

PROBIN NIBASH

By

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Bachelor of Architecture

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Declaration

It is hereby declared that

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Abstract

‘Probin Nibash’ located in Donokandi region of Sylhet Sadar Upazila would place perfectly as it is in a serene area and is located further away from the city bustle. This care home aspires to ensure the well-being of senior citizens by creating a home that would not just be a typical care system but a community to the elderly people, which would help create the feeling of belongingness for them. Moreover, it would incorporate natural openings with simple circulation, confirming the continual interplay of the residents with natural environment, which is accessible and inviting to people who may be differently abled or require special support, thus assuring their overall mental and physical comfort.

Keywords: Old age home; Well-being; Community; Interaction; Accessibility; Healthcare; Courtyards; Natural environment

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List of Acronyms

WHO	World Health Organization
PWD	Public Works Department
BKSP	Bnagladesh Krira Shiksha Pratishthan

Chapter 1: Introduction

1.1 Introduction to the Project

The enhanced quality of life over the years is successively increasing the lifespan of people in our country. In this modern era, the volume of nuclear family is escalating rapidly, which is subjecting the elderly population into a vulnerable position. In addition to that, different societal imbalance has led people's attitude and actions change in a negative way towards the aged people. In consequence, to these issues, these people are expected to be abstained from necessities like economic assistance, suitable shelter, primary healthcare, etc. in the coming years eventually.

In Bangladesh, a few government programs, and mostly non-government organizations are currently working for the elderly citizen's well-being and betterment. While the number of old age homes in our country are unknown, the three most noted ones include Probin Hitoishi Shangha in Agargaon, Shubarta Trust in Shamoli and Savar, and Old Rehabilitation Center in Gazipur (Ahsan, 2016). With the proportion of aged people increasing through the years (as shown in Fig. 1.1.1), the nursing homes are unable to fulfill the demands and services of the larger crowd. Although, the care homes are providing the necessities like shelter, food, recreational and healthcare facilities, the standards are not up to the mark and are inadequate. Most importantly, there lies a huge gap in between the outer community and the community of the care home, which results in isolation and signs of depression amongst most of the older people, being unable to engage with the outer realm and activities.

Year	Total population			Elderly population 60+			
	Male	Female	Total	Male	Female	Total	Percentage
2000	65808	62301	127909	3544	3703	7247	6.18
2005	70662	67203	137865	4144	4375	8519	6.18
2010	75551	72012	147563	4901	5232	10133	6.87
2015	80526	76807	157333	5839	6212	12051	7.66
2020	85576	81179	166755	6998	7452	14450	8.67
2025	90403	87375	177776	8562	9059	17621	10.09

Fig. 1.1.1 Projected elderly population from 2000-2025

Source : Population projection of Bangladesh (1975-2025) by Rabbani and Hossain (1981)

Pwd division, Sylhet has brought focus on this aspect by proposing a center in Sylhet for the aged residents of our country. This project anticipates accomplishing the matters that were not taken into full consideration earlier. Primary purpose of this project is to assure nourishment of this population by providing main essentials including residential, healthcare facilities as well as developing a strong connectivity of the older community with younger community. Additionally, by sharing a common ground of different training and recreational services, the younger and older generation, relatives, trainers, therapists and the attendants are likely to be benefitted.

1.2 Aim and Objectives of the Project

The key aim of the project is to establish an engagement amidst the older population and the younger population through a platform of recreational spaces, workshops and activities, helping them to feeling valued, productive and refrain from seclusion. The objectives on the other hand would be the well-being of the elderly people by fulfilling their special needs and standard healthcare facilities. This center would not be a typical care system, but a community to the senior citizens, which would create the feeling of belongingness for them. Moreover, it would incorporate natural openings with simple circulation, confirming the continual interplay of the residents with natural environment, which is accessible and inviting to people who are

differently abled or in need of regular support, assuring their overall mental and physical comfort.

1.3 Project Summary

Name of the Project: Probin Nibash

Implementer of the Project: PWD, Sylhet Division

Location: Sylhet Shadar Upazila

Site area available for the Project Development: 2.043 acres

Proposed built-up area of the Project: 80,030 sft

Proposed Program of the Project: The project program consists of administrative, residential and healthcare facilities proposed for the senior citizens. The residential facilities will come in the form of both assisted and independent living along with provision for staff accommodation. On the other hand, the healthcare facilities includes therapy and consulting cabins for treatment. In addition to that, there will be recreational and training services comprising of vocational workshops, fitness rooms, auditorium, library, cafeteria, indoor games room and a prayer hall.

Chapter 2: Literature Review

This segment of the report examines the progression, recognition and comparison of the term of care home universally and in Bangladesh. Through scrutinizing elderly people's different mental, psychological and physical changes and their specialized requirements, the present services and lacking of prevailing facilities in the existing nursing homes have been identified and emphasized on. Further dissection of the attributes of care homes has helped determine and classify the key considerations to be addressed on in the forthcoming homes for senior citizens.

2.1 Elderly population and condition of their care in Bangladesh

Bangladesh is one of the twenty countries with the biggest number of elderly populations all over the world. As stated by Bangladesh Bureau of Statistics, around 12.5 million people of our country comprises of senior citizens and the proportion is anticipated to increase to 40 million by 2050 (Jahangir, A., 2020). The elderly people of our community are the valuable blessings for any society having legitimate experience and knowledge (Rahman, J Gerontol Geriatr Res 2017, 6:3). Compared to the rapid rise of the aged population, the number of care services in the country is quite less. Few of the notable rehabilitation homes in Bangladesh include Probin Hitoishi Shangha in Agargaon, Shubarta trust in Shamoli and Savar, and Old Rehabilitation Center in Gazipur (Ahsan, 2016). Besides, six governmental nursing homes are also spread out all over the country. Nevertheless, the services being provided are not fulfilling the demands of mass people for certain drawbacks (Md. Ismail, Tahmina, Md. Taj, 2006). With a view to analyze the nature of life in elder people, physical, social, psychological and financial factor is a prime symbol. Some difficulties of elderly highlighted by Sultana (2013) consists of the segregation with outer community, feeling of productiveness, shortage of finance due to social security and lastly the dissatisfaction regarding food quality and medical services.

Consecutively, services that would help elderlies continue their jobs effortlessly such as training classes, transportation facilities; specialized therapy and healthcare benefits, etc. are yet to be incorporated within the existing care homes that would assist in refilling the void (Amanullah, 2016).

Currently, Bangladesh has a Project Implementation Plan implemented, which aims to serve this generation with adequate healthcare and sustainable resources. However, the gap between the older generation and the younger generation remains, considering the absence of the community break out spaces and recreational platforms which is necessary to help reestablish the significance and capacity of the seniors by encouraging the interaction between two groups.

2.2 Definition of care home globally and in Bangladesh

The population around the world is ageing swiftly. WHO (2017) declares that globally, the bulk of the population over 60 years is expected to be close to double in between 2015 and 2020. To that end, the rate of growth of senior citizens will double by 2025 and reach 2 billion by 2050 (Bishak et al.2014). Young (2015) talks about the concept of old age homes beginning in the United States during the 19th century. During this era, effects of industrial revolution spread around the world, which resulted in the substitution of older generation, who are slower and disadvantaged with the generation who are younger, energetic and productive overall. Likewise, these elderlies lacked financial and emotional support, which placed them on a susceptible position (ibid). Hence, elderlies who required lodging, shielding and support were sent to almshouses which were residential facilities that provided services for homeless and old age people, back in the 19th century supported by government taxes. From then onwards, the notion of the homes for elderly began which is basically a facility designed to contribute to the accommodation for senior citizens who are unable to stay with their close ones, or are distressed (Andersson 2011).

Contrarily, the concept of care homes in Bangladesh emerged from the changes in social and economic structures in our country. Majority of the people used to live within extended families with facilities of food, shelter, etc which has transformed due to rapid urbanization, thereby turning into nuclear families. Unfolding of nuclear families has led to the overlooking of the older people for many impediments, poverty being one of the major reasons. Since the establishment of pension old age allowances in 1998 by the government for financially unstable people, the approach of both free and paid care homes began. However, as the theory of old home is still new to our culture, the number of actual nursing homes all over the country is still very limited.

2.3 Elderly person and their physical and psychological needs

Old age is one of the sensitive stages in human life cycle. During this stage, people gradually start depreciating in terms of health and physical strength (Bangladesh Journal of Bioethics 2016). Increase of age brings about unintended challenges and diseases, which slows them down and puts them in a speculative condition. For instance, some of them involves the development of poor eyesight, taste buds, skin conditions and many other sensory changes that may cause injuries and infections. Additionally, because of the lack of dedicated spaces or provisions, abundant number of these population are inclined towards inactivity for which they suffer from an aftermath of multiple cardiovascular and respiratory disorders (Jamie, David, Dean, James, Neil and Hans 2016).

Along with physical transformations, elderly people are also prone to fall psychologically, in response to unemployment and separation from the evolving nuclear family structure, being the dominant cause. Senior citizens are more likely to be neglected and mistreated by the community for the formation of different disturbing cultural and societal norms in Bangladesh. Current evidence according to The World Health Organization 2017 says that 1 in 6 older

people experience abuse from the elders and 7% of the older population are imposed indirectly to unipolar depression, which is a major cause for staying in isolation from the society and their close ones. All of the above provokes loneliness and major loss in respect and virtue. Therefore, engagement with several mobile activities and exercises is essential, considering the possibility of adapting to illnesses and achievement of better physical and psychological fitness, securing healthy ageing and longevity (Booth et al. [2000](#); Lee et al. [2012](#)).

2.4 Design considerations of care homes for elderly persons

As a consequence, to various reasons, around 15 million of this population are leading life with resentment, loneliness and the feeling of anxiousness. Moreover, unsatisfactory aspects of services and basic care from the attendant plays a vital role in this too. Numerous analysis have shown that role of the staff and atmosphere of the care homes can have noteworthy and positive impacts on the residents. The feeling of home and belongingness by sharing spaces and time with caregivers are the attributes that bring satisfaction for the elderly. While food and medical services are influential, the performance and attitude of the staffs towards the dwellers are more crucial part in bringing contentment for them (Devika and Hemamala, 2018).

Impairment in movability is one of the common health conditions, seen in 50% of the senior citizens above the age of 85 and one fourth of the people above 75 (Islam, S., Rahman, A., Mahmood, A. K., Mamun, A. and Khondoker, M. F. (2019). Losing the ability to walk or climb the stairs comfortably, any basic movement becoming a hassle is a prevalent scenario of aging. Due to the appearance of such adverse situations, older people feel less confident to move around and curl themselves up within an enclosed space. Hence, this population prioritizes well-designed and accessible places with simple layout, which is not only easy to clean but is also convenient to move about in for everyone, including any especially abled person.

According to many researches, natural surroundings are also therapeutic and could bring about positive effects on people's health, happiness and welfare (Wrublow, 2018). Accordingly, by visually seeing and engaging freely with nature, encourages the elder citizens to connect with the outer atmosphere and further pushes them towards movement and staying preoccupied. Despite of some provisions for residential, medical services and other basics in the existing centers, there is a service disparity existing in majority of these old age homes, as well as flawed designs with little or no provisions for universal accessibility and lack of the fusion of natural attributes, which is to be brought into light.

To conclude, nearly most elderly people feel delighted and secured if they have someone to rely on and can connect on a daily basis, providing affection and attending them when they require assistance. Not to mention, besides necessities, it is important to incorporate homes encompassing landscape with proper access in all spaces, for the elderly to mingle pleasantly with different indoor, outdoor activities, helping them to rejuvenate naturally and stay busy. Considering the limited number of old homes in our country, building a path for networking between the older society and younger society over a common recreational ground, like pursuing a hobby, etc. can develop new insights, creating strong bonds and respect, by sharing time and individual learnings amongst each other. Thus, these altogether will presumably assist in avoiding loneliness, staying healthy and joyful aging of the senior citizens.

Chapter 3: Site Appraisal

This section of the paper concentrates on the specific elements of the location of site, the site itself, its characteristics and the surrounding components that can have possible influences on the site in various ways. Such factors consist of accessibility to the site, adjacent landmarks, land use pattern, socio cultural conditions, etc. which gives an overview and understanding of the overall site and its environment. Likewise, the background, and the climatic circumstances of the location has helped analyze the site more critically along the way.

3.1 Site surroundings

The site is located in a very serene and calm environment encircled by some important landmarks like Hazrat Shah Paran Madrasa and Mazar on the north side, Panchghori home state land on the south side, crops land on the west and a flowing canal as well as the access road named Donokandi on the east side.



Fig 3.1.1 Site location (Source : Google Earth)

3.2 Historical Development of the Site

Looking back between the years of 2001-2008, majority of the site had been submerged under water as a cause of being a flat land. The inundated part of the land had a thorough connection with the canal flowing adjacent to it. Consecutively, throughout the past few periods, land had gradually filled itself in and developed its form to date. Although, there were no previous trace of an infrastructure, the neighboring Panchgori village residents used the land solely, for a source of their income by cultivating and harvesting crops. Naturally enveloped by greeneries, this place could potentially revive the obsolete water body and incorporate it with the existing canal in the forthcoming, transforming the place into a harmonious care home.

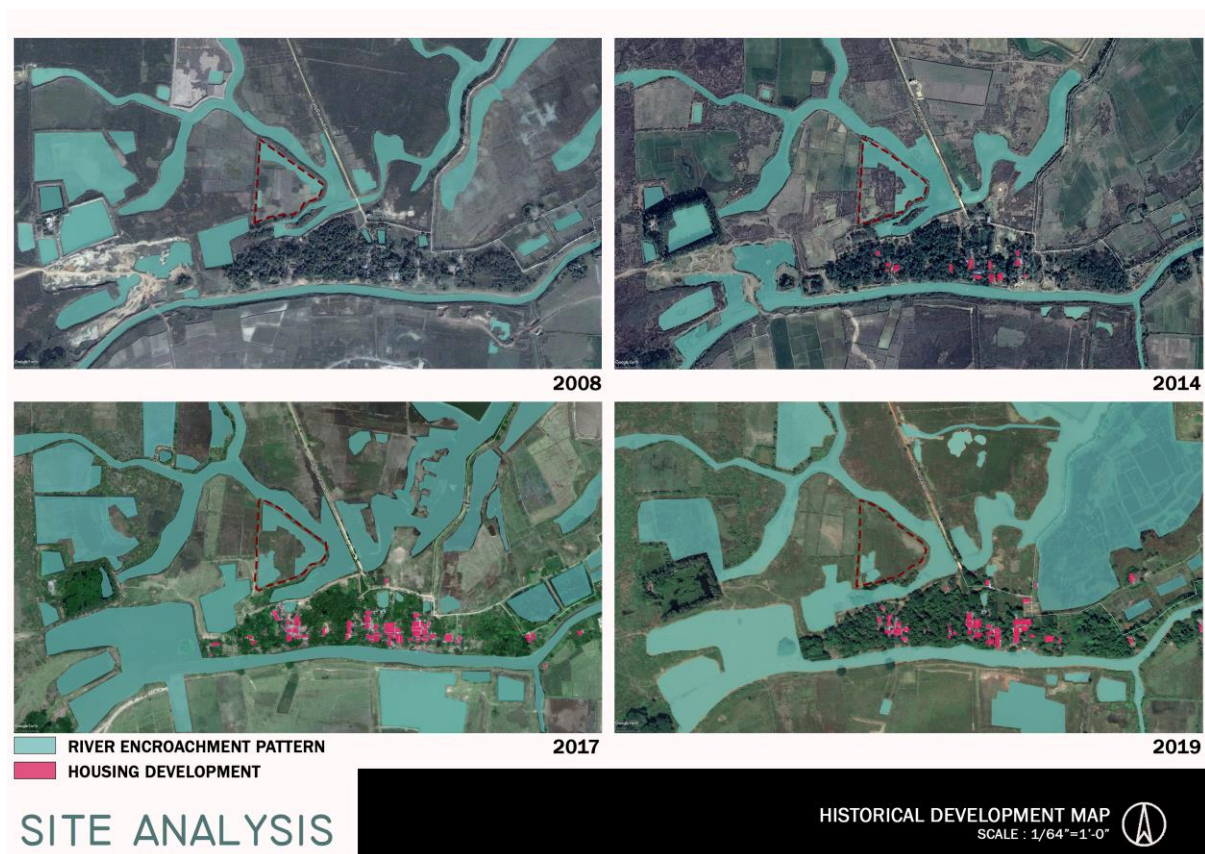


Fig 3.2.1 Historical development map (Source: Author)

3.3 Geographical Characteristics of the Site

Located 3km away from the main city, this site is stationed in an augmenting area, close to a small village, which is enfolded primarily around crop fields and few vegetation currently. The site is facing Panchgori low rise settlements enfolded around dense vegetation and a narrow canal towards the east, which is certifying cold breeze from the southeast direction towards the site. However, insignificant amount of trees on the west side emerges the possibility of increased heat gain towards that direction. On another hand, the north side of the site serves clean and unobstructed viewpoints of the access road, crops land and the canal. Despite the fact that the site is flat and a bit raised, there is still a contingency of being engrossed due to any downpour. Accordingly, these circumstances evaluated acutely would have feasible impact on the design process.

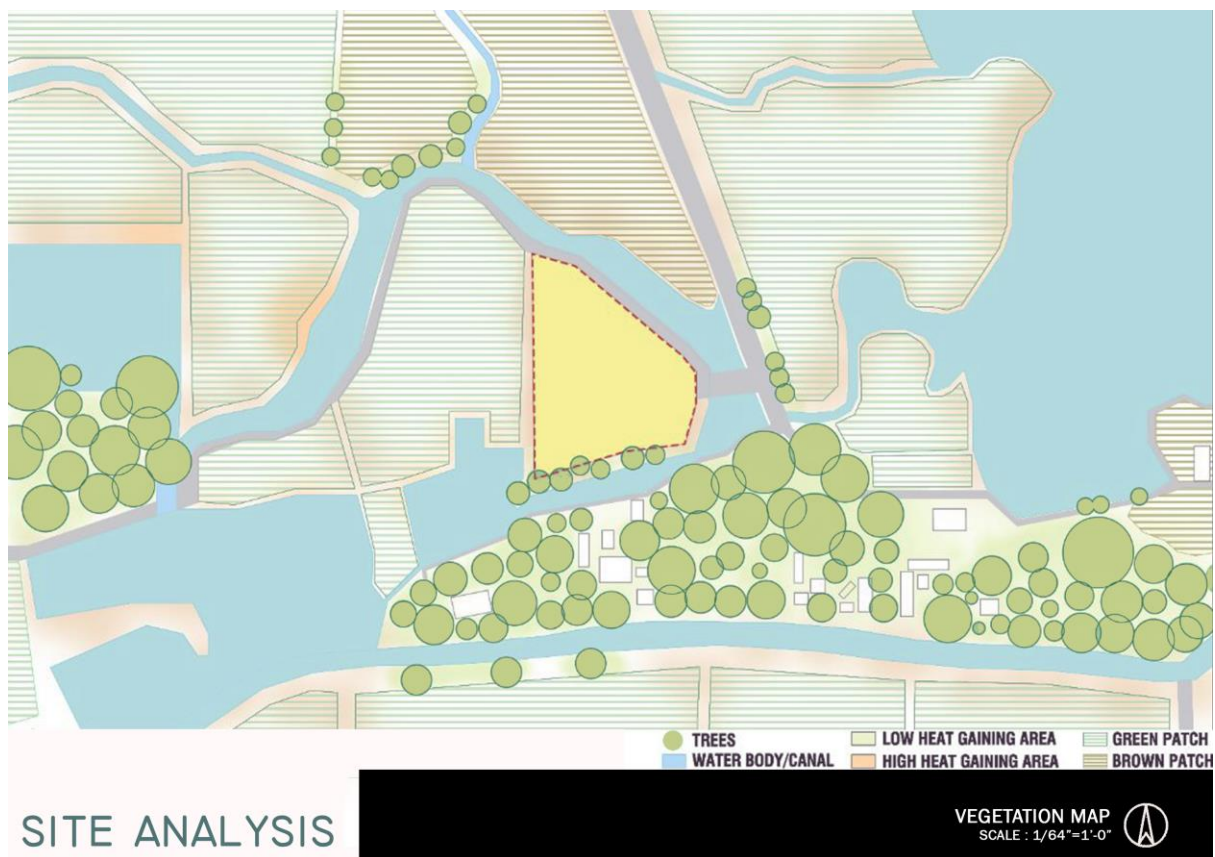


Fig 3.3.1 Vegetation map (Source: Author)

3.4 Land-use Pattern of the Surroundings

Location of the site stands on a tranquil environment offering rich perspectives of the nature around it and a serene water body flowing adjacent to the place. On the other hand, there are also chances of the land immersing during heavy rainfall in monsoon. Surrounding the site, there are generally low-rise residential buildings and few religious structures within close proximity. Alongside, there are a few settling landmarks within 1.5km distance including Sylhet cantonment, Hazrat Shah Paran Mazar and Madrasa, BKSP Cricket Ground. Furthermore, there are also few other evident educational and religious buildings which could possibly be linked to incorporate a public space within the center.

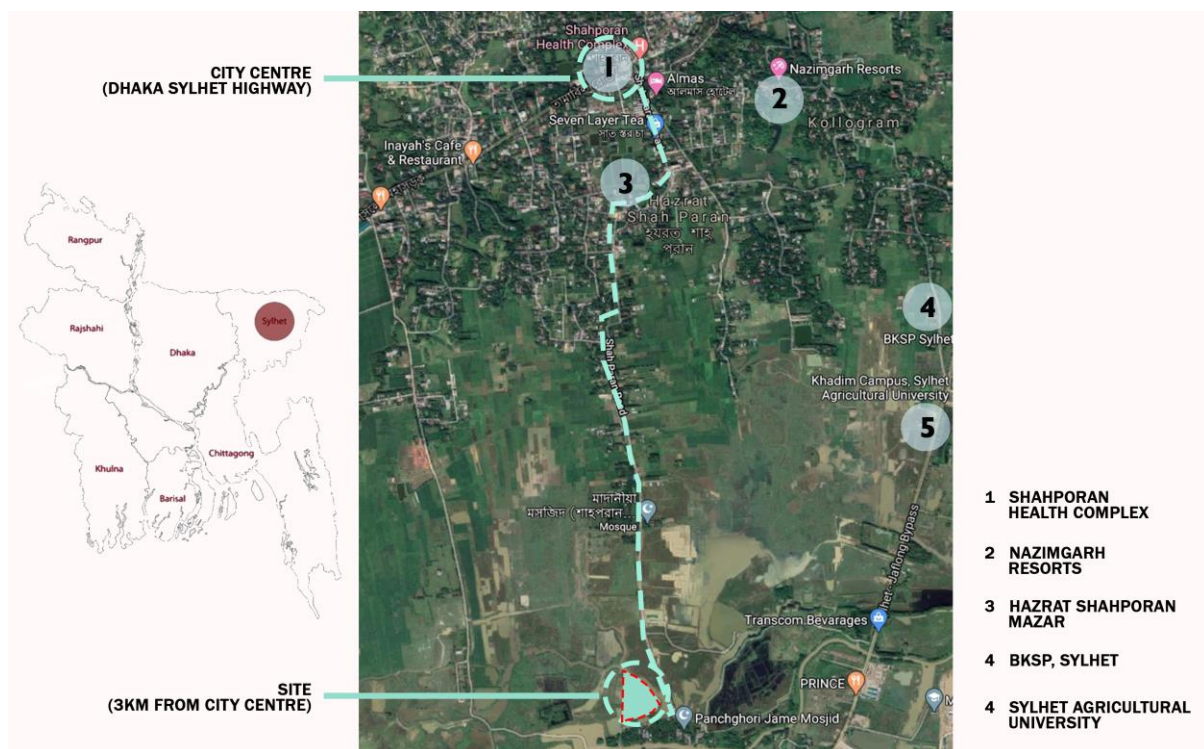


Fig 3.4.1 Landmarks surrounding site (Source: Google Earth)

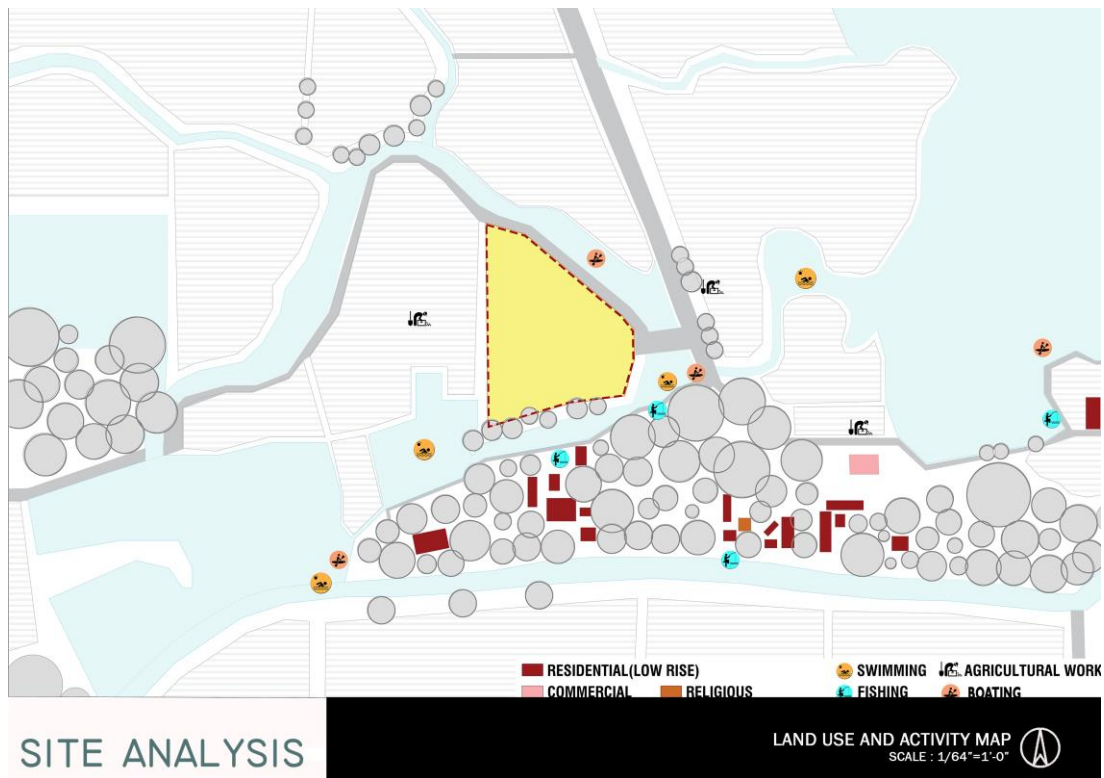


Fig 3.4.2 Land use and activity map (Source: Author)

3.5 Accessibility and Connectivity

The site is accessible through the network of the secondary road that connects to the primary highway of Sylhet eventually leading to the heart of the city. With the proposed road that adjoins the site directly with the highway, this site is to be readily accessible with the main city center that is located around 3km from the site. However, the basic conveniences being located considerably far away acts as a threat towards the site. In addition to that, due to a little segregation of site from city, the area is a bit unsound during nighttime.

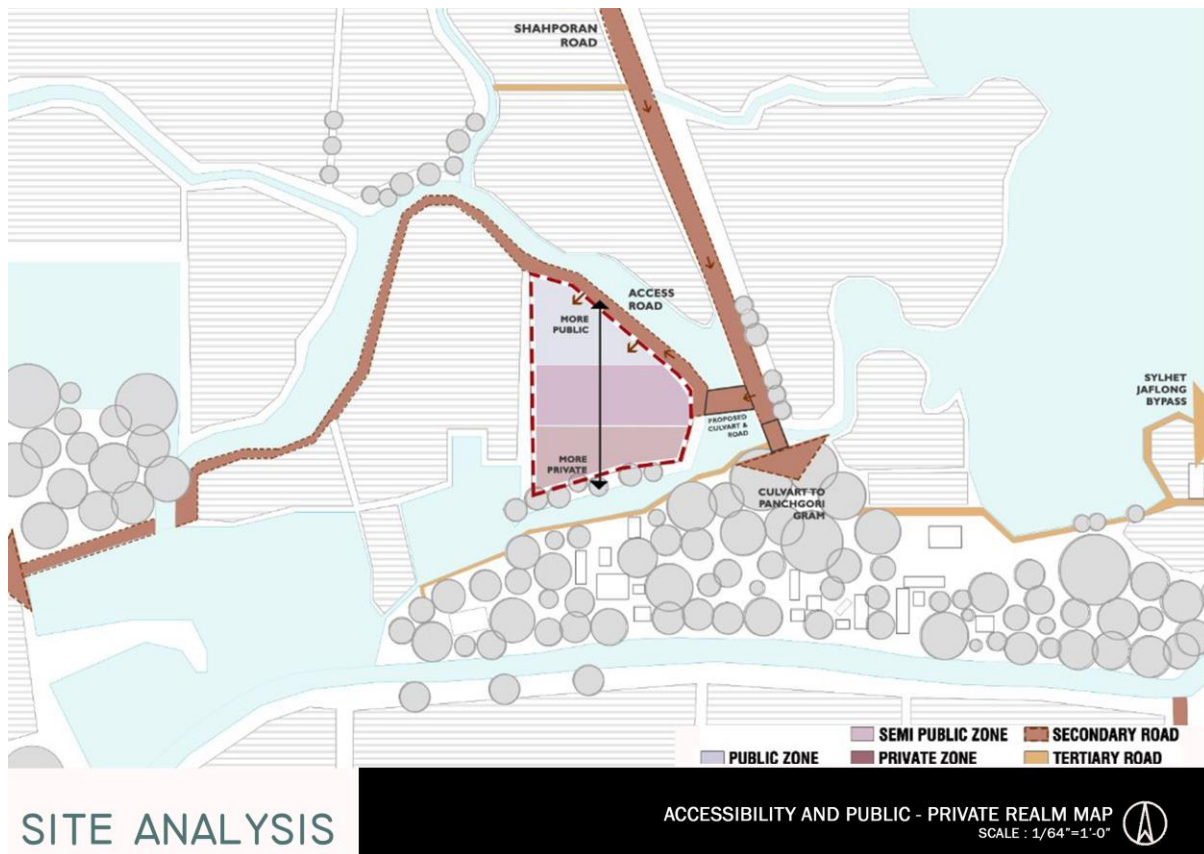


Fig 3.5.1 Accessibility and public-private realm map (Source: Author)

3.6 Climatic Conditions

The climatic condition of Sylhet is tropical monsoon with primarily hot and humid summer and somewhat a cold winter. In Sylhet, rainfall is most notable during majority of the months in a year. The average annual temperature in Sylhet is 24.8°C where rainfall occurs mostly on an average of 3876 mm between the months of May and September. Temperature between August and October is the highest, with an average of 31.6°C and the average lowest temperature is 12.9°C during January month. As rainfall is prominent for almost six months in a year (as per the average rainfall graph), the opportunity of the site being inundated in water is steep. Correspondingly, the considerations to be undertaken could involve the uplifting of site as well as an incorporation of a water body encircling different water activities that would celebrate water or any downpour, when proceeding in design development.

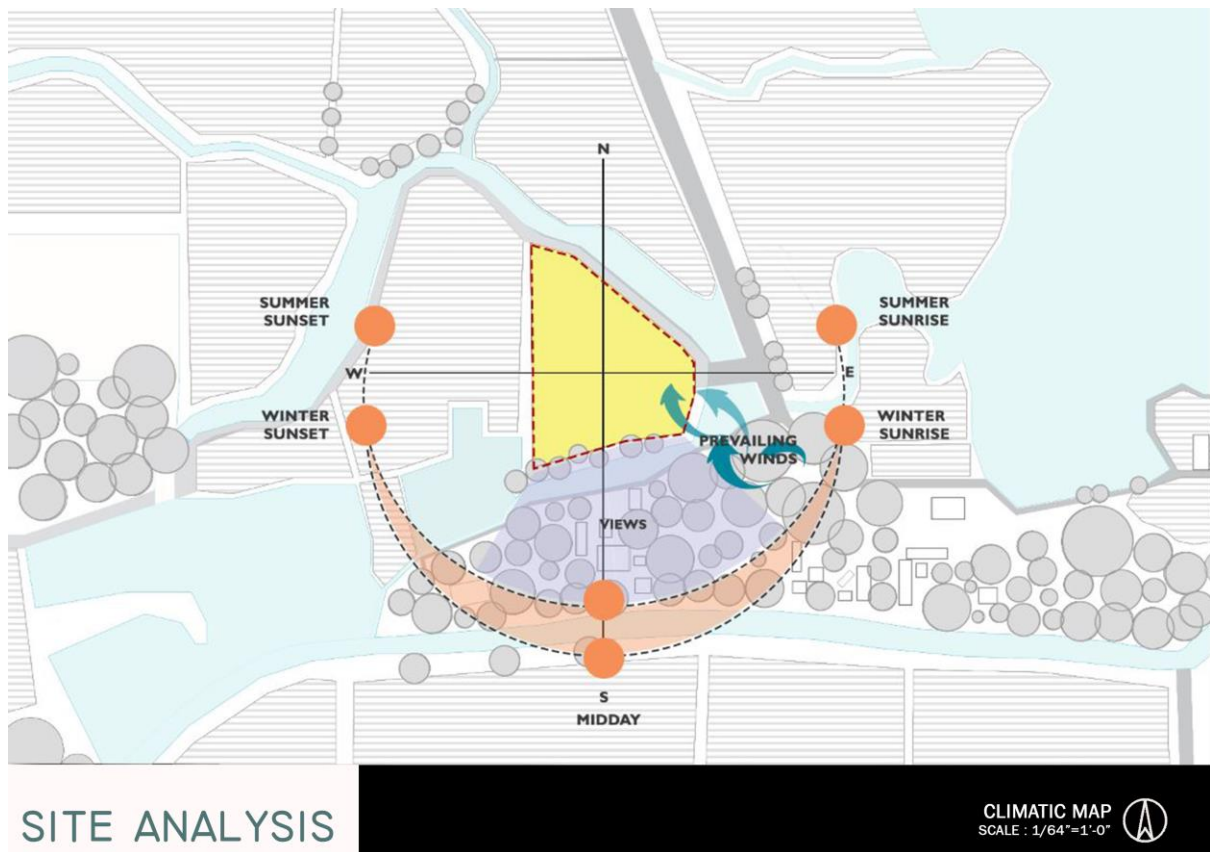


Fig 3.6.1 Climatic map (Source: Author)

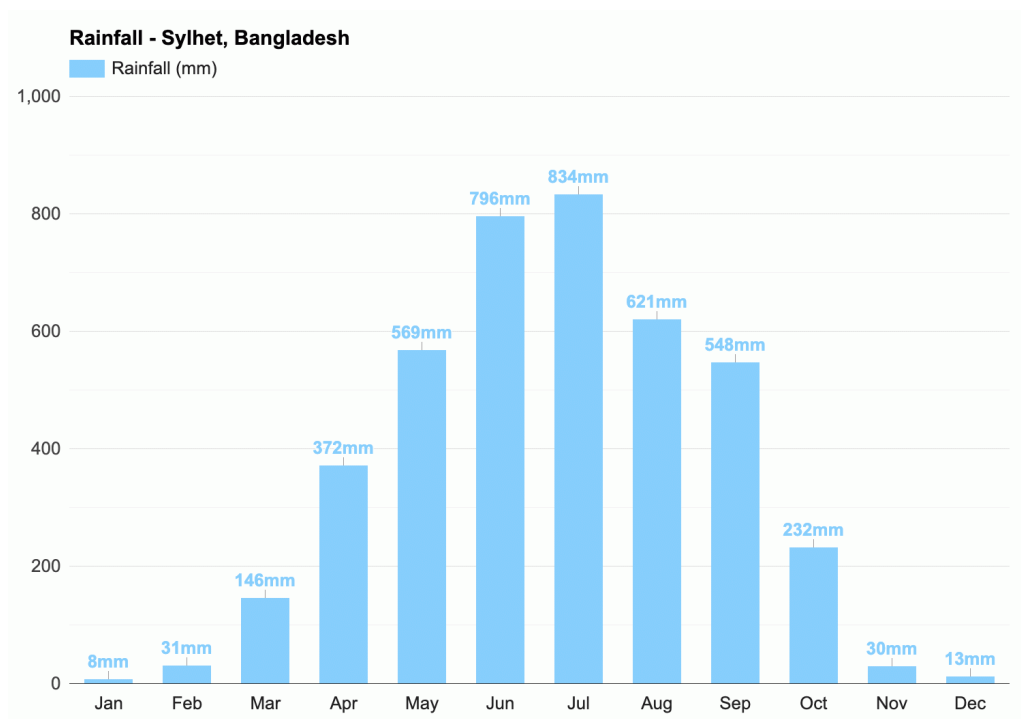


Fig 3.6.2 Graph of average rainfall in Sylhet, Bangladesh (Source: <https://www.weather-atlas.com/en/bangladesh/sylhet-climate>)

3.7 Socio-Cultural and Economic Contexts

The site situated nearby eminent crop fields and canal is determined to be a production, harvesting and fishing territory for the cultivators living at close quarters. Looking towards the south is the Panchghori home state land that has been primarily occupied by low-income residents of Sylhet, whose livelihood is dependent on these croplands and canal close by. In addition to that, 90% the youth of the villages attend the schools and madrasas within close proximity. Under the circumstances, the development of nursing home in this location can be favorable for the people in this vicinity, considering an added basis of livelihood by assisting the elderly. Consecutively, the younger community of the neighborhood and the older community can conceivably link through varied ventures where the experienced elderly people can guide the minority and the youth have an extra opportunity of learning.

3.8 Images of Existing Site Condition

Image 1: View of access road (Donokandi road)



Fig 3.8.1 (Source: Author)

Image 2: View of the site from access road



Fig 3.8.2 (Source: Author)

Image 3: View of the canal and culvert on the southern side, leading towards the Panchgori home state area



Fig 3.8.3 (Source: Author)

Image 4: View of the access road on the eastern side, from the site



Fig 3.8.4 (Source: Author)

Image 4: View of the crops land on the west direction from the site



Fig 3.8.5 (Source: Author)

Chapter 4: Case Study Appraisal

In this section of the paper, three case studies of different architects regarding care homes are presented, which highlights the concepts, considerations and standards undertaken according to different dedicated country, location and its surroundings. Accordingly, these cases helped determine both the negative and positive aspects and limitations throughout the design process, and assisted to perceive how similar issues can be addressed differently in varied circumstances while properly insuring the functionality of the structures.

4.1 Solund Urban Nursing Home, Copenhagen, Denmark

C.F. Moller Architects and Tredje Natur design one of the biggest nursing homes in Denmark, Solund, which addresses the elderly's needs and a place encouraging interaction with other generations. Designed in 2016, this place also comprehensively sets standards for overall functionality, well-being and security of this population.

4.1.1 Environment and micro-climate

The project is situated in a lively urban place in Copenhagen, with Sortedam Lake located on the south side and bustling Norrebro Street on the north. This region has a mild weather as water bodies and the flow of southern air results in moderately cold summer and winter. Analyzing the environment and encircling site contexts, the structure is placed in such a way that the lake acts as the backyard of the care home with designed pocket parks amongst the place providing a scenic natural view. On the other hand, the elderly home front faces the busy streets of Norrebro helping to draw attention of the city people into engaging within this home and its residents.

4.1.2 Form and Function

The form of the building derives from a clean rectangle, which will be deconstructed to compose positive and negative spaces, constituting of generous courtyards and lakeside park, which presumably will transform the space into a major urban activity hub. Alongside, the center would also blend in recreational facilities like cafes, workshops and other micro shops that could become an approach of the retirees for earning revenue as well. This unique project is principally an infusion of care homes, youth dwellings, rehabilitation center and a day care institution, which are all, tied together with the landscaping and recreational opportunities.

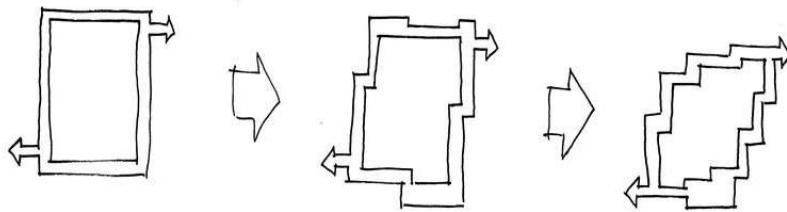


Fig 4.1.2.1 Sketch of form generation

(Source: <https://www.skyfish.com/p/cfmollerarchitects/1407215/36286721?predicate=label&direction=desc>)

4.1.3 Horizontal and vertical circulation

The common shared space of the Solund and the visitors is to be enveloped by loop of inner streets, which strongly connects to each facilities in the ground floor. Public amenities including hair salon, internet cafes and other micro shops are designed to be settled on the north side, in correspondence to the lively urban context of Norrebro. Likewise, the rehabilitation center is arranged to be situated towards the tranquil courtyards, and the cafes and multipurpose space is well suited on the south offering a lake view for the majority people.



Fig 4.1.3.1 Public amenities on the north, beside hectic urban streets

(Source : <https://www.skyfish.com/p/cfmollerarchitects/1407215/36286720?predicate=label&direction=desc>)



Fig 4.1.3.2 Café, lake park and mutipurpose events on the south lake front

(Source : <https://www.skyfish.com/p/cfmollerarchitects/1407215/36286700?predicate=label&direction=desc>)



Fig 4.1.3.3 Rehabilitation facilities within courtyard

(Source: <https://www.skyfish.com/p/cfmollerarchitects/1407215/36286699?predicate=label&direction=desc>)

4.1.4 Site Planning and Landscape detailing

The landscape of the whole project would encompass pockets of green outdoor spaces towards the northern side, serving as public spaces and an attraction for the city people. Moreover, there are three courtyards designed, representing semi-public spaces of the care home, consisting of climate resilient elements like storm water handling and sustainable urban drainage. With its own lush green courtyards, it not only encourages both young and old generation to interact but it also helps them to involve in diverse shared activities and workshops. Thus, the atmosphere guides the elderly into exploring and being a part of the outer community, instead of staying isolated behind closed doors.



Fig 4.1.4.1 Landscape spaces

(Source: <https://www.skyfish.com/p/cfmollerarchitects/1407215/36286702?predicate=label&direction=desc>)



4.1.5 Structural details

The idea is for the entire structure to be constructed with brick clad facades, following the materials from the surrounding infrastructures creating a harmony between all the nearby buildings of Norrebro Street. The whole center would concentrate on maintaining a proper indoor climate ensuring the nourishment of the residents through natural ventilation and illumination, with a view of the city around. Additionally, the terrace of the complex that is facing the south sun, has been utilized by merging dense green pergola along with urban green farming, topped off with distinct brick arches acting as the shelter to the garden.



Fig 4.1.5.1 Terrace lounge

(Source: <https://www.skyfish.com/p/cfmollerarchitects/1407216/36286732?predicate=label&direction=desc>)

4.1.6 Design detailing

The primary programs of Solund is the dwelling for the elderly as well as youth residences serving the young people suffering from autism. Both the dwelling facilities is interlinked through a common central courtyard known as the “Generation’s Square”. Significant consideration is to put cluster of different home groups encircled around common kitchen and living rooms providing the feeling of home and to assure that the connectivity amidst one another stays dynamic. Furthermore, the senior dwellings are to be prioritized more by placing them in ground floor with private open yards, while the youth residences are located in a separate building. This accordingly establishes that the elderly who have difficulty in moving can move with ease, without having to bother about any sort of vertical transportation like lifts or stairs.



Fig 4.1.6.1 Shared kitchen living rooms

(Source: <https://www.skyfish.com/p/cfmollerarchitects/1407216/36286729?predicate=label&direction=desc>)

4.2 Nursing and retirement home, Leoben, Austria

The project is located in a small town in Leoben, Austria within an area of 3024 square meters. Focusing on the security and contentment of the elderly people, Architect Dietger Wissounig Architekten has addressed the necessities of this community.

4.2.1 Environment and micro-climate

The location of this project is in a subdued town of Austria which is peaceful, very fitting for such a home as preferred by the retirees. The nursing home segregates from the meddling city life and is confined around more greeneries and situated in a rural setup. As Leoben town is 543m above the sea level, it is primarily dominated by significant rainfall, even along the driest months of the year. Henceforth, being in a cold town, indoor activities and gathering places have been more prioritized in this project as outdoor activities would be much challenging on a daily basis.



Fig 4.2.1.1 Site location and surroundings

Source. (<https://www.archdaily.com/775831/nursing-and-retirement-home-dietger-wissounig-architekten/56283e77e58ece127a000341-nursing-and-retirement-home-dietger-wissounig-architekten-photo>)

4.2.2 Form and Function

The three-storied structure is a clean rectangular form including playful hollows within, featuring open courtyard spaces and terraces, which methodically connects all floors visually and spatially. This connection facilitates the association amongst the residents and in the supervision of their activities by the staffs.

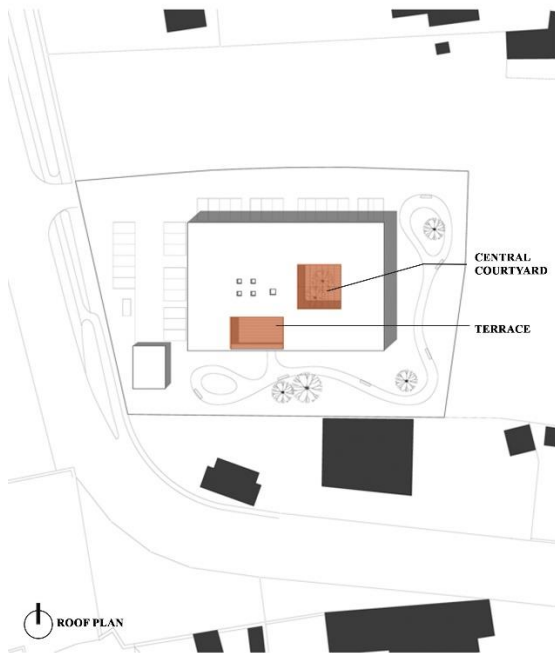


Fig 4.2.2.1 Roof plan

Source. (Author)



Fig 4.2.2.2 Open courtyard space

Source. (Author)

The layout of the functions in these three stories are as straightforward as the form. Ground floor consists of all the public and semi-public zones while the second and the third storey delivers to the private zones. Clean separation of the zoning is not only favorable for the residents to perceive the spaces better but is also helpful in concern to accessibility.



Fig 4.2.2.3 Public and semipublic zoning (Source: Author)



Fig 4.2.2.4 Semi private zoning (Source: Author)

4.2.3 Horizontal and vertical circulation

According to the zoning division specified above, the ground floor serves functions including a café beside the open courtyard, kitchen and services areas, administration, storage and side rooms, laundry, therapy rooms, consultation rooms, seminar rooms, as well as a chapel.

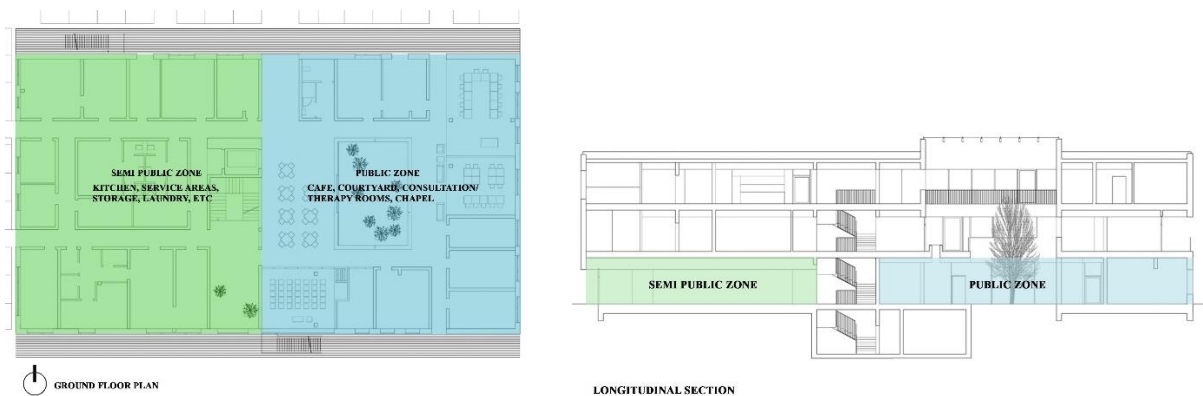


Fig 4.2.3.1 Zoning through horizontal and vertical circulation (Source: Author)

Moving up to first floor, there are two residential zones for dementia patients where each zone provides housing for 12 people along with dedicated dining rooms and balconies. Besides the attached balconies, there stands a separate distinct patio on the south playing as the common space for the residents to engage in interaction with each other or visitors.

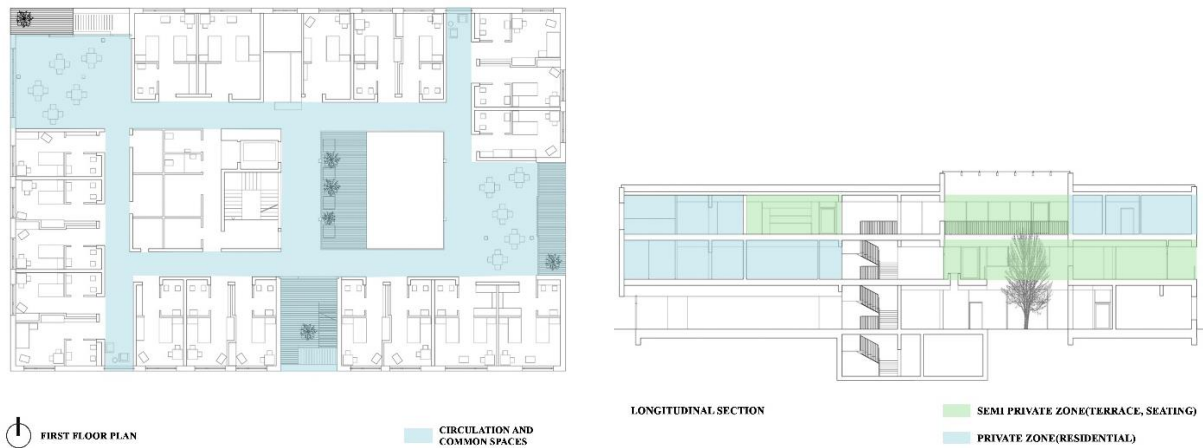
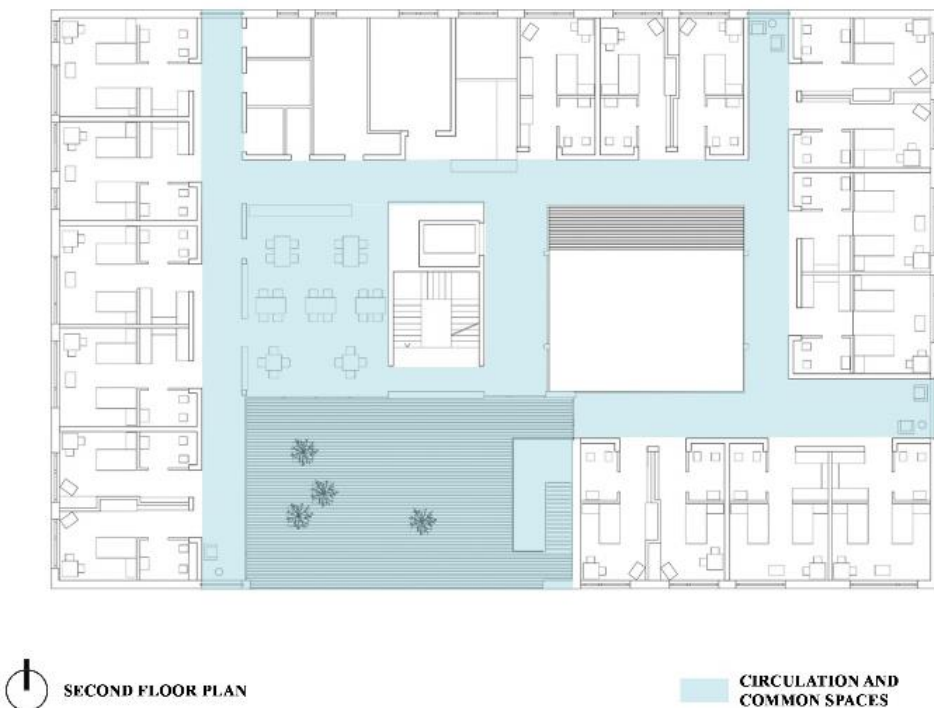


Fig 4.2.3.1 Zoning through horizontal and vertical circulation (Source: Author)

Climbing further on to the third and last floor, is a ward occupying 25 elderlies, which also has similar functions as like the first floor. In addition to that, there is also a generously big terrace of 150 square meters on the south. Furthermore, the two upper floors also consist of two balconies that intersect at right angles, which provides a circulation path within the building as well as outwards towards the gardens. Hence, a visual connection is created between the interior and exterior spaces (Wissounig, 2015)



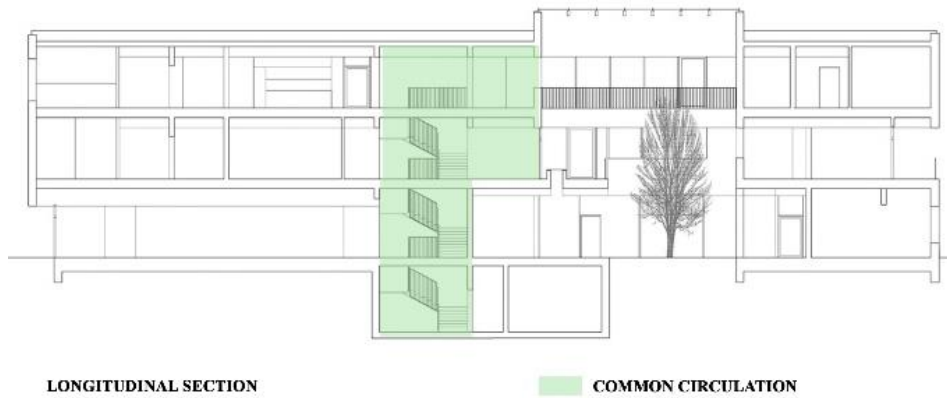


Fig 4.2.3.1 Zoning through horizontal and vertical circulation (Source: Author)

4.2.4 Site Planning and Landscape detailing

To concentrate on the residents requirement of mobility, network of pathways have been introduced around the site enfolded around garden of mature trees. Conjointly, seating spaces have been integrated within the walkways in need for recessing or to simply devour the nature.



Fig 4.2.4.1 Walkways and seating spaces around site

Source. <https://www.archdaily.com/775831/nursing-and-retirement-home-dietger-wissounig-architekten/56283f0be58ece127a000344-nursing-and-retirement-home-dietger-wissounig-architekten-photo>

4.2.5 Parking details and standards

This project has a smaller imprint of ground floor on the site while the other two floors have bigger footprints in comparison to the ground floor. The extension of the second and third floor in the north and south side, not only created a versatile change in the facades but it has also created outdoor shaded spaces for surface parking and emergency staircase. The site serves with a total of 28-car parking where 13 cars get the facility of shaded parking.



Fig 4.2.5.1 Parking facilities zoning (Source: Author)



Fig 4.2.5.2 Surface parking facilities in site

Source. (https://www.archdaily.com/775831/nursing-and-retirement-home-dietger-wissounig-architekten/56283e8ce58ecee6f0000365-nursing-and-retirement-home-dietger-wissounig-architekten-photo?next_project=no)

4.2.6 Structural details

The full building comprises of three stories, which is composed of solid concrete and wooden framed members. The smooth and diverse façade is boosting through the blend of plastered solid structural materials and raw elements of larch amongst the wooden construction. Light colored surfaces and wooden details makes the interior look lively but sophisticated. The lining of ash wood and a broad screen makes the chapel solemnly lit; portraying the atmosphere to be sober and thoughtful at the same time.



Fig 4.2.6.1 Façade compositional elements

Source. (https://www.archdaily.com/775831/nursing-and-retirement-home-dietger-wissounig-architekten/56283f47e58ece127a000345-nursing-and-retirement-home-dietger-wissounig-architekten-photo?next_project=no)

4.2.7 Design detailing

Special emphasize was established regarding the natural light and ventilation inside the building. Likewise, clear views of the surroundings has been accentuated through deliberate placement of openings in the rooms, corridors, conservatory as well as few dedicated terraces. Consecutively, this aids evading any possible dark spaces that has to be artificially illuminated, which overall assures the natural process of well-being of the elderly people gradually.



Fig 4.2.7.1 Unobstructed apertures in rooms
bringing in

Source. (archdaily)



Fig 4.2.7.2 Deliberate openings

Natural light

Source. (archdaily)

4.3 Nursing and retiree home, Alava, Spain



Source. (<https://www.archdaily.com/185030/nursing-retiree-home-firma-d-o-o/nrh-01>)

Encompassed within a rural town of Alava, the nursing and retiree home designed by Firma d.o.o concentrates on preserving the existing natural features in the site around the designed structure. The nursing home would be harmonious not only with the infrastructures nearby but also throughout its functions proposed, affirming an easy yet experiential journey throughout the whole place making it an alluring home for the retirees. This winning proposal of retiree home in the year 2011, comprises within an area of 700 square meters which is anticipated to set a contemporary example of old home within this region of Alava

4.3.1 Environment and micro-climate

The climate in Alava is moderately warm and humid most of the years accompanied by rainfall during the dry months of the year. Therefore, keeping the climatic conditions in consideration, the structure has been oriented towards the south. Through the breakout of spaces in the form, and cross ventilation, it is ensured that the building is dominant with natural ventilation and cooling process.

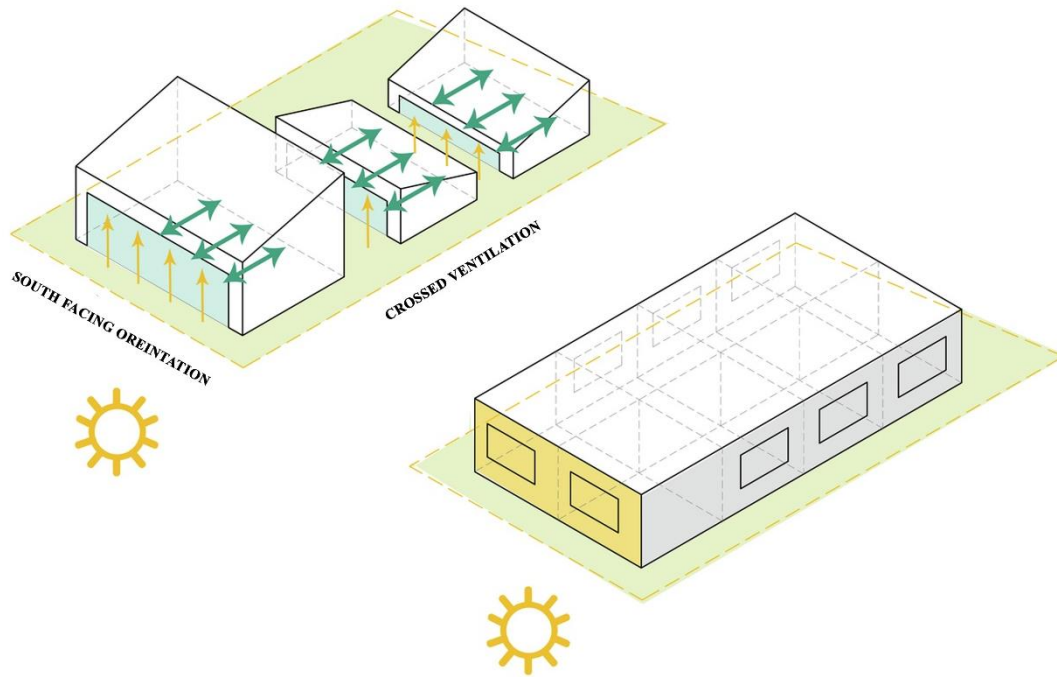


Fig 4.3.1.1 Considerations in building form based on environment and local climate

Source. (<https://www.archdaily.com/185030/nursing-retiree-home-firma-d-o-o/s2-3>)

4.3.2 Form and Function

The concept of this project is to interpret the care homes as four pavilions connected to each other through open gardens and common natural spaces creating the sense of a rural neighbourhood environment. Following the notion of low density around the location, the structure is dispersed throughout the site and is a low-rise structure of up to two stories. The functions are minimal and are placed accordingly close together which is easy to access by the elderly people. Functions consist of common dining spaces, kitchen and service areas, common rooms, independent houses with attached washrooms, and the intermediary breakout spaces leading to big and hearty courtyard and open space.



Fig 4.3.2.1 four low rise pavilions within close proximity and connection with the outer green spaces

Source. (<https://www.archdaily.com/185030/nursing-retiree-home-firma-d-o-o/nrh-02>)

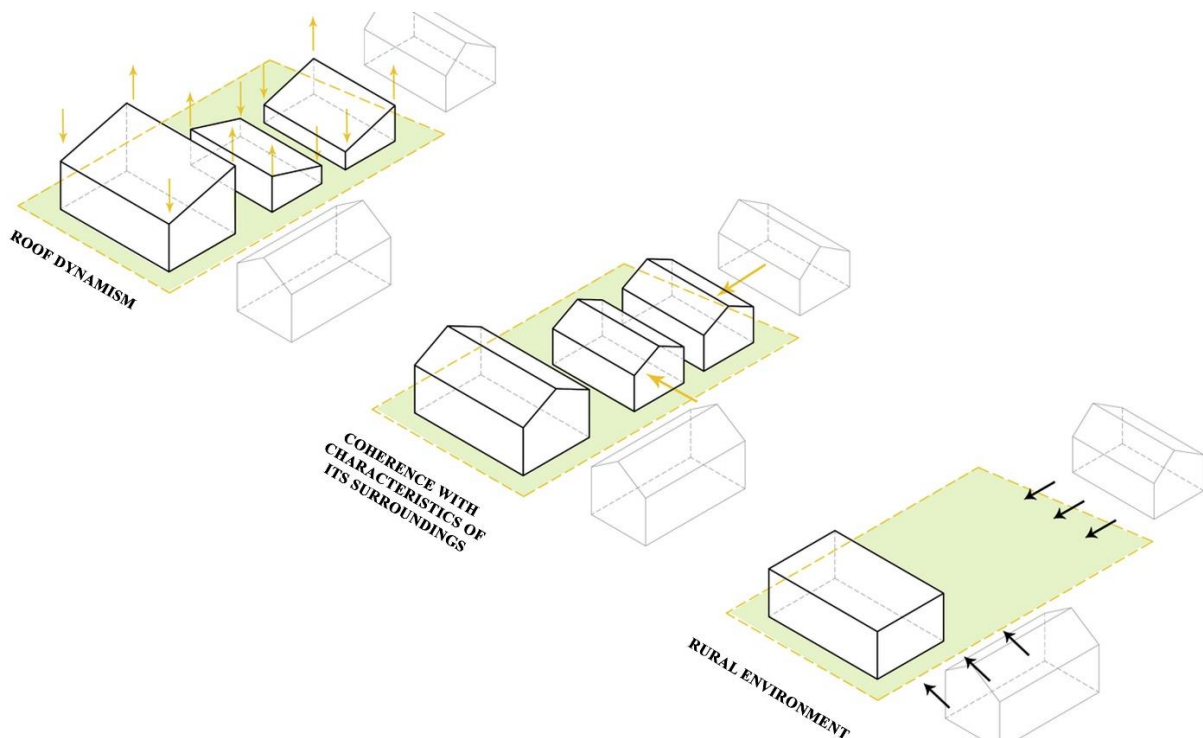


Fig 4.3.2.2 Concept of form generation

Source. (<https://www.archdaily.com/185030/nursing-retiree-home-firma-d-o-o/s3-2>)

4.3.3 Horizontal and vertical circulation

Out of the four pavilions, the first pavilion comprises of the major public and shared spaces thereby consisting of two stories. On the other hand, the other three volumes are of one storey height, which consists of both single and double rooms along with attached washrooms, serving up to 25 elderly occupants and their basic requirements. The dispersion of the structure within mostly one storey ensures the comfort in mobility of the aged population and spares them from the trouble of movement with any vertical means of transportation. On top of that, the steady circulation path made distinct with glass helps guide the residents easily without any confusion.



Fig 4.3.3.1 Zoning analysis

(Source: Author)



Fig 4.3.3.1 Zoning analysis (Source: Author)

4.3.4 Site Planning and Landscape detailing

Aside from fulfilling all necessary program requirements, landscape has been given a lot of focus, as it is located in a rural region of Alava where mostly all surrounding buildings are low rise and is engraved within natural greeneries. To maintain this harmonious relationship, this old home is designed as like the traditional neighborhood settlement, which is surrounded within big volume of garden.

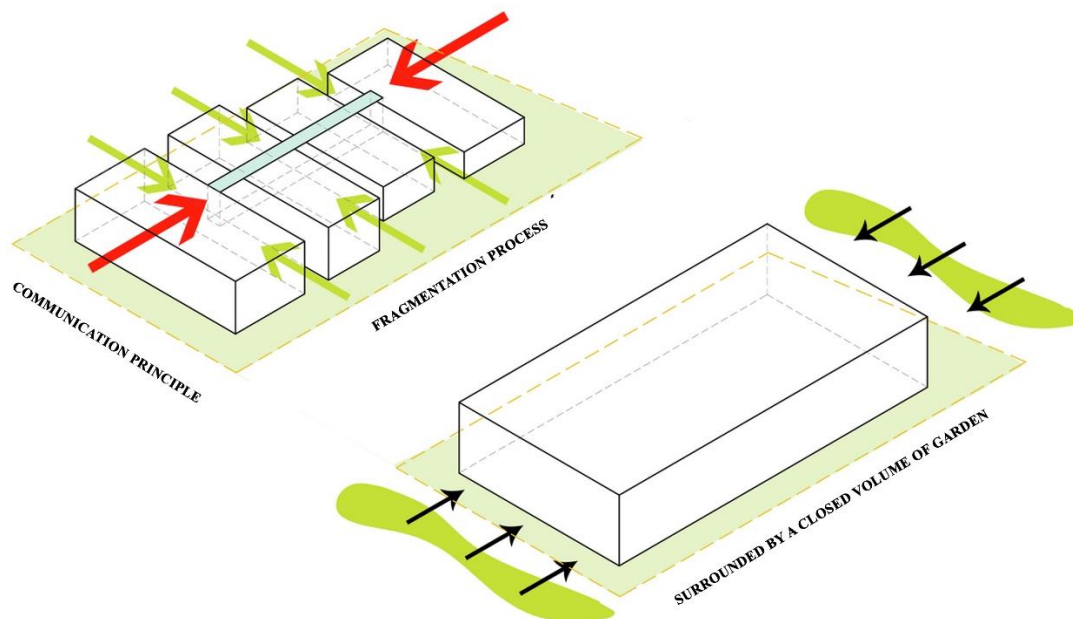


Fig 4.3.4.1 Concept of landscape incorporation into the old home

Source. (<https://www.archdaily.com/185030/nursing-retiree-home-firma-d-o-o/s1-3>)

4.3.5 Structural details

A simple approach was followed while considering the structural issues that is the low cost criteria during its construction. Due to having economic constraints in this project, the intention is to use prefabricated steel structure and façade panels including other external finish materials counting glass with metal, wood and white mortar, which will help to cut down the overall costs of construction.

4.3.6 Design detailing

One of the prime aspects of this project is the usage of glass corridor that binds the entire structure together. This criteria is to help break the barrier between interior and exterior spaces and serve as the main interaction method amongst each other and the landscape outside. The glass not only helps to connect but helps accentuate the spatial and visual quality of the spaces making it more interesting while walking past the corridors. In addition to that, all the four pavilions are strategically oriented towards the south, which helps to insulate the interior rooms, and shared spaces naturally. Moreover, it cuts down energy waste and naturally ventilates the whole construction without having to bother about artificial cooling or illumination. As a result, all the pavilions are placed in perpendicular to the street directing towards the east side of the site.



Fig 4.3.6.1 Glass corridors merging the interior to the exterior spaces

Source. (<https://www.archdaily.com/185030/nursing-retiree-home-firma-d-o-o/nrh-04>)

To sum up, the case studies portray how the environment of a care home can be transformed over meticulous placements of a simple design element like window, or even with an embodiment of translucent spaces and greeneries. Such attentive layouts cannot only elevate the ambience but helps to maintain the connectivity of the retirees with the surroundings. Secondly, the uncluttered circulation established through zoning division helps improve the elderly's ability to apprehend with minimal difficulty, enhancing their confidence to continue movement. Lastly, array of different activity options, providing opportunities for both young and the elderly to participate collectively, helps the elderly to efficiently utilize their experience and time whilst communicating with other communities.

Chapter 5: Program Appraisal

This section intends to analyze the facilities that will be incorporated within this old age home. Zooming into the facilities, it will deeply determine the significant space allocations and universal accessibility standards that will be required for each set of amenities to make it an acknowledged design for both the young generation visiting and the older generation residing there. Specific concentration regarding the program analysis is to ensure smooth mobility and comfort for the elderly, to have proper accessibility in all the services proposed.

5.1 Type of facility

On the basis of above clarified studies and analysis, the key focus is to not just provide basic healthcare and lodging facilities but to integrate them amongst recreational facilities, workshops, and other outdoor spaces to conjugate the elderly people into social interaction, motivating them towards movement and overall ensuring both physical and mental well-being by segregating them from isolation. Therefore, the type of proposed amenities in the care home are based on five categories:

- a) Administration facilities
- b) Training facilities
- c) Recreational facilities
- d) Healthcare facilities
- e) Residential facilities
- f) Staff accommodation

5.1.1 Significant square feet standards required for old age home

	Functional space	Number of units	Number of users	Area per unit (in sft)	Total area (in sft)
A. Administrative facilities					
1	Lobby/reception	1		15	250
2	Waiting lounge	1	25	10	250
3	Accounts department	1	4	60	240
4	Washroom(male)	1	5		200
5	Washroom(female)	1	5		200
6	Directors office with toilet	1			300
7	Managers office with toilet	1			270
8	Meeting/Conference room	1	20	25	500
9	Control and security office	1	3	50	150

Subtotal 2340

30% 702

Circulation

TOTAL 3042

B. Training facilities					
1	Vocational and workshop rooms	3	25	40	1000
2	Fitness rooms	1	25	30	750
3	Teachers' lounge/Common room	1	15	20	300
4	Staff room	1	6	25	150
5	Washroom(male/female)	1	6		400

Subtotal 2600

30% 780

Circulation

TOTAL 3380

C. Recreational facilities					
1	Cafeteria/Dining Hall	1	150	15	2250
2	Kitchen and storage	1			480
3	Washrooms(male)	1	5		200
4	Washrooms(female)	1	5		200
5	Library	1	40	20	700
6	Prayer hall	1	60	40	800
7	Ablution area(male)	1	5		150
8	Ablution area(female)	1	5		150
9	Library	1	40	25	1000
10	Indoor games room	1	40	20	700
11	Auditorium/Multipurpose hall	1	150	15	2250
12	Convenience store	1	30	20	300

Subtotal 9180

30%
Circulation 2754
TOTAL 11934

D. Healthcare facilities					
1	Lobby/reception	1		15	250
2	Waiting lounge	1	20	15	300
3	Pharmacy	1	30	20	220
4	Doctor/Medical officers room	1	5	50	420
5	Consulting chambers/cabins	2	50	50	1050
6	Therapy rooms	4	50	50	1000
7	General storage room	1		15	120
8	Medicine storage room	1	50	15	120
9	Nurse/staff lounge	1	50	15	250
10	Washroom(male)	1	5		200
11	Washroom(female)	1	5		200

Subtotal 7850
30%
Circulation 2350
TOTAL 10205

E. Residential facilities					
1	Bedroom	50	100	150	15000
2	Attached washroom	50	100	65	6500
3	Attendants/Nurses bedroom	50	50	72	3600
4	Attendants/Nurses washroom	50	50	25	1250
5	Living and dining room	50	100	200	20000
6	Kitchen	50	50	100	5000

Subtotal 51350
30%
Circulation 15405
TOTAL 66755

F. Staff accommodation facilities					
1	Staff bedroom(male)				200
2	Staff washroom(male)			25	200
3	Staff bedroom(female)				750
4	Staff washroom(female)			25	125
5	Common dining room	1	50	15	600
6	Kitchen	1	5	60	250
7	Storage	1			200
8	Laundry	1	4	80	300

Subtotal	4370
30% Circulation	1311
TOTAL	5681

G. Parking facilities					
1	Surface parking		10	128	1280
2	Ambulance		3	180	540
3	Covered van		3	128	384
4	Guard room with toilet	1			150

Subtotal	2354
30% Circulation	706
TOTAL	3060

TOTAL built area 104057

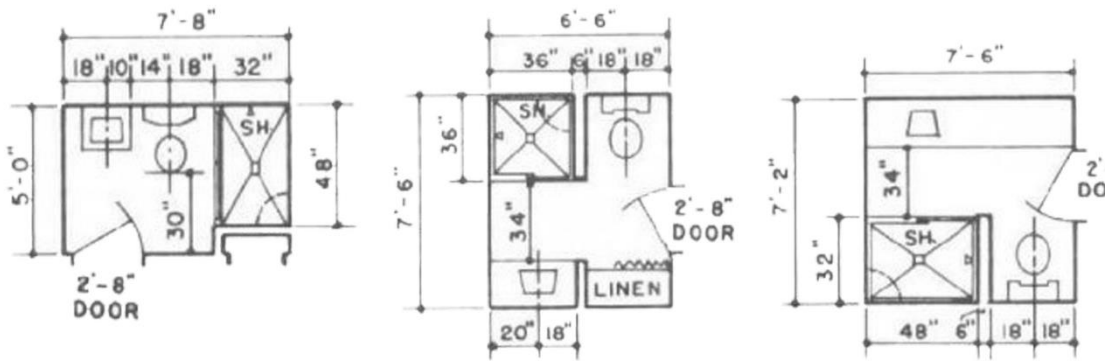


FIG. BATHROOM WITH SHOWERS

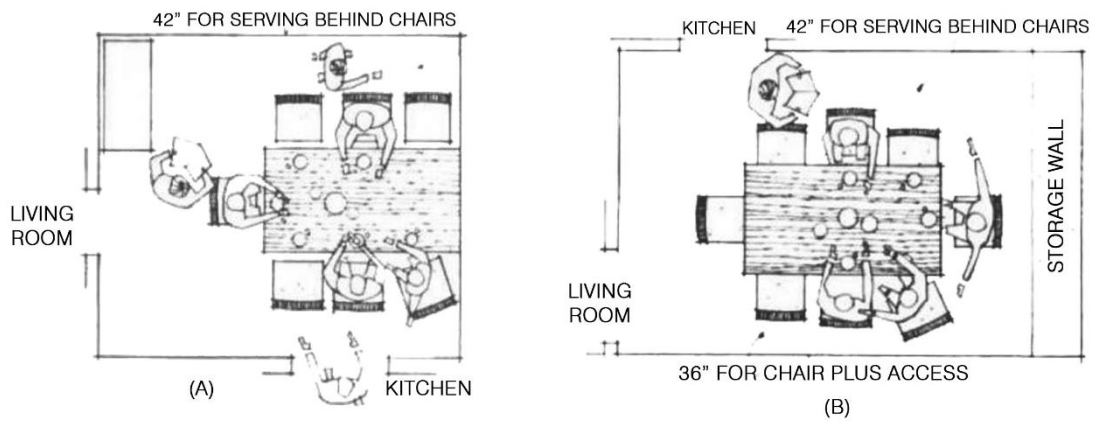


FIG. MIN CLEARANCE FOR DINING AREA (A) ONE END OF TABLE AGAINST WALL (B) FROM ONE END & ONE SIDE OF TABLE

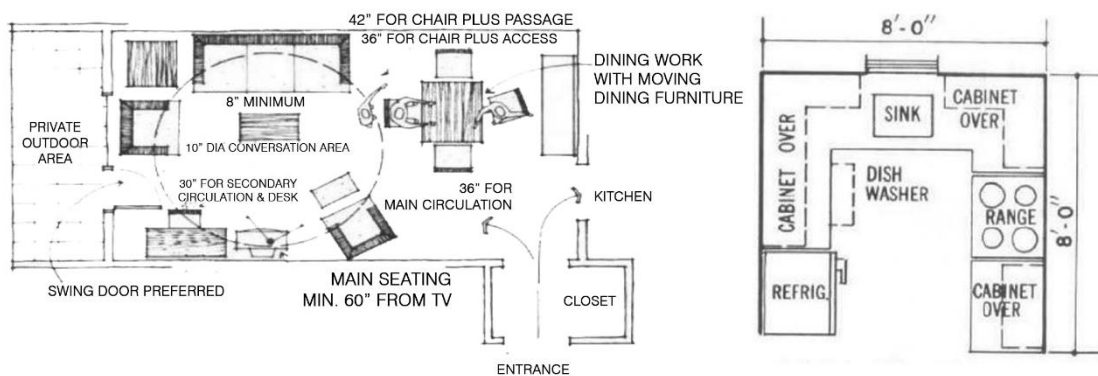


FIG. MIN. CLEARANCES, CIRCULATION & CONVERSATION & CONVERSATION AREAS FOR LIVING AREAS

FIG. U-SHAPED KITCHEN CABINETS

Fig 5.1.1.1 Space requirements for kitchen, washrooms and bedroom for elderly housing

Source. (Joseph De Chiara and John Callender)

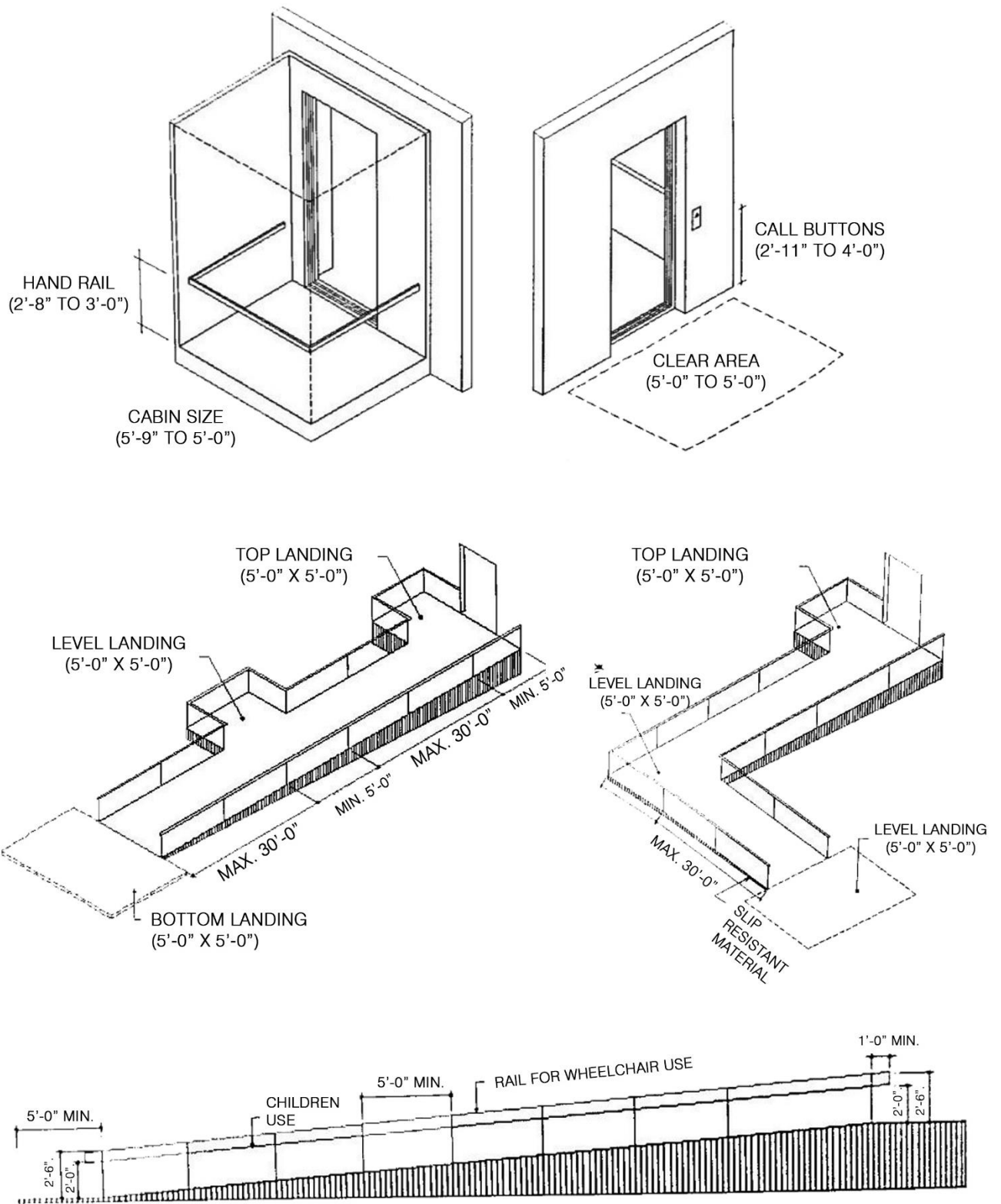


Fig 5.1.1.2 Standards for elevator and ramps

Source. (Joseph De Chiara and John Callender)

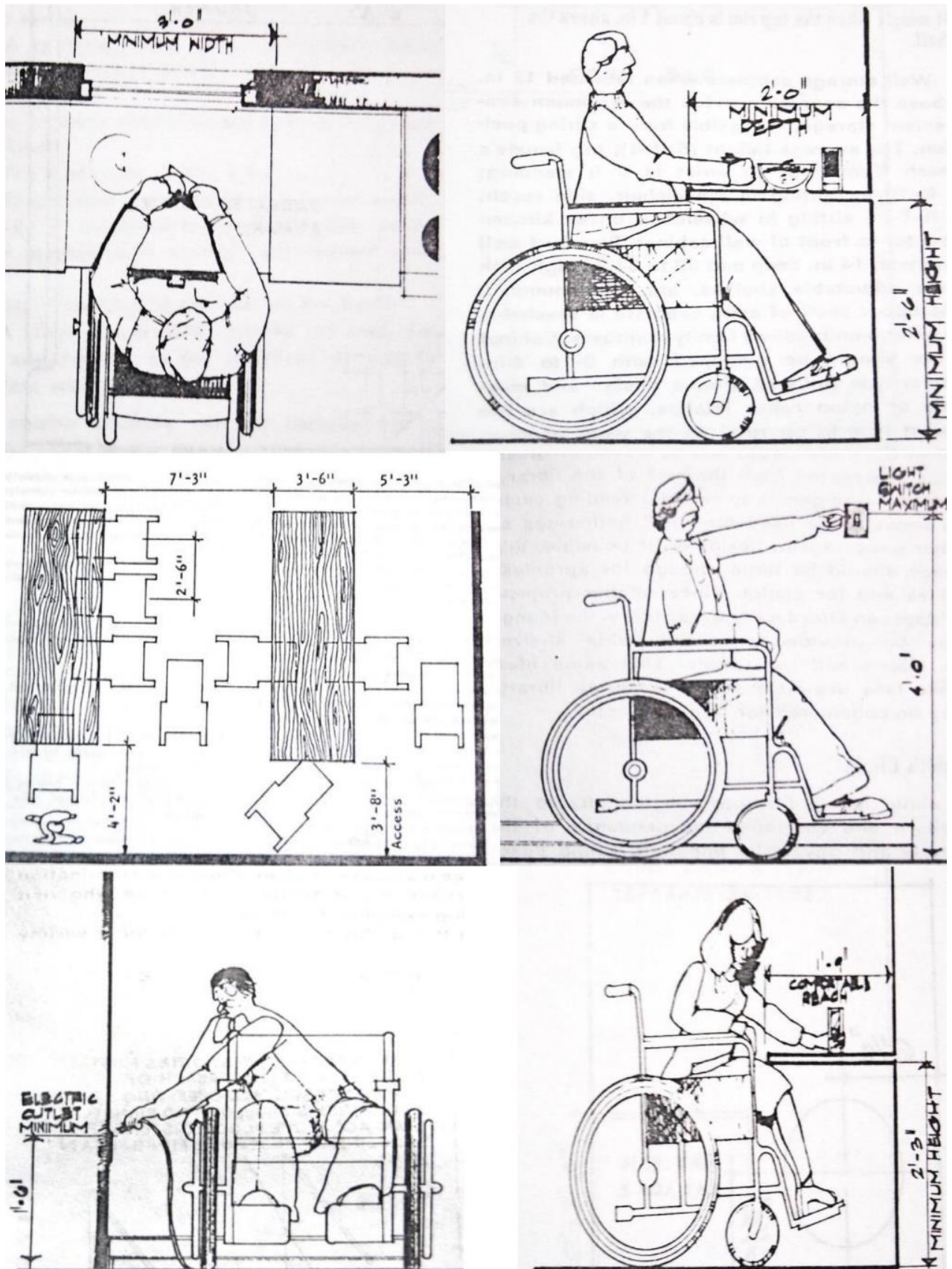


Fig 5.1.1.3 Space requirements for wheelchair users

Source. (Joseph De Chiara and John Callender)

Chapter 6: Design Considerations

Analyzing all the current insufficiencies of conveniences combining inadequate healthcare and skilled staffs, flawed attentions regarding user-friendliness, shortcomings in connectivity amongst other communities and environment in the existing care homes, this project intends to fill the gaps and focus especially on those lacking issues required to make an old home functional in this country. Among with accommodation and healthcare facilities, this project determines on gratifying the aged peoples desires through combining recreational facilities like workshops and outdoor activities that will consistently keep the elderly engrossed and stay enthusiastic within themselves and the other societies. The ancillary features in the design will conceivably yearn in accentuating the clarity between the exterior and interior spaces and making the place vibrant and healthy. Concurrently, the overall universal design of the project aspires in serving all the dwellers and visitors regardless of any possible disability or illness, presuming smooth mobility and solace of the older people, as well as the working staffs.

6.1 Encouraging social interaction

Amongst the few existing care homes in Bangladesh, none has addressed the issue regarding elderly people's desire to integrate with other communities of the society. Besides providing the necessities, for instance- food, healthcare, dwellings, etc. the care homes are lacking in these particular elements. Contrarily, many distinguished nursing homes outside Bangladesh (as mentioned in section 4.1) have gathered these issues and fused them in the retirement homes by means of assorted social gathering spaces and activities that certifies the bodily and psychic betterment of the residents. On that note, the leading objective of this project is to create a link

of the older community with the other communities of the societies through vocational ventures like arts, crafts, sewing, etc. where the experienced seniors can share their skills with the younger and amateur citizens. Alongside these ventures, the two communities can involve in different leisure interests like sports, cooking, gardening, etc. Altogether, these opportunities will benefit the elderly into feeling productive and keeping them engaged with the surroundings, as well as developing the insight of the youth towards respecting the retirees.

6.2 Providing better accessibility for elderly users

In general, ease of circulation plays one of the vital roles in terms of accessibility, which would especially be important in this project being a care home. This realm intuitively composes of different people of different age, backgrounds, impairments, etc. under one homestead. Successively, it is an integral concern to assimilate universal design in all spaces and circulation paths for safety and satisfaction of all the users. With reference to it (also explained in section 5.1.1), the goal of the project is to use element like ramps, wider paths with traction for easy motion and develop flexible directions within complex to boost the elderly's confidence in movement, eliminating chances of any undesirable accident. Along with that, meticulous placements of adequate gathering/seating spaces along the way would deliver to the needs of the retirees to lounge and connect with other occupants.

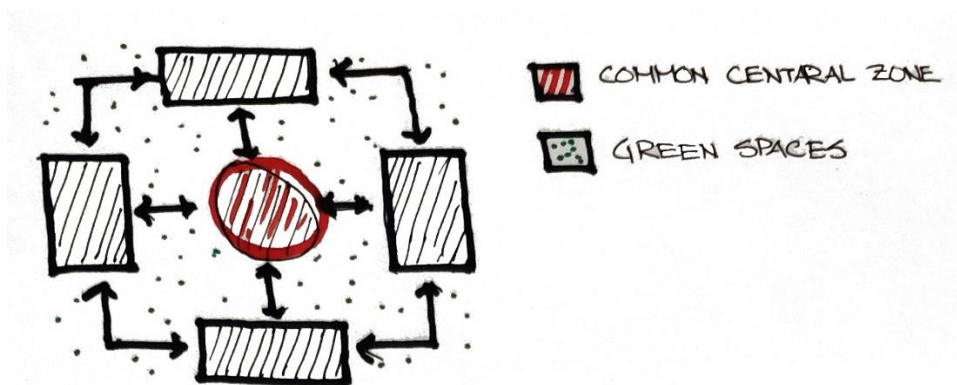


Fig 6.2.1 Easy circulation paths for better perception of the users

(Source: Author)

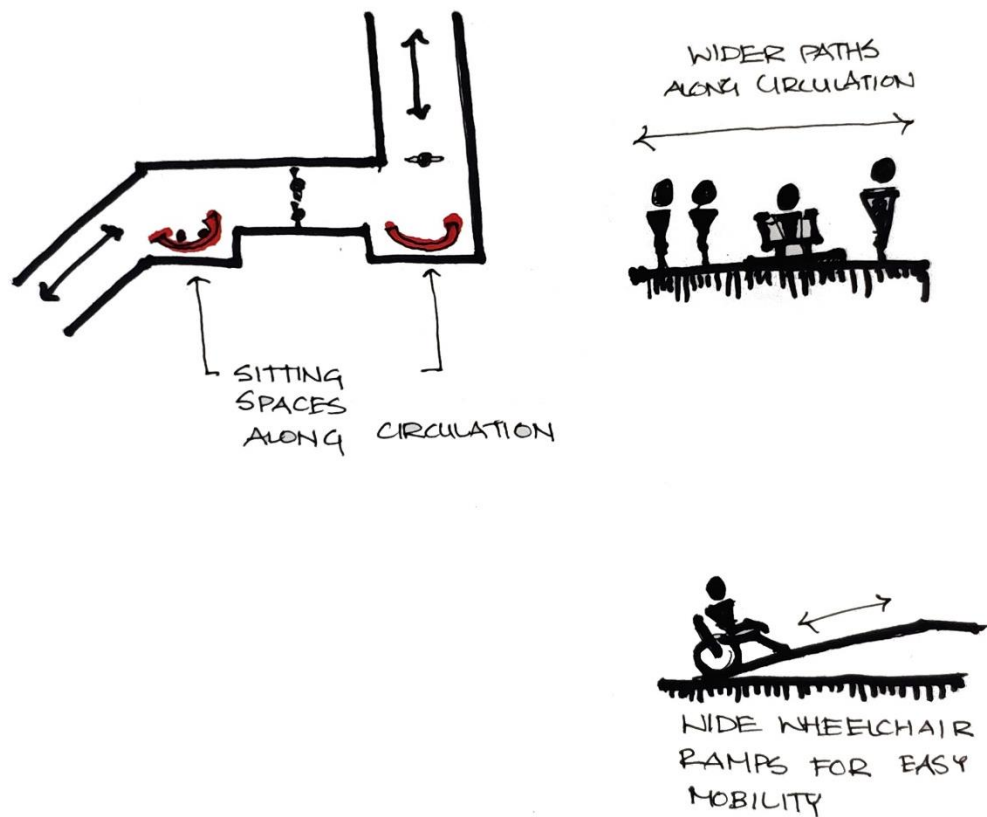


Fig 6.2.2 Accessible measures for the users

(Source: Author)

6.3 Integrating natural remedies

This facility emphasizes on using natural means to heal ailments and bring comfort for the users. As much as healthcare facilities is required in the center, one of the crucial and therapeutic components is the catering of natural ventilation and illumination inside the structure as it has a positive impact on the sense of contentment, as well as productivity. With the help of large openings within the care homes, embodiment of transparent courtyards and balconies around (similar to the case mentioned in section 4.2 and 4.3), it affirms to define visible linkages within exterior and interior spaces and helps achieve sustainability. The transparency of the whole place makes the circulation effortless and apprehensible for the aged

people and keeps them assimilated with the surroundings nearby. Moreover, the use of local materials for construction will assist in blending the care home even further within nature and the vicinity around, excluding the possibility of the structure conflicting with the region.

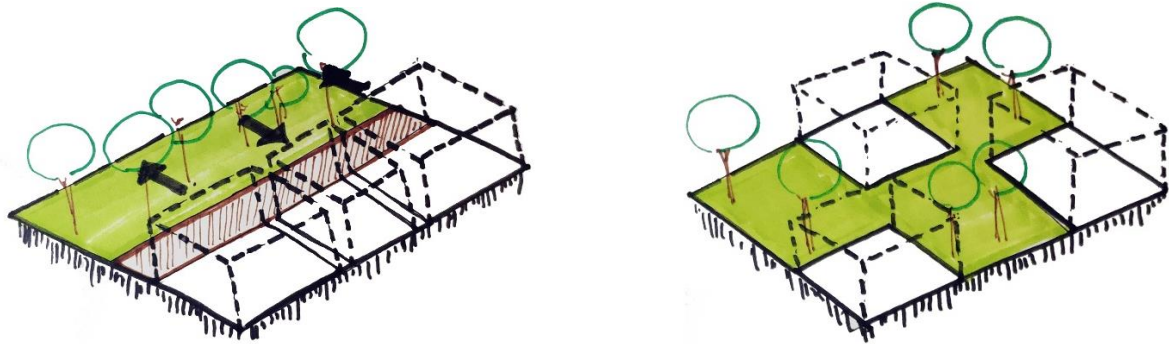


Fig 6.3.1 Incorporation of greeneries around the complex, assimilating the users within nature

(Source: Author)

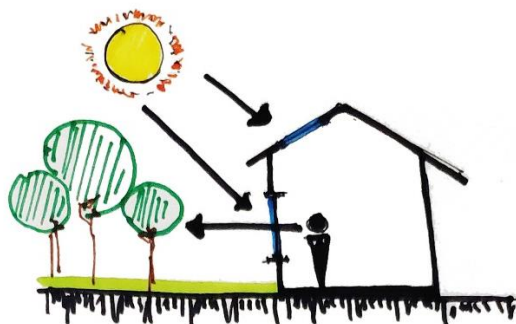


Fig 6.3.2 Therapeutic openings and embodiment of

Courtyards and balconies

(Source: Author)

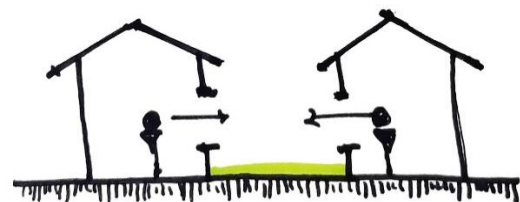


Fig 6.3.3 Openings enhancing visibility and connection

Chapter 7: Design Suggestions

The last section of the paper progresses deep into the conceptual stage and design development of the old age home, which suggests a design that would be integrating the missing elements found in the existing care homes of our country as per the above specified several studies and considerations.

7.1 [Functional relationship study]

Based on the program development with reference to chapter 5 of this paper, the facilities were laid out in a bubble diagram, according to the public and private zoning which helped in having a better understanding of the intermediary connections among each of those facilities before proceeding further into the design process.

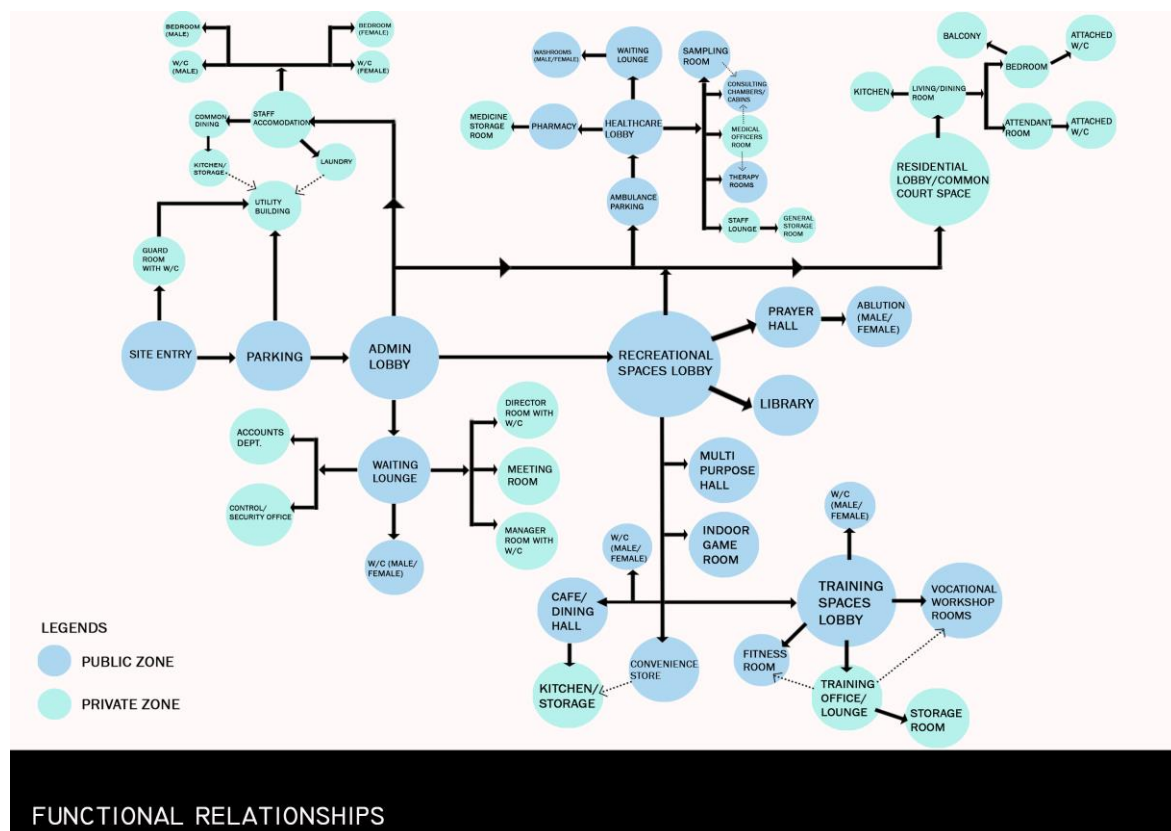


Fig. 7.1.1 Functional relationship diagram (Source: Author)

7.2 [Schematic analysis and zoning]

Following the functional relationship study, the facilities of this care home have been situated within the site as an initial stage. With further allocation of the bigger programs based on the site analysis and zoning decisions, the schematic plan finalized its way to this phase. With an overall idea of the zoning of the spaces, it made the transition to the conceptual development of the nursing home much smoother.

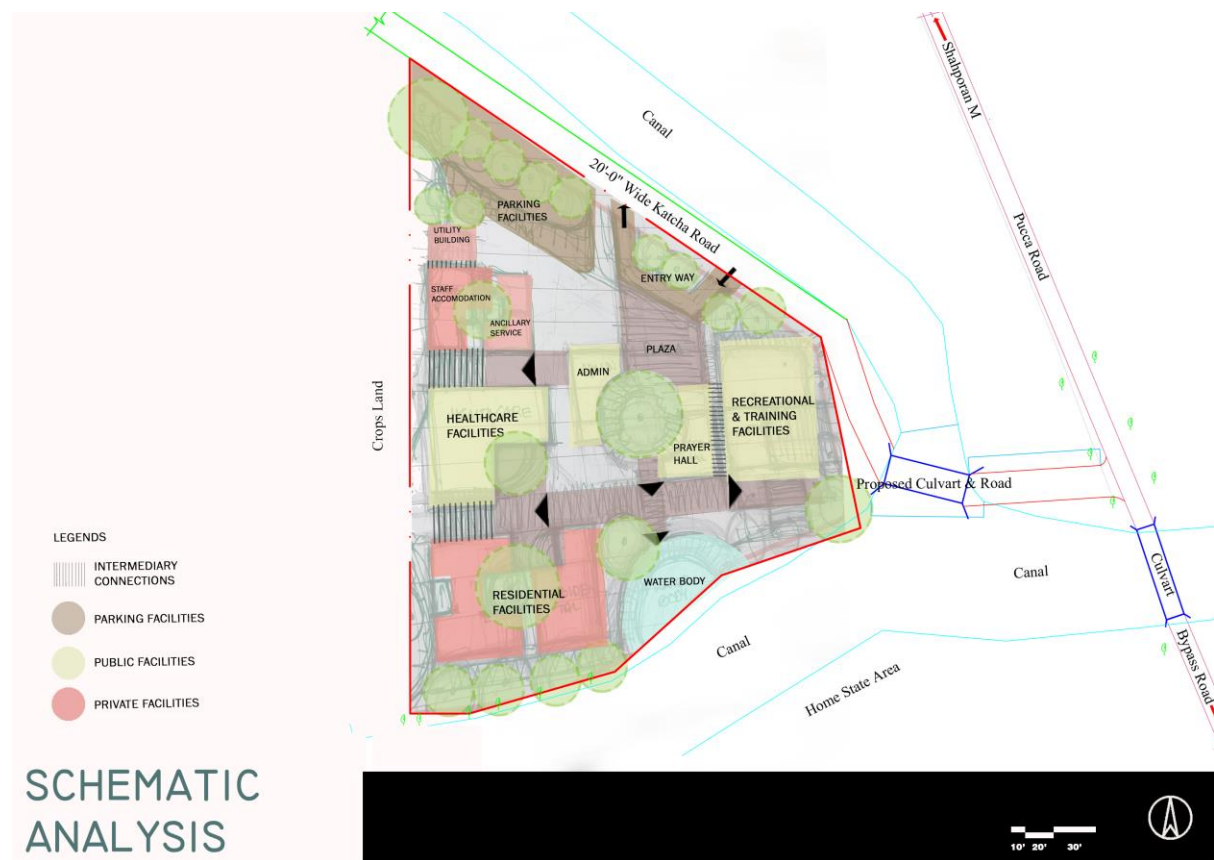


Fig. 7.2.1 Schematic analysis and zoning (Source: Author)

7.3 [Concept generation and massing development]

The concept of the care home winded up as per the three design considerations mentioned in section 5 of the paper. From these objectives, the idea was to maximize natural pockets of intimate green spaces amongst the facilities and to incorporate the surrounding canal into the

site. It was narrowed down to this concept for the purpose of encouraging the elderly people to stay interconnected within nature, for engagement in different social activities, which would not only be encompassing each other but would also invite the outer community of nearby Panchgori gram through the connection of the water body. Consecutively, the integration of continuous walkways around the whole complex with minimum level change expect to attain smooth walkability for the senior citizens, motivating them for maintaining physical movement which would overall assure better accessibility. By placing the functional blocks over the site, as well as through phases of massing development, the complex acquired its form gradually through breakdown of solid blocks and the fusion of small intimate outdoor spaces, greens, water body and pathways within.

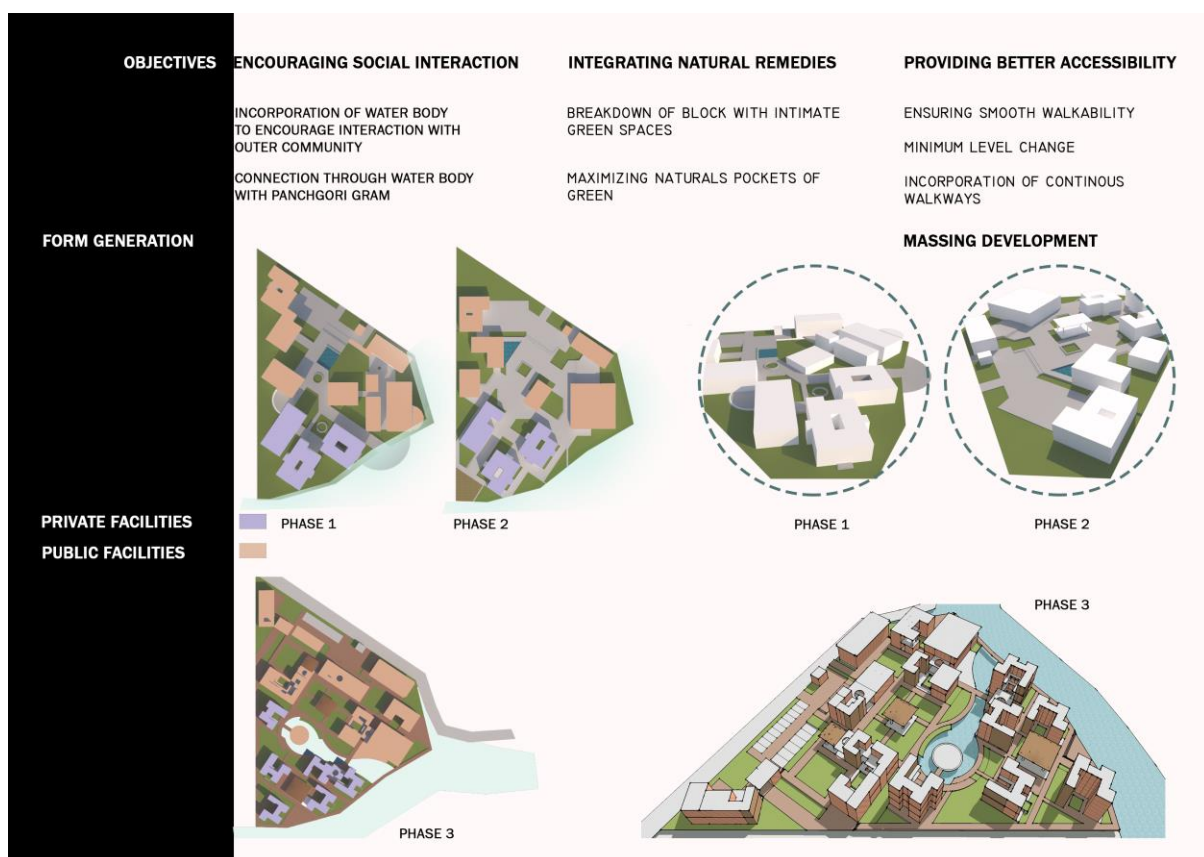


Fig. 7.3.1 Form and massing development (Source: Author)



Fig. 7.3.2 Concept development (Source: Author)

7.4 [Ground floor plan and blowups]

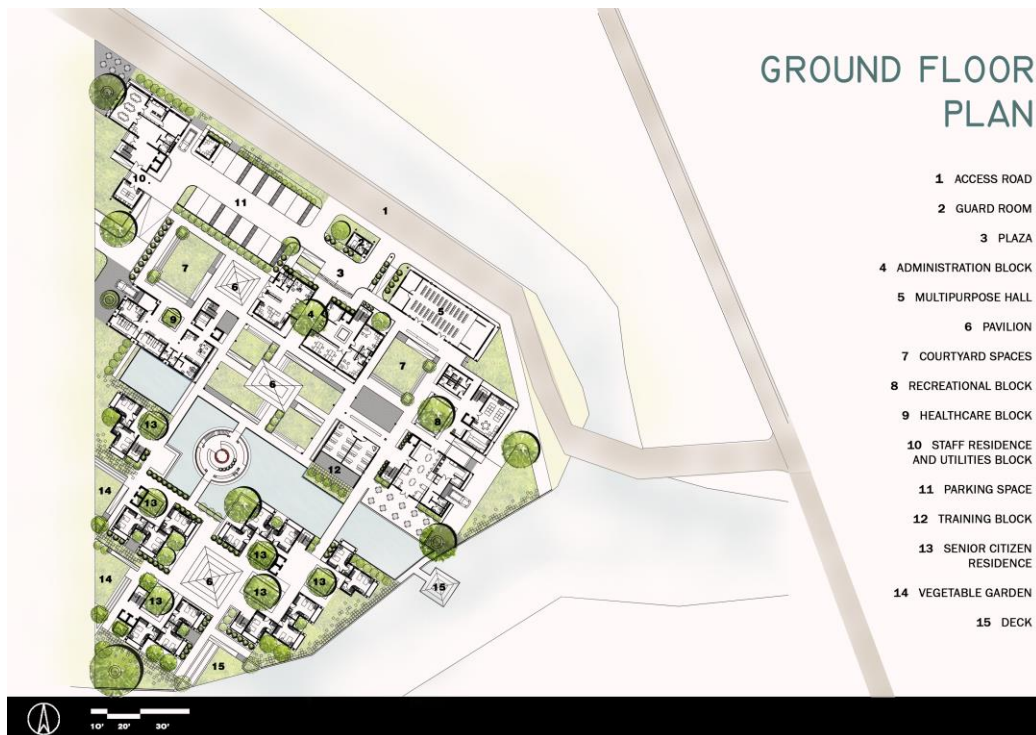


Fig. 7.4.1 Ground floor plan (Source: Author)



Fig. 7.4.2 Ground floor plan blowups (Source: Author)



Fig. 7.4.2 Ground floor plan blowups (Source: Author)



Fig. 7.4.2 Ground floor plan blowups (Source: Author)



7.5 [First floor plan and blowups]



Fig. 7.5.1 First floor plan (Source: Author)



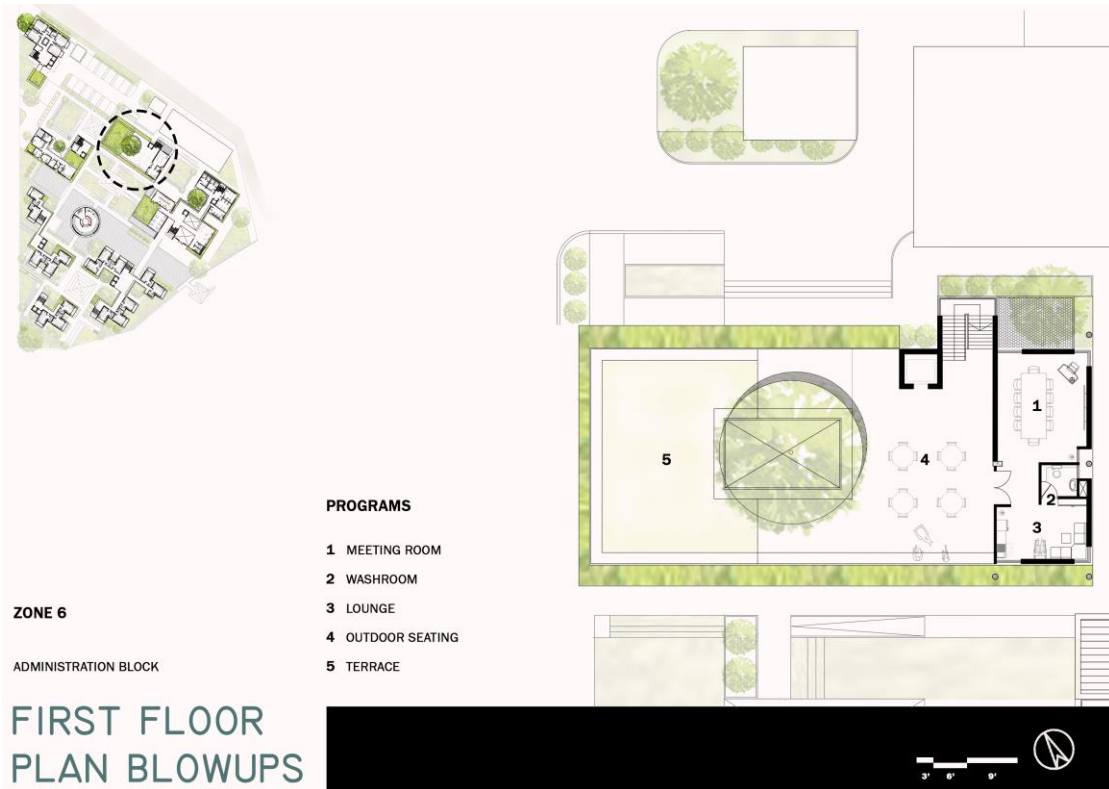
Fig. 7.5.2 First floor plan blowups (Source: Author)



Fig. 7.5.2 First floor plan blowups (Source: Author)



Fig. 7.5.2 First floor plan blowups (Source: Author)



7.6 [Elevations and sections]



Fig. 7.6.1 Elevations (Source: Author)



Fig. 7.6.2 Sections (Source: Author)

7.7 [Elevation and landscape elements]



Fig. 7.7.1 Elevation and landscape elements (Source: Author)

RAISED OUTDOOR
COURTYARD SEATING



CONCRETE SOFT
PAVERS & STONES



CANAL VIEW FROM RESIDENTIAL AREA

LANDSCAPE ELEMENTS



CEILING TO
FLOOR AWNING
WINDOWS



BRICK
PERFORATED
RAILINGS



EXPOSED
CONCRETE SLABS
AND COLUMNS



RESIDENTIAL BLOCK ELEVATION

ELEVATION DETAILS



Fig. 7.7.1 Elevation and landscape elements (Source: Author)

7.8 [Rendered images]



Fig. 7.8.1 Rendered images (Source: Author)



Fig. 7.8.1 Rendered images (Source: Author)



VEGETABLE GARDEN IN RESIDENTIAL AREA

RENDERS



COURTYARD VIEW OF RECREATIONAL BLOCK

RENDERS

Fig. 7.8.1 Rendered images (Source: Author)



Fig. 7.8.1 Rendered images (Source: Author)



MULTIPURPOSE HALL VIEW

RENDERS



TRAINING BLOCK VIEW

RENDERS

Fig. 7.8.1 Rendered images (Source: Author)



VIEW OF STAFF RESIDENCE AND UTILITIES BLOCK

RENDERS



VIEW OF CAFETERIA FROM TERRACE

RENDERS

Fig. 7.8.1 Rendered images (Source: Author)

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Appendix A.

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