and need new insights. An old age hold-aging must strive to create a space to inspire hope and vitality rather than merely serve as a refuge for the elderly, who are frequently left by their relatives.

It is necessary to make some minor adjustments to the public design's natural dynamics to conform to the specifications of the old age hold-aging to provide a place for older persons to lead a happier and healthier lifestyle, simplicity, and dignity in the design of the places must be observed.

1.16.   DESIGN FEATURES

When planning and designing for the older population, the plans for senior housing should be focused upon future needs, as well as the existing requirements of the prospective residents of the dwelling. The living area is likely to become the focus of the dwelling unit for many residences. The size of the space however is often not as important as good planning which effectively accommodates the living activity while also accounting for circulation, doors, windows, and furniture. This does not mean however that small apace is desirable the living area should be of sufficient size as to allow some excess in floor area for such temporary activities as exercise ironing in front of the television set, etc. Provision of floor area beyond the minimum space required by the furnish ability test will also e nsure the accommodation of a wider range of lifestyles and activity patterns.

The living activities area may be greatly enhanced in spatial character by a higher-than-normal ceiling if the building type permits. As a general rule, it has been found that a width of fewer than 12 feet is difficult to utilize effectively. It also has been found that rectangular rather than square space is easier to furnish and to zone f or different activities. Consideration should be given in dwelling units of larger than standard size to subdividing the li vi ng activities area into two separate areas such as a living room and sewing room combination. This can also be accommodated by room configurations as shapes that are easily subdivided by furniture arrangement. This approach is particularly effective where there are two residents and a unit who wish to carry on different activities simultaneously. Senior housing is a place where the elderly resides. Since the building character is purely residential, the effective zoning of the site is a must in this kind of project. Both private and public spaces should be properly defined.

In very general terms the criteria for planning housing accommodations for the aged are:

- Small size and compactness for convenience and economy
- Fireproof construction planned for maximum safety
- Minimizing the problems and effort of housekeeping and daily activities
- "livability," pleasantness, and the effect of spaciousness
- A high degree of privacy
- Careful avoidance of an institutional look
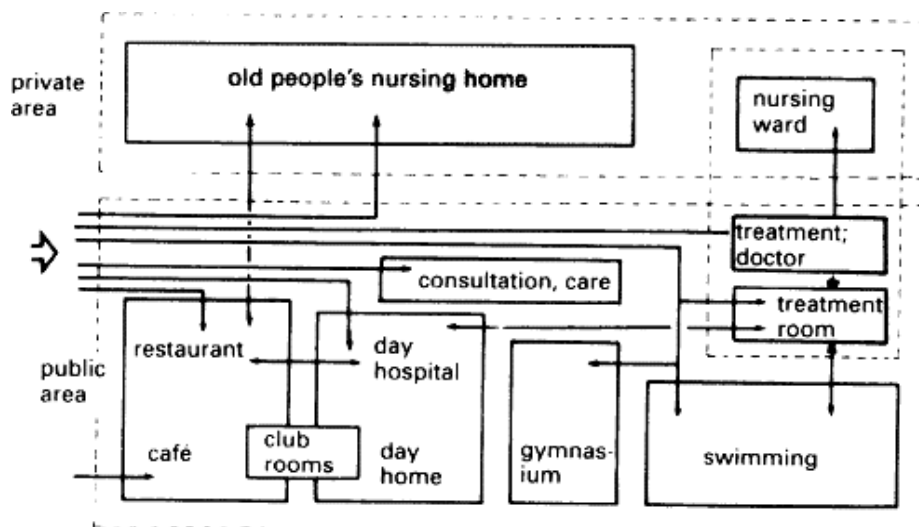
Figure 17 Functional diagram
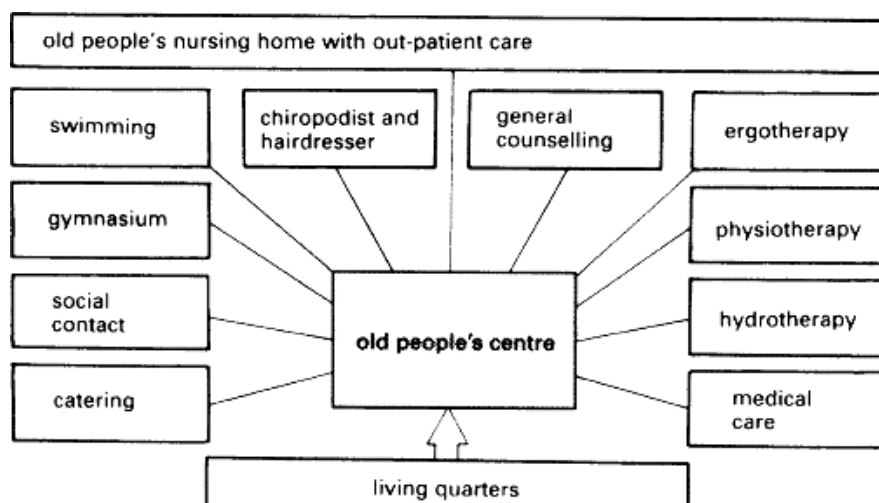
Figure 16 Various function in old age home

I.   UNIVERSAL DESIGN

"Universal design shouldn't be a matter of choice; it is a moral necessity".

The term 'universal design' was coined by the late ronald l. Mace, from the college of design, north carolina state university, usa. In 1988 he defined the term in the following way: "universal design is an approach to design that incorporates products as well as building features which, to the greatest extent possible, can be used by everyone. Universal design is a simple concept, but one that requires a fundamental shift in thinking. Traditionally, the design has catered to averages, creating a world in which few people can thrive. The universal design strives to encompass the widest possible ranges of size, strength, and capability, doing so without the need for adaptation or specialized design. The universal design intends to simplify life for everyone by making products, communications, and the built environment usable by as many people as possible."

Universal design is an approach to architectural design that considers the entire range of capacities and potentials of people and how they use buildings and products throughout their lives. The approach goes beyond technical standards that provide only minimal accessibility in compliance with regulations and extends design to increase the capacities of men, women, and children of all ages and abilities.

- Guidelines for universal design approach are: -
- Simple and intuitive use
- Equitable use
- Perceptible information
- Tolerance for error
- Flexibility in use
- Low physical effort
- Size and space for approach and use

1.1.1.10 LOCATION

When determining a solution that addresses the housing needs of the elderly, the locations they reside and routinely visit are paramount. The housing should be

integrated with the peaceful and residential neighborhood. It should ideally be located in an area that is safe, attractive, and provide access to the community amenities including transit, shopping, services, parks, and recreation and activities. The environment should include sidewalks that are wide enough and in good condition crosswalks that are separated from the vehicular flow and a flat or minimal slope. The housing in the surrounding environments should have a similar density to that of the elderly residents. This will be a means of avoiding visual isolation. When the housing typology the elderly reside in is high density and surrounding housing is low density, it may be suitable to locate the elderly close to facilities such as schools and crèches that have high occupancy levels. The aged members of society are not expected to be withdrawn from the community and live-in desolate isolation. On the contrary, they are part and parcel of the community just as the younger generations are and where possible they are also expected to be woven into the fabric of society (mumford, 1956). The deterioration of their sensory and physical capabilities and their general decrease in participation in the social sphere should be addressed by encouraging community interactions to occur as conveniently and naturally as possible.

The selection of the neighborhood involves the following consideration: -

I. The location should be close to commercial services such as shopping and public transportation.

II. Site topography should be flat or gentle sloping with landscaped outdoor spaces, accessible pedestrian walkways, and parking.

III. The building layout should provide for administrative, amenity, and hospitality spaces grouped for efficiency and social interaction space with wheelchair access from the indoor common area.

IV. Basic community facilities such as a library, place of worship, health services, and recreation facilities should also be close at hand. In this connection, it should be noted that a half-mile is the maximum walking radius of many aged persons.

V. The site should be large enough to permit the development of adequate outdoor areas for both active and passive recreation. Ideally, these areas would be in addition to, and out of the way of, those areas used by other residents, particularly children.

VI.   Consideration should be given to possible changes in the overall land use pattern, in terms of probable trends and projected plans.

1.1.1.11 PARKING

The housing for the elderly has usually small parking requirements because few elderly residents own and operate vehicles. Accordingly, the following is a set of informal standards, based upon limited surveys and parking provision for public and private housing for the elderly.

For housing not subject to the following exceptions, parking spaces numbering more than 30 percent, of the total number of dwelling units to be 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 adjacent to regional shopping centers, parking spaces numbering at least 15 percent of the total number of dwelling units should be provided.

For the housing intended for moderate to low-income occupants (other than public housing) 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 numbering at least 10 percent of the total number of dwelling units should be provided.

The minimum width of an accessible parking space is 3.6m. An access aisle 1.2m wide can belocated between two ordinary parking spaces.
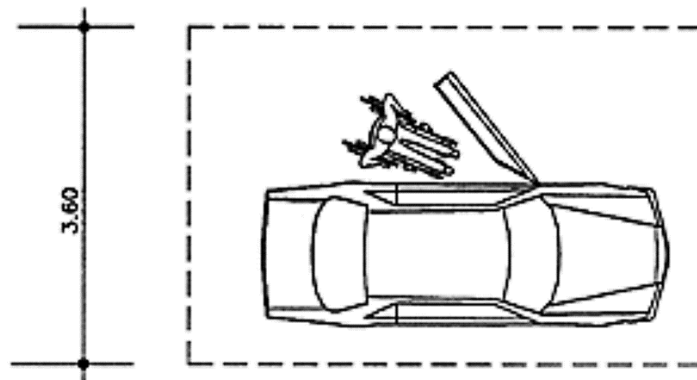
Figure 18 Dimension of accessible parking space

1.1.1.12 ENTRY/EXIT

The entry/exit (or front door) is the critical transfer point from the least public area of the development to the least private area of the dwelling unit. If properly designed, it will ensure the privacy of unit activities and contribute strongly to the sense of home. It must be a place, not just a door in a wall that opens directly into the living area or other such space.

ACCESSIBILITY: the entry/exit area should be directly accessible to the following fewer privateareas of the unit:

- Food preparation
- Living area, with spatial differentiation between the two functions
- Storage/utility

The entry/exit area should be indirectly accessible (minor intermediate activity or a circulationpath) to more private areas of the unit:

- Dining
- Private outdoor (optional)
- Personal hygiene
- Sleeping/dressing

The entry/exit area should have both visual and audio contact with visitors outside of the entrydoor, but visitors should not have visual contact and only controlled audio contact into the entryarea of the dwelling unit. This maximizes the ability of the resident to keep out unwanted visitors and allows the resident to control the space just outside the unit. All of the previously mentioned spaces with direct physical access to the entry/exit area should have visual/audio contact with this area for control and security within the unit. Other areas should have audio but no visual contact to minimize disruption of privacy.

ORIENTATION: the orientation of this activity toward view and sunlight is governed by more essential concerns related to building type and the functional organization of other activities.

FURNISH-ABILITY: the furnishings and equipment necessary for this area are: storage for outerwear, that is, coats, galoshes, umbrellas, etc.; a closet at least 3'-0" by 2'-2" should be provided. A place to sit while putting on outerwear

SPATIAL CHARACTERISTICS: space should have sufficient wall area to accommodate a mirror; there should also be aclear dimension area of at least 3'-6" to 4'-0" square for putting on coats as well as greeting guests.
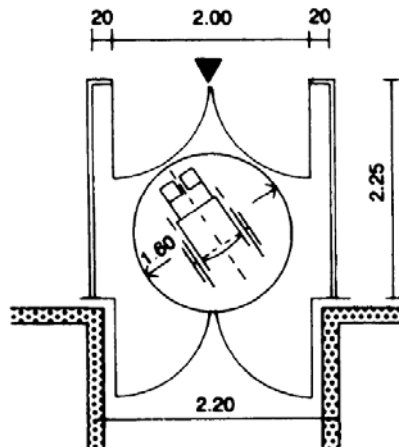
Figure 19 Porch with two leaf doors

1.1.1.13 LIVING AREA

Each dwelling unit shall have an area or areas which are organized and furnishable for a widerange of activities such as:

- Conversation
- Entertaining
- Reading
- Television viewing
- Radio/record listening
- Contemplation
- Lounging

In most units, more than one of these activities will be provided for in a single space. In largerthan standard units or in two-bedroom units, however, it may be desirable to provide more specialized spaces.

ACCESSIBILITY: direct physical accessibility (no intervening spaces) should be provided to:

- Entry/exit (planning can be too open; therefore, there should be a definite spatial distinction between the living area and entry/exit)
- Private outdoor, for the extension of general living activities
- Dining, where these spaces are combined, accessibility should not impair either activityindirect physical accessibility (minor intervening activity or circulation path) should exist between:
- Food preparation
- Personal hygiene, for visitor use (this accessibility should not impair the privacy of thesleeping/dressing areas)
- Storage/utility
- Sleeping/dressing

Visual and audio contact with equally active areas (entry/exit and private outdoor) should be encouraged. Visual and audio contact to the food preparation area should be either minimizedor controllable so that it can be minimized or maximized as desired by the resident. The visual/audio relationship between the dining and living areas will vary with the location of the dining area. Visual/audio contact to sleeping/dressing and personal hygiene spaces should be minimized.

ORIENTATION: living spaces will be occupied many hours of theday and should, therefore, be provided with interesting views out of the unit. Windows should be located so that a seated person can see out. In first and second-floor units, windows should also be carefully located to avoid loss of internal privacyfrom outside of the unit. On upper floors, close views from oneunit to another should be avoided. Sunlight is important to both physical and mental conditions and, therefore, planning should ensure that living spaces will receive some sunlight during each sunny day (probably no less than 30 percent of the day). Northern orientations should be avoided.
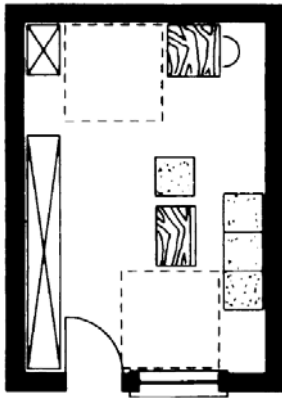
Figure 20 Living room for two people

FURNISH-ABILITY: furniture that should be accommodated in the living area should include thefollowing items (sizes are minimums) for one-bedroom units:

One couch, 3'-0" x 6'-10"

Two easy chairs, 2'-6" x 3'-0"

- One television set, l'-4" x 2'-8"

- One table, 1'-6" x 2'-6"

 For two-bedroom units, one easy chair should be added as well as:

- One desk, 1'-8" x 3'-6"

- One desk chair, 1'-6" x 1'-6"

Because of the diversity of activities that may occur in this space or spaces, and because provision must be made for a wide variety of lifestyles, special provisionsshould be made in the design process to allow for manyalternate furniture types and arrangements. The locationof 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. It should be remembered that many elderly residents will come fromsingle-family or larger rental housing and many of themcan be expected to have much more furniture thandescribed above. The following specific design criteria shall be used:
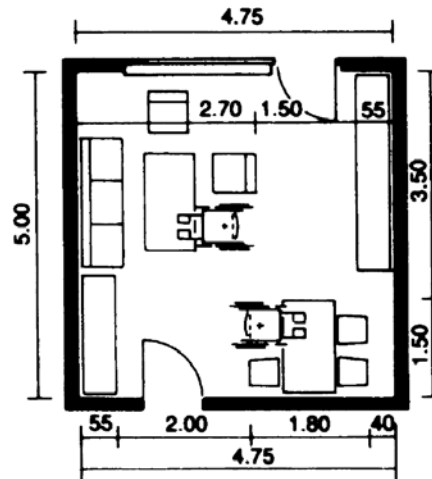
- 60" minimum clearance should be provided between facing seating.

Figure 21 Living/dining room for 4-5 people

- 30" minimum clearance is required for use of a desk.

- 60" minimum distance is necessary between the television set and seating. the designershould make sure that it is possible to locate the set opposite the main seating area.

1.1.1.14 BEDROOM

Elderly people seldom move out; therefore, the bedroom is where they will spend most of the time in a day. The elderly makes greater use of the bedroom than any other ag e group except babies. Older people are often hard to sleep, if theenvironment is not good, it could disturb, or awakethem easily. So, the bedroom of the elderly shouldbe in a quiet place. The environment must be quietand clean which is a benefit for them. Their bedroom should be best in the south or at the east of the house in a closed place.
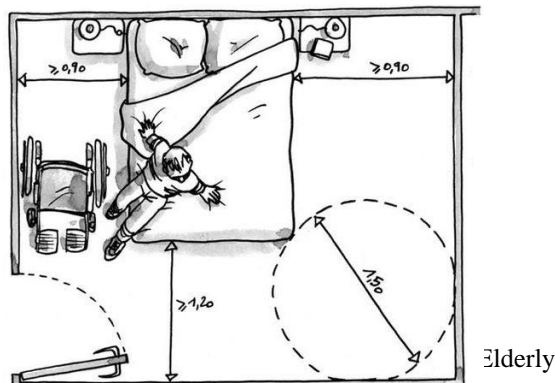
Elderly people's eyes are often blurred and their legs slow down, their activities are no longer nimble, easy as the young, therefore the bedroom arrangement should adapt to

the health statusand habits of the elderly. Due to their age, elderly people are weak. Their health is not as goodas when they were young or middle-aged. As their health waned through time, their bedroom should have sufficient sunlight and fresh air. Enough sunlight and the period to have sunlight time long are good for the body for the elderly, which is considered the best dose for them. The eastern or southern bedroom would meet those requirements. The room should be ventilating and free from heat, freeze so that they won't be affected by heat or freeze.

ACCESSIBILITY: this activity is one of the most private in the dwelling unit. In a dwelling unit containing two residents, one resident must be able to carry on normal living activities without serious loss of privacy to the other person in the bedroom. Because of this basic need,direct physical accessibility should only exist between the sleeping and dressing area and personal hygiene and personal clothing storage. In some cases, provision for personal outdoor space may also be accepted under some circumstances. Because of the privacy factor and the desire and desire to be able to entertain guests without having to make the whole dwelling unittidy, the sleeping /dressing area should be isolated from the most visual and audio contact withother areas in the dwelling unit. Like the living area, this area should have excellent views fromits windows. Windows should be placed so that a person can easily see out while lying in bed.This is space requires direct exposure to the use of at least 30 percent of the day.

FURNISH-ABILITY: in addition to the sleeping and dressing function and bedroom should have provisions for such passive living activities as television viewing, reading, sewing, etc.

The minimum furniture to be provided for is as follows:

- Two twin beds (3'3"*6'6") or double bed (4'9"*5 '6")
- One dresser (1 '6"*4'4")
- One chair (1 '6"*1 '6")
- One table (l '6"*2'6") for sewing or other work(optional)
- Two-night stands (1 '6"*2 '6")
- One portable television set

Twin beds should be possible even in the bedroom of a unit programmed for single-person occupancy. Secondary bedrooms for single occupancy have circulation space and accommodate furniture of the following sizes:

- One twin bed (3'3"*6'6")
- One dresser (1 ' 6"* 3'6") one chair (1 ' 6"* 1 ' 6")
- One nightstand (1 ' 6"*1 ' 6")

The location of doors, windows, and closets should be planned to allow for the best placementof the bed and other furniture. The closet should be placed next to the door into the bedroom because the use of available wall space is minimized in this way. For reasonable access to and use of bedroom furniture and equipment the following minimum clearances should be observed:

- 42" at one side or foot of the bed for dressing
- 24" clearance for least used side of double bed
- 6"clearance from side of the bed to side of dresser or chest of drawer 36" clearance in front of dresser, closet, or chest of drawer
- 30" clearance for major circulation path (door to closet etc.) 24" clearance between twin beds
    - o 18" clearance between twin bed and wall for ease of bed making.
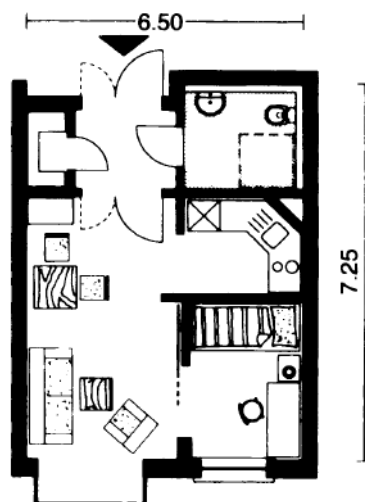
Figure 23 One Room Apartment For Elderly
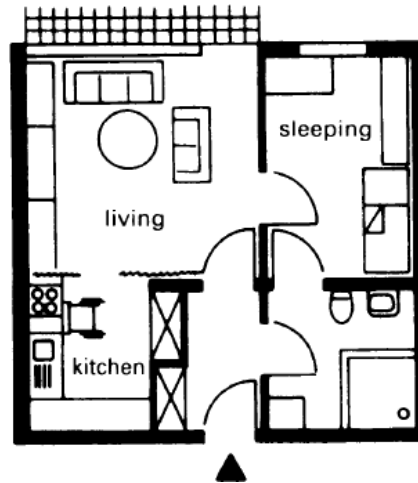
Figure 24 Two Room Apartments For Elderly

1.1.1.15 KITCHEN

Because kitchens are potentially as dangerous as bathrooms, equal care should be given to 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 these cases, however, an additional 20 to 40 sq. Ft is necessary. Interior locations are acceptable if mechanical ventilation is provided.

Shelves should be no higher than 68" from the floor. Clearance between facing equipment andcounters should be a minimum of3 ft for one person. To permit two people to work and pass each other, the between-counter clearance should be 4 1/2 ft. Equipment should be electric for the greatest safety and should be arranged for maximum efficiency.

Storage spaces should be arranged as nearly as possible so that the bulk of the regular-use itemscan be stored between 27" and 63" from the floor. Ideally, stored items should be visible as well as physically accessible. Kitchens for older people should not be in compacted form, theydesire and need ample workspace. If the kitchen is too compact, storage space is limited and much of it is either too high or too low to be reached comfortably. Shelves should be no higherthan 68: from the floor, and no lower than 12". Too little counter space leads to crowded work surfaces which in turn can create hazardous working conditions.

Clearance between facing equipment and counters should be a minimum of 3 ft. For one person.To permit two people to work and pass each other the between counter clearance should be 41/2 ft. Equipment should be electric for the greatest safety and should be arranged for maximum efficiency. Heating elements should visibly glow when hot. In placing the range consider allowing extra space for ease in making minor repairs and cleaning. Providing adequate lighting overall work surface provide an exhaust fan to assure adequate ventilation and to carry out cooking orders, select floors or floor coverings that will not absorb grease and become slippery and provide a fire extinguisher for grease and electric fires.

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 theuse of such curtains or screens. Provision must be made for the general storage of bulky itemssuch 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, dishwashing and drying, and eating. If appropriate physical design adaptation is not made to the food preparation spaceand 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 userfrom cooking and eating. This situation is particularly unacceptable because dietary problemscan become acute for the aged.

Accessibility: the food preparation area should be directly accessible to the main entry exit ofthe dwelling unit to facilitate the carrying of bundles. It should also be accessible to the diningarea. If the dining area is outside of the kitchen or light meals should be provided. This can bea small table, counter, or pull-out shelf about 24 by 24 inches set at table height and useable from a wheelchair. The food preparation area should be indirectly accessible to but visually screened from the living, sleeping, personal hygiene, and private outdoor space of the dwellingunit. Of this access should be most direct to the private outdoor space. In all cases, indirect access should be through easily traversed intermediate spaces or corridors.
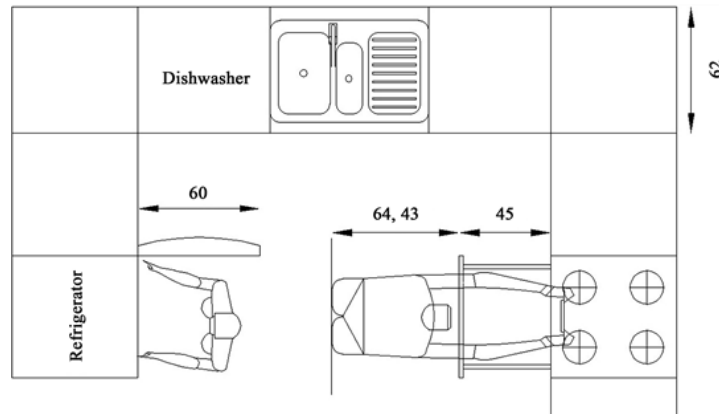
Figure 25 Kitchen layout

Orientation: often food preparation areas are located at the rear of the dwelling units but where possible, this should be avoided. The kitchen should be located on an outside wall withan interesting view from a window and it should have morning sun lights possible.

Furnish-ability and equipment: the necessary equipment for food preparation and relatedactivities are:

- Ventilation, both mechanical and natural to eliminate heat and odors.Sinks and associated workspace.
- Cooking unit and oven with associated loading and unloading counter space storage consisting of wall and base cabinets.
- Storage consisting of wall and base cabinets and pantry. Dishwasher optional but should be included where possible.
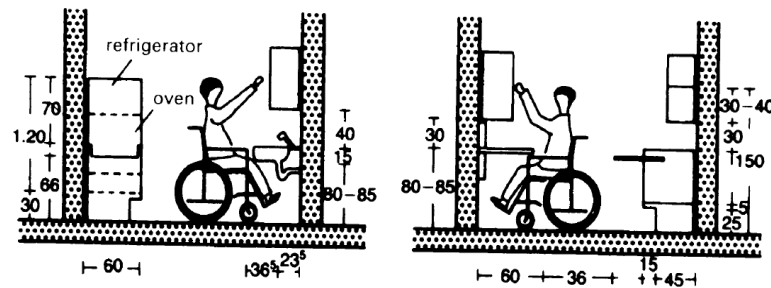
Figure 26 Section of kitchen

a lor u shaped kitchen is preferable to the pullman or corridor type kitchen corridor type is inconvenient for the elderly who with advancing age and motor/sensory tosses, find it difficultto repeatedly turn from one counter to another as they work equipment should be placed so thatthere is sufficient operating room between it and any adjacent corridor cabinet. There should be no through circulation in the kitchen work area.

1.1.1.16 DINING

There must be a permanent dining place within each dwelling unit for the independent elderly.Depending on the program, space may be eliminated from units, which are part of formal congregate care programs. Allow 21" - 24" of table space for each person. The minimum-sizetable, at which eight adults can sit comfortably, there on each side and one at each end, is 40"x72". The minimum size for six adults with two on each side and one at each end is 36"x60".A round table 40" in dia. Is minimum for four people and the table to edge past a seated person.Serving requires 44" from table to wall; 32" is needed for rising from a chair at the table.

ACCESSIBILITY: there should be direct visual/ audio accessibility between the dining and the food preparation areas. Dependent on the unit organization there may be a direct visual/ audiorelationship between the dining and living areas; however, there should be no visual linkage between the food preparation and living areas through the dining area and living area. Visual and audio contact to the entry/exit area should be maintained while audio contact to the living,sleeping, and personal hygiene areas should be minimized. There should be no direct accessibility between the dining and sleeping/ dressing and personal hygiene.

ORIENTATION: the dining area should possibly have a view out of the dwelling unit and shouldalso have morning sunlight. Where the orientation is western, it is important to control the harsh effects of the setting sun.

FURNISH-ABILITY: each dining space must contain sufficient space to accommodate four people.It is desirable if sufficient space is available to expand this accommodation to six persons for special circumstances. Appropriate space should be provided for the storage of china and largedining articles. There should be space to accommodate the following items of furniture:

- Dining table with a minimum width of 3' 0" and 2' 0" of edge length for each diner.

- Dining chairs of i '6"* 1' 6" sufficient for the number of diners should be accommodated.

The size of the individual eating space on the table should be based on a frontage of 24 inchesand an area of approximately 2 square feet. Also, the table should be large enough toaccommodate serving dishes.

Spatial characteristics: as noted above the dining activity space may be located separately orcombined with living or food preparation spaces. Because of economic considerations, a separate dining space seems unlikely but developments should offer both arrangements to provide a variety and choice in responding to the differences between formal or informal lifestyles of various tenants. The ceiling height of the dining space in a dwelling unit may be raised or lowered for spatial effect; it should however be no lower than 7' 6". The dining table location should be permanent, requiring no rearrangement of furniture at mealtimes, and this space should not infringe upon other activities. It should be possible to see the outdoors from the dining table.

1.1.1.17 BATHROOM

The bathroom is the subject of much public and private research. Also, requirements for the adoption of bathroom facilities for use by permanently disabled persons are included. These requirements shall apply to at least 10% of the units in developments of 100 units to more. Application to smaller projects will be determined individually for each case. In general; bathrooms in developments for the elderly should be given care in the design as this space can; of poorly conceived, cause both serious health hazards and through its convenience, great frustration. The general lack of mobility and slow reaction time of the elderly make itmandatory that hygiene spaces be inherently safe from sharp edges and slippery floor surfacesand that they do not require excessive bending, leaning, or twisting to catch out necessary activities.

In general bathrooms in developments for the elderly should be given great care in the design as this space can if poorly conceived cause both serious health hazards and through its inconvenience, great frustration. The general lack of mobility and slow reaction time of the elderly make it mandatory that hygiene spaces be inherently safe

from sharp edges and slippery floor surfaces and that they do not require excessive bending, leaning, or twisting to carry out necessary activities.

Accessibility: in addition to more frequent than normal use during the day, frequent use of the bathroom at night is common. Therefore, consideration should be given to direct accessibility between the bedroom and bathroom. Hopefully, 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. Indirect accessibility should also exist between the bathroom and the more general living areas of the unit for use of the bathroom by the guest.

Orientation: visual/audio contact between the bathroom and other areas should be minimized. It should not be possible to see into the bathroom from the living, dining, or food preparation areas. View to the outside and natural light is not necessary to bathroom functions. Where windows should make sure that no loss of privacy occurs. Windows should not be located over bathtubs.

Furnish-ability: all personal hygiene spaces should provide: 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 are provided around fixtures.

The requirements are:

- Lavatory basins: 3' 6"*3 ' 6", the sink shall be centered on one dimension and at the extreme of the other.
- Water closet: 2'6" *4'4", the water closet shall be centered on the 2' 6" dimension.
- Tub or shower: 2'4" clear dimension extending out from the 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 development. 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 theoutside and sized according to the code for an interior bathroom.

1.1.1.18 LAUNDRY
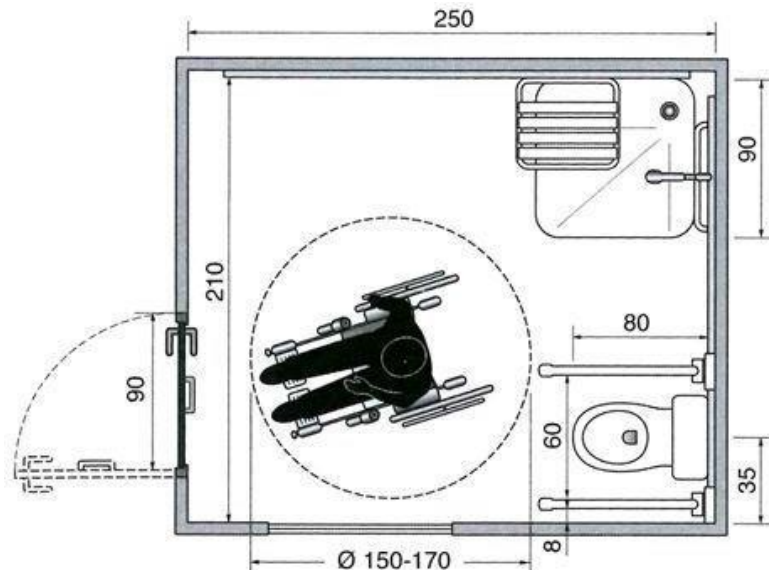
Laundering includes a host of tasks-collecting and sorting dirty clothes, pre-treating, washing,drying, sprinkling, and ironing-all of which are tiring, for they require a great deal of stooping,lifting, and carrying. To reduce the amount of effort required, a laundry center (either separateor combined with another area) should be carefully planned. The amount of the estimated washing arising per week in kg of laundry of old age homes is residential: approx. 3 kg per bed; nursing unit: approx. 8 kg/ bed.

Equipment and facilities: to reduce the amount of effort required, a laundry center should have a sorting table, a heating surface (such as a hotplate), and storage facilities for soiled clothes, washing supplies, and baskets, as well as a washing machine, dryer, and ironing board;some may also have ironers. A laundry tray (usually a 14-in.-deep porcelain enamel sink) is desirable for prewashing, soaking, or starching some items. Space should be dry, heated, and well lighted, with sufficient electrical outlets, properly located. Space should be ventilated to remove moisture and odors.

Space arrangements: laundering may be done in a room designed especially for this purpose,or in a multi-use room, designed also for food preparation, sewing, child play, and the like. Thebest location, of course, is convenient to other work centers, such as the kitchen, and the dryingyard so that there will be a minimum of carrying necessary.

Generally, basements are not considered desirable locations because of their inconvenience, dampness, and lack of adequate light.

1.1.1.19 STAIRCASE

Whenever possible accommodations for the aged should be on one level and unless elevators are used located on the ground floor. In the case of low buildings where elevators are uneconomical, the aged should not be expected to climb more than one flight. For small unavoidable changes level ramps with a flat slope, not over 5% preferable to stairs. Where stairs must be used, the following precautions should be observed.

- Risers should not be more than 7" in height.
- The proper proportion of run to riser should be scrupulously observed.
- Fewer than two risers should be avoided.
- Winders or curved treads should never be used.
- Non-slip nosing should be used and should be of a contrasting color.
- The handrail should be of the proper height, of a cross-section, which is easily graspedand sturdy in appearance as well as in fact. Alsohandrails need to be provided in the corridors.
- Stairs should not be less than 3'-6" in clear width.
- No doors should be opened directly onto the stairs.
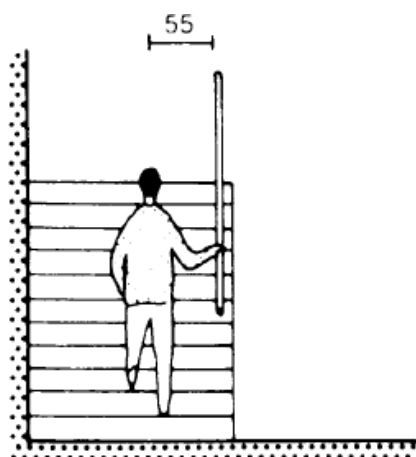
Figure 28 Staircase

1.1.1.20 RAMPS

Ramps are essentially for wheelchair users instead of steps. The slope and rise of the ramp between 1:12 and 1:20 are preferred. Wheelchair users with disabilities have serious difficultiesusing inclines. So, the most preferred slope of the ramp for the elderly is 1: 16. Handrails shouldbe provided on both sides at a height between 800 and 900 mm above the ramp level.
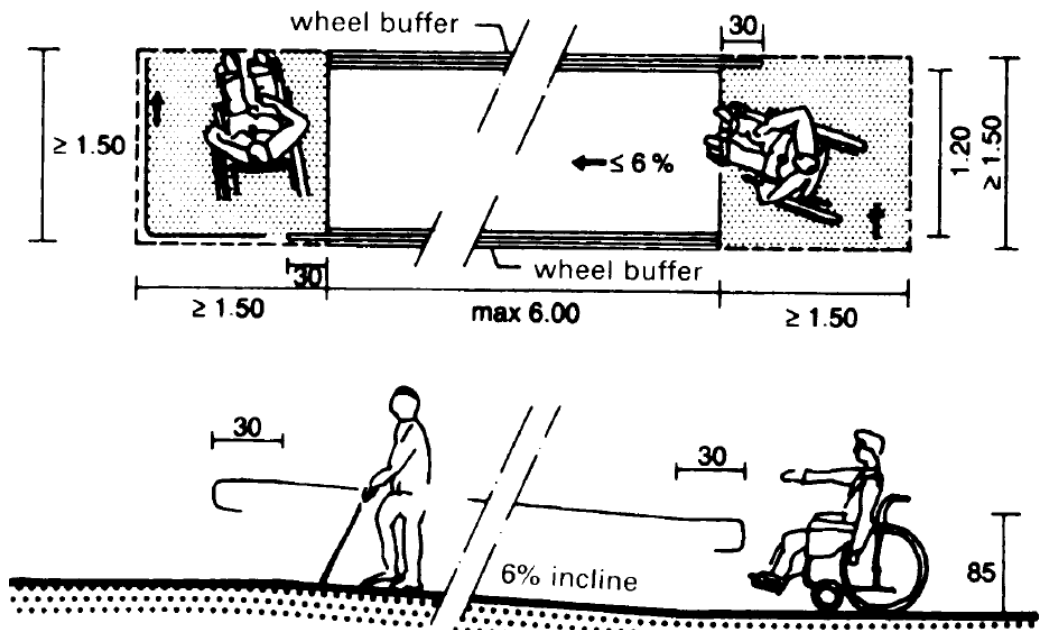
Figure 29 Ramp section

1.1.1.21 PLATFORM AND LANDINGS

At the head and foot of every ramp or section of the ramp, a level platform of the same width as the ramp itself clear of cross-traffic shall be avoided. Such platform and immediate landingsshall be at least 1000mm wide, 1500mm long, and at least 1300mm clear of any door swings.
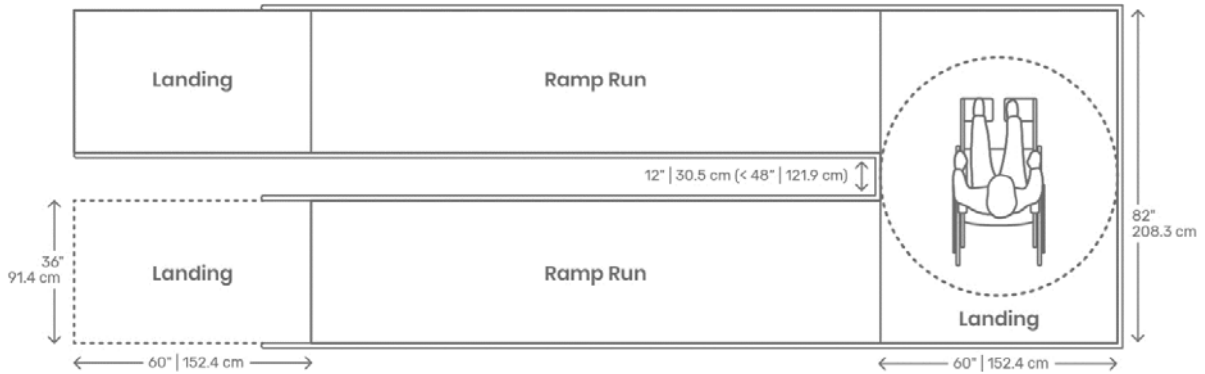
Figure 30 Ramp landing

entrance landings shall be provided adjacent to the ramp with the minimum dimension 1800*2000mm. The entrance landing that adjusts the top end of a slope is provided with floor material to attract the attention of visually impaired persons (limited to colored floor material whose color and brightness is conspicuously different from that of the surrounding floor material or the material that emit different sound.

1.1.1.22 CORRIDORS

All floor surfaces should be non-slip, outside as well as inside the basic dwelling units. In thisconnection, apparent slipperiness is as important because of the psychological danger, as actualslipperiness. Suitable flooring materials include unglazed tile. Un-waxed wood floors are particularly satisfactory for the wheelchair user. The floor should be smooth and level, and particular care should be taken with highly jointed materials such as ceramics tiles or brick orstones. Door thresholds and minor changes on floor level should be avoided whenever possible.
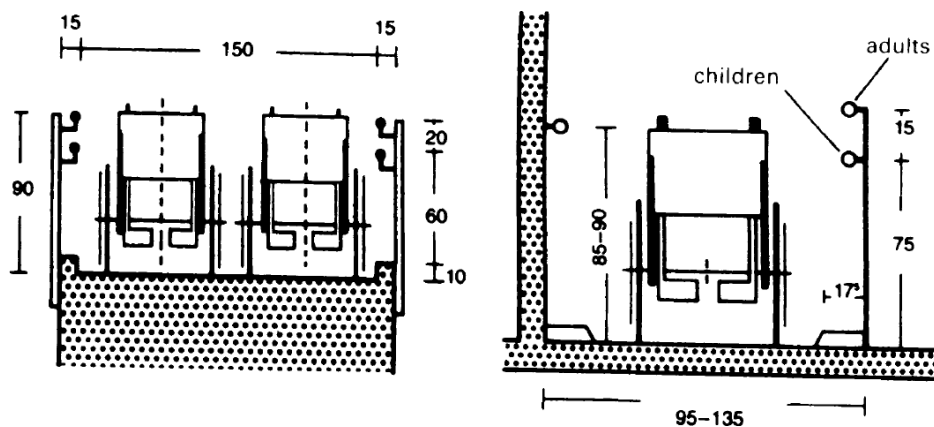
Figure 31 Corridor

1.1.1.23 DOOR

Doors should have low resistance closersand a paddle-type deadbolt. The dooropening should be 3 ft. Wide to permit easy passage of wheelchairs, stretchers, and persons using crutches. Precautions should be taken to see that doors should not have locks; provide easy latches instead. Large easy-to-grasp doorknobs or lever-type handles should be used.Revolving and double-acting doors and automatic door closers are particularly dangerous and should be avoided. It is also desirable to provide peepholes orvision panels. Sliding doors conserve valuable spaces in small units and eliminate the danger of walking into half-open doors.
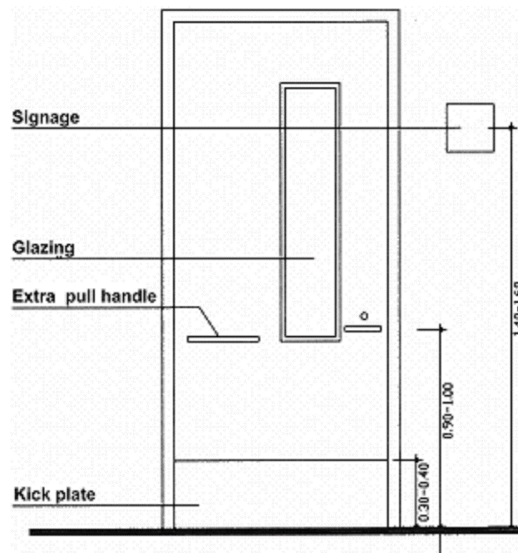
Figure 32 Door

1.1.1.24 WINDOW

Whenever possible, windows should look out for an interesting view. In housing for older people, the height of the windows is important. Particularly in the living room, dining area, andbedroom, sitting and looking out of the window is a daily activity for many of the elderly. Thebottom of the window should be no higher than 3'2" from the floor and can be as low as 1' forwindow walls to include a guard rail at the height that will not interfere with viewing but that will give a feeling of security to permit viewing from a standing position, the window should extend to a height of 6'-8" for the bathroom and kitchen, the eye-level zone is set by the standing height. The opening of the window should be between 3'-6" and 6'-8" from the floor.For bedrooms, one window should be low enough to permit a person in bed to look outside. Inaddition to

making the room more pleasant, a sowing window provides an emergency exit. Window arrangements that produce a uniform distribution of light are preferable to a spotty placement of the openings.
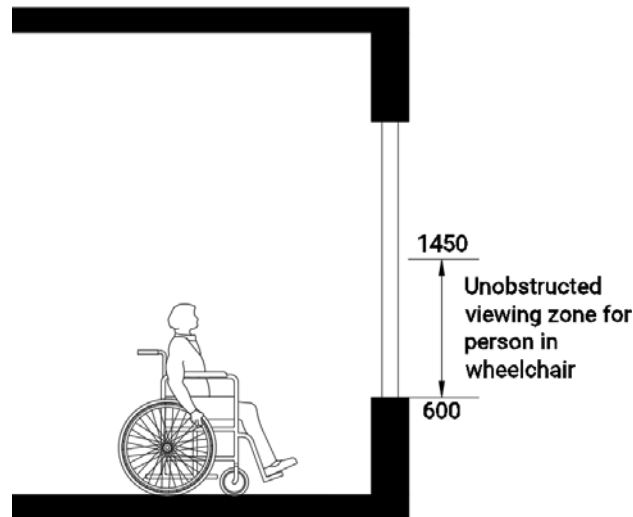
Figure 33 Window view

A southerly orientation is the most desirable, but the provision should be made for shading devices. Roller shades should be avoided because of the danger involved in retrieving a released shade. Venetian blinds or draw-type draperies are preferable.

II.   PASSIVE DESIGN TECHNIQUES

Passive design is a design that takes advantage of the climate to maintain a comfortable temperature range. Passive design reduces or eliminates the need for auxiliary heating or cooling. The passive design utilizes natural sources of heating and cooling, such as the sun andcooling breezes. It is achieved by appropriately orientating the building on its site and carefullydesigning the building envelope (roof, walls, windows, and floors). Well-designed building envelopes minimize unwanted heat gain and loss.

PRINCIPLES OF PASSIVE SOLAR DESIGN:

1.1.3.1   Site selection

Select a site protected from the afternoon sun with good solar access, and is open to cool breezes while remaining sheltered from cold winds during winter.

1.1.3.2   Orientation

Position the building's long axis toward solar south will maximize solar gain during the winter month and limit western exposure in the summer.

1.1.3.3   Window placement

Choose energy-efficient glo european windows, arranging them with consideration to minimize summer heat gain and maximize winter heat gain.

1.1.3.4   Shading

Configure shading devices, such as eave overhangs or external shading devices to permit low winter sun into the building and high summer sun out.

1.1.3.5   Room layout

Rooms are used more frequently placed on the south side for optimal use of natural light during the day.

1.1.3.6   Insulation

Supply a continuous insulation layer, with thickness appropriate to the climate, surrounding the entire conditioned space of the building, minimizing loss of heat during winter and heat gain in summer.

1.1.3.7   Air-sealing

Supply a continuous air-barrier surrounding the entire building envelope, in contact with the insulation layer, minimizing loss of heat in winter and heat gain in summer months.

1.1.3.8   Ventilation

Every building must have ventilation to sustain good indoor air quality. Energy-efficient, airtight buildings need a heat (or energy) recovery ventilation system.

1.1.3.9   Thermal mass

Heavy materials such as brick, concrete, tile, and stone should be utilized in appropriate thicknesses and areas to insulate the building envelope to store heat and help balance temperature fluctuations.

1.1.3.10 Landscaping

Carefully planned landscaping and planting can aid in maximizing the performance of passive solar design and assist with imperfect situations and site problems.

III. CONSIDERATIONS OF PASSIVE DESIGN TECHNIQUE

1.1.3.1 Passive ventilation

passive ventilation is a natural ventilation system that makes use of natural forces, such as wind and thermal buoyancy, to circulate air to and from an indoor space. These ventilation systems work to regulate the internal air temperature as well as bring fresh air in and send stale air out. This is largely achieved through the opening and closing of windows and vents which act as a source of air as well as an exhaust.

Source: (unique window services, 2016)
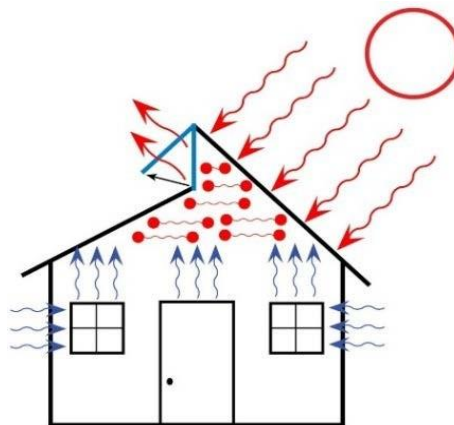
figure 34 passive ventilation

1.1.3.2 Passive cooling

Passive solar cooling systems work by reducing unwanted heat gain during the day, producing non-mechanical ventilation, exchanging warm interior air for cooler exterior air when possible, and storing the coolness of the night to moderate warm daytime temperatures. At their simplest, passive solar cooling systems include overhangs or shades on south-facing windows, shade trees, thermal mass, and crossventilation.
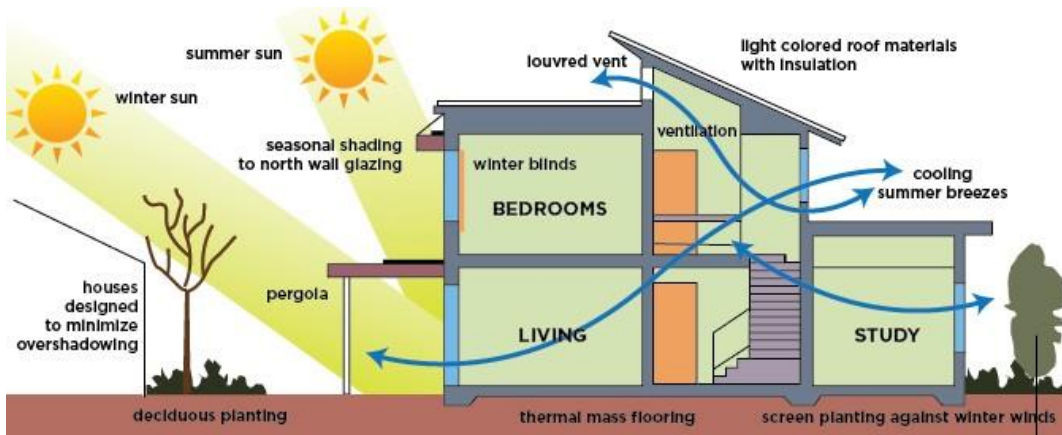
Figure 35 passive cooling

1.1.3.3   Daylighting

daylighting is an essential design strategy for zero energy buildings. Properly designed daylighting uses sunlight to offset electrical lighting loads, save energy, and reduce cooling loads. Daylighting should provide controlled, quality lighting and deliver better lighting than electric lighting alone. Otherwise, occupants are encouraged to turn on the electric lights even when they are not needed. At the sametime, direct sunlight into regularly occupied spaces should be limited. The good daylighting design seeks the right balance between enough daylight and too much sunlight, which can be a source
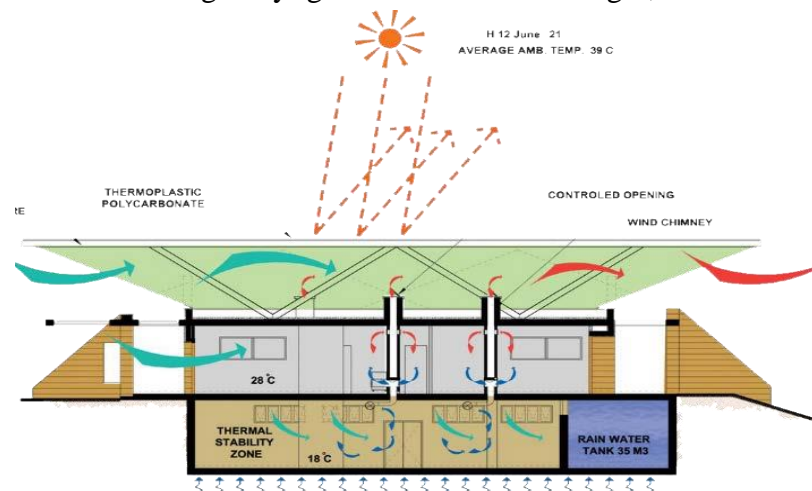
of glare and excessive heat gain.

Figure 36 Daylighting

1.1.3.4 Green wall, roof garden

A green roof is a roof of a building that is partially or completely covered with vegetation and soil, or a growing medium, planted over a waterproofing membrane.The term green roof can also be applied to roofs that have some form of purpose considered "green", such as solar panels or a photovoltaic module. The constructionof roof gardens is a complicated and expensive task. It needs a different structural system. Care should be taken in the case of the drainage system, root barriers, and waterproofing membrane.

The designer of the roof garden should also consider wind pressure. The soil mix used must be environment friendly, lightweight, and good water holding capacity.

Green roofs:

- Saves building from heat, acidic rain, and ultraviolet rays.
- Act as urban heat island mitigate for the cities.
- Reduce the requirement of summer air conditioning hence saves energy.
- Control stormwater.
- Act as a sound insulator.
- 10m2 (~100ft2) of green roof consumes approximately the same amountof co2 as a 13-foot-high tree per year.
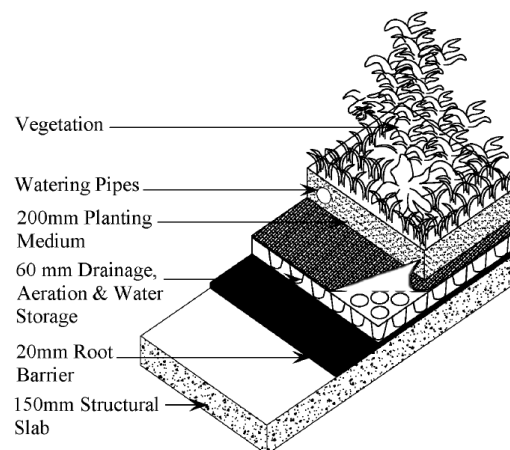
Figure 37 Typical green roof section

1.1.3.5 Outdoor spaces

Spaces within the residential environment in the elderly homes that are readily accessible to the dwellers regardless of their sizes, design, or physical features and which are intended for primarily, amenity or physical recreation, whether active or passive are termed as outdoor open spaces for the elderly. Outdoor spaces in care communities have the potential to provide opportunities for sensory stimulation, socialization, and meaningful activity.

Elderly people spend a much larger proportion of their time within the residential environment than younger people. They are keenly aware of patterns of the sun, cold, and windy areas and where they can retreat during times of stress. Opportunities for the residents to contribute to the landscape will be highly valued. Landscape designers need to ensure that design is congruent with their tastes and needs. We should provide open spaces that are suitable and appropriate to the needs of the older people and the residential environment that facilitates rather than hinders independence and interaction of the older people.

Outdoor spaces have many benefits for elderly people. Scenic walking paths and gardens add residential character and are features demanded by consumers. Elderly people need outdoor spaces that include exercise, fresh air, emotional well-being, and opportunity for social interaction. Not being able to go outside is associated with feelings of depression. They benefit from both active and passive engagement with outdoor spaces. Active engagement offers feelings of usefulness and productivity, opportunities for self-expression and personalization, and physical activity. Gardens enable residents to continue engaging in enjoyable activities, which helps to create familiar, non-institutional surroundings. Garden activities encourage a positive effect upon elderly people and an outdoor garden space may result in less agitation be used to calm agitated ones. Compared to the traditional adult daycare center activities such as exercise and crafts, horticulture therapy activities resulted in a higher level of active engagement among the participants with dementia. Outdoor spaces in the care community have the potential to provide opportunities for sensory stimulation, socialization, and meaningful activity.

The benefit of passive engagement with outdoor natural spaces includes increased socialization, environmental stimulation, increased exposure to sunlight, and improvement in older adult's coping strategies. Benefits such as better sleep patterns

decreased agitation and aggressive behavior, and improved hormone balance has been observed in association with contact with nature and the outdoors.

Various aspects should be considered while designing outdoor spaces for elderly people. Spaceshould be accessible and correctly oriented. Similarly, space should be legible whose landmarks or pathways are easily identifiable and are easily grouped into an over-all pattern. Itis of special importance when considering environments at the urban scale of size, time, and complexity. Structuring and identifying the environment is a vital ability among all mobile animals. Many kinds of cues are used: the visual sensations of color, shape, motion, or polarization of light, as well as other senses such as smell, sound, touch, kinesthesia, sense of gravity, and perhaps of electric or magnetic fields. Indeed, a distinctive and legible environment not only offers security but also heightens the potential depth and intensity of human experience (lynch, 1964).

". . . The terror of being lost comes from the necessity that a mobile organism is oriented in itssurroundings."

- (lynch, 1964)

Wayfinding should require minimal effort to map a route in one's mind when heading to a particular destination. In respect of the elderly, orientation may become more difficult as a result of deterioration of physical and sensory perception, hence wayfinding should be more pronounced without the elderly person having to unnecessarily stress their mind but at the sametime, they should be able to independently maneuver through the building without having to often ask for help with directions. Clustering functions of similar nature may help to decreasetravel distances. The use of color, light, and a variance in a material may also aid in creating a more legible environment that is simpler to circulate throug

1.1.3.6   Landscape design

Because of nature's many positive benefits, healing gardens are becoming more popular in healthcare settings. They provide patients, family members, and even employees with a sanctuary and relief from stress. Although healing gardens have different therapeutic propertiesthat are typically not associated with medical treatments, they have great benefits (hartig, 2006). Each person interacts differently with these gardens. For example, some prefer to sit quietly, whereas others find it more therapeutic to be interactive. There is viewing nature, whether in the reality of through a medium such as a painting or a picture, being in nature, andinteracting with nature (pretty, 2006). Any level of interaction with nature reaps psychologicalhealth benefits and should be seen as an important therapeutic resource. Having potted plants indoors can even be beneficial to patients who are unable to go outside (marcus & sachs, 2014).

Gardening is a good example of a structured activity because it not only benefits the body physically but also mentally. According to joann woy in "accessible gardening", gardening can lead to "increased physical strength and mobility, mental and emotional improvements, increased self-esteem and self-confidence (woy, 1997)." Additionally, gardening can give seniors a sense of control, especially with many tools that have been adapted for use for the physically challenged. Using gardening as a therapeutic tool is not a discovery and today it is often referred to as horticulture therapy. Horticultural therapy is defined as a process utilizing plants and horticultural activities to improve individuals' social, educational, psychological, and physical adjustment, thus improving their body, mind, and spirit (dannenberg, frumkin, & jackson, 2011). Horticultural therapy is defined as "a process utilizing plants and horticultural activities to improve individuals' social, educational, psychological, and physicaladjustment, thus improving their body, mind, and spirit.

Horticultural therapy is especially useful for seniors with dementia since it can be easily adapted to the various skill levels and needs of the individual. Horticultural therapy can "decrease or slow negative effects of aging" and aid the reduction of negative behaviors such as agitation (mooney & nicell, 1992). People are biologically programmed to engage nature asa source of practical utility beyond the obvious material

rewards because such actions can alsoproduce self-sufficiency, self-confidence, and a feeling of independence gained by exercising their ability to survive with competence and craft. By immersing oneself in nature, he or she receives many physical and psychological benefits.

When designing a landscape for the elderly, it is important to consider their incremental and progressive physical limitations. A range of abilities needs to be accommodated including requiring wheelchairs and walkers, those who stoop or cannot bend easily, those requiring frequent resting spaces, those that may need assistance with activities. These concerns, in several ways, inspire the design, pathways, the placement of sitting spaces, landscape elements,and features and their position and the overall design of the architectural components.

Shades near the entry provide a progression of lightening levels and protective space when entering the garden; ample chairs and benches but placed carefully to encourage walking in thegarden and provide the choice of destination and seating. The garden must be perceived to be safe. The entire garden shed should be visible from key interior and exterior places. This subjects the residents to the prominent display area for seasonal activities and encourages themto explore outdoors while also providing the staff a clear view of the garden. Firm and level circulation paths with frequent places to pause and rest provide a sense of safety and comfort. Gardens should contain areas offering aesthetic as well as functional variety to accommodate a range of users. The overall organization should be simple and easy to comprehend. Engagingoutdoor spaces offer a variety of distinct settings with opportunities for observation, or activityand varying levels of participation.

1.17.   SENSORY EXPERIENCE

While designing for elderly people whose sensory experience has depleted, elements that heighten the sensory stimulation are a must. The environment designs aim for is one that sparksexcitement and curiosity but doesn't cause stress or anxiety (eastman, 2013). Sensory stimulation encompasses many elements including light, color, sound, and materials. There isno one solution, and any design decision has many implications. Lighting, materials, and color also contribute to the feeling of the facility. They can either create a residential environment ora more intuitional environment. These sensory that heightens the sensory stimulation should make the elderly feel comfortable. As

nature can excite all the senses, it is important to providenature a prime consideration while designing.

I. LIGHT

"No space, architecturally, is a space unless it has natural light"

-(kahn, 1989)

Louis kahn had an affection towards sunlight and shadow and their modulation. Kahn was aware that light is an integral component in defining one's experience of a space. Light exists as a significant sensory experience and can greatly impact the quality of life for an individual living in a senior care facility. When discussing light, one must consider both natural and artificial light as both have major impacts on humans and their health. All spaces must incorporate as much natural light as possible because a majority of seniors are greatlyunderexposed to sunlight which is detrimental to their health. Sunlight impacts the nervous system, one's mental health, and one's appetite. Natural light also helps regulate human circadian rhythms, which are important to our health and mood, and regulate hormones such as serotonin and melatonin. Improved sleep patterns have also been linked to exposure to natural light. It has been shown that not enough exposure to natural light can lead to deterioration of the visual sense and even lead to physical illness (demello, 2016).

Artificial light is also a key element in a senior care facility, especially since as we age, changesin our vision cause our sight to decline. Additionally, most medical facilities use fluorescent lights with acrylic lenses, which are poor sources of light due to glare and do not look like theywould be found in a residential home. In a recent study, the american medical association declared that light at night results in adverse health outcomes, which are particularly relevant for medical facilities that are in operation around the clock such as within a hospital or elderlycare facility. The study evaluated the efficacy of using daylight-mimicking leds to enhance cognitive functioning and improve the health of residents with dementia (demello, 2016).

Figure 39 Unfavorable room lighting

Source: (derungs medical lighting, 2011)
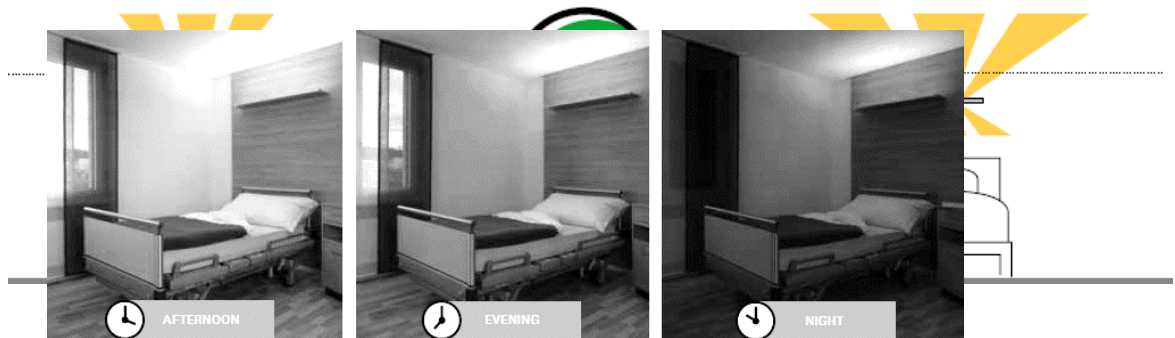
Figure 40 Lighting in different period of day

II.   COLOR

Another sensory influence to consider is color, which is closely linked to light as light can impact color. As color is an after-effect of light energy, it too is a form of energy that the mindrecognizes consciously or unconsciously and thus has an effect on body function and emotion.Color sensations affect people although they are not consciously thinking about the colors in their particular environment. Colors are divided into two distinctive groups: cool and warm colors. Cool colors are blue and color predominantly blue whereas warm colors are red and colors predominantly red and yellow. Although colors have a varying effect on humans, cool colors are generally known to have a sedative effect on the mind whereas warm colors shouldbe used to stimulate the mind (louis, 1947). Overstimulation has been proved to cause changesin the rate of breadth, pulse rate, and blood pressure that may have negative effects on one's health. Similarly, people subjected to under-stimulation showed symptoms of restlessness, difficulty to concentrate, irritation, and other negative reactions (omarjee, 2013). Due to the result

of these two powerful forces, a balance should be acquired between calming and stimulating colors.

As we age, our perception of color changes compared to when we were younger. The major difference is a decline in being able to distinguish between colors, which becomes even more difficult because of the yellowing of the eye's lens (demello, 2016). This fact suggests that, inthe design sense, warm colors are the best choice for interiors and furnishings because it makesit easier to distinguish between them. However, the key is to still create a color contrast. Creating high contrast between different color elements within the design is the best way to enhance seniors' ability to accommodate for their vision loss. Color is a tool that bears greaterimportance than simply to adorn the environment for aesthetic purposes. If used effectively it can be used as a 'visual identification system' to ease visual perception and assist with orientation and wayfinding. It has also been shown that color can stimulate reduce anxiety andspeed recovery it is being used as a tool in many healthcare settings, including senior care facilities (demello, 2016).

Table 5 choice for creating contrast

Good color choices for contrast	Poor color choices for contrast
The light color against black	Dark green against bright red
The dark color against white	Yellow against the white or similar lightness
Light yellow against dark blue	Blue against green or similar lightness
Dark red against the light green	Lavender against pink

Source: (demello, 2016)

III. SOUND

To aid seniors with their hearing, the built environment plays a significant role. Hearing loss isone of the many impacts of aging. Impairments in hearing are not limited to just

a lack of individuals' ability to hear noises but also include the inability to locate the orientation of the source of the noise, which can cause confusion and anxiety (demello, 2016). Sound from different spaces needs to be controlled so noise in one space does not distract residents in another. One solution is to use carpet which, will reduce noise from traveling through the air. Carpet also has less glare than other materials. Walls, ceilings, windows, and doors all have products that offer sound reducing qualities and should be chosen where appropriate, for example, bedrooms and bathrooms where noise transfer should be kept to a minimum. Size of a facility and the location of spaces factor into whether designers would need to use sound- proofing materials. One can also control noise by separating spaces that have different noise goals. For example, more quiet spaces, such as bedrooms, should not be next to an activity room where loud activities take place. Careful consideration while zoning of the different facilities and maximum use of greenery which also act as a sound belt would be appropriate while designing for the elderly. Although too much noise can be bothersome, no noise can also have negative impacts. Complete silence is uncomfortable, which is why there should be some noise, and that noise should be meaningful and informative.

IV. MATERIAL SELECTION

Material selection is significant because seniors experience their environment on more of a sensory level, designers need to be aware of overstimulation from excessive patterns or design. A smart way to incorporate patterns and textures is through elements that can be easily changed to accommodate resident's different needs. Pillows, blankets, and curtains are all easy ways of adding texture in a semi-permanent way. All of these elements can come in a variety of sizes and patterns and can be used in multiple ways to add character to space. Blankets can even be hung to add sound elimination along with making a space more personable for a resident, especially if the blanket has emotional value to that resident. These elements also create a more residential feel because they are elements that are commonly found in homes. Although hard finishes are easier to clean, they should be limited as they cause a more institutional-like feeling.

Another thing to consider when selecting materials is glare. Depending on where an item is located, light hitting a particular surface could cause a glare, which is a problem for the elderly because, often, their eyes have particular difficulties adjusting to glare. It could also cause difficulty in differentiating between materials or objects. This

consideration needs to be balanced with not having enough light to also distinguish differences in a given environment. Lights should be placed where they can be easily accessed and so that individuals do not haveto walk far in the dark to turn them on. Also, using motion-activated lights is a wise idea because then they automatically turn on and off without anyone having to physically get to them (demello, 2016).

V.   TEMPERATURE

Generally speaking, they need a room temperature of about 2-3 degrees c higher, and a more uniform distribution of heating from floor to ceiling to avoid chilling of the legs and feet. Theheating system in dwelling units for old people should be so designed as to use fuel which requires the least possible physical effort to operate. High temperature or moderately high temperature accompanied by high humidity is poorly borne by elderly persons, particularly those with heat stress. To ensure adequate rest and sleep cross-ventilation is especially neededin bedrooms.

1.18.   RESEARCH PAPER SUMMARY

I.   RESEARCH PAPER 1:

HOME, HOTEL, OR HOSPITAL? SWEDISH ARCHITECTURE WAS USED IN TWELVE RESIDENTIAL CARE HOMES FOR FRAIL OLDER PEOPLE BETWEEN 1983 AND 2003.

This paper focuses on the results of national standards for the architectural design of residential care facilities. These standards encourage the creation of architectural spaces that are both exteriorly and internally homelike and residential. Additionally, they emphasize arrangement ent that offers a spatial view of the shared area to aid in navigating. Twelve residential care facilities that were on the market and each had earned the reputation of being excellent models were utilized as a sample in the study. The creation of the residential care institutions took place between 1983 and 2003. A diverse research technique that included interviews and architecture evaluation methodologies was applied, with each residential care facility acting as a distinct case study. A spatial theory that claims that the indoor space of architecture may be characterized in terms of its spatial shape, namely a cell, a corridor, a niche, or a multifunctional space, was used to study the facilities. Additionally, the entrance and

the facade's placement and architectural style were examined. Additionally, a numerical value was assigned to qualitative data to qualitative metric. (andersson, 2011)

Based on the empirical results, the research hypothesizes that the national requirements lead to three design scenarios, which architects frequently apply when they envision space for elderly fragile people: at their finest, the standards achieve their goals and create a comfortable environment where the architectural space is intimately interwoven into routine eldercare activities. The second result points toward a setting with high-end architecture and a hotel-like atmosphere. The eldercare provided at the house is not best done in this area. Despite this, the staff is prepared to overlook these design issues because the occupants seem happy in their surroundings. Thirdly, the rules provide a hospital-like setting where the architectural design has been sacrificed in favor of promoting the medical and sanitary components of eldercare. The setting exhibits a high level of functionality that is crucial for creating a suitable work environment but unhelpful for giving residents a sense of home in the common area. (andersson, 2011)

The vast majority of the sample's residential houses belonged to the third category—the hospital-like setting. While three houses exhibit such traits that they actualize a homelike and residential-like milieu, four residential care homes reflect a hotel-like environment. The accessibility to the outside space from the inside space is a vital element in the experience of the residential care facility as a homelike, hotellike, or hospital-like setting. This link is phenomenologically referred to as trans spatiality. Additionally, residential care facilities frequently have domestic-like facades and are incorporated into or adjacent to the existing built environment. The interior architectural area, however, depicts a setting like a hospital. This group includes residential care facilities constructed in the 20th century in particular. (andersson, 2011)

Keywords: architecture, residential home, homelike space, hotel-like space, and hospital-like space

II.   RESEARCH PAPER 2:

CREATING EMPATHETIC ARCHITECTURE FOR THE FRAIL OLDER, – SOCIO-POLITICAL GOALS AS CRITERIA IN AN ARCHITECTURAL COMPETITION

This paper provides a thorough explanation of the factors that a municipal competition organizer must take into account before choosing to hold a competition to redesign spaces for elderly persons who are feeble. The municipality is a suburb located about 35 kilometers northwest of stockholm, the capital of sweden. The formerly primarily agricultural hamlet had a significant population increase throughout the 1950s and 1960s, transforming it into a location with a variety of industries near a major city region. Within the next ten years, the municipality predicts a large increase in the 65 and older age group, which now makes up around 17% of the population. Even though the majority of people in this age group age healthily, there is a tendency for reliance to increase among those who are 85 years and older. (andersson, 2011)

This means that there may soon be a demand for more residential care facilities, either as brand-new construction or renovations of one of the seven already-existing facilities. However, the municipal administration for social welfare viewed these nursing homes as off-site environments with an institutional feel. To reconsider the need for room for elderly and fragile individuals, the government pushed. As a result of the aforementioned facts, the second municipal architectural competition in 2006 included an open ideas competition on new homes for elderly persons with or without frailties. The study's objective was to retrace how the municipality handled this situation. The interviewing guide utilized for this study has a portion with three questions that were to be answered using a selection of personal images. Twelve people who were involved in the municipal process of arranging an architectural competition were questioned about their memories of things that happened before, during, or after the competition was realized. These people were recognized as essential participants in the process in official papers. (andersson, 2011)

All of the interviewees were able to provide their memories of what happened. Nevertheless, they highlighted several facets of the procedure. These characteristics represented their divergent viewpoints on the subject of senior housing. As the competition was being planned, a discursive landscape evolved that characterized the discussions around the suitable built environment for older people. The discursive model of the considerations that a municipal organizer considers could be traced using an existing model of the practice of architecture, in which architecture, human interactions, and the built environments are located in the center of four opposing

dimensions—the phenomenon versus ideologies, and societal implications versus individual understanding. (andersson, 2011)

Five specific discourses on architecture for an aging society were found to revolve around a generic discourse on human-spatial bound concerns related to aging and architecture. One discussion placed a higher priority on moral issues that affected how architecture, care, and compassion were realized. Another discourse offered ideas that may be used in both architectural and eldercare activities. A third one provided complete political visions that had geographical implications. The planning-based discourse, which worked toward project implementation, was the strongest of the five discourses. However, this discourse tended to downplay the ethical issues and favor universal fixes. (andersson, 2011)

Keywords: architectural competition, municipal organizer, discursive model, frail older, and design process.

CASE STUDY

1.19.   INTERNATIONAL CASE STUDY

I.   ANTARA SENIOR LIVING

Figure 41 Antara Senior Living

- Type: public limited company

- Industry: assisted living, retirement community, independent senior living

- Founded: 2011

- Area served: dehradun, noida

- Services: housing, healthcare, wellness

- Number of employees: 200

- Parent: max india

Antara senior living is a max india-owned indian company that operates autonomous senior living retirement complexes in india. It was founded in 2011 and has attracted the attention of the indian media for being one of the first structured ventures to delve into retirement or assisted living, an area that has frequently been vilified by traditional parts of indian society.

DESIGN PHILOSOPHY

Antara dehradun has been intended to meet its inhabitants' physical, spiritual, and emotional requirements. Antara dehradun, designed by globally renowned architects perkins eastman of new york and esteva i esteva of pallonji, is a complete environment that provides its people with the highest standard of living.

Figure 42 Project Image

- The master plan was created with universal design concepts in mind to provide inhabitants with barrier-free access throughout the neighborhood.

- The landscape design stresses the necessity of living a natural lifestyle. The landscape treatments incorporate issues of safety, security, and use.

- The landscape includes areas such as a yoga pavilion, creative activity zones, terrace gardens, local plazas, organic/herbal gardens, orchard walks, and so on.

- The landscape design incorporates various sustainability features such as rainwater harvesting, minimal grading changes, and native planting zones. The land has been sloped to generate a series of terraces to minimize each cut and fill.

- Vehicle and pedestrian traffic has been separated to ensure residents' safety while moving about the community.

- Preservation of existing trees throughout the master plan and residential design development

- Carefully planned residences with views of the river tons, mussoorie hill, the iush malsi forest, and planted spaces inside the neighborhood.

- Each home features a variety of unit sizes to encourage social connection.

- rest places have been included in the master plan at strategic locations.

Figure 43 Site Plan

Apartment type a

1. Living area
2. Dining area
3. Kitchen
4. Master bedroom
5. Bedroom
6. Family lounge
7. Powder room
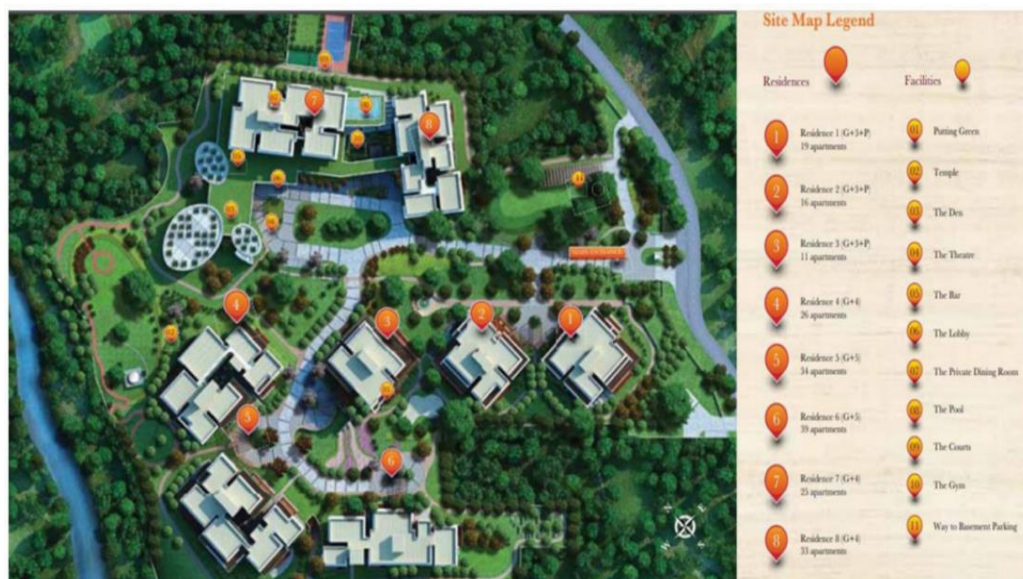8. Multipurpose room
9. Utility area
10. Balcony
11. Terrace

Figure 44 Plan type A

apartment type b

1. Living area
2. Dining area
3. Kitchen
4. Master bedroom
5. Bedroom
6. Family lounge
7. Study room
8. Powder room
9. Multipurpose room
10. Utility area
11. Balcony

Figure 45 Plan Type B

Specific design intervention

- Our community's apartments are meticulously planned to offer pleasant environments for our inhabitants at various phases of their lives.
- Apartment architecture standards have been developed with the americans with disabilities act in mind (ada). For example, wheelchair turning radius, door and window widths, and a variety of other factors.
- Slip-resistant continuous flooring having a wet static coefficient greater than 0.06.
- Installed controls such as electrical outlets, light switches, door locks, thermostats, and alarm panels at comfortable heights.
- A multi-purpose room at the entrance that functions as coat storage, prayer space, and a place to store items such as a wheelchair or walker while not in use.
- Two-way switches for easy movement
- False ceiling with cove lights that provide ambient lighting rather than glaring.
- Rounded corners for smooth edges
- Each unit has large windows that allow for plenty of natural light and ventilation.
- Vrf hvac systems, which allow temperature adjustments in separate rooms for comfort and significant energy savings.
- Provisions provided for future usages, such as the addition of higher toilet seat heights and grab bars. All master bathrooms are ada-compliant, with easy mobility and covered shower panels.

DESIGN THAT ENHANCES VITALITY

- Units have been arranged in houses ranging from eleven to thirty-nine apartments to provide the impression of local communities within a bigger community.
- Spacious lobbies and halls for a sense of spaciousness and ease of mobility.
- Designing lighting settings for simple sight when moving around communal places.
- Building designs are developed to provide for green spaces within dwellings.

- For tenants' safety and security, apartments feature access control on the bottom floor through smart cards.
- Vibrant interior design in common spaces to bring brightness and enthusiasm.
- Double-glazed windows and doors for energy efficiency and climate control.
- Two lifts per residence: one for occupants' usage and one for maintenance or emergency scenarios.
- Planters on balconies and patios add a touch of green and improve overall attractiveness.
- Each unit has its own lobby space with chairs for residents to mingle and rest.
- Wooden railings/ledges in the foyer and corridors to offer support.

II. HOUSING FOR ELDERLY PEOPLE IN HUNINGUE

OBJECTIVES

- To study the feasibility of the site.
- To study planning, features, and design components.

Figure 46 Front facade

PROJECT SUMMARY

- Architects: dominique coulon & associés
- Area: 3932 sq. M
- Year: 2018
- Location: huningue, france

PLANNING AND DESIGNING

This housing for elderly people is located on the banks of the rhine. The exceptional situationof the site allowed to turn the common areas and the hall towards the river: the residents can enjoy the choreography of passing boats. The program consists of twenty-five fifty-square- meter homes, a restaurant in three sections, a computer room, a hobby workshop, a vegetable Garden, and a petanque field. Everything is organized to foster relations among the residents. Collective living spaces are as generous as possible, with

abundant natural light. We have designed places that encourage exchanges and social interaction. Encounter-inviting events and sequences punctuate the routes.

The staircase stands at the center of the building, rendering it unavoidable. In combination withthe wide central space, it invites mobility. Upstairs, the patio brings light from the south into the heart of the building. The white volume inside seems suspended; it deconstructs the spaceand lends a certain strangeness to the whole. Red concrete, terracotta, and wood produce a benevolent atmosphere. Outside, the building is enveloped in brick on all sides. The walls catchthe light; by emphasizing its rustic port setting, the building connects itself to the history of therhine.
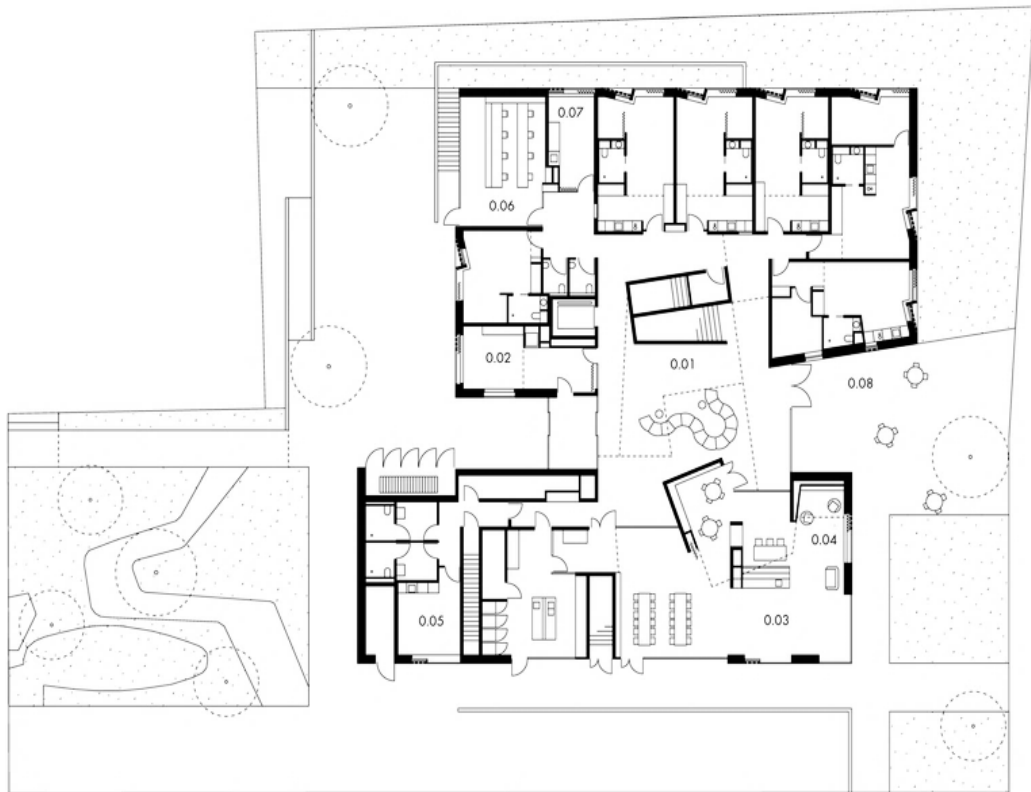
Figure 47 Master plan

DESIGN FEATURES

- Located at the side of the lake.
- Abundant use of natural light.
- Use of building materials like terracotta, red concrete, and wood.

Figure 48 Use of red concrete

Figure 49 natural light inside building

Figure 50 external facade

III.   DIGNITY VILLAGE

OBJECTIVES

- To study active and productive senior living.

- To study about various facilities that can be provided.

PROJECT SUMMARY

- Architects: murali architects
- Area: 25 acres
- Year: 2009
- Location: chennai india
- Facilities: elite cottage, economy cottage, premium cottage, internet café, library, health club, meditation hall, multi-purpose, business center, community hall, water bodies.

Figure 51 Render view

Dignity village is a project conceived by rural development foundation, a trust & promoted by nsa (india) private limited both the organization dedicated to developing rural india. This village project is for an active and productive living for the senior citizens in a village near chennai city. The project spreads over 25 acres of land located just 60 km from chennai, 10 km from chengalpat, and 12km to mahindra city, close to nh45 well connected to the city by road and rail. Dignity village is committed to enriching the lives of senior citizens, and enabling them to live in a kibbutz style of community living with their protected privacy and independent living in a pollution-free atmosphere.

Dignity village offers senior citizens opportunities to lead an active life, both mentally and physically. It provides social and moral support to senior people whose families have failed or could not provide them with primary care due to many reasons. It runs active programs that motivate and inspire senior citizens, and help them achieve fulfillment in life, despite their age. To make them feel worthwhile again, making an active contribution to society. Above all, instilling in them a sense of pride and self-esteem, so they can live their life with dignity. Old age homes are meant for senior citizens who are unable to stay with their families or are destitute. These old age homes have special medical facilities for senior citizens such as mobile health care systems, ambulances, nurses, and provision of well-balanced meals.

PLANNING AND DESIGNING

The village is located at the side of a lake. It is composed of different segregated units having different functions. The residential units are located at the rare side of the site and the businesscenter, health club, community hall, clinic and are placed at the front side of the site aligned with the road. Parking and the main entrance are placed at different corners. Large open spaces,pools, and water bodies have been created for recreational purposes.
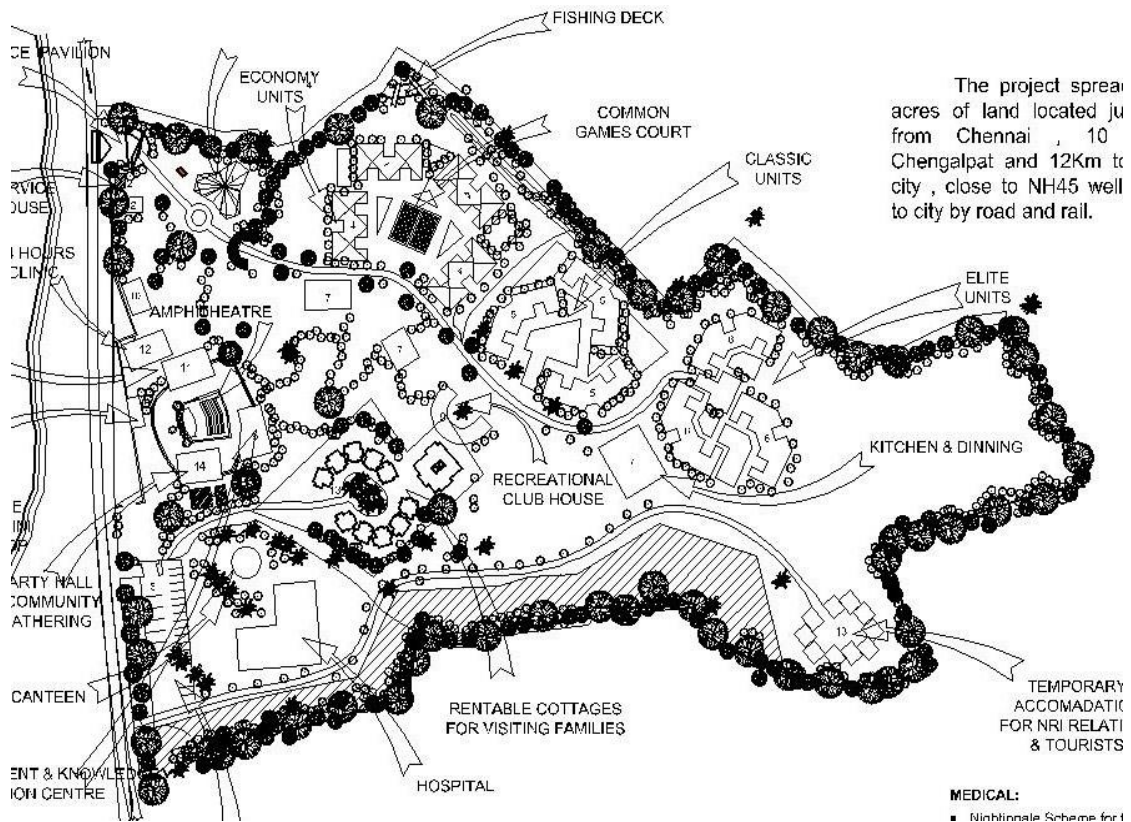
Figure 52 Master Plan

There are three types of residential units with areas ranging from 200 to 500 sq. Ft. Residentialunits are further described as follows:

Elite cottage: the cottage is for those elderly who want to live independently and don't requiresupport to conduct daily activities. The cottage has been designed with anti-skid flooring and consists of a living, pantry, and bedroom with an outdoor lawn of about 100 sq. Ft.

Classic cottage: it is another prototype with an area of 350 sq. Ft. The cottage has been designedwith anti-skid flooring and consists of a living, pantry, and bedroom.

Economy cottage: another type is an economy cottage with an area of 200 sq. Ft. It consists ofa bedroom with an attached anti-skid bathroom, puja alcoves, wardrobe.

Figure 53 view of cottages

DESIGN FEATURES

- Aiming for an independent lifestyle with privacy and dignity for its residents.
- Located at the side of the lake.
- A 24/7 care unit called "mother teresa cottage" provides 24 hours' care service.
- Provision of separate dining and kitchen in each block.
- Rural development and knowledge contribution center

1.20. NATIONAL CASE STUDY

I. PANCHAWOTI CARE HOME

OBJECTIVES

- To gain insight into the location of the care home.
- To study the user experience and their recommendation.

+ To study about kind of spaces and facilities provided.
+ to study the impact of building scale on the elderly.

Figure 54 view from the road

PROJECT SUMMARY

+ Location: tathali, bhaktapur

+ Land area: 8 ropani

+ Target population: above 60 years old

+ Total capacity: 25 currently 5 occupants

+ Facilities: residential, nursing, doctor on-call service, the emergency
  bell in eachroom recreation, daycare, wellness, rehabilitation, sports,
  animal therapy

Panchawoti is a paid retirement home initiated by a team of professionals to offer senior citizens the opportunity to lead an independent life of dignity and respect in the pleasing company of like-minded individuals. It is located in the scenic beauty of natural forest, and hills, and away from the chaos of the city in a quiet peaceful, and pollution-free area of tathali, bhaktapur.

PLANNING AND DESIGNING

The site is spread over the land of 8 ropanis. The eight small building blocks are placed around the site creating a central open space. The open space in the center is used for socialization, walking, and resting. The human-scale building blocks have a sloping roof and so does the site with moderate contour. The space for agriculture, sports,

And the farm has also been defined. The natural contour has properly defined the living space and the space for agriculture, sports, and farming.
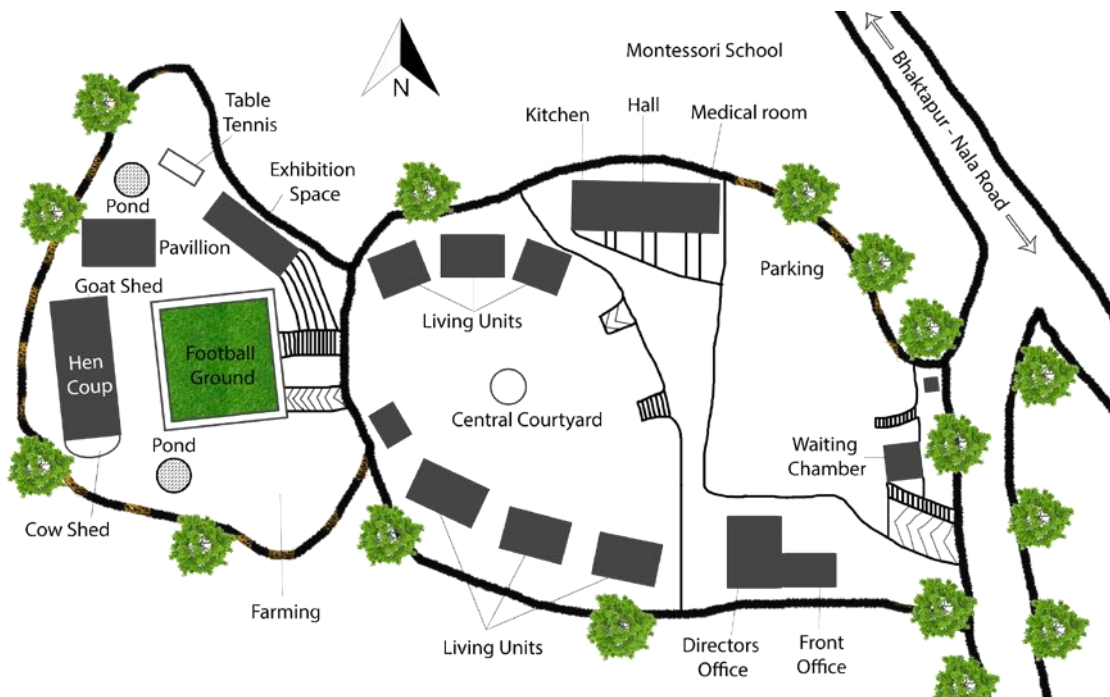
Socializing space

Figure 55 Sketch of site plan

Outdoor meeting points to encourage interaction

- Central courtyard for engagement in social activities
- Sports ground consists of a mini football field which can also be used as a badmintoncourt or even as a volleyball court. There is also a table tennis board.
- The pavilion also encourages social interaction.
- The exhibition area is also another socializing space.
- The agricultural field and animal shed is also space for social interaction.

DESIGN FEATURES
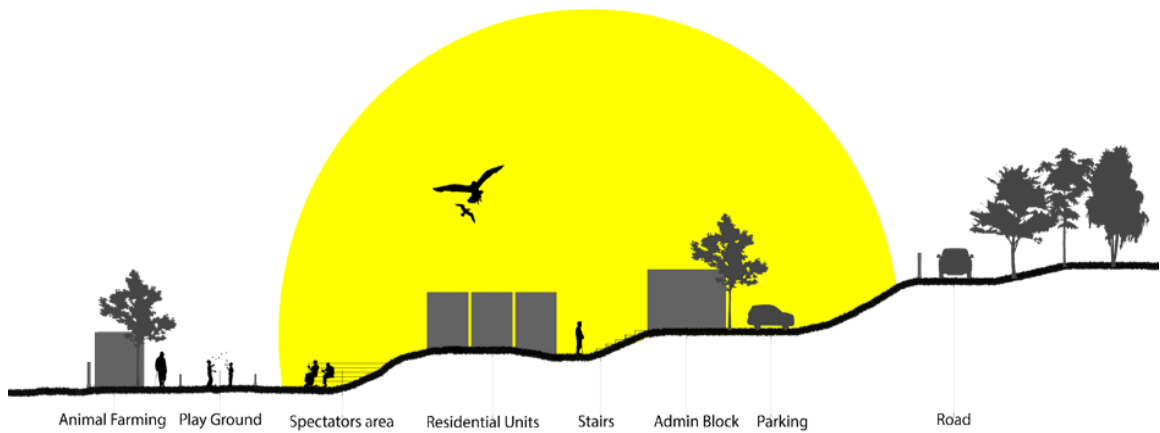
Figure 56 Site section

- One-story housing units with more open space.

- Peaceful environment in the outskirts of the city.

- Barrier-free design approach with ramps.

- Proper use of natural site contours.

- The agricultural field for organic foods.

- The cowshed, hen coops, and goat shed for animal therapy.

INFERENCE

- In-sufficient medical facilities

- Located far from the residential area

- Interaction between kids and elder

II. SIDDHI SHALIGRAM SENIOR CITIZENS' HOME

OBJECTIVES

- To gain insight into planning
- To understand how the society and building complex are integrated.

- To understand the implementation of barrier-free design.
- To study the user experience and their recommendation.
- To study about the kind of spaces and facilities.

Figure 57 Satellite image of the site of Bhaktapur

PROJECT SUMMARY

- Location: bhimsensthan, bhaktapur
- Land area: 1136 sq. M.
- Built-up area: 525sq. M.
- Target population: above 60 years old
- Total capacity: 50 currently 43 occupants
- Facilities: residential, nursing, recreation & day care
- Date of establishment: 2005

Siddhi saligram senior citizen's home was established in the loving memory of a boy named siddhi saligram dhaubadel next to siddhi memorial hospital. The goal of siddhi shaligram senior citizens' home is to offer a home away from home for the elderly and to help them continue to live peaceful, fulfilling, and happy lives. It offers support to senior citizens in need,regardless of their status, wealth, caste, religion, relationship, gender, or ethnicity. The servicesat sssch are available to those aged 60 and above who meet any of the following criteria: lack of family support, neglect by family, lack of local

support, physical limitations, inadequatehousing, or limited access to information about available social agencies for emergency assistance.
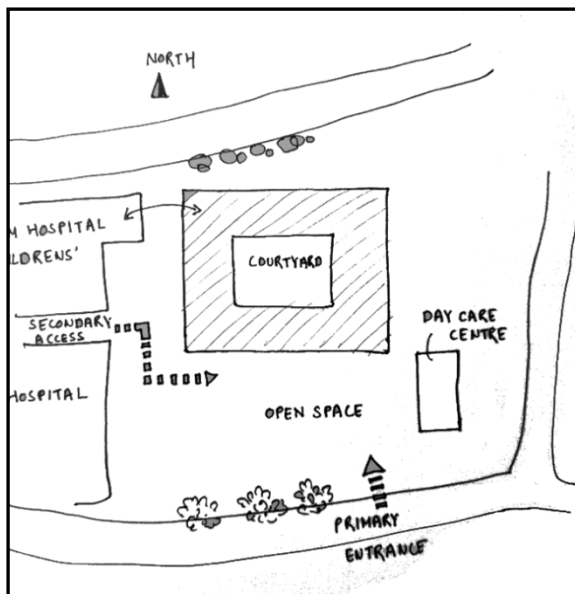
figure 58 sketch of site plan
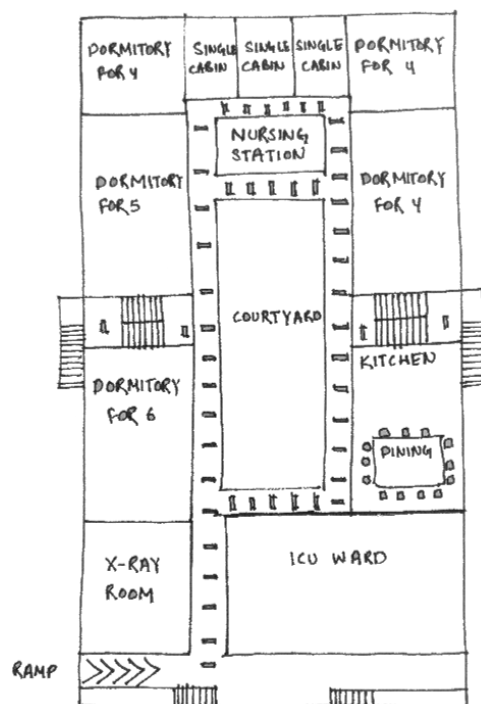
figure 59 sketch of ground floor plan

It is residential and daycare facilities for the elders and the facilities like social environment and companionship, regular yoga classes and meditation, religious and cultural celebrations, nursing and caregiver services, bhajan kirtan and satsanga

(chanting), free refreshments for the members of the daycare center. Various facilities offered for residential care are regular health checkups, 24-hour nursing and caregiver services, specialized doctor visits and ambulance services: medical, orthopedic and psychological, etc., religious tour and picnics, regular yoga classes and meditation, festival celebrations, regular counseling, family visit, and reintegration aid.

PLANNING AND DESIGNING

Siddhi saligram senior citizen's home has courtyard planning and has the architectural character of surroundings. It has a brick façade and sloping roof as that of its surrounding areas.The site can be accessed from the southern main gate or also from the hospital area as the hospital and senior citizen's center share the same premises. It has a garden and daycare centerin the front yard. The building can be accessed through the ramp which leads to the internal courtyard.

- 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

Figure 60 Front facade

Figure 61 Elderly sunbathing in the front yard

Residential units have different types of bedrooms found are single bed units, twin bed units, units with four beds, 5 beds, and 8 beds. There is the provision of the attached bathroom in each unit. The ground floor consists of a nurse room for the elderly who need assistance while the upper floor is for independent elderly who don't need assistance for their daily activities. The area of the two-bedded room is 169.884 sq. Ft., the four bedded room is 291.3 sq. Ft. And the five bedded room is 370.26 sq. Ft. There is the provision of handrails in the passage, stairs,and bathroom to ease the movement of the elderly. Most of the rooms gain natural lighting andcross ventilation. The main entry porch acts as a major transition between indoor and outdoor areas. It is the threshold between public and semi-private spaces. The elderly sit on the front porch and views the various activities taking place in the front yard.

SOCIALIZING SPACES

Indoor: entry porch, courtyard, library, terrace, corridoroutdoor: front yard, daycare center
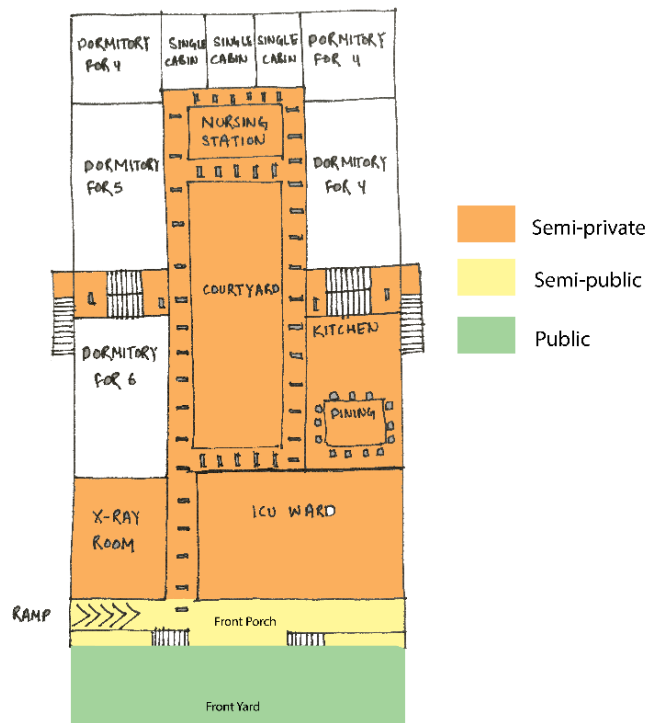
Figure 62 Sketch of zoning

DESIGN FEATURES

- Indoor and outdoor socializing spaces (terrace, courtyard, library, corridor, daycare)
- Barrier-free design approach with the ramp at the entrance, grab rails at ht. Of 2'7" incorridor and toilet.
- carpentry for furniture maintenance

Figure 63 Daycare center

Figure 65 Handrail

Figure 64 Dining room

Figure 66 Multipurpose hall

INFERENCE

- Difficulty in mobility for residents of the upper floor due to lack of an elevator.
- Lack of common room for socialization.
- Dissatisfaction among residents.

Figure 68 Eight-seater room

Figure 67 Physiotherapy room

III.   JANAKPUR WOMEN'S DEVELOPMENT CENTER

OBJECTIVES

- To study planning and requirements of arts and crafts center
- To study the traditional architecture of terai.
- to study socio-economy and socio-cultural relations of societies.

Figure 69 Janakpur Women Development Center

INTRODUCTION

- Location: kuwa, janakpur
- Architect: robert powell
- Constructed: 1994 a.d. with support from australian government, royal danish embassy, save the children japan, the government of federal republic of germany and the government of japan
- Total site area: 8 katha
- Design style: traditional style of terai architecture
- Type: mithila painting and craft center

PLANNING AND DESIGN

- The building is located at the southern part of the city janakpur.
- It is easily accessible and free from hustle and bustle of the city.
- The building is constructed in traditional style with brick, mud, wood and khapda and the façade of the building is treated with the mithila art and the pillar of the verandah is richly design in traditional style.
- The building is purposely built.
- The dwellings are walled with mud and for roofing clay tiles are used.
- mud is used for decorative purpose, murals on the wall surface of buildings.

Figure 70 JWDC

- The space is arranged around the courtyard.
- Buildings are one storied.

Figure 71 Courtyard View

MAIN ENTRY

Store

Store

Meeting Room

Gaurd's room

Ceramic Painting studio

Pottery studio

Pottery studio

Pottery studio

Painting studio

Painting studio

COURTYARD

Female's Toilet

Male's Toilet

Framing Room

Display Room

Store

Account section Manger's room

Stitching Room

Screening Room
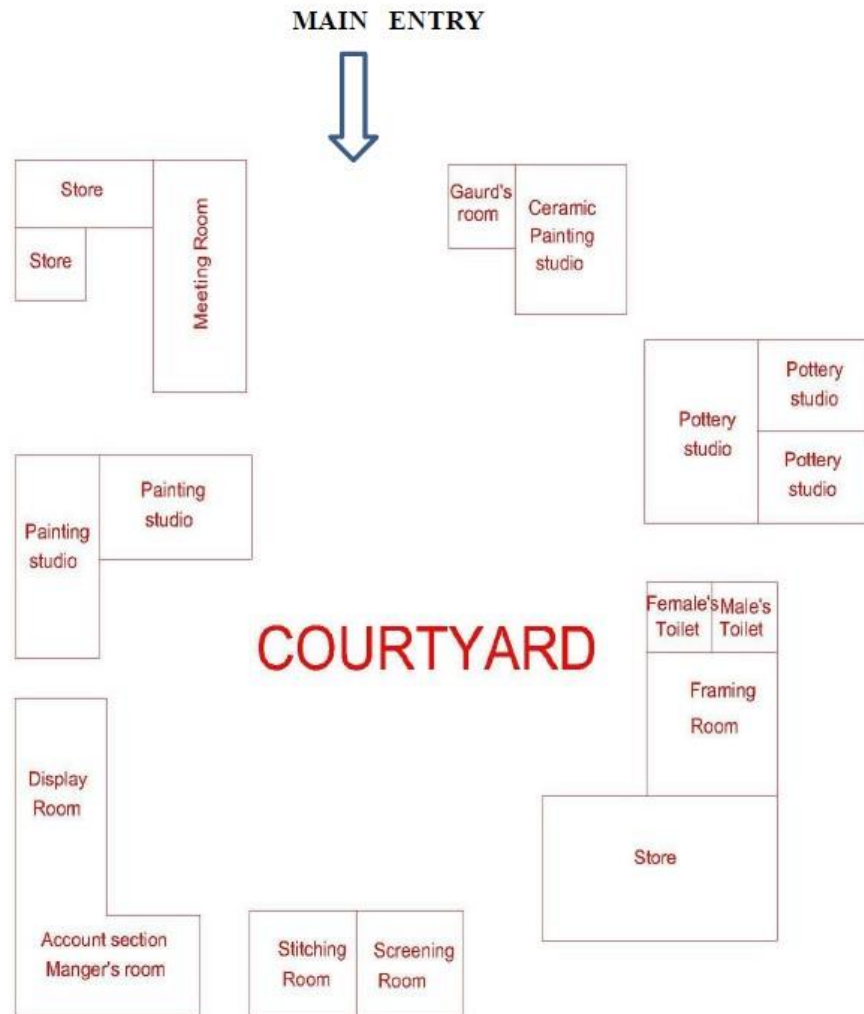
- Every room has entry from outside and verandah is provided infront of each room.
- Adequate amount of light is provided to the studio of painting through skylight.
  - Thermal environment: as traditional houses are thermally comfortable.

Figure 73 Natural Lighting In the Spaces

DIFFERENT SECTION

in women development center, we have five different sections for the art production. They are:

- Painting section

Figure 74 Painting Section

- Ceramic section

Figure 75 Ceramic Section

- Sewing section

Figure 76 Sewing Section

➕ screen painting

Figure 77 Screen Printing Section

➕ storeroom

Figure 78 Storeroom

STUDY   OF
VARIOUS SPACES

Function	No	Area m2
Painting studio	2	46.63
Store	3	38
Meeting Room	1	43
Pottery studio	3	55.14
Pottery Painting studio	1	35.12
Screening room	1	16.72
Stitching room	1	25.08
Framing room	1	20.90
Office room	1	25.08
Display room	1	31.04
Toilet	1	11.14
Guard room	1	13.45
Total	17	361.3

Table 6 Various Spaces in JWDC

INFERENCES

- There is proper natural lighting in every room.
- Parking area is not defined.
- Lack of proper administration block and reception desks is not available.
- Plantation is done in courtyard area.
- Working environment is calm and peaceful.

IV. HEALTH HOME CARE NEPAL

Figure 79 Front View Of Health Home Care Nepal

PROJECT SUMMARY

- Location: satmarg, lalitpur
- Date of establishment: 2068 b.s.
- Number of elderly: 35
- Working staffs: 12
- Facilities; residential, nursing facilities

DESIGN FEATURES

- Four storey l shaped building with open space
- Sufficient outdoor space for recreational activities
- Barrier free environment
- Well ventilated and proper lighting

➕ Use of lift and staircase for circulation

RECEPTION

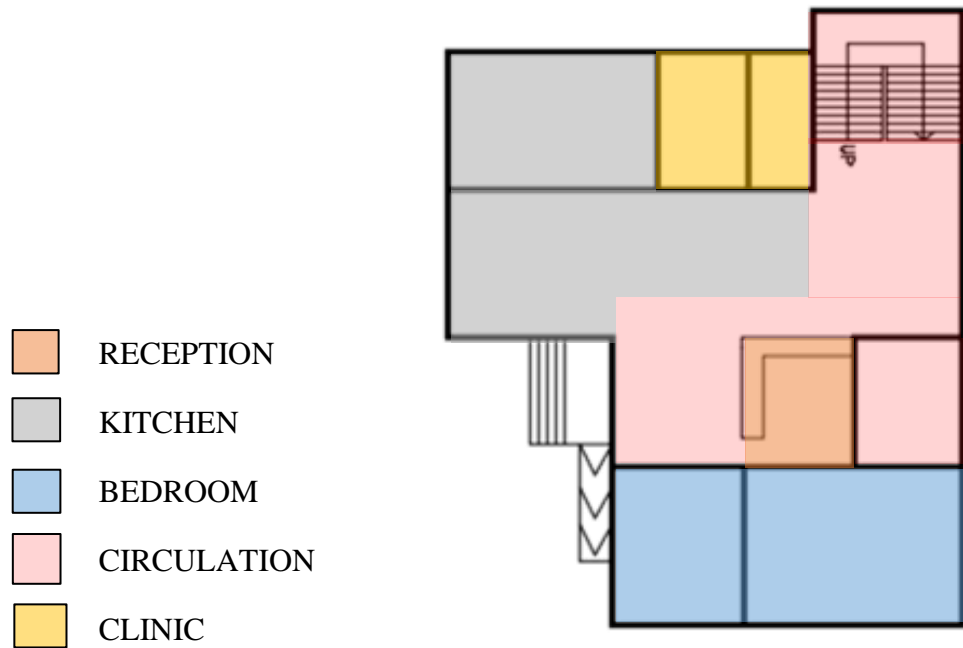KITCHEN

BEDROOM

CIRCULATION

CLINIC

Figure 80 Zoning Of Care Nepal
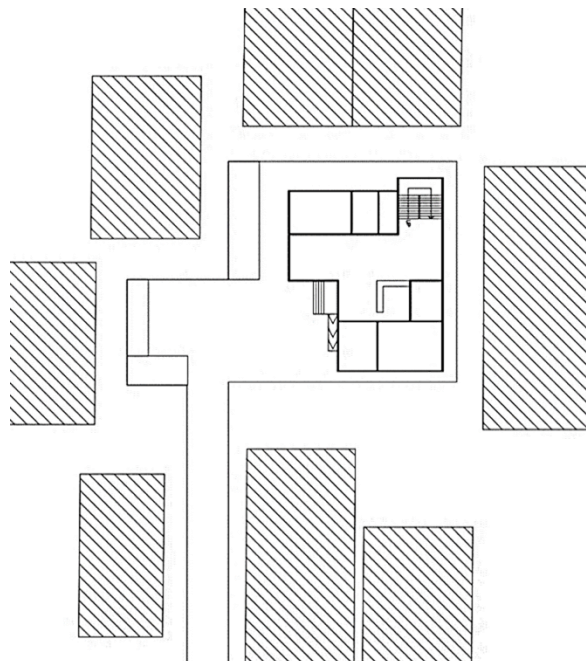
Figure 81 Site Plan

Figure 82 Living Room

Figure 83 Entrance

Figure 84 Temple Inside Site

Figure 85 Bedroom

DESIGN INFERENCES

- Proper circulation area
- Maximum use of natural lighting
- Located in noisy area

SITE ANALYSIS

1.21. SITE SELECTION CRITERIA

The elderly housing should be integrated with the peaceful and residential neighborhood. It should ideally be located in an area that is safe, attractive. The environment should include sidewalks that are wide enough and in good condition crosswalks that are separated from the vehicular flow and a flat or minimal slope. The housing in the surrounding environments should have a similar density to that of the elderly residents. This will be a means of avoiding visual isolation. When the housing typology the elderly reside in is high density and surrounding housing is low density, it may be suitable to locate the elderlyclose to facilities such as schools and crèches that have high occupancy levels.

The selection of the neighborhood involves the following consideration: -

- The location should be close to residential area and green environment.
- Site topography should be flat or gentle sloping with landscaped outdoor spaces, accessible pedestrian walkways, and parking.
- The building layout should provide for administrative, amenity, and hospitality spacesgrouped for efficiency and social interaction space with wheelchair access from the indoor common area.
- Basic community facilities such as a library, place of worship, health services, and recreation facilities should also be close at hand. In this connection, it should be notedthat a half-mile is the maximum walking radius of many aged persons.
- The site should be large enough to permit the development of adequate outdoor areas for both active and passive recreation. Ideally, these areas

would be in addition to, andout of the way of, those areas used by other residents, particularly children.

- Consideration should be given to possible changes in the overall land use pattern, in terms of probable trends and projected plans.

1.22. SITE LOCATION

The site is located at the bathanaha village of ekdara municipality. Thesite is within 5 min walking distance from india-nepal border. The total site area is 30 ropaniwhich is regular rectangular.
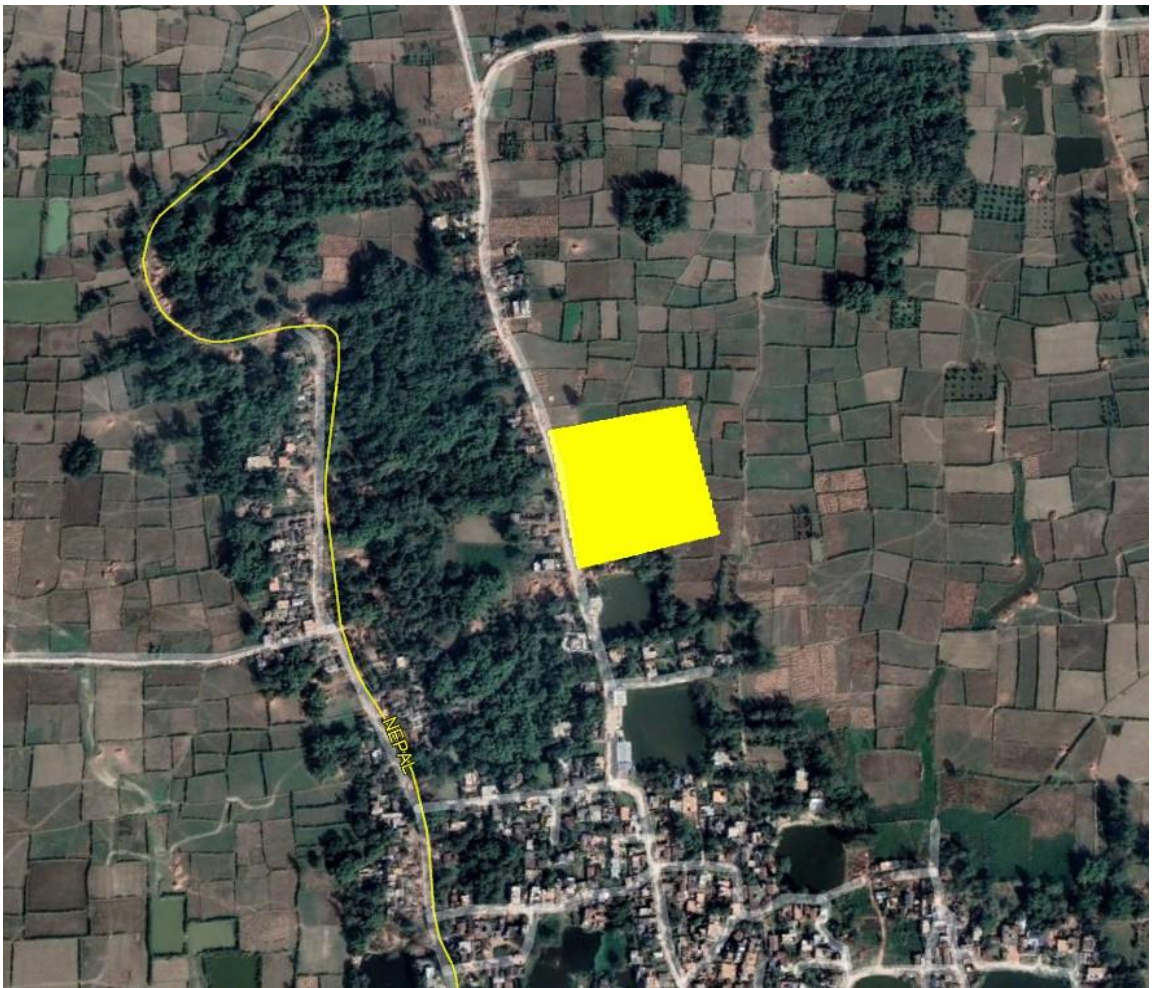
Figure 86 satellite image of site at bathanaha

Location: bathanaha, mahottari

Site area: 30 ropani

Grographical cordinates;

Longitute; 85°44'16.0"e (85.7377700°)

Latitude; 26°39'57.0"n (26.6658400°)

road - from jaleshwor, sursand (bihar), parihar (bihar), sahashram, kataiya, madhawa, halkhori, barahi
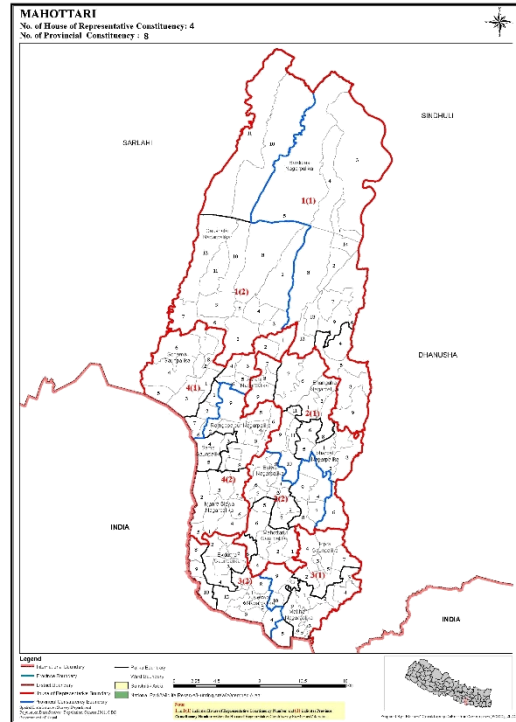
Figure 87 Zoning Of Ekdara Municipality

Figure 88 Map of Nepal

1.23.   SITE FEATURES

- The site is located at a serene and peaceful location.

- It is within a residential area for connection with the community.

▪ the site is close to nature and should have a strong connection with the hosting environment

Figure 89 Road

Figure 90 Front View Of Site

Figure 91 Front Side Of Site

Figure 92 Site Surrounding

Figure 89 Greenery Of Site

1.24 SWOT ANALYSIS

I.   STRENGTH

- Located near the residential area yet has a peaceful environment and away from thechaos of the city.
- The site has proper infrastructures like transportation, communication.
- Easy access to community
- Location of hospitals and schools within the periphery.

II.   WEAKNESS

- No proper health center near the site

III.   OPPORTUNITY

- The site is closer to the residential area and the communal access.
- the orientation of the site allows maximum sunlight which is beneficial for the elderly.

IV.   THREAT

- Commercialization in near future.

1.24.   BYE-LAWS

- Setback: 3m from the center of the road
- Ground-coverage: 60%
- Maximum building ht.: 11.4 m
- Maximum no. Of floor: 4
- Far: 2
- Min. Parking area: 20%

PROGRAM FORMULATION

Programmatic resolution is the collective analysis drawn from the various case studies (nationaland international) and the questionnaire survey.

I.   PUBLIC

- RECEPTION
- MANAGER'S ROOM
- STAFF ROOM
- MEETING ROOM
- ACCOUNT SECTION
- TOILET

- STOREROOM
- PANTRY
- SHOPS
- HALL
- GUARD HOUSE

II. SEMI PUBLIC

- ACTIVITY ROOM
- TRAINING ROOM
- RECEPTION
- CONSULTATION ROOM
- NURSING ROOM
- PHARMACY
- INDOOR GAME HALL
- WORKSHOP ROOM

III. SEMIPRIVATE

- KITCHEN
- DINING
- LIVING AREA
- TOILET
- LIBRARY

IV. PRIVATE

- BEDROOM
- ATTACHED WASHROOM
- CAREGIVER ROOM

PROGRAM	AREA
1. ADMINISTRATION	
i. RECEPTION	219 SQ. M..
ii. WAITING LOUNGE	
iii. MANAGER'S ROOM	
iv. ACCOUNT SECTION	
v. MEETING ROOM	
vi. STAFF OFFICE	
vii. PANTRY	
viii. TOILET	
ix. STORE	
2. CAFÉ	
i. SEATING	90 SQ. M.
ii. KITCHEN	
iii. STORE	
iv. BAKERY	
3. COMMERCIAL ZONE	

i.	SHOPS	40 SQ. M.
ii.	STORE	

4. COMMUNITY HALL

i.	LOBBY	600 SQ. M.
ii.	STAGE	
iii.	HALL	
iv.	CHANGING ROOM	
v.	TOILET	
vi.	STORE	

5. DAY CARE

i.	RECEPTION	71 SQ. M.
ii.	ACTIVITY ROOM	
iii.	VOLUNTEERS EOOM	
iv.	TOILET	
v.	STORE	

6. LEARNING ROOM

i.	TRAINING ROOM	284 SQ. M.
ii.	ART AND CRAFT WORKSHOP	
iii.	TOILET	

PROGRAM	AREA
7. HEALTH HUB	
i. PHARMACY ii. RECEPTION iii. CONSULTATION ROOM iv. EXAMINATION ROOM v. PHYSIOTHERAPY ROOM vi. NURSING STATION vii. OPD viii. TOILET ix. STAFF ROOM	254 SQ. M..
8. CLUB HOUSE	
i. LOBBY ii. EXERCISE HALL iii. CHANGING ROOM iv. MASSAGE ROOM v. INDOOR HALL vi. SHOWER	433 SQ. M.

9. LIBRARY	118 SQ. M.
10. DINING HALL	177 SQ. M.
11. STAFF ACCOMODATION	201 SQ. M.
12. GUEST ACCOMODATION	87.5 SQ. M.
13. INDEPENDENT LIVING UNITS	1248 SQ. M.
14. ASSISTED LIVING UNITS	450 SQ. M.
TOTAL	4272.5 SQ. M.

Total carpet area = 4272.5 sq. M

Total built up area = carpet area + 40% of carpet area = 5981.5 sq. M = 11 ropani 12 aanasite area = 30 ropani = 15262.11 sq. M

Ground coverage = 39% of the total site area

Open area = 61%

RESIDENTS AND STAFF CAPACITY (TOTAL STAFF: 8, TOTAL RESIDENTS: 60

)

CONCEPT AND DESIGN DEVELOPMENT

2.1 INTRODUCTION

In this chapter, the overall design process of the elderly home will be explored. Developing a concept and design for an old age home requires careful consideration of various factors, including the needs of the residents, the available resources, and the regulatory requirements. After analyzing the literature review, case studies, programmatic requirements and the site information, the concept of design is developed in various steps.

I.   GERONTOLOGY

Gerontology is the study of aging and its related physical, psychological, and social changes. When considering the body, mind, and soul concept, gerontology can be viewed through the lens of each of these components.

Body: In terms of the body, gerontology focuses on the physical changes that occur as we age. These changes include the natural deterioration of cells and tissues, loss of muscle mass and bone density, and changes in organ function. Gerontology also looks at age-related diseases such as dementia, arthritis, and cardiovascular disease. To maintain a healthy body as we age, it is important to engage in regular physical activity, eat a healthy diet, and receive appropriate medical care.

Mind: The psychological changes that occur as we age are another important aspect of gerontology. These changes can include declines in memory, cognitive function, and emotional regulation. Gerontology examines the factors that contribute to these changes, such as genetics, lifestyle, and environmental factors. It also looks at ways to prevent or mitigate the effects of cognitive decline through activities such as cognitive training, social engagement, and mindfulness practices.

Soul: The concept of the soul is often associated with spirituality or religion, and gerontology can also examine the spiritual or existential aspects of aging. This can include exploring issues related to meaning and purpose, forgiveness, and relationships

with others. Gerontology can also look at how spirituality and religious beliefs can affect mental and physical health as we age.

Overall, gerontology provides a comprehensive approach to understanding the aging process and how it affects the body, mind, and soul. By examining each of these components, researchers and practitioners can develop strategies to promote healthy aging and improve the quality of life for older adults.

Figure 93 Gerontology

The concept of mind, body, and soul can be applied in various aspects of life, including building design and architecture. Here are a few ways in which this concept can be incorporated into building design:

Mind: a building's design can impact the mental well-being of its occupants. Incorporating natural light, views of nature, and quiet spaces for reflection can help promote relaxation and reduce stress. Additionally, incorporating elements of color psychology can help create a calming or stimulating environment depending on the intended use of the space.

Body: the physical comfort of building occupants should also be taken into consideration in the design process. Elements such as ergonomically designed furniture, adjustable lighting, and temperature controls can help promote physical comfort and reduce discomfort.

Soul: the soulful aspect of building design can be achieved by incorporating elements of spirituality, such as natural materials like wood and stone, and creating spaces for

meditation or reflection. Additionally, incorporating art and culture into the design can help create a sense of connection and community.

The concept of mind, body, and soul in building design seeks to create spaces that promote the well-being and overall health of its occupants.
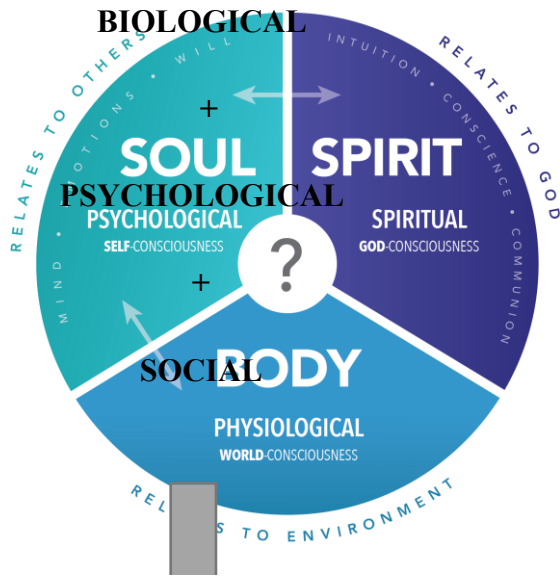

Figure 94 Mind, Body and Soul

Figure 95 Conversion

Figure 96 Mechanism of MBS

II.   PSYCHOLOGICAL EFFECTS OF SHAPE

Geometric shapes are all around us. A lifetime of viewing different shapes has had a deep impact on how we perceive them. As a result, they have the potential to trigger certain emotions and thoughts. Every work of art is supposed to communicate something specific but in a subtle, non-verbal manner. And by understanding the psychology of shapes, we can use them in such a way that they support our message. In contrast, a poor understanding of shape psychology can interfere with the clarity of our visual communication. And the more difficult it is for people to understand what our design is communicating, the less engagement it will get.

2.1.2.1.   CIRCLE

The roundness of circles, ovals, and ellipses implies softness, flexibility, motion, and fluidity. These geometric shapes point to the idea of being on the move or that something is hard to pin down. This is because they remind us of a ball or a wheel, along with celestial bodies that are always in motion, such as the sun, moon, and different planets. Take the design below, for example, which uses circular shapes to appeal to our unending quest for new discoveries. Where squares convey weight and strength, circular shapes are fluffy and light, such as clouds or bubbles. The absence of any sharp edges also makes them look warm and friendly. Moreover, circles represent the concept of continuity and completeness. They symbolize the eternal whole because there is no beginning or end in circular constructions, which leads to their association with lofty ideas like karma or eternity. It also refers feminine.

2.1.2.2.   TRIANGLE

While squares and rectangles suggest a sense of stillness and calm, triangle shapes are dynamic in nature. In shape psychology, they are used to indicate adventure, intensity, or getting somewhere. For example, the triangular shapes in the poster design below signal unpredictability and energy. When pointing down, triangles remind us of

spearheads and sharp teeth, symbolizing conflict, instability, and danger. For this reason, triangles have been used in concepts associated with divine wisdom and the discovery of self. The three sharp points of a triangle symbolize the locking of energy inside to fuel the union of mind, spirit, and body.

2.2   DESIGN APPRAOCH AND DEVELOPMENT

I.   SITE INFERENCES

Based on the site analysis, various site inferences have been taken for the design development. Various components have been placed on the site taking the following parameters in consideration.

- Noise level

- Sunlight and wind direction

- Neighborhood settlement pattern

- Site view

- Access from main road

II.   ZONING

This center requires to create an environment both for public interference and private living purpose without intruding each other function. Zoning of the site while designing is an integral part of the whole design as it determines level of public intrusion as well as private spaces to individual habitants. It creates the barrier for the public to non- subsidiary space and promotes easy circulation.

- Public

  - Reception
  - Manager's room
  - Staff room
  - Meeting room
  - Account section
  - Toilet

- Storeroom

- Pantry

- Shops

- Hall

- Guard house

• Semi public

  - Activity room

  - Training room

  - Reception

  - Consultation room

  - Nursing room

  - Pharmacy

  - Indoor game hall

  - Workshop room

• Semiprivate

  - Kitchen

  - Dining

  - Living area

  - Toilet

  - Library

• Private

  - Bedroom

  - Attached washroom.

  - Caregiver room

III.   COURTYARD TYPOLOGY

The courtyard typology in architecture refers to a design approach that incorporates an open space within a building or complex of buildings. Some potential benefits of this design approach:

- Natural Light and Ventilation: Courtyards provide a source of natural light and ventilation to the surrounding spaces. This can help reduce the dependence on artificial lighting and mechanical ventilation systems, resulting in energy savings and a more comfortable indoor environment.

- Privacy: Courtyards can act as a buffer zone between the interior spaces and the outside world. They can provide a sense of privacy and security while still allowing for the enjoyment of the outdoors.

- Social Interaction: Courtyards can serve as gathering places for social interaction and community building. They can encourage interaction among building occupants and foster a sense of community.

- Aesthetics: Courtyards can be aesthetically pleasing and add visual interest to a building or complex of buildings. They can serve as a focal point and enhance the overall appearance of the architecture.

- Flexibility: Courtyards can be used for a variety of purposes, including recreation, gardening, and outdoor dining. They offer a flexible space that can be adapted to meet the needs of the building occupants.

- Noise Reduction: Courtyards can act as a buffer against noise pollution from outside sources, such as traffic or construction. They can help create a quieter, more peaceful indoor environment.

Figure 97Courtyard

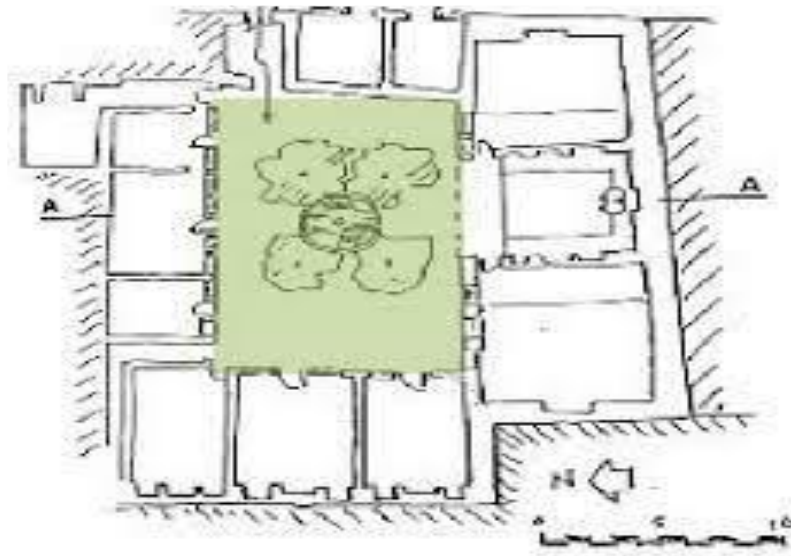## IV.   ROOF TYPOLOGY

In Nepal's Terai region, the traditional houses feature sloping roofs with eaves that project outwards. These roofs are typically made of thatch or corrugated metal sheets, supported by bamboo or wooden frames. The roofs are designed to be steeply pitched to prevent water from pooling on the surface, which can cause leaks and damage to the structure.

Figure 98 Slope roof

V.   BARRIER FREE DESIGN

Barrier-free design is an important consideration when designing homes for elderly individuals. It is designed to eliminate physical barriers and create a more accessible and safer environment for seniors to live in. Some key considerations for barrier-free design in an elderly home are:

- Accessibility: The home should be designed with easy access in mind. This includes features like wide hallways, ramps, and no-step entrances. These design elements make it easier for elderly individuals with mobility issues to move around the home.
- Flooring: The type of flooring used in an elderly home is important. It should be slip-resistant and easy to clean. Carpeting should be avoided as it can be a tripping hazard.
- Lighting: Adequate lighting is essential in an elderly home. The home should be well-lit to minimize the risk of falls and make it easier for seniors to see.
- Bathroom safety: Bathrooms can be dangerous for elderly individuals. The bathroom should be designed with safety features like grab bars, non-slip flooring, and a raised toilet seat.

VI.   VERNACULAR ARCHITECTURE

Vernacular architecture in old age homes can be an effective way to create a comfortable and familiar living environment for senior citizens. Vernacular architecture refers to traditional and locally inspired building practices that are adapted to local materials, climate, and cultural practices. By incorporating vernacular elements into the design of an old age home, architects can create a space that feels familiar and welcoming to residents.

Incorporating vernacular architecture into the design of an old age home can also help to create a sense of community and connection between residents. For example, using local materials such as stone, wood, or thatch can create a connection to the natural

environment and local culture. The use of open courtyards, verandas, and shaded areas can provide comfortable outdoor spaces for residents to socialize and interact with each other.

In addition to creating a comfortable and familiar living environment, vernacular architecture can also be a sustainable and cost-effective approach to building design. By using locally available materials and building techniques, the environmental impact of construction can be reduced, while also supporting local economies.

Incorporating vernacular architecture into the design of an old age home can be an effective way to create a welcoming and sustainable living environment for senior citizens. By combining traditional building practices with modern amenities and design elements, architects can create a space that promotes community, comfort, and a sense of connection to the surrounding environment.

Figure 99 clay tile

Figure 100 bamboo

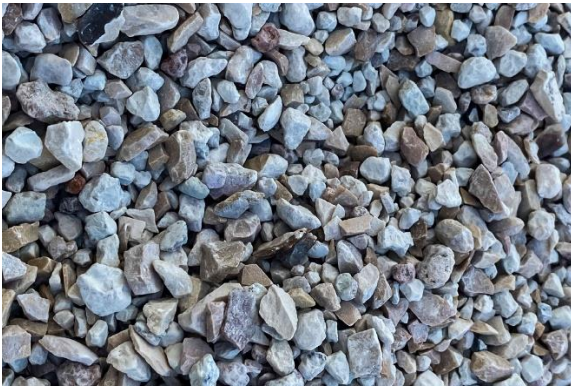
Figure 101mud plaster

Figure 102 timber

Figure 103 Stone

2.3 PLAN DEVELOPMENT

I. AXIS

An axis from entry leading to the temple is introduced to the site. Admin block and recreational block are further ordered on the two sides of the axis, and are connected to this main spine with the help of branching pathways. This axis gives the visual connection to the meditation and prayer hall which is the spiritual center thus giving them a sense of spirituality as soon as they enter the site. Thus, planning of the individual block, its relation with the other blocks and the pathways connecting them all are done so as to ensure privacy an facilitate proper functioning of the center.
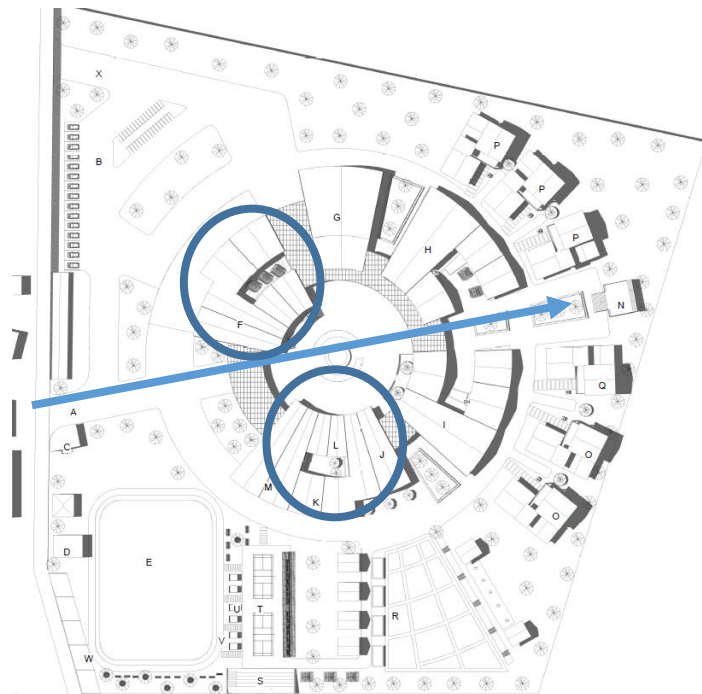

Figure 104 planning

II. ARCHITECTURAL EXPRESSION

Architecture expression is another important aspect of elderly home design, as it affects the psychology of the residents. The building should be designed in such a way that it is welcoming as well as not intimidating to the people. The whole complex

should be designed so that the residents experience the environment similar to their community making them feel as close to a close to a home as possible.

Thus, all the buildings are designed as fusion of traditional and modern architecture, the design of building approaches minimalist traditional style with the use of brick, mud plaster, slope roof, and bamboo. Accommodation blocks are also designed with the inspiration from the vernacular architecture of terai region, so that residents have the sense of belonging and feel like a 'home', rather than an institution.
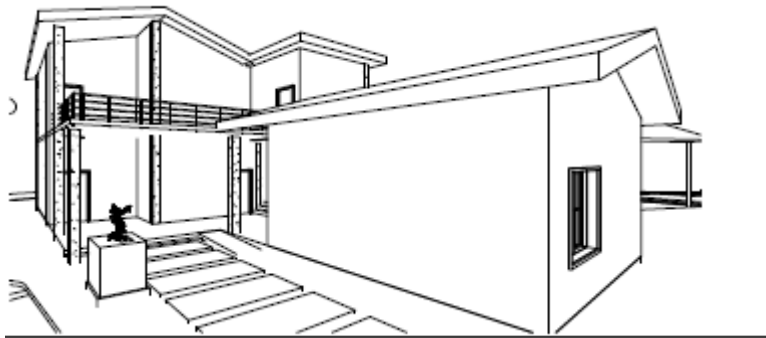

Figure 105 Accommodation design
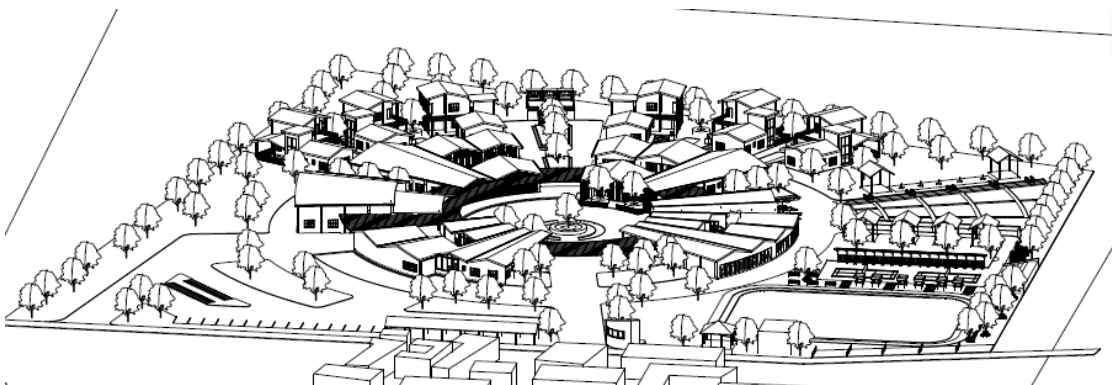
2.4 DESIGN COMPONENTS

Figure 106 Bird eye view

I.   ENTRANCE

The main entry is on the western part of the site which is through the secondary road. There is vehicular entry that leads to parking and there is pedestrian entry as well. The entrance gate leads to the entrance plaza has a direct access to the public functions in the site i.e., Administration, gallery, training blocks, multipurpose hall, cafeteria and library.

The entrance has visual connection to the prayer hall that gives the feeling of spirituality as soon as one enters the complex also. Guard house is provided in entrance for the purpose of security.

II.   PARKING
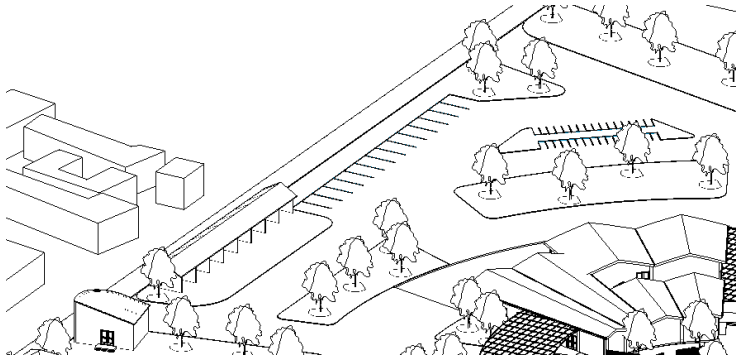
Figure 107 parking

Parking is provided next to the main entrance gate for the staff member of as well as the users of the multipurpose hall and training hall. There is a provision of four wheelers which is 15 in number and two wheelers which is 30 in number. Parking is surrounded by vegetation all around which acts as the noise buffer as well as visual barrier. A service road is provided through the parking that leads to cafeteria.

III.   ADMIN BLOCK

Admin block is placed near the entrance. As soon as one enters the building, the open to air green courtyard with reception and lobby welcomes the visitors. Waiting lounge placed on the lobby faces the green courtyard along with the visual connection to the

water body present in front of the building that provides soothing environment and relieves stress from the visitors.

IV.   CAFE

Cafe with a capacity of 40 people is open up for the community people as well as for the residents of the village. Cafe has been placed to create social integration among the community people and the residents of the elderly village. It is place between multipurpose hall and admin block.

V.   MULTIPURPOSE HALL

The auditorium hall of 200 people capacity can house the various functions and the performances. The community people also could rent the hall which will contribute to the village financially. The auditorium hall has been designed considering the functional and acoustic requirements. Various supporting spaces like backstage, changing room, makeup room, storage, technical room, washrooms, the lobby have been provided.

VI.   CANTEEN

Café with a capacity of 50 people is open for the residents of the old age home. It is one storey block with kitchen, open dining, and closed dining area.

VII.   INDEPPENDENT UNIT

A 1BHK (1 Bedroom Hall Kitchen) residence located in the eastern part of a site typically refers to a one-bedroom apartment situated on the eastern side of a property or housing complex. Here's a description of such a residence:

This 1BHK apartment is designed to offer comfortable living space for individuals or couples. Upon entering, you step into a welcoming hall that serves as a multipurpose area for relaxation and entertainment. The hall is spacious enough to accommodate a small dining table, a sofa set, and other furniture as per your needs.

Moving further, you'll find a well-appointed kitchen adjacent to the hall. The kitchen is equipped with essential amenities such as a stove, refrigerator, sink, and storage cabinets. It provides ample space for cooking meals and storing kitchen essentials.

The bedroom in this 1BHK residence is designed to provide privacy and tranquility. It is typically spacious enough to accommodate a double-sized bed, a wardrobe, and other necessary furniture. Large windows allow natural light to enter the room, creating a bright and airy ambiance. The bedroom serves as a cozy retreat for relaxation and rest. As this residence is situated in the eastern part of the site, it may offer specific advantages such as better exposure to sunlight during the morning hours, providing a cheerful and well-lit living space. It may also provide views of the sunrise or surrounding landscapes, depending on the location.

VIII.   ASSISTED UNIT

In the eastern part of the site, an Assisted Unit has been established within an old age home, designed specifically to accommodate 12 people. This facility aims to provide comprehensive support and care to elderly individuals in need of assistance in their daily activities.

The Assisted Unit of Capacity is thoughtfully designed to create a comfortable and welcoming environment for its residents. It features spacious and well-appointed living spaces, including individual rooms or shared accommodations, depending on the residents' preferences and needs. The interior decor reflects a warm and homely atmosphere, ensuring that the residents feel at ease and secure.

The primary focus is to cater to the specific requirements of the elderly residents, who may have various health conditions or mobility limitations. Trained and compassionate staff members are available round-the-clock to provide personalized care, including assistance with personal hygiene, medication management, and mobility support. The staff members are well-versed in creating a nurturing environment that promotes independence and preserves the dignity of each resident.

To enhance the quality of life for the elderly individuals, it offers a range of amenities and services. There are common areas for socializing and engaging in recreational activities, such as a community room for group events and a serene outdoor space for relaxation. Nutritious and balanced meals are prepared on-site, taking into consideration any dietary restrictions or preferences of the residents.

Additionally, the Assisted Unit of Capacity collaborates with healthcare professionals, including doctors, nurses, and therapists, to ensure that the residents receive comprehensive medical care. Regular health check-ups, medication monitoring, and assistance with appointments are provided, ensuring the well-being of the elderly residents.

Overall, the Assisted Unit in the eastern part of the old age home provides a safe, comfortable, and supportive environment for 12 individuals in their golden years. Through personalized care, social engagement, and access to medical services, this facility strives to enhance the residents' quality of life and promote their overall well-being.

IX.   SEMI INDEPENDENT UNIT

In the eastern part of the site, there is a semi-independent unit consisting of four blocks, each spanning two storeys. This unit has been specifically designed to cater to the needs of the elderly residents in the old age home. With a focus on providing comfort and convenience, the unit offers a few bedrooms, each with an attached washroom.

The semi-independent unit aims to provide a sense of privacy and autonomy to its residents while ensuring they have easy access to necessary facilities and support. The two-storey structure allows for ample space for the residents, giving them room to move around and engage in various activities.

Each block within the unit is thoughtfully designed to provide a homely atmosphere, fostering a sense of community, and belonging among the residents. The bedrooms are well-appointed, offering a cozy and comfortable living space for the elderly individuals.

The attached washrooms are equipped with modern amenities and are designed to be accessible and user-friendly, catering to the unique needs of the residents.

The location of this semi-independent unit in the eastern part of the site offers a tranquil setting, away from the hustle and bustle of the main complex. The surrounding environment is carefully maintained, with gardens and green spaces providing a serene backdrop for the residents to enjoy. Additionally, the unit is strategically positioned to ensure easy access to common areas, recreational facilities, and medical assistance.

Overall, the semi-independent unit with its two storeys and four blocks, featuring bedrooms with attached washrooms, provides a comfortable and inclusive living space for the elderly residents in the old age home. It promotes a sense of independence while offering the necessary support and amenities to enhance the quality of life for its occupants.

X.   OUTDOOR MEDITATION AND WALKING TRAIL

In the southern part of the site at the old age home, there is a serene outdoor meditation and walking trail that encircles a beautiful pond located near the temple. This trail provides a tranquil and peaceful environment for residents to engage in mindful activities and connect with nature.

The trail itself is carefully designed to blend harmoniously with the natural surroundings. Lined with vibrant flowers, lush greenery, and tall trees, it creates a soothing and rejuvenating ambiance. The gentle sounds of chirping birds and rustling leaves add to the serenity of the space, creating an ideal setting for meditation and relaxation.

As residents embark on the trail, they can enjoy the picturesque views of the pond, which serves as the centerpiece of this outdoor oasis. The pond is adorned with water lilies and other aquatic plants, creating a visually appealing and calming sight. The gentle ripples on the water's surface reflect the peaceful atmosphere and contribute to a sense of tranquility.

The trail offers ample space for walking and provides benches strategically placed along the way, allowing residents to take breaks, sit, and contemplate. These resting spots provide an opportunity for individuals to absorb the beauty of their surroundings and find solace in the serenity of nature.

Residents can engage in outdoor meditation sessions along the trail, finding inner peace and mental clarity amidst the natural beauty. The peaceful ambiance and the gentle breeze create an ideal environment for reflection and relaxation, allowing individuals to let go of stress and find moments of stillness.

Overall, the outdoor meditation and walking trail around the pond near the temple in the southern part of the site at the old age home offers a rejuvenating and tranquil experience for residents. It provides an opportunity for them to connect with nature, find inner peace, and enjoy the serenity of their surroundings.

CONCLUSION

Old age homes are notoriously difficult to design since the occupants' mindsets are frequently fluid and need new insights. An old age hold-aging must strive to create a space to inspire hope and vitality rather than merely serve as a refuge for the elderly, who are frequently left by their relatives. It is necessary to make some minor adjustments to the public design's natural dynamics to conform to the specifications of the old age hold-aging to provide a place for older persons to lead a happier and healthier lifestyle, simplicity, and dignity in the design of the places must be observed. Part of the gap between human science and architecture is due to the educating process of architects, the absence of evidence-based standards or best practices to which architects may refer, and the lack of translational research between domains. The report established a theoretical framework for bringing into architecture the vision of design for active and healthy living; elements that medical research suggests would add value to active and healthy aging.

Nepal is now following in the footsteps of the western world by attempting to establish an oah system to accommodate the nuclear family structure and globalized work market. Nepal's lack of a framework to handle the rising demand for oahs provides exciting social opportunities. Nepal is able to deviate from conventions and implement more innovative solutions that form a networked care system between the community, families, and people. Aging support groups are on the right road in their efforts to find long-term solutions that engage older individuals in civic activity, motivate the community and younger generation to stay involved in the caregiving process, and raise public awareness of elderly concerns. The government is attempting to meet the needs of elderly people through a welfare system centered on service provision. Despite estimates of a considerable rise in the percentage of older people in the population over the next forty years, broad concerns of population aging are not among the government's primary policy objectives currently.

RECOMMENDATION

Developing countries, such as Nepal, must design senior citizen welfare programs that are compatible with preserving traditional values while improving the living standards of the elderly. The changing necessities of industrialization and urbanization imposed on society should be incorporated into current cultural values with the required modifications. Furthermore, the present nominal senior citizen allowance must be at least quadrupled, and the distribution mechanism must be made scientific and accessible to needy seniors. Above all, older citizens should feel like 'seniors,' not 'ancient and outdated,' by engaging them in stress-relieving activities. The age of retirement should not be based just on the number of years worked but should be scientifically determined based on the individual's capacity, health condition, and job needs, i.e., it should be optional rather than mandatory. The mission, on the other hand, would suggest that, given the projected acceleration of demographic aging and high levels of migration in the coming decades, it is not too soon for the government to take measures to encourage all major stakeholders to act in advance to meet the challenges of population aging.

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