

OBOSHOR:
RETIREMENT FACILITIES FOR SENIOR CITIZENS,
SREEMANGAL.

By

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A thesis submitted to the Department of Architecture in partial fulfillment of the
requirements for the degree of
Bachelor of Architecture

Department of Architecture
Brac University
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Declaration

It is hereby declared that

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2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I/We have acknowledged all main sources of help.

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Abstract

It is expected that Bangladesh, in upcoming decades will be home to a major number of elderly people due to decrease in mortality rate (3.94% decline from 2018) and an increase in life expectancy rate (0.39% increase from 2018). This situation will further reinforce the current and projected ageing population of this country. However, existing challenges faced by the elderly community in Bangladesh prove to be a hindrance in their wellbeing. Given the changes taking place in lifestyle, family patterns and working environment, there is a crucial requirement for services specifically targeted towards the elderly population - that includes care and health services. Thus in light of the current conditions faced by the elderly population of Bangladesh, an idea has been introduced by the government to alleviate the situation by providing a facility for affluent retired senior citizens of this country. For creating such retirement home, authority has chosen a tranquil place in the outskirts of Sreemangal in Sylhet division. The project, under the guidance of the Ministry of Social Welfare, will aim to provide residential, recreational, healthcare and other ancillary services to the target population of Bangladesh. Through successful implementation of this project, it is expected that the complex would assist in remedying the current lack of specialized facilities for the elderly as well as provide proper care and an active life to senior citizens who are unable to care for themselves in the long run.

Keywords: Retirement Facility; Senior Citizen; Geriatric Clinic; Accommodation; Sylhet; Bangladesh.

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List of Acronyms

BAAIGM - Bangladesh Association for the Aged and Institute of Geriatric Medicine

CT-Computed Tomography

PFT-Pulmonary function Test

ECG-Electrocardiogram

OPD-Out Patient Department

BGB-Border Guards Bangladesh

Chapter 1:Introduction

1.1 Introduction to the Project

The number of senior citizens is growing not only globally but also in Bangladesh due to advanced medical facilities of recent time and decreased mortality rate. They are very eager to live later part of life in peace, care and safety. The more world is advancing forward, traditional family system of Asian countries like Bangladesh are collapsing by creating more nuclear family system, and thus need for specialized retirement home and healthcare facilities for our senior citizens has become a necessity of this time period and beyond. In response to this, an attempt is being made for the first time in Bangladesh by the government on basis of public private partnership with universal medical hospital ltd. which is a retirement community with healthcare facilities for the elderly in the outskirts of Sreemangal upazila in Sylhet division.

The constant increase in the percentage (increasing rate 4.41% every year) of elderly inhabitants countrywide has been a matter of significant importance. Keeping in light the number (1 crore) as well as the anticipated forthcoming increase of the population, elderly individuals will be subjected to a number of impending problems, including scarcity of resources, insufficient healthcare services, absence of social security and so on. To address this concern, the Ministry of Social Welfare has proposed to build a senior citizen community complex in Sreemangal, Sylhet. The intention of this project is to provide residential, recreational, healthcare and ancillary supportive services specifically targeted towards the affluent retired senior citizens of the society. Successful implementation of this project may lead to replication of this scheme in various other districts of the country.

1.2 Aim and Objectives of the Project

This project aims to design facilities that will provide specialized care of elderly people of this country, offer complementary healthcare services to them with the accommodation and is expected to be a commercially viable business model for efficiently delivering all the needed facilities to the senior citizens within green environment. It would also focus on the activity, sociability, mental health, support, communication and safety of the intended elderly people by providing dedicated services as well. All over, it intends to make our senior citizens' life more meaningful, peaceful and independent.

The project has specific objectives of:

- a. providing residential accommodation to the interested senior citizens [age above 59] in the green soothing environment on short- and long-term basis.
- b. providing food, nutrition, recreation, mental support and medical facilities to the senior citizens.
- c. promoting self-confidence and spirit of self-reliance to enable them to acquire necessary skills and guide them to achieve excellence in their fields of activity.

1.3 Project Summary

Name of the Project: Oboshor: Retirement Facilities for Senior Citizens

Implementer of the Project: Ministry of social welfare, Government of Bangladesh

Location: Sreemangal, Moulvibazar, Sylhet.

Site area available for the Project Development: 2,44,025 sft [5.6 acre]

Proposed built-up area of the Project: 1,74,085 sft.

Proposed facilities to be provided in the Project: 87,150 sft

Administrative facilities 40,66 sft

Medical facilities 11,817 sft

Recreational facilities 24,128 sft

Accommodation facilities [for guest] 5,278 sft

Residential facilities [for senior citizens] 29,900 sft

Chapter 2: Literature Review

2.1 Retirement Home and Senior Citizen

Retirement home is different from an old age home or nursing home primarily in the level of medical care given. A retirement home is a multi-residence housing facility intended for the elderly. Typically, each person or couple in the home has an apartment-style room or suite of rooms. Additional facilities are provided within the building. This can include facilities for meals, gatherings, recreation activities, and some form of health or care. A place in a retirement home can be paid for on a rental basis, like an apartment in short or long term basis, or can be bought in perpetuity on the same basis as a condominium.

As per Bangladesh government policy (2013), senior citizen is any elderly person who is citizen of Bangladesh and has attained the age of 60 years and above.

2.2 Situation of senior Citizens in Bangladesh

According the BSS policy, the senior citizens are entitled to special healthcare, accommodation and transport facilities. But in reality people in this country become older earlier because of poverty, and the conditions related like hard labor, malnutrition, illness and their geographical condition.

According to the National census between 1974 and 2011 the growth of elderly people is gradually increasing. The proportion of elderly population has been gradually increasing since last decades in comparison to the whole population. At present time, about 9 million of the total population of the country are considered elderly and according to related research, it is expected that, by year 2025, number of elderly people will be up to 18 million

(M.Alimullah,2008).In addition, according to a report by Bangladesh Bureau of Statistics (2015),the average life expectancy limit is expected to increase to 75 years by the year 2025.But this achieved extra years are not taking the elderly people to any better situation, rather due to rapid socio-economic transformations, changing social values, capable but isolated elderly population is starting to stay in old age homes that run by non-government organizations or as a charity.

The government has set up six free shelters as ‘Shanti Nibash’, one in each divisional headquarters providing food and shelter for elderly, destitute residents. The Bangladesh Association for the Aged and the Institute of Geriatric Medicine [BAAIGM] with financial help of the Government has established Senior Citizen homes in Dhaka and Savar.

A number of homes have been established through private initiative. A study of old homes in Dhaka shows that 47% of the residents are there because they have no one to look after and over 60% of the residents are male. The number of existing Old People’s Homes is much lower than the demand. In addition, many living in ‘Old Home’ face a considerable social stigma, primarily because this is very new concept in our culture. However, the economic and social reality is that many elderly people will have no choice but to stay in old homes.

2.3 Geriatric Facilities in Bangladesh

The only recognized geriatric healthcare complex in Bangladesh at present is the Bangladesh Association for the Aged and Institute of Geriatric Medicine (BAAIGM), located in Agargaon. The complex also includes Probin Hitoishi Shangha, an old age home for individuals aged 55 years and above. In addition, the government of Bangladesh had also formed a society named “Bangladesh Society of Geriatric Cardiology”, which deals with the various types of cardiovascular diseases affected individuals over 65 years and above (Star Health report, 2007). Government passed an order for all public hospitals in this country to include a geriatric section. However, this law has yet to be strictly implemented in the healthcare facilities of Bangladesh

(Amanullah,2016). Moreover, as stated by Flora (2011), the situation is worse for underprivileged elderlies and those living in rural areas, who do not have proper access to specialized medical facilities and are not familiar with the word “geriatric”.

2.4 Problems faced in old age homes in Bangladesh

Elderly people who live in old age home experience some difficulties during their stay. Some of the issues outlined by Sultana (2013) are mentioned below-

- 1) Isolation: One of the main problems faced by the residents is a lack of engagement and interaction with the outside community. As a result, they feel secluded from the society and yearn to socialize and be a part of something productive and rewarding.
- 2) Lack of Hygiene: most of the old age homes in Bangladesh do not provide an attached bathroom for each bedroom. Elderly occupants, especially those who are females, are sometimes embarrassed to use the common lavatories. Some are concerned about the hygiene of using a common bathroom, as elderlies are more vulnerable to urine infections. Additionally, most of these facilities do not provide hot water supply in the washrooms.
- 3) Low Quality Food: Most elderly residents are unsatisfied with the quality of food provided by the home, as everyone’s appetite and palate varies.
- 4) Poor Medical Support: Some of the elderly residents are unsatisfied with the medical services provided by the old age home they are living in. As a result, they have to travel outside the premises in order to receive appropriate healthcare facilities.

2.5 Importance of Retirement Facility in Bangladesh

According to Chanda, Wara, and Das (2015), elderly people living in old age homes of Bangladesh are mainly from better off urban middle-class and rich families whereas 11% of the surveyed people want to and also are capable to afford more facilities to have a better third age active life. To cater this amount of elderly population there is yet no ‘active retirement

home' like facility introduced in Bangladesh, where the elderly people can spend their remaining years in proper geriatric care, assistance and live a sociable, meaningful, active life.

To achieve such progressive manifested elderly life, the housing sector for senior citizens has to evolve from the concept of old-age homes to retirement facility complexes and continuing care centers. 'UN Principles for Older Persons' states – independence, participation, care, self-fulfillment and dignity – as guiding factors in the planning of housing for senior citizens, requiring a sensitive and elder-centric approach. And, to achieve those aspects, the research parameters for a retirement community should include study of the daily needs of the elderly people, their desired lifestyles, their physical and recreational requirements, and aspects of community living, where security, emotional and intellectual dimensions will be taken care of.

2.6 Necessities of Elderly People

According to Aranson (2014), Rizzo (2016), Sisson (2016) and Perkins (2009) a space for elderly should address the followings:

- a. Universal accessibility- provided spaces should be safe and easily accessible to individuals travelling in wheelchairs, walkers and those being assisted by a caregiver.
- b. Technological advancement-incorporating technology into the daily lives of elderlies.
- c. Ground for interaction and recreation- incorporating spaces as part of a larger functional facility so that people from all age groups and backgrounds can visit the old homes and interact with the elderlies. Recreational options such as fitness classes, educational centers, fishing, indoor games outings into nature etc. are also good example of engaging the elderlies in living an active life..
- d. Increasing healing power through engagement and interaction with nature as connection with nature engage involuntary attention, provide mental restoration, reduce stress and allow the body to be recharged to a healthy state.

2.7 Standards Study

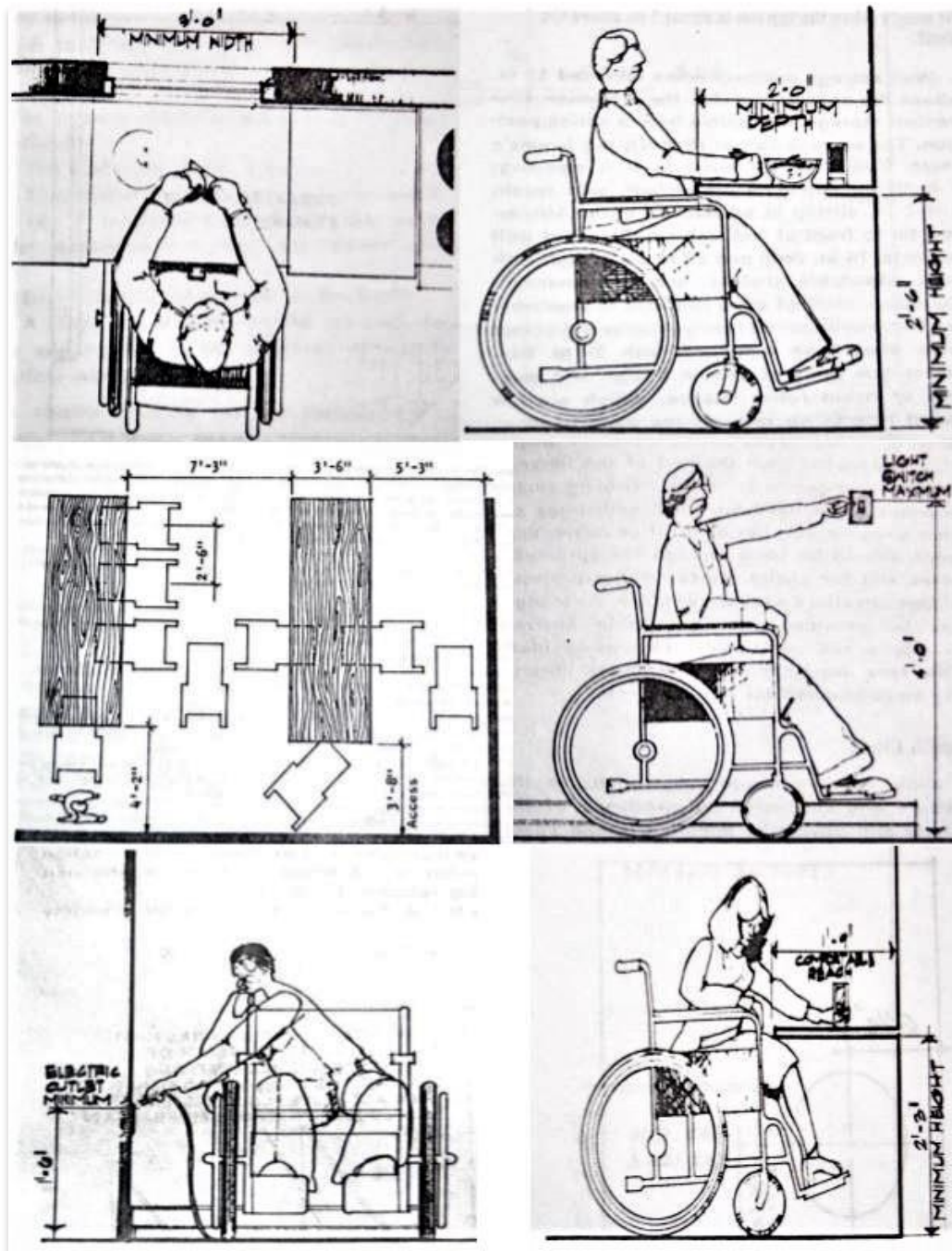


FIG 2.7.1 space requirements for wheelchair bound users (source: Time savers standard for building types)

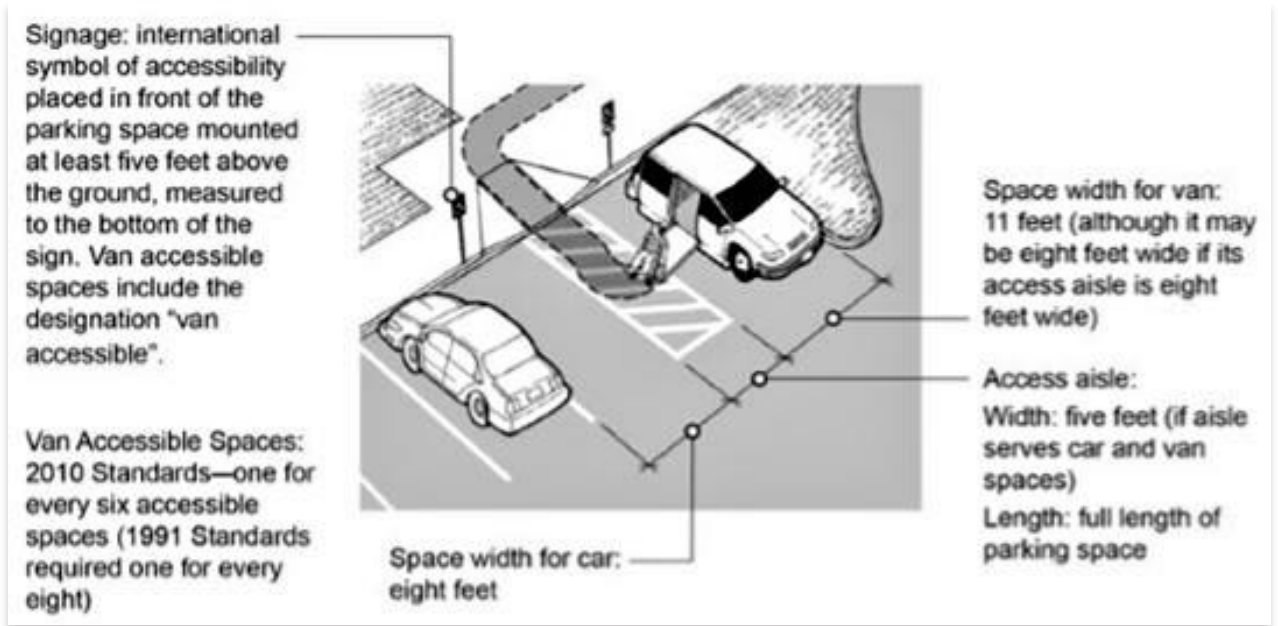


FIG 2.7.2 space requirements for accessible parking (source: ADA national network-accessible parking)

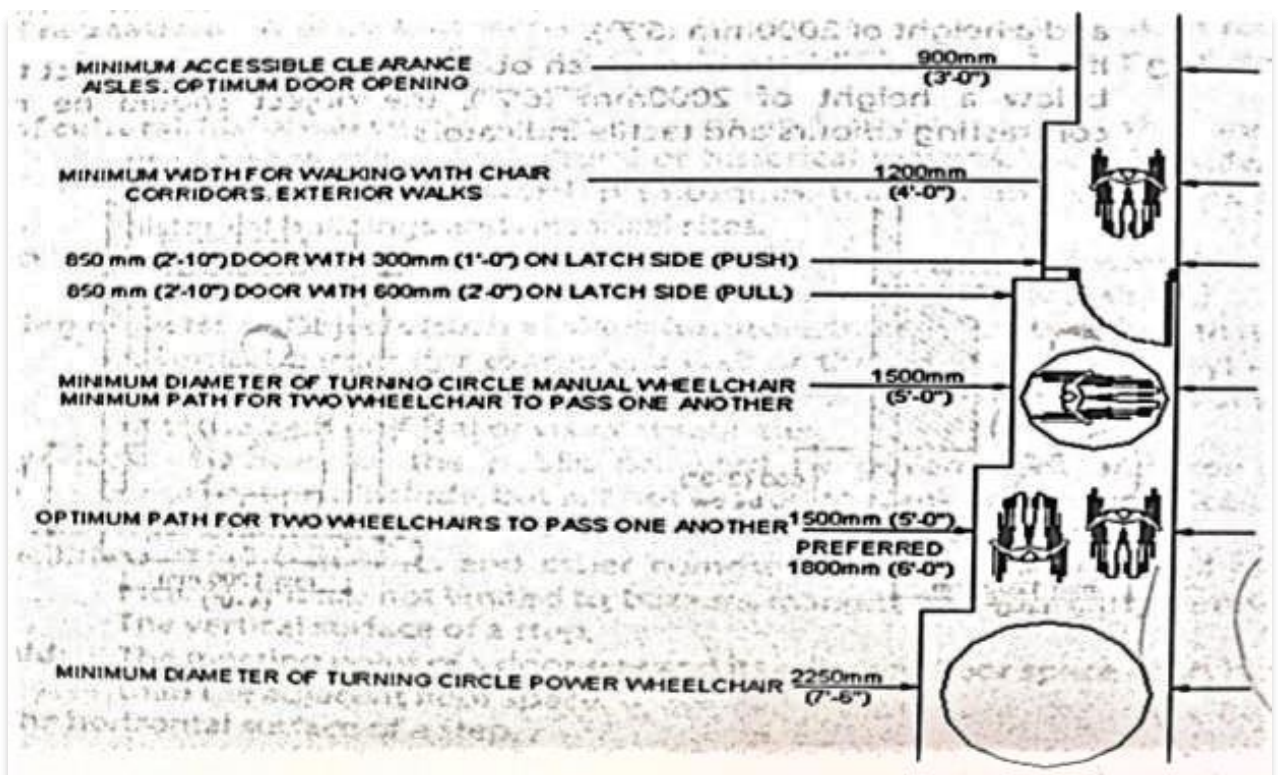


FIG 2.7.3 space requirement of corridors for wheelchair users (source: Time savers standard for building types)

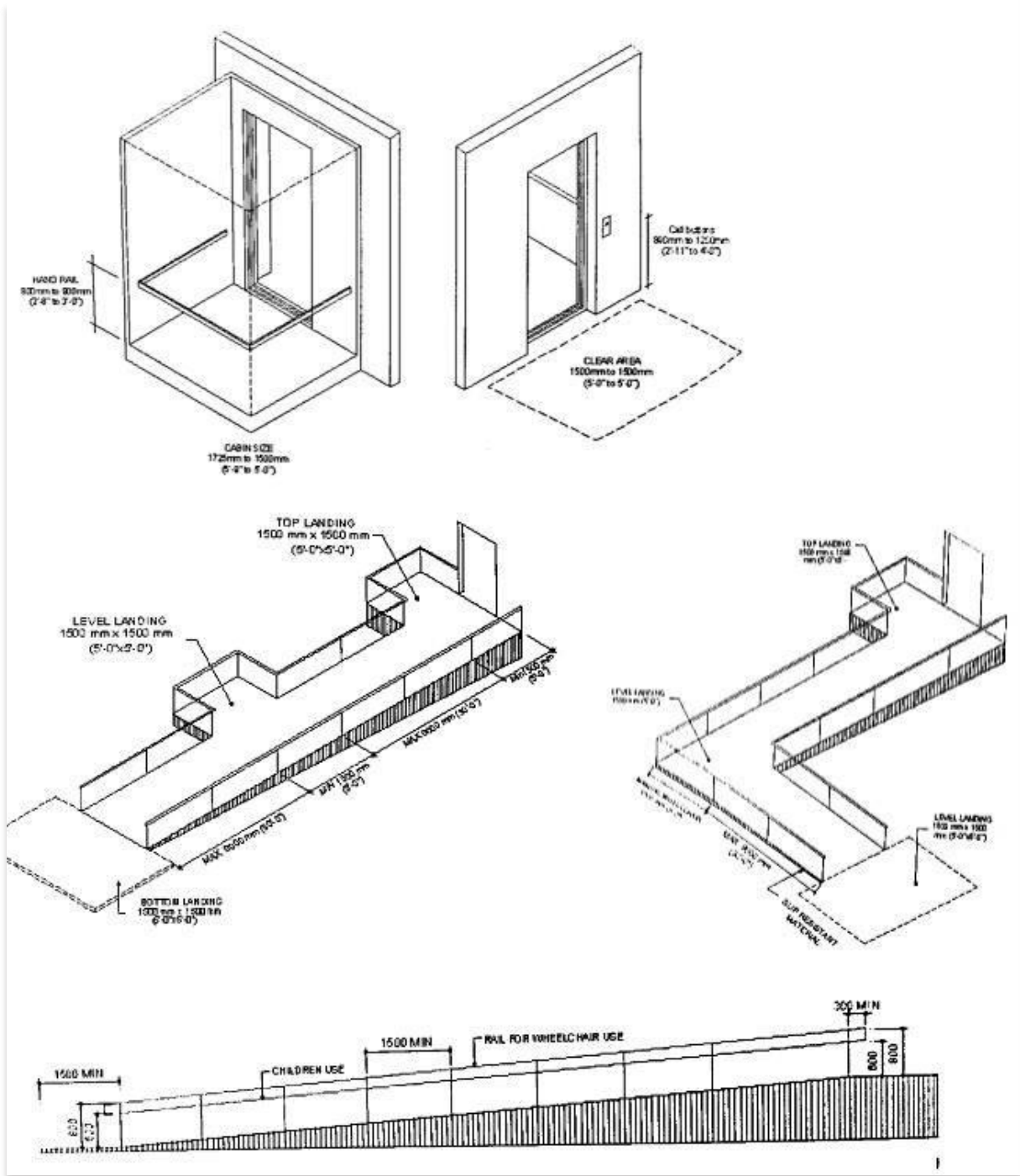


FIG 2.7.4 space requirements for elevators and ramps (source: Time savers standard for building types)

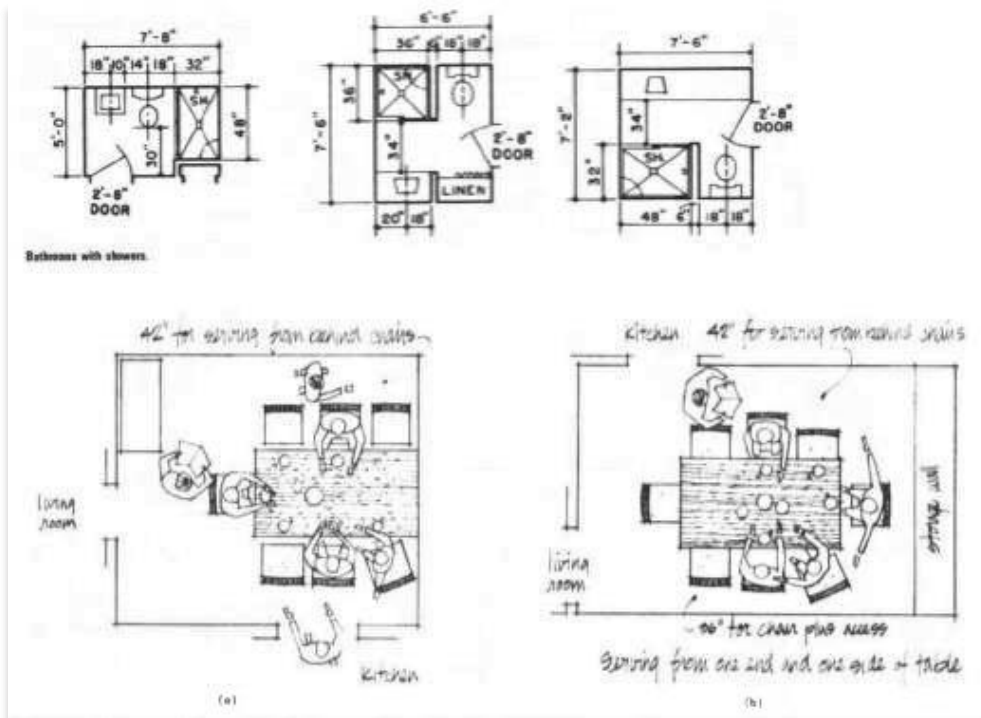


FIG 2.7.5 minimum space requirements for dining areas (source: Time savers standard for building types)

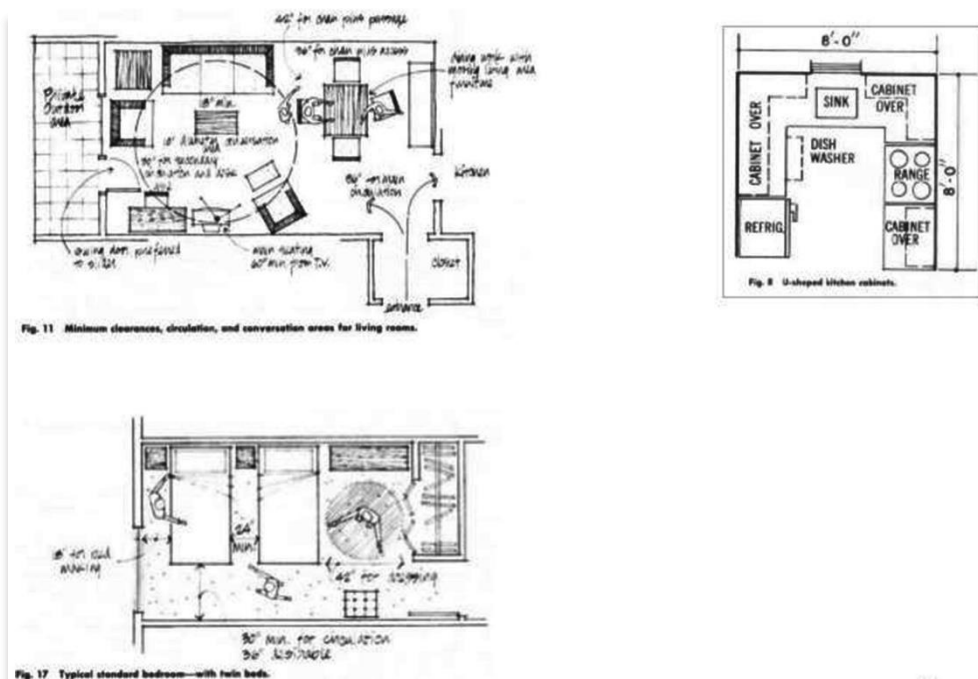


FIG 2.7.6 space requirements for bedroom, toilet & kitchen (source: Time savers standard for building types)

Chapter 3: Site Appraisal

The site with 5.6 acres of land is located near the Finlay, Fulcchora and Balishari tea gardens in Sreemangal, Moulvibazaar, Sylhet division. It is under the ownership of the Ministry of Social Welfare, with close access to the 8 no. kalighat road and sreemangal rail station. It is located adjacent to a 50 bedded government upazila hospital for women and children, and approximately 20 km away from the main 250 bedded civil hospital in Moulvibazaar center.

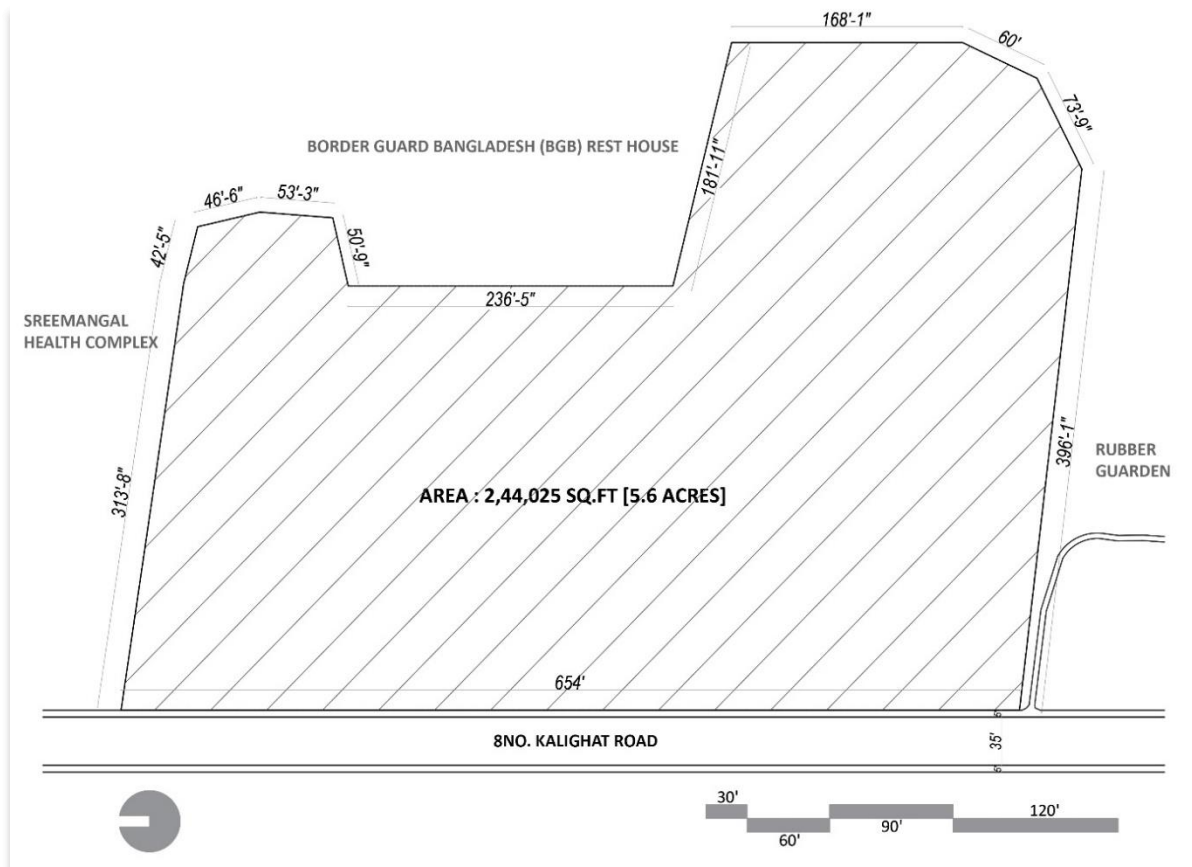


FIG 3.0.0 site location map (source author)

3.1 Site surroundings

The site is surrounded by the headquarters and dormitories of Border Guard Bangladesh (BGB) at the east, Jalalabad Gas field office at the west, rubber garden in the south and sreemangal upazila health complex at the north.

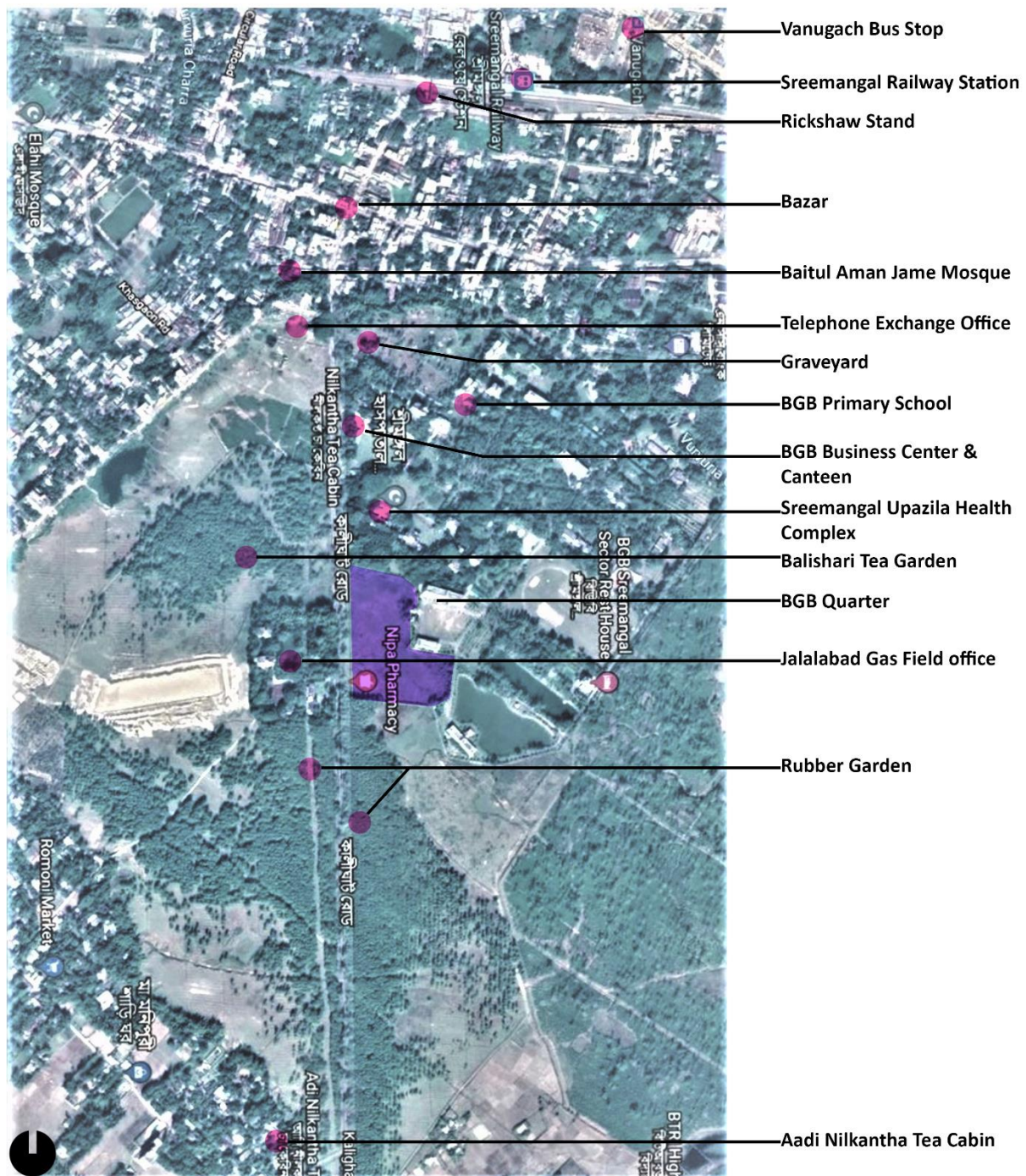


FIG 3.1.1 site surroundings (source author)

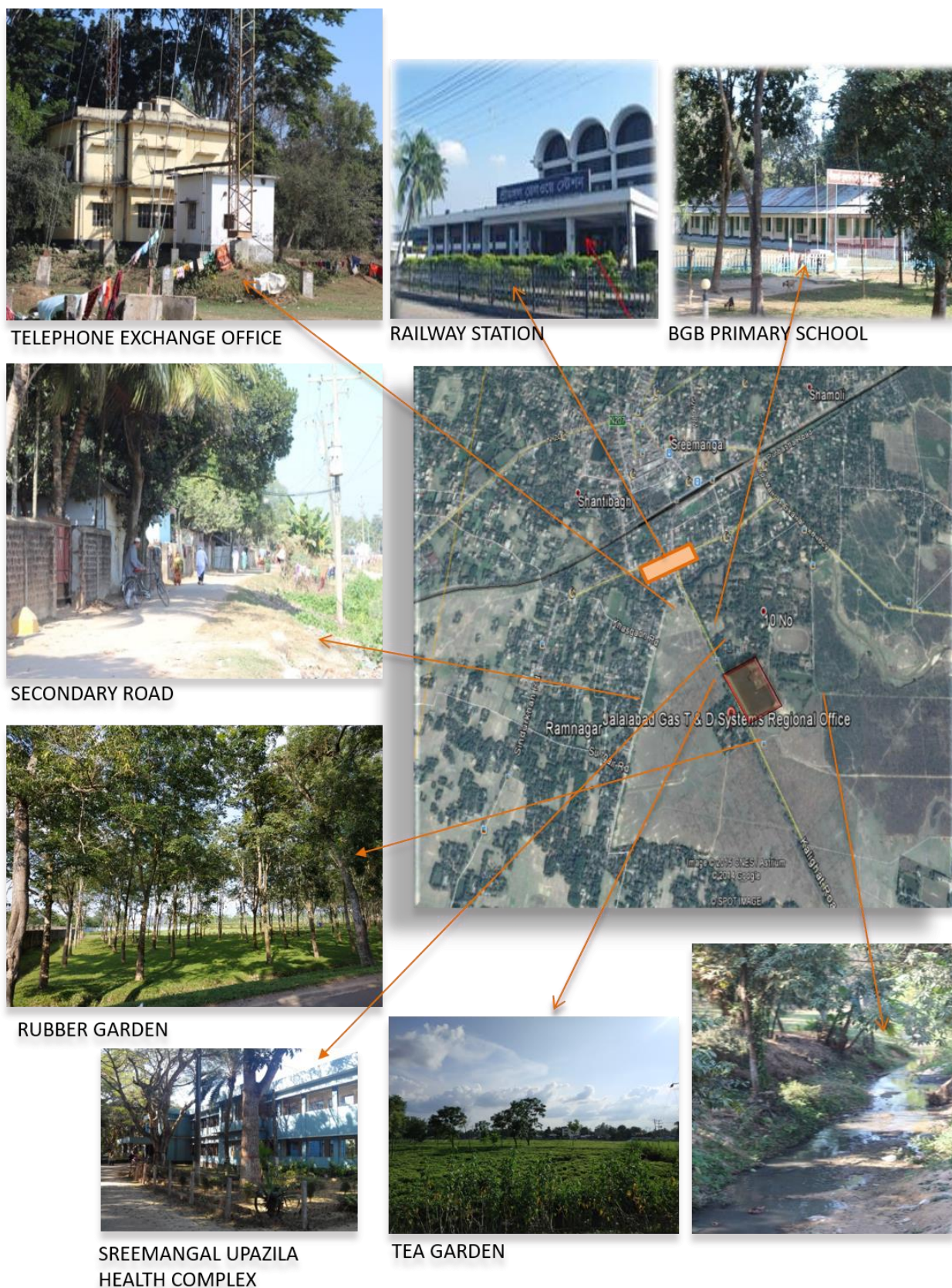


FIG 3.1.2 images of site surrounding areas (source: author)

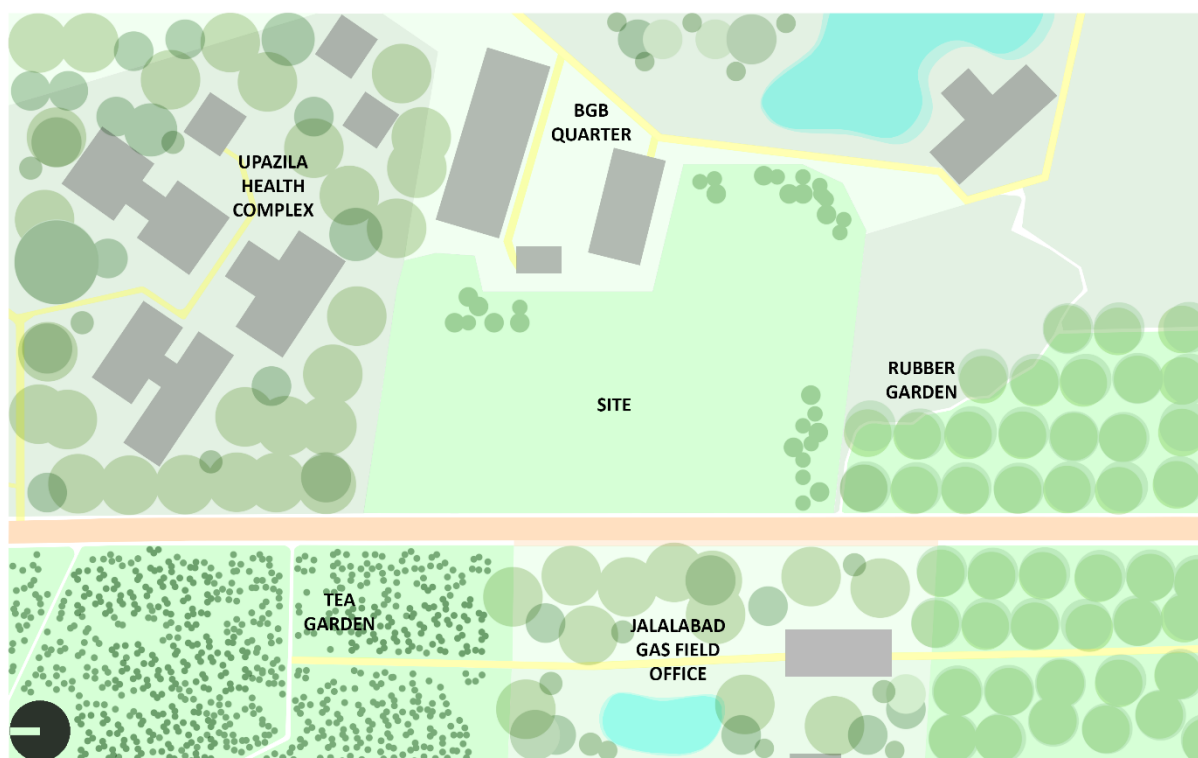


FIG 3.1.3 immediate site surroundings (source author)

3.2 Historical Development of the Site

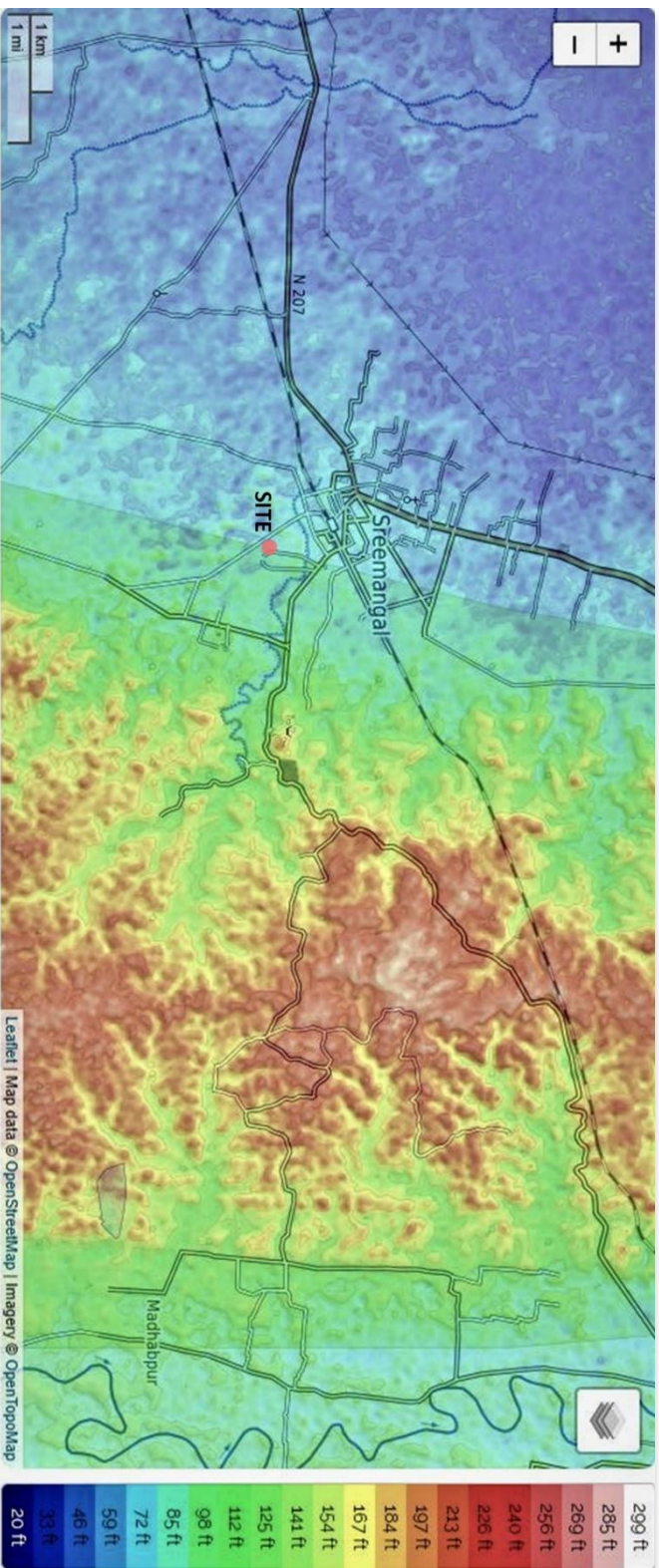
Sreemangal was once part of Tripura state of India, later sreemanagal became part of Bangladesh in course of time. The great earthquake of 1897 caused a massive change in the physiography of this particular area. As far as locals can recall, this specific site area have been always under control of government.

3.3 Geographical Characteristics of the Site

Sreemangal is quite different from other districts due to its natural beauty characterized by hills and basins, with regions covered in tea gardens, rubber gardens, lemon groves and pineapple orchards. Average elevation of the site area is 59 feet high from the sea level and the site surrounding areas are plain unlike one can assume as a place of hilly Sreemangal.



FIG 3.3.1 Vegetation cover of site surroundings (source author)



Sreemangal, Moulvibazar District, Sylhet Division 3210, Bangladesh (24.31058, 91.72513)



FIG 3.3.2 topography map of sreemangal with site location to understand site's geographical position and typology (source:OpenTopoMap)

3.4 Land-use Pattern of the Surroundings

The Sreemangal Municipality was established in 1935, yet no full master plan or land use plan has been created. The site surrounding is naturally shaped and huge amount of green area including empty green fields, tea gardens and rubber garden is seen. Ample portion of land is full of haphazard low rise residential buildings, then there is a particular restricted portion of land for Border Guards Bangladesh [BGB] and their related facilities. Remaining percentage of land hosts hospital, office, commercial and mixed use zone.

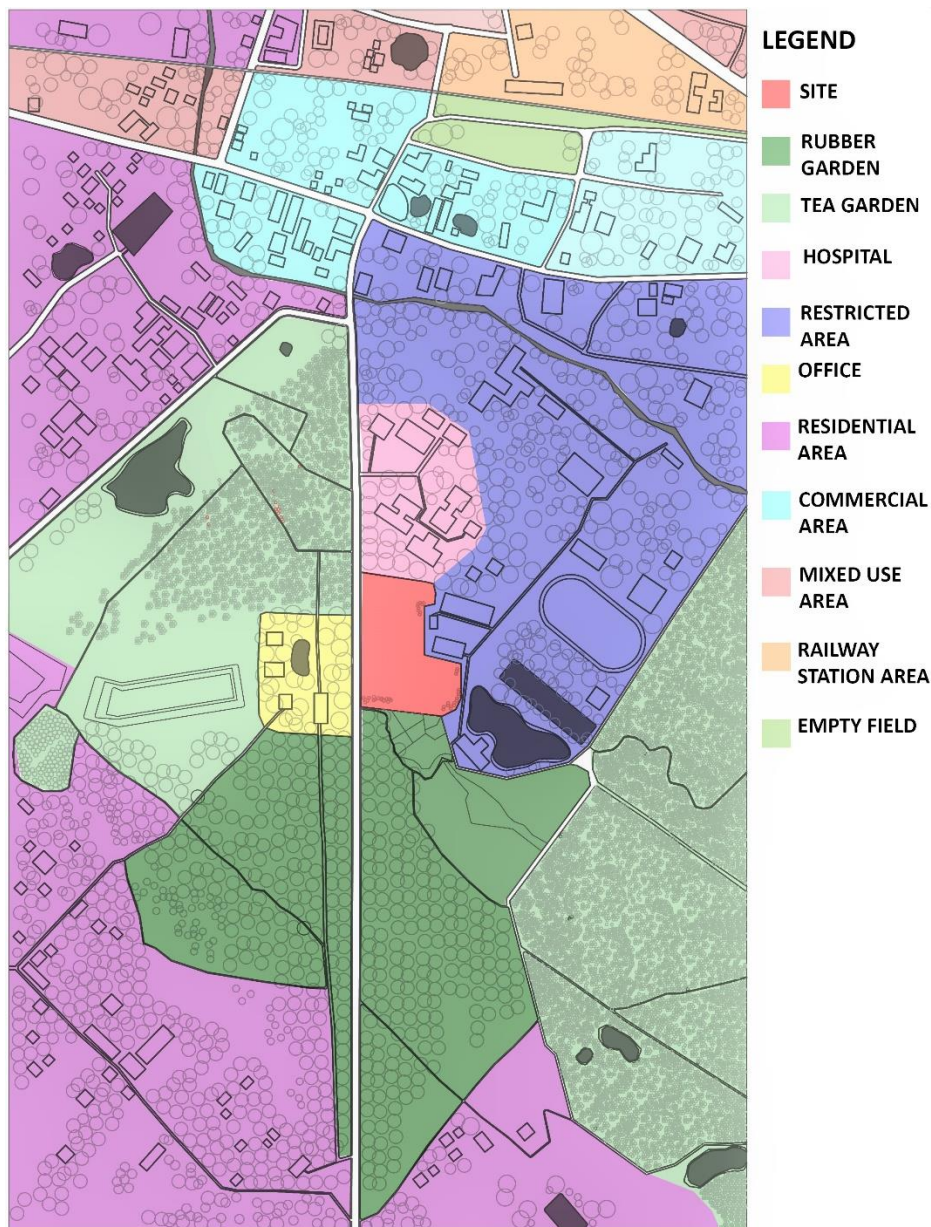


FIG 3.4.1 land use pattern of surrounding areas are shown with color legend (source: author)

3.5 Accessibility and Connectivity

The site is connected directly by the 35 feet wide 8 no. kalighat road (secondary road) in west side and the kalighat road connects with the college road (secondary road) which later connects to Dhaka Sylhet highway (primary road). Sreemangal Railway station is also within close proximity (1 km diameter of site). The closest road of site is accessed by Rickshaw, motorbike, private cars and these type of vehicles are the primary user of kalighat road.

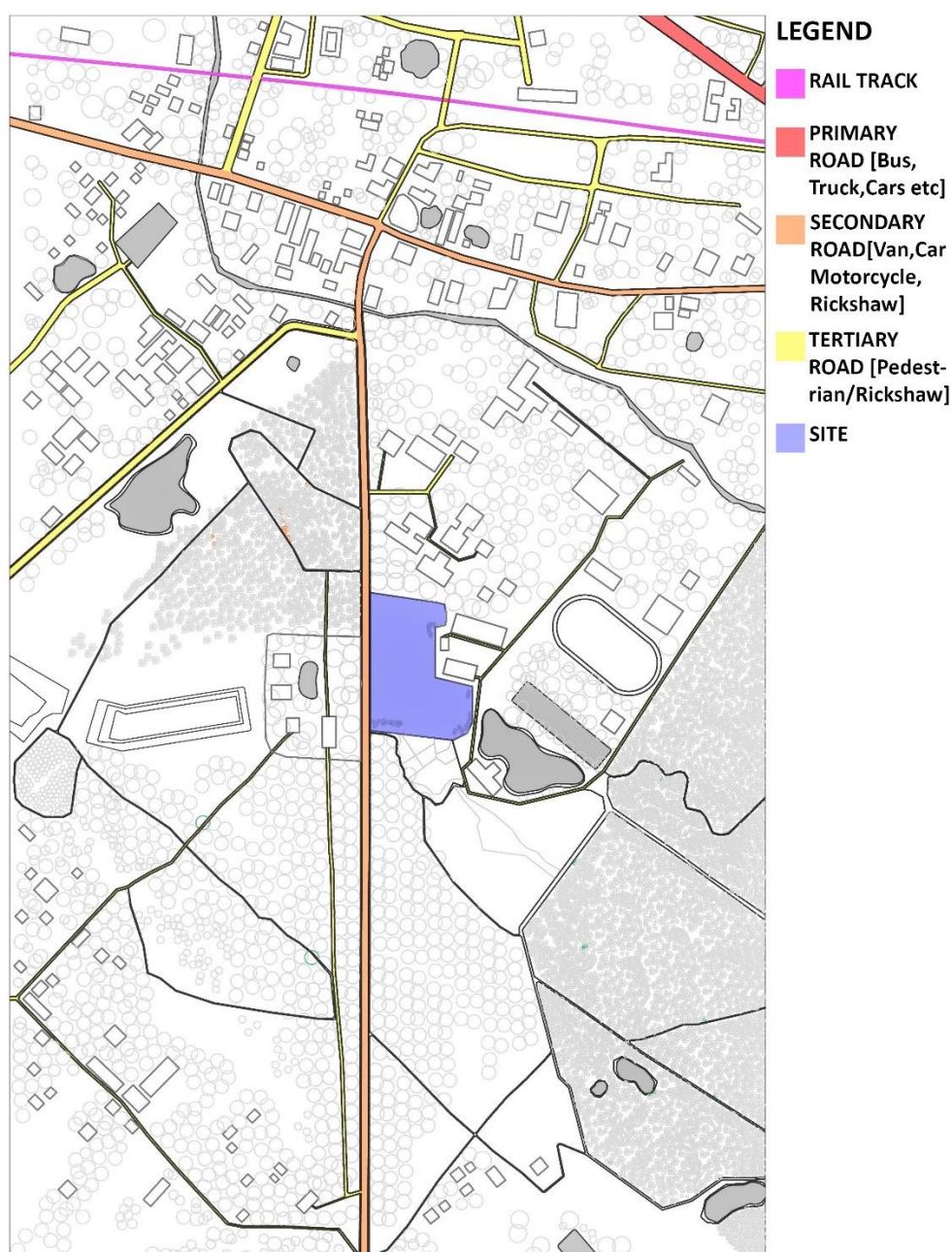


FIG 3.5.1 accessibility and connectivity shown with color legend (source: author)

3.6 Climatic Conditions

The climate of Sreemangal is humid subtropical, with mostly hot and humid summers and cold winters. The town is within the monsoon climatic zone, with the average highest temperature of 23°C and lowest being 7°C. About 3334 mm of rainfall occurs annually in average, with the wettest months being between May and September (Bangladesh Bureau of Statistics, (2015).

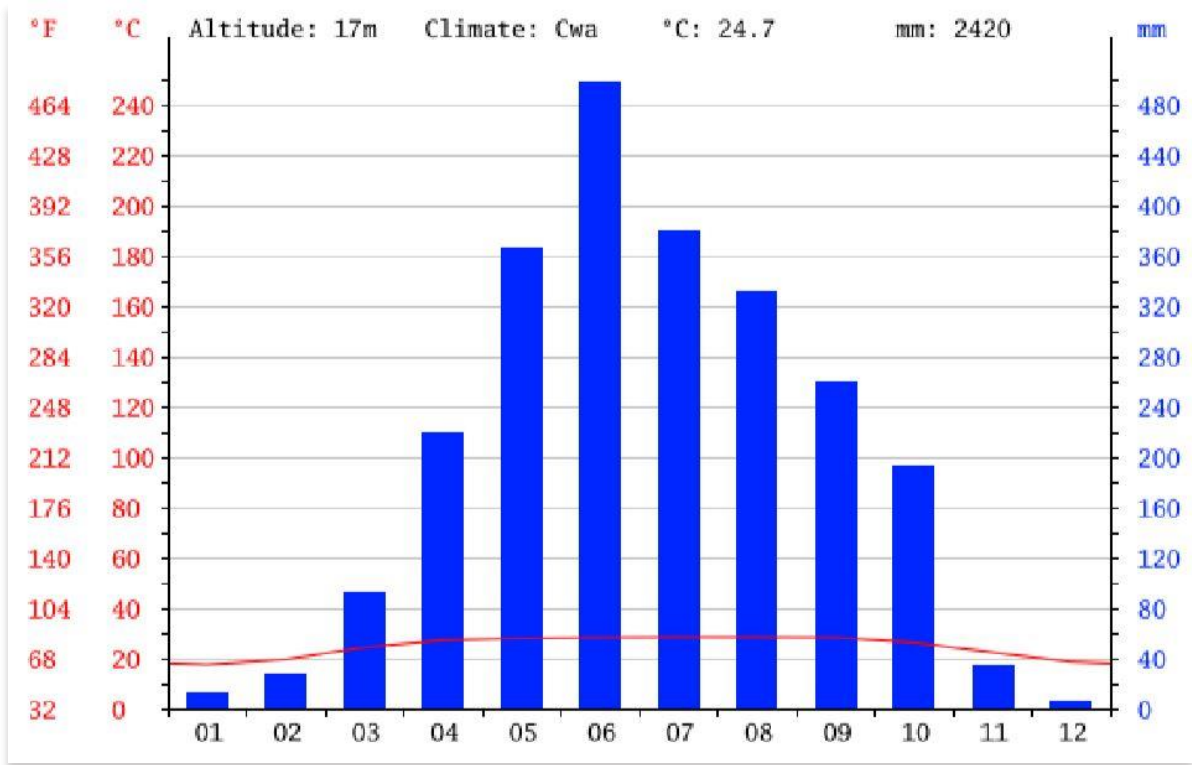


FIG 3.6.1 Graph of precipitation of Sreemangal region (Source:climate data.org)

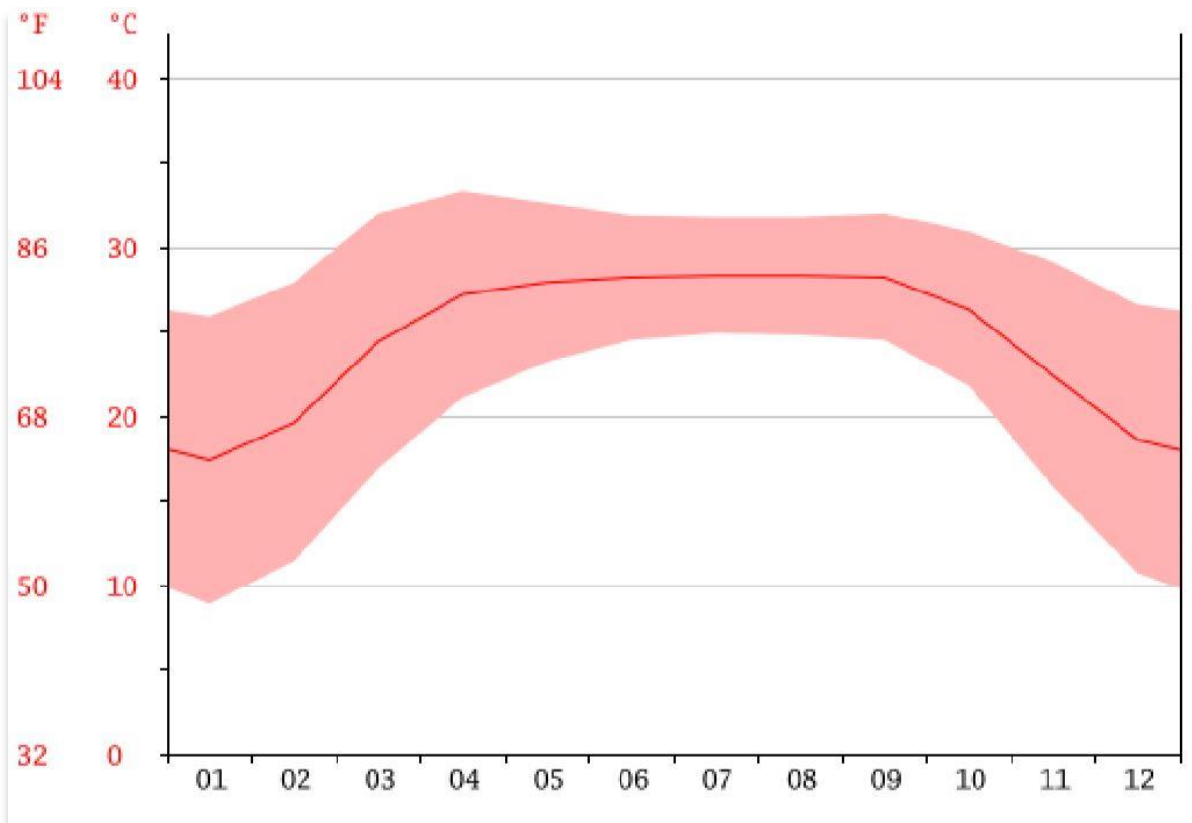


FIG 3.6.2 Temperature graph of Sreemangal region (Source:climate data.org)

month	1	2	3	4	5	6	7	8	9	10	11	12
mm	12	28	93	219	366	498	380	331	260	192	35	6
°C	17.4	19.6	24.4	27.2	27.9	28.2	28.3	28.3	28.2	26.3	22.4	18.6
°C (min)	8.9	11.4	16.9	21.1	23.2	24.5	24.9	24.8	24.5	21.8	15.8	10.7
°C (max)	25.9	27.9	32.0	33.3	32.6	31.9	31.8	31.8	32.0	30.9	29.1	26.6
°F	63.3	67.3	75.9	81.0	82.2	82.8	82.9	82.9	82.8	79.3	72.3	65.5
°F (min)	48.0	52.5	62.4	70.0	73.8	76.1	76.8	76.6	76.1	71.2	60.4	51.3
°F (max)	78.6	82.2	89.6	91.9	90.7	89.4	89.2	89.2	89.6	87.6	84.4	79.9

FIG 3.6.3 Climate table of Sreemangal region (Source:climate data.org)

3.7Socio-Cultural Contexts

Sreemangal has a population of 230,889, consisting of around 53.33% males and 46.67% females. The literacy rate is 61.6%. Sreemangal is considered to be the business hub of the district of Moulvibazar. Its natural beauty has made it one of the most popular tourist destinations of this country and as a significant trade and tea export area, it also has good road and railway communication networks with Sylhet, Habinganj, Moulvibazar and beyond.

3.8Images of Existing Site Condition



Image 01 : Present condition of the site (source:author)



Image 02 : Present condition of the site(Source: author)

Chapter 4: Case Study Appraisal

To have better understanding about the project and to implement more in depth understanding about designing the retirement facilities, I have chosen two international architectural projects for case study purpose as these projects are more or less similar in nature to the project I am working on.

4.1 Nursing & Retiree Home

Location Alava, northern Spain

Architect: Firma d.o.o

Project year:2011

Site Area:7534 sft

Client: private

Type: Old Age home [Competition entry,1st ranked project but still un-built]

Design feature: design respecting surrounding landscape and rural environment.

Environment and micro-climate

Alava or Araba is the northern side province of Spain having average annual temperature ranged 12-15 C and annual rainfall in average 62.64 mm, whereas Sreemangal has annual average temperature of 24.7 C and annual average rainfall 2420 mm. Alava, Spain is a very humid area.



FIG 4.1.1.location of alava and weather chart of alava (Source: Google map)

Form and Function

The residential units are orientated towards the south. Thus all the bedrooms gain the advantage of natural ventilation without having to rely much on other means of air circulation and cooling.

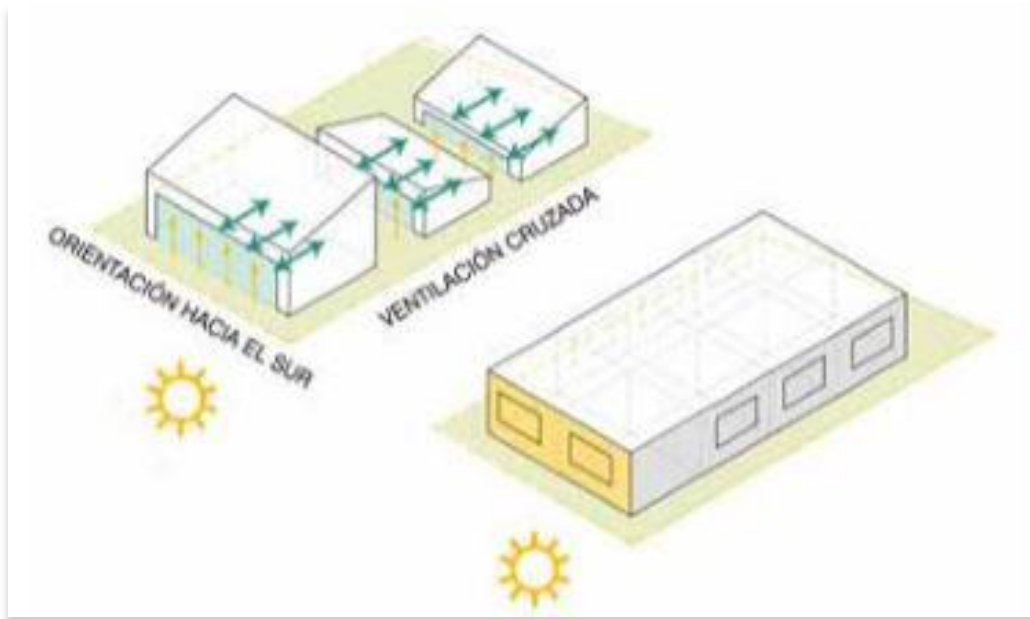


FIG 4.1.2 form formation (Source: Slideshare.net)



FIG 4.1.3 solid and void (Source :slideshare.net)

Horizontal and vertical circulation

Connecting all the residential and other blocks through a central glass corridor. This ensures that residents can easily access all the blocks without being restricted by natural weather conditions as for example rainfall.

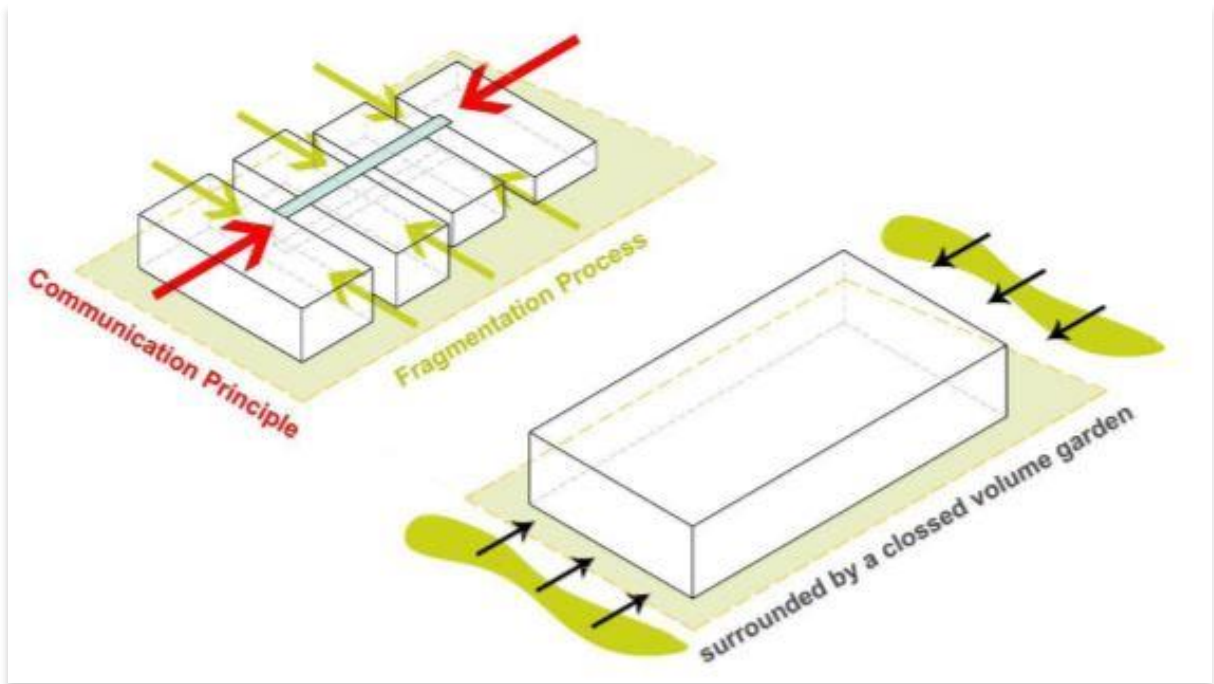


FIG 4.1.4 circulation (Source:slideshare.net)

Most of the residential quarters are arranged in a single or double story unit. This ensures that elderly who have mobility difficulties can move around with ease, without having to endure the discomfort of using vertical transportation means such as stairs.

Site Planning and Landscape detailing

Breaking the corridor at certain intervals by implementing small gardens in between provides a period of retreat to the residents from the surrounding built environment.

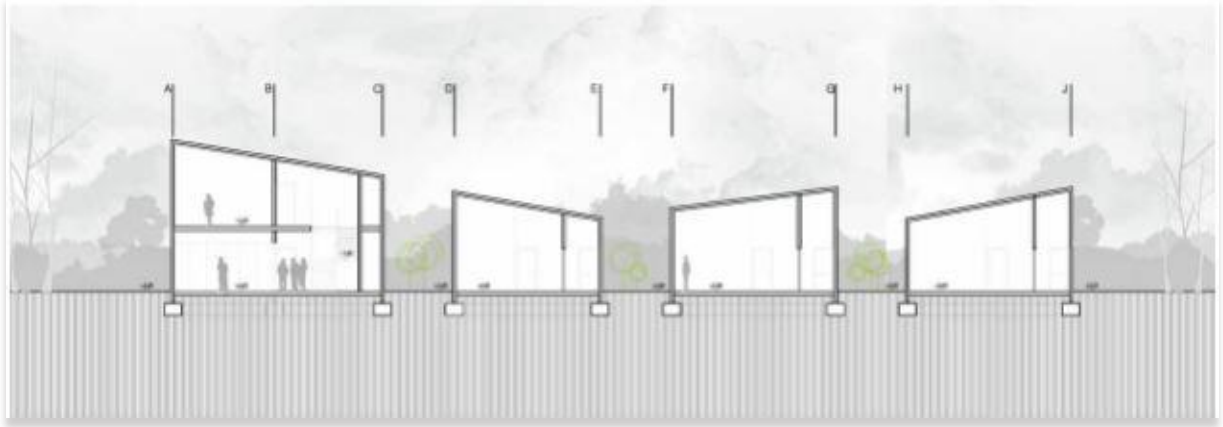


FIG 4.1.5 SECTION (source:slideshare.net)

4.2 Morangis Retirement Home

Location: Morangis,south paris,France.

Architects: VOUS ETES ICI Architects

Program: retirement home with 91 rooms

Built Area: 5,315 sqm [57,210 sft] [46 parking units]

Total site area:9,950 sqm [1,07,100 sft]

Design feature: the architects sought to organize the plan according to a compact and rational planning, with an emphasis on opening towards the surroundings.

The building is constructed on 4 levels and is based on a Y-shaped plan. The building occupies the site as follows: 1) The main public entrance is located where the "Y" strands connect 2) The north façade is dedicated to service, deliveries and employee's entrance 3) The south façade is generously opened towards the residents private park.



FIG 4.2.1 PLAN (Source:Archdaily)

One of the base lines of this project is to offer, all through the construction and all its sleeping units, framed views. Each unit has a main gathering area for activities or meals as well as a smaller area placed in front of loggia or suspended gardens. All these small areas include large windows and quality framed views.

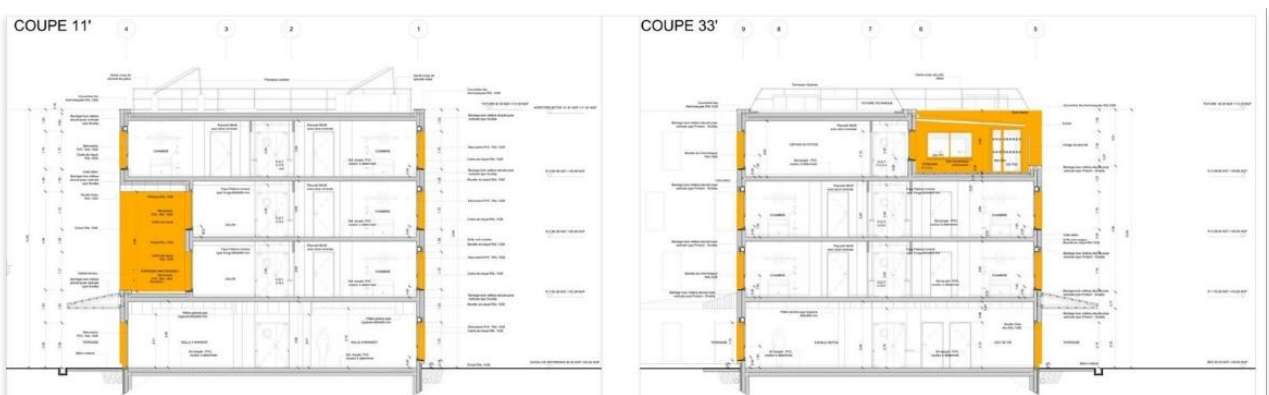




FIG 4.2.2 SECTIONS (Source:Archdaily)

Horizontal and vertical circulation

All floors are accessible from the central node, which links all of the building's functions and patient units.

Parking details and standards

46 parking units aligned in 90° angle.

Utility planning

The rooms on floor one and two are dedicated to classical geriatric residents, the rooms are disposed into 6 units of 13 rooms each.

The third floor is dedicated to patients suffering from Alzheimer's disease or other similar neurological disorders. The floor includes vast dedicated spaces for specialized activities, rest and well-being.

All the floors are accessible from the central node intersecting all of the buildings functions and patient units.

Design detailing

On the outer skin wrapping the building, openings are pierced following no specific symmetry; the sculpted facades offer various views and volumes behind the outer skin.



Image 03: elevation (Source:Archdaily)

Carefully framed views abound living and main activity areas all face private gardens, which include therapeutically-themed spaces, a rose garden and several paths. Corridors also include views of the outside, and are generously proportioned allowing residents to move at their own pace. The third floor includes two large terraces, which, facing the park, function as a continuation of the interior spaces.

The building is clad in Siberian larch wood, each opening becoming a single element in a varied rhythm. “Every time the outer skin is punched in to form a dent in the global volume this corresponds to a specific socializing space,” point out the architects. “Inner rest areas widely opened towards the park or the third floors terraces.” These “dents” allow for daylight to extensively penetrate the building. The architects chose yellow as a predominant color for the building.

Chapter 5: Program Appraisal

Program for Oboshor: retirement facilities

	Functional space	Number of users	Area per user (in sft)	Area per unit (in sft)	Number of units	Total area (in sft)
A.	Administrative facilities					
1	Reception area	5	30	150	1	150
2	Waiting area	10	20	200	1	200
3	Toilet [male]	2	42	42	2	84
4	Toilet [female]	2	42	42	2	84
5	Store room	1	100	100	1	400
6	Meeting room	14	28	400	1	200
7	Accounts Department	4	50	200	1	200
8	Cash assistant's room	1	100	100	1	100
9	HR departments	4	50	200	1	200
10	Boarder attendants department	2	60	120	1	120
11	Director's office [including toilet]	1	200	200	1	200
12	Space for director's PA	1	120	120	1	120
13	Deputy director's office [including toilet]	1	150	150	1	150
14	Space for deputy director's PA	1	120	120	1	120
15	Executive lounge	17	23	400	1	400
16	Pantry	2	100	200	1	200
17	Prayer room	17	17	300	1	300
18	Subtotal					3128
19	30% circulation					938
20	TOTAL					4066

	Functional space	Number of users	Area per user (in sft)	Area per unit (in sft)	Number of units	Total area (in sft)
B.	Geriatric Medical Center (OPD) Facilities					
1	Reception & Enquiry Counter	1		200	1	200
2	Registration Counter	1		200	1	200
3	Stretcher & Wheelchair Bay			300	1	300
4	Waiting Area	20		400	1	400
5	Toilets for patient [male]	4		50	4	200
6	Toilets for patient [female]	4		50	4	200
7	24 hour Pharmacy*	1		300	1	300
8	Drug Storage Room			400	1	400
9	Equipment & plaster storage			200	1	200
10	Jenitor's room	2		100	2	200
11	Prayer Room [male]	10		200	1	200
12	Prayer room [female]	10		200	1	200
13	Administrative office					
	a.Authority Representative's room with toilet	1		250	1	250
	b.Personal Assistant's room with toilet	1		150	1	150
	c.clerks' room	4		400	1	400
	d.Meeting Room	12		500	1	500
	e.toilets	5		50	1	50
14	Staff room with toilet	6		400	1	400
15	Cafeteria for all medical personnel	20		400	1	400
16	Nurse Station with toilet	6		400	1	400
17	Examination Rooms					
	a.Patient waiting area	12		240	1	240
	b.Doctor's chamber with toilet	6		150	6	900
	c.Treatment room	2		200	1	200
18	Blood Bank and sampling area	2		200	1	200
19	Diagnostic Facilities					

	a.X-Ray room	1		100	1	100
	b.Ultrasound room	1		100	1	100
	c.MRI room	1		150	1	150
	d.CT Scan room	1		150	1	150
	e.EEG room	1		100	1	100
	f.PFT room	1		100	1	100
	g.ECG room	1		100	1	100
20	Report collection room	1		100	1	100
21	Physiotherapy unit*	2		200	1	200
22	Counselling unit*	2		200	1	200
23	Dental unit*	2		200	1	200
24	Ophthalmology unit*	1		100	1	100
25	Small café area*	20		400	1	400
26	Subtotal					9090
27	30% circulation					2727
28	TOTAL					11817

	Functional space	Number of users	Area per user (in sft)	Area per unit (in sft)	Number of units	Total area (in sft)
C.	Recreational facilities					
1	Multipurpose hall	100	30	3000	1	3000
	a.Backstage area with change room	12	50	600	1	600
	b.Toilet [male]	2	50	50	2	100
	c.Toilet [female]	2	50	50	2	100
	d.Store room			400	1	400
2	Cafeteria					
	a.pantry	1	200	200	1	200
	b.store room	1	100	100	1	100
3	Gymnasium					
	a.Zone for male users with related facilities	25	40	1000	1	1000

	b.Zone for female users with related facilities	25	40	1000	1	1000
	c.Space for Yoga practice	20	25	500	1	500
	d.Space for Zumba dance	10	100	500	1	500
4	Salon					
	a.For male users	10	30	300	1	300
	b.For female users	10	30	300	1	300
5	Spa					
	a.For male users	8	60	480	1	480
	b.For female users	8	60	480	1	480
6	Indoor Game Zone					
	a.Table tennis	10	75	750	1	750
	b.Badminton	4	250	1000	1	1000
	c.Chess	4	25	100	1	100
	d.Ludo	12	25	300	1	300
	e.Card games	12	25	300	1	300
	f.walking football	12	83	1000	1	1000
7	cyber café	10	30	300	1	300
8	Workshop and training area					
	a.painting	10	40	400	1	400
	b.paper crafting	10	40	400	1	400
	c.gardening lesson	10	40	400	1	400
	d.fabric dyeing	10	60	600	1	600
	e.pottery and crafting	10	80	800	1	800
	f.music practice	15	33	500	1	500
	g.fishing lesson	10	40	400	1	400
9	Library*					
	a.book issue area	5	40	200	1	200
	b.Reading zone	50	30	1500	1	1500
	c.Toilet[male]	1	50	50	1	50
	d.Toilet [female]	1	50	50	1	50
	e.Staff office with toilet	2	125	250	1	250
	f.Librarian's office with toilet	1	200	200	1	200
10	Convenience store*	2	50	50	2	100
11	Subtotal					18560
12	30% circulation					5568
13	TOTAL					24128

	Functional space	Number of users	Area per user (in sft)	Area per unit (in sft)	Number of units	Total area (in sft)
D.	Accommodation facilities [for guests]					
1	Reception area	2	75	150	1	150
2	waiting area	10	20	200	1	200
3	manager's room[including toilet]	1	150	150	1	150
4	cafeteria	16	25	400	1	400
5	store room	1	100	100	1	100
6	Kitchen area	3	166	500	1	500
7	guest bedroom[including toilet]_type A	8	180	180	8	1440
8	guest bedroom[including toilet]_type B	8	140	280	4	1120
9	Subtotal					4060
10	30% circulation					1218
11	Total					5278

	Functional space	Number of users	Area per user (in sft)	Area per unit (in sft)	Number of units	Total area (in sft)
E.	Residential facilities [for senior citizens]					
1	bedroom [including toilet]_Type A	36	130	260	18	4680
2	bedroom [including toilet]_Type B	40	150	300	20	6000
3	bedroom [including toilet]_Type C	24	180	360	12	4320
4	Living area	100	28	2800	1	2800
5	Dining area	100	25	2500	1	2500
6	kitchen area	10	150	1500	1	1500
7	attendant's room [including toilet]	4	150	150	4	600
8	prayer hall	40	15	600	1	600
9	Subtotal					23000
10	30%circulation					6900
11	Total					29900

	Parking					
1	ambulance			180	2	360
2	covered van			128	2	256
3	car			128	20	2560
4	Total				24 parking	3176

	Functional space	Number of users	Area per user (in sft)	Area per unit (in sft)	Number of units	Total area (in sft)
	Utility block					
1	Substation & generator room			5000	1	5000
2	garbage disposal room			1000	1	1000
3	motor room			1200	1	1200
4	Laundry			1000	1	1000
5	Fire fighting unit room			500	1	500
6	Security guard and control room			500	1	500
7	Subtotal					9200
8	30% circulation					2760
9	Total					11960

Related authority proposed of total 1,40,000 sft built area for the project and counted huge open to sky spaces like parking, amphitheater, swimming pool in the calculation which I later deducted from the functional space calculation. Moreover, related authority proposed for a unnecessarily huge multipurpose hall and an separate auditorium each having 5000 sft spaces that I revised according to the user number and possibility of usage of those specific functional spaces. There is a plan for building a separate mosque and also a mandir in the given program , mosque having 1500 sft and mandir having 500 sft space, but as there is a mosque and also a mandir as well in the close proximity(walking distance 1 km) of the site so, I eliminated those spaces and incorporated prayer rooms within revised programs. Given program have a separate block for the authority representative, director, residential doctors and nurses but the number of those personnel are only 6 so I decided to incorporate this separate accommodation with the guest accommodation facility. Given program does not have any gymnasium, salon facilities though there is need of these functions, so I added these spaces in the proposed programs.

Chapter 6: Design Considerations

The main focus of this project was to create a safe, comfortable living environment for the senior citizens of this country, that would not only provide accommodation and medical facilities but also offer different activities, physical-mental assistance, workshops to provide an active happy life. Design considerations were heavily drawn by two key factors-the natural advantages and disadvantages of the site surroundings and vulnerability, setbacks of users 'old age.

1.Shaded Spaces: Sreemangal is the highest rainfall zone of Bangladesh, that is why the first design consideration of the project was about how to provide all functions with proper shades so that, senior citizens can easily access all the places without any hindrance all over the year.

2.Close proximity of spaces: with age comes different kinds of setbacks, one of them is lack of mobility. So, initially space distribution within less walking distance with less travel time was taken in consideration.

3.Merging with surrounding Nature: another major consideration was designing spaces in a manner that promotes and encourages the interaction of humans with nature and natural systems. Creating a design type that promotes health by creating connections with elements of nature-green and water. For elderly people keeping health is very important and as the site location is in the midst of natural tranquil position so it is assumed to compliment the needs of senior citizens.

6.1 Design Intervention and Form Development



FIG 6.1.1 initial zoning, considering immediate surroundings (Source: Author)



DIAGRAM 02: PROPOSED WATERBODY WITH WALKING TRAIL AROUND IT, CREATING WATERBODY AS CENTRAL INTERACTIVE SPACE FOR ALL

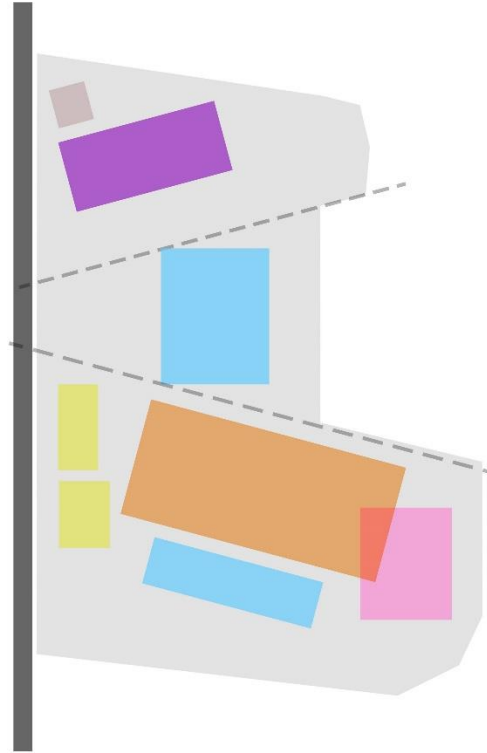


DIAGRAM 03: TILTING BLOCKS ACCORDING TO SITE REFERENCE LINES FOR BETTER DORMITORY VIEW TOWARDS RUBBER GARDEN AND THE WATERBODY

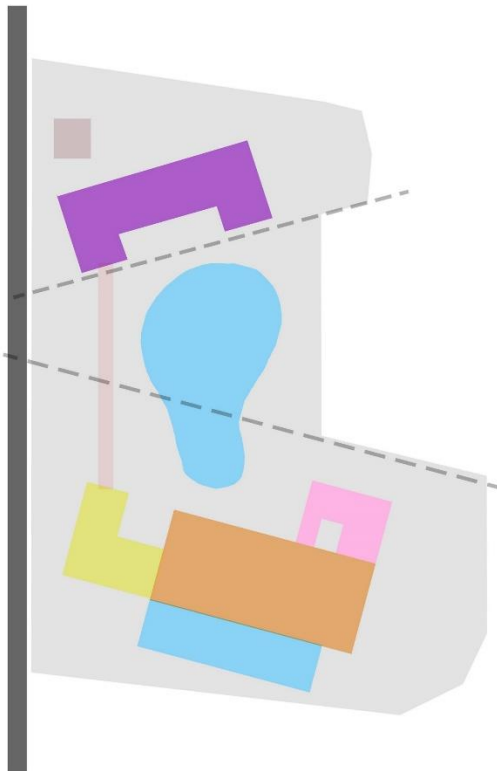


DIAGRAM 04: SHAPING THE BLOCKS TO BRING LIGHT IN AND INCORPORATING SURROUNDING SPACES

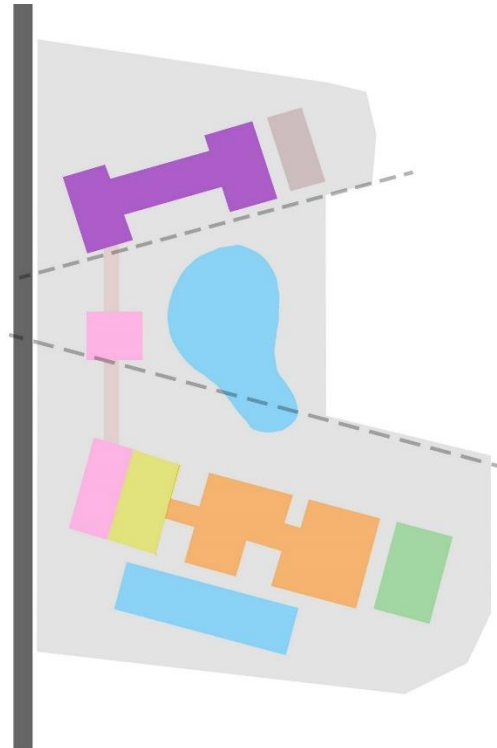


DIAGRAM 05: MERGING RECREATION FACILITIES, GUEST BLOCK WITH ADMINISTRATIVE BLOCK AND DORMITORY FOR BETTER CONNECTIVITY AND A FIELD FOR OUTDOOR GAME FACILITY

Fig 6.1.2 form development according to site axis (source: Author)

Chapter 7: Design Suggestions

7.1 Drawings



FIG 7.1.1 Site plan with roof (Source: Author)

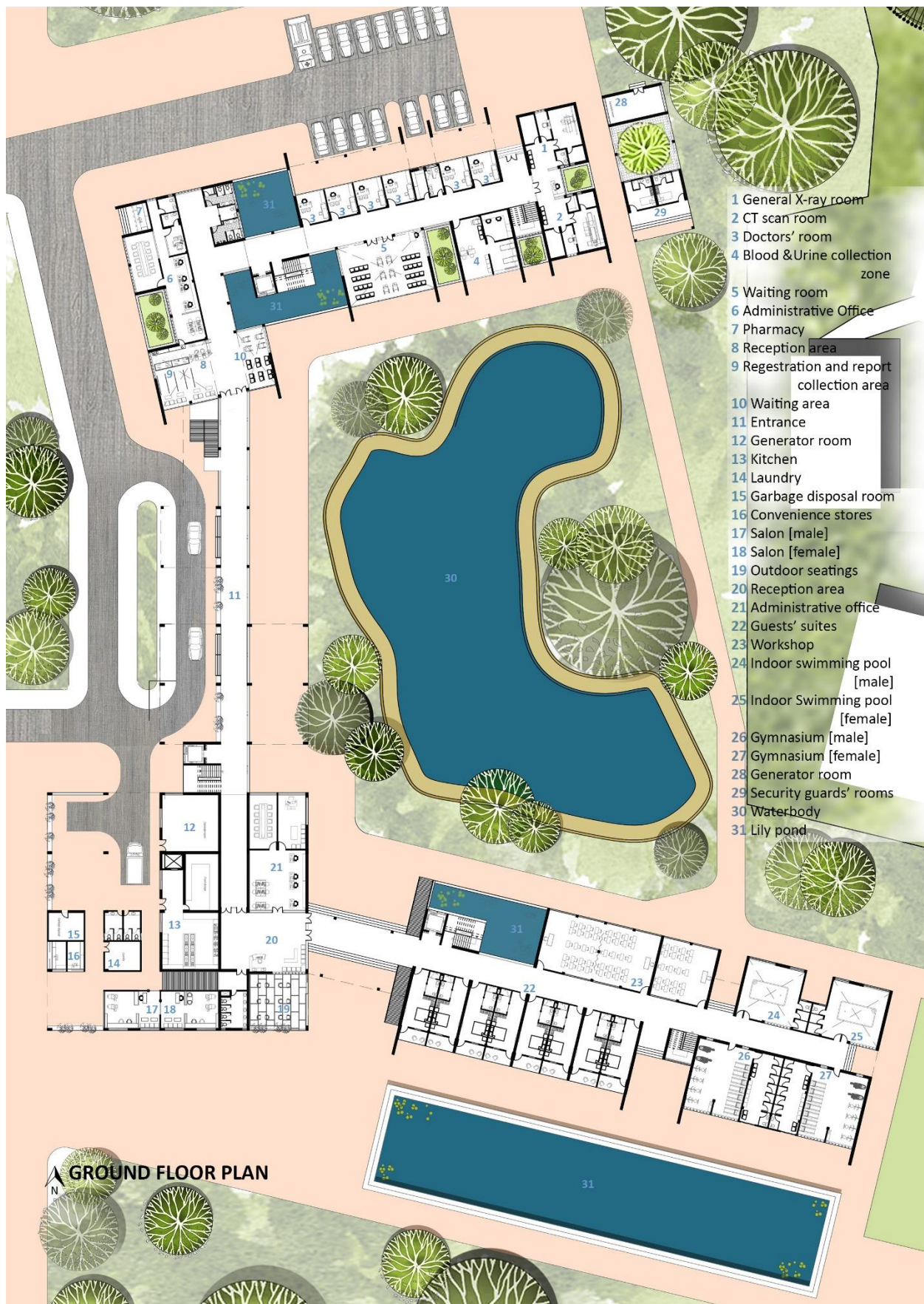


FIG 7.1.2 Ground Floor plan (Source: Author)

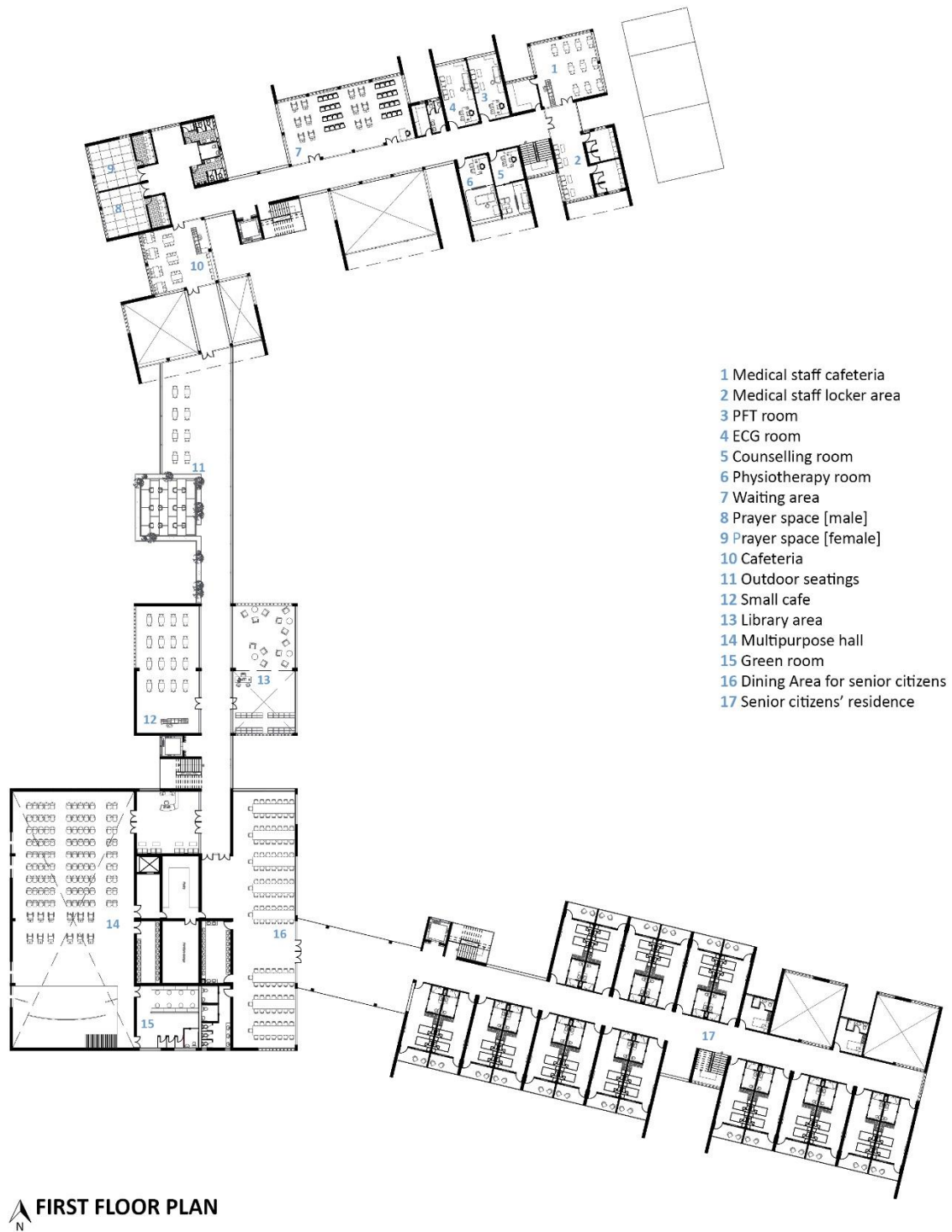


FIG 7.1.3 First Floor Plan (Source: Author)

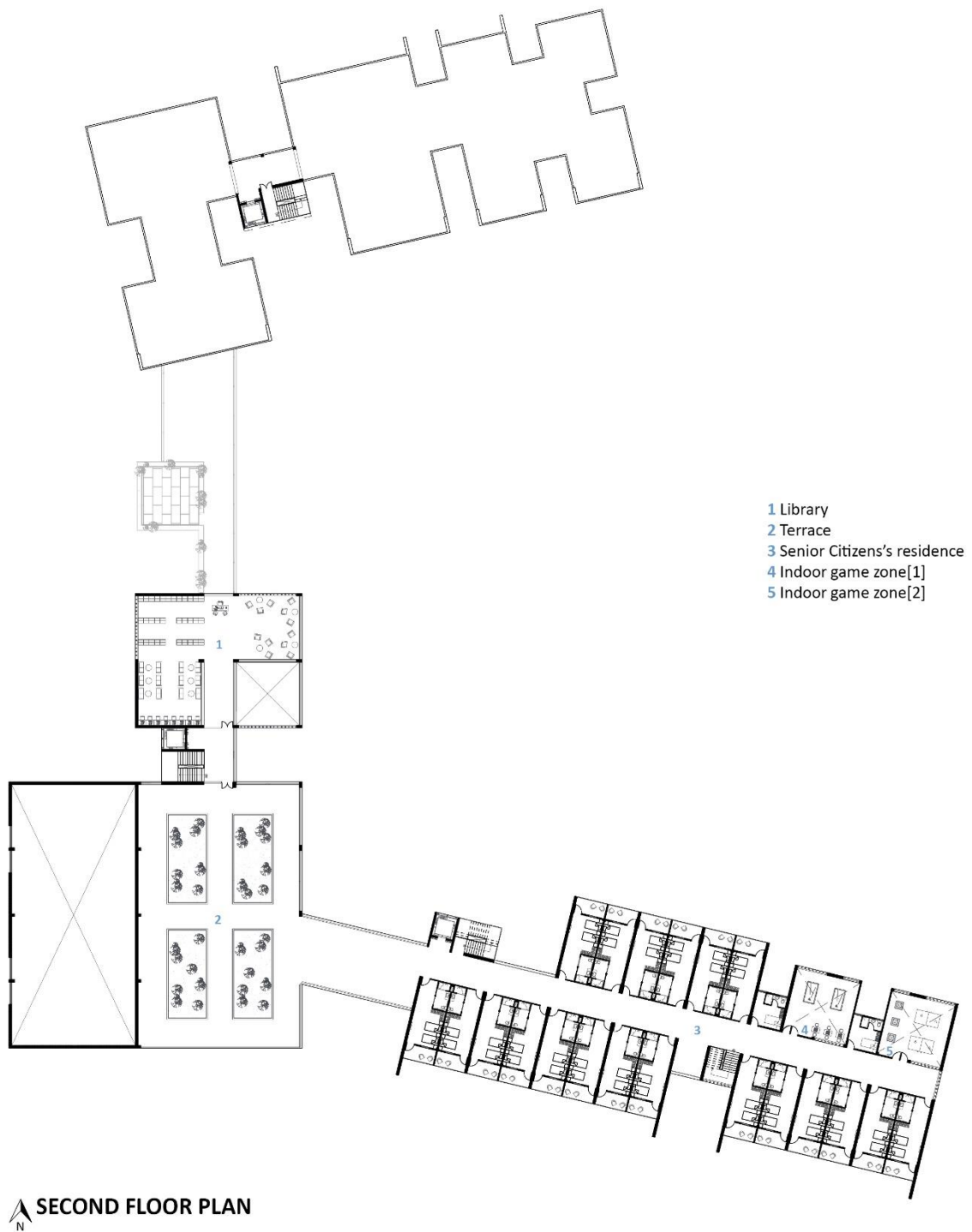


FIG 7.1.4 Second Floor Plan (Source: Author)

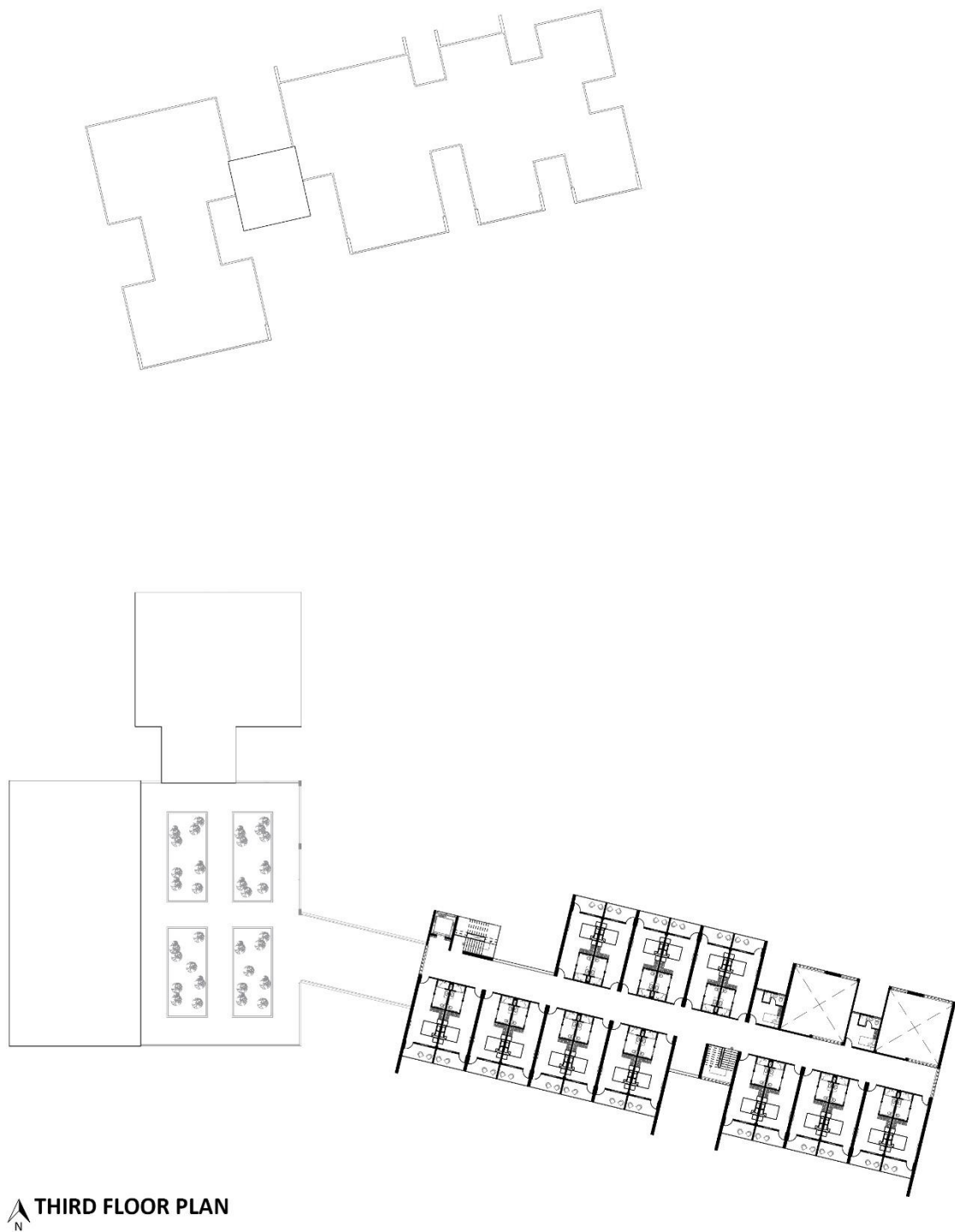


FIG 7.1.5 Third Floor Plan (Source: Author)

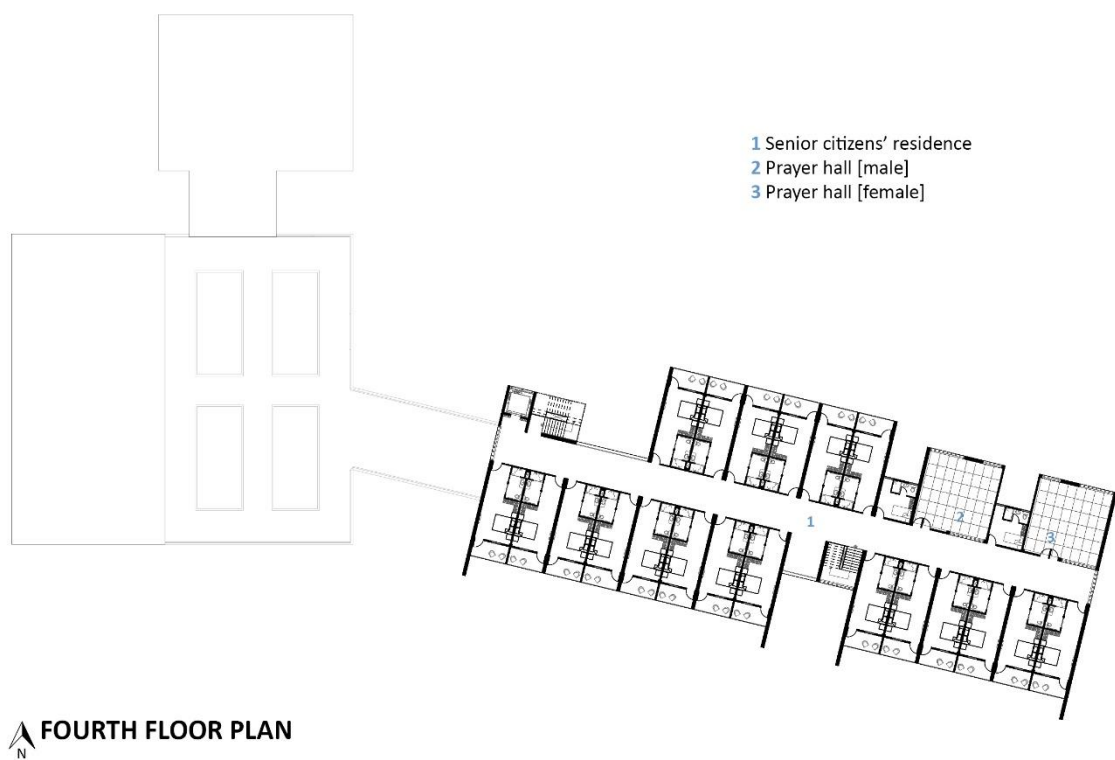


FIG 7.1.6 Fourth Floor Plan (Source: Author)



FIG 7.1.7 Sections (Source: Author)



FIG 7.1.8 Elevations (Source: Author)

7.2 Model Images



Image 04: model image_1 (Source: Author)

MODEL



Image 05: model image_2 (Source: Author)



Image 06: model image_3 (Source: Author)

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