

Middle Income Group Housing, Mirpur, Dhaka

By

Sajid I Awal

11308005

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Abstract

Housing in Dhaka, one of the most populous cities in the world has become more of a necessity rather than ambition. Due to socio-economic reasons, Dhaka is currently with scarcity of lands for providing home for its inhabitants. As a result, along with the expansion of the area of Dhaka, Government is looking forward to go for multi-storied apartments as housing solutions within the city. The project proposal is mainly for the middle income group government employee. Considering the density standard, the given proposal is questioned and an intention to create houses was made rather than just housing people. At present, the existing site is under green belt with lots of trees and open spaces flowing from North-West towards East of the given site. In order to keep vista across the site, the housing project is designed with an ideal solution in the given context.

ACKNOWLEDGEMENT

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1. About the Project

1.1 Introduction

The concept of Housing can be briefly explained as the series of homes. Home is the combination of spaces where people dwells. The spaces can be identified with the activity and defined as the private, public and service zones. Mainly, the characteristics of a home vary with the variation in the nature of the spaces. As people evolved through time, the activity and nature of the spaces inside a home has also changed. At present, an ideal solution for housing considering the context is a demanding issue all around the world. Due to rapid growth of population in the countries like Bangladesh, the need of proper housing in the capital, Dhaka is increasing day by day.

According to Charles Correa, through the influence of technology, culture, climate and aspiration of any space, architecture of that particular space is generated. Mallick. F. H. (1994), Thermal Comfort for Urban Housing in Bangladesh. Architecture of any civilization or society has lots of purpose and service to offer the inhabitants of the particular society. And one of the main purpose of the architecture is to give the user, a feeling of comfort inside the building. (ibid). Comfort as a result, is also driven by the same forces as architecture. (ibid). Due to technological advancement and daily inventions, the definition of comfort is also changing day by day. Though climate factor of any place remains as a constant force, the aspiration of people is also dynamic like technology. In housing, it is important for the user to get satisfied with their living conditions and to be able to call their dwelling units as home.

Around 1995 persons used to live within a square mile in this city (ibid). This ratio varies from place to place inside the city. Being on the north end of Dhaka, Mirpur still remains as the under developed area considering the natural growth of the other areas of Dhaka like Dhanmondi, Motijheel or Gulshan. Now-a-days, unable to give proper homes to the inhabitants of Dhaka, housing in Mirpur has become a common phenomenon.

The allocated site for the housing project is owned by the Government in the Shialbari area of Mirpur, Dhaka, where these mass flows of population is yet to expand its territory. Though, on the one side of the site, there remains a residential zone for the middle income group of people of the city. Whereas, on the

opposite side of the site, there prevails industrial zone which is full of industrial buildings serving as factories and garments. Thus, the site acts as a crucial transition from residential to the industrial zone. To buffer the housing from these industries will be one of the challenges of the site.

On the other hand, the given site is on the east of National zoo, adjacent to the Shialbari Road and Commerce College Road near the Mirpur National Stadium. Due to the topography of Mirpur in these areas, there prevails contours in the site, whose peaks may rise up to 8 to 10 feet from the road level and a green belt flows over the site arisen from the zoo area. Treating these contours and open spaces will also be an interesting feature of the project.

1.2 Key Program

- Housing Units of 650 sq. ft., 800sq. ft. and 1000 sq. ft. Units
- Kindergarten school,
- Mosque,
- Playground,
- Multipurpose Building

1.3 Objectives of the Project

This housing project is for the middle income group Government employee of Dhaka city. Considering the demand and need of the project, the following objectives of the project are formulated-

- To understand the basic needs of the housing
- To give comfort to the inhabitants of the housing through design
- To give importance to the existing open spaces and green
- The design should promote natural ventilation through placement of building blocks

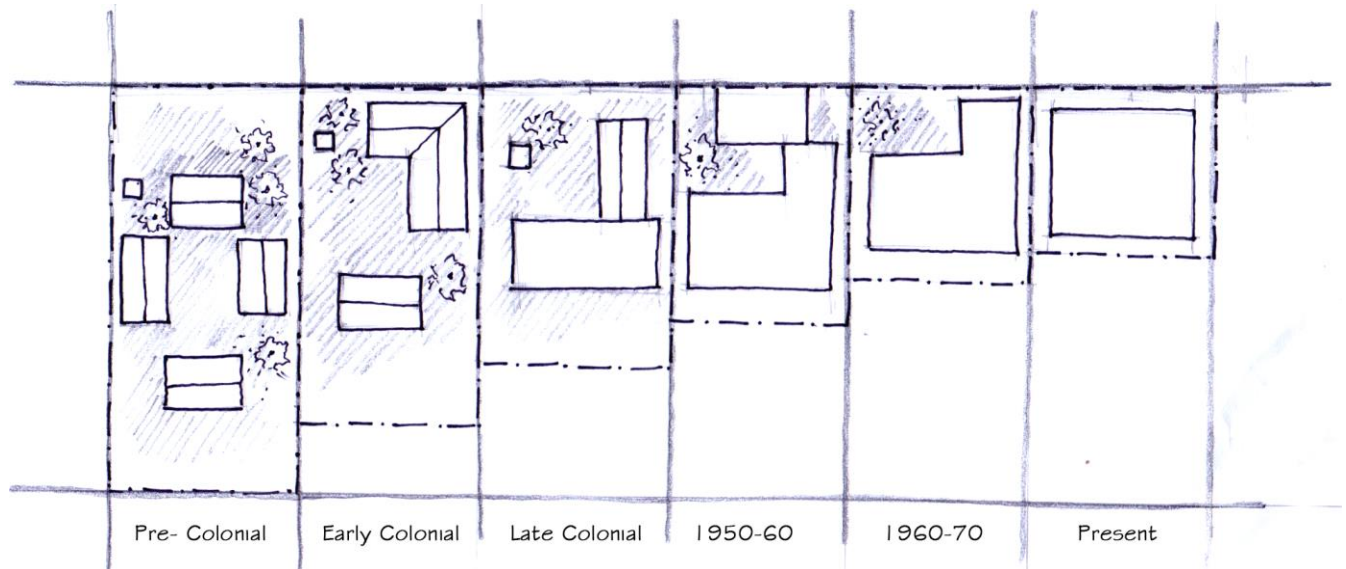
2. Background of the Project

2.1 Home, it's Evolution and Housing

'Home is any four walls that enclose the right person', as quoted by American journalist Helen Rowland (1875-1950), hence the term housing gain its significance when a home is designed considering the best possible comfort zone for it's user. As per the definition from Oxford Dictionary, Housing is the 'houses and flats considered collectively'. Whereas home is considered for a single family, housing includes multiple numbers of families inside a single house. In brief, the present solutions for urban settlements inside the modern cities can be termed as housing.

In the context of Bangladesh, Present situation of residences are the result of series of evolution. The notable changes with proper reasoning in the arrangement of the houses are found during these phases of change. One of the major changes are found due to improvement of service and for having workplaces outside the home has resulted the disappearance of courtyard or open space from the early traditional rural houses of the country. Scarcity of land and over population is also a vital issue in these changes. Mallick. F. H. (1994), Thermal Comfort for Urban Housing in Bangladesh.

The following diagram shows the gradual changes of traditional homestead pattern in the context of Bangladesh. The timeline shown in the diagram starts from the pre-colonial civilization and through the colonization to several decades; the homestead pattern has changed and gave the present look of the household. And that is, all are under single roof, which is also the concept of the modernization.



2.1.1 Fig: Evolution of Traditional Homestead Pattern (ibid).

In the Pre Colonial period, the culture of the Bangladesh demanded the needs of extended family. People were more caring and preferred to live together with proper order in the family. One of the important characteristics of the households of this time period includes the central courtyard for the household activities making an introvert space for the particular house inhabitant. (ibid) But, gradually, as the colonization in the country began, so does the changes in the behavior of the people became prominent. Results, gradual reduction of the central courtyard, as the most of the household activity demanded more private zone. At present, the most important feature of the houses is the lack of common central activity space, which was once a prominent feature of the houses of pre-colonial period. (ibid) One of the challenges of the project will be to re-create the traditional common activity space or courtyard in the housing.

2.2 Middle Income Group in Dhaka

According to the Bangladesh Institute of Development Studies (BIDS), by the year 2030, the middle class group will be around 33% of the total population of Bangladesh. Online Report (2015, July 2nd). Dhaka Tribune. In the same article, it is stated that, the annual income of Bangladesh is

\$ 1,190 to \$ 1,314. On the other hand, as per the World Bank statement, in order to achieve the lower middle income country status in the world, the GNI (Gross National Income Per Capita) of a country should be within \$ 1,046 to \$ 4,125. Online Report (2015, July 2nd). (ibid). Hence, in the global context, Bangladesh can be declared as a middle income country. Being the capital of the country, the city Dhaka contains a large number of middle income groups of people serving in both private and public variety of sectors.

Rowshan Jahan (2012), in a study, shows the current income range of the different middle income group people along with their percentage of affordability for a living in the Mirpur area. The following chart shows the three different types of middle income group as per the income ranges. Jahan, R, Kalam A.K.M. (2012). Measuring Rental Housing Affordability of Middle-Income Group in Dhaka.

Income Group	Income Range
Lower-Middle	Tk. 5,000 to Tk. 10,000
Middle-Middle	Tk. 10,000 to Tk. 25,000
Upper-Middle	Tk. 25,000 to Tk. 50,000

The affordability of middle-middle income group in Mirpur area is 13.33% and ratio for the upper-middle group is 16.67%. (ibid). In order to become an ideal middle income group housing, after considering all the service and facilities provided, the maximum cost of living including utilities should be 30% (max.).(ibid)

Another report published as residential space standards for Govt. officers & employees (1992) states that, the possible allocated floor areas as per the salary of the Govt. employees. These study gives a brief idea about the income range of Government employee living in the apartments of 600, 800 and 1, 000 sq.ft.

Rashid, M. Housing at Uttara model town in Dhaka city

Employee Category In 1992	Pay-Scale (in Taka) In 1992	Employee Category In 2015	Pay-Scale(in Taka) As per Bangladesh Gadget, 2015	Allocable Floor areas (sq.ft.)
Class 1	2850-5499	Grade 8-9	23,000	1000
Class 2 & 3	1225-2849	Grade 15-16	9,300-9,700	800
Class 2 & 3	1125-1725	Grade 17	9,000	600

Mainly, due to lots of variation in the income range, the middle income group people of Dhaka can be considered a versatile one with different status and also taste of the family. The project should be designed considering all the needs and demands of these versatile groups of people. The arrangement of interior spaces should support the basic needs and then reach the comfort level for these different groups of people. And the outdoor activities inside the site must promote the relationship of the community with its neighborhoods.

2.3 Current Housing Situation in Dhaka

At present, around 45,000 people live in the city of Dhaka in per square kilometers. In the neighborhood country, Mumbai has the number of around 30,000, whereas in New York, the number is below 2,000. Alam, S. (2014). 'Kothay gorbo boshoti'. Chanel 24. So, along with this rate, the complexity of providing proper housing increases, while the land price and flat rent are going beyond the capability of most of the middle income group of the city. But the needs for a comfortable shelter are not decreasing and hence the situations of housing inside the city are getting more complex day by day.

Currently Dhaka, the capital of Bangladesh is known as the 5th mega city considering the population. (ibid). According to World Bank, with the current growth rate, by the year of 2020, the population of Dhaka will reach about 2 crore, making it the 3rd most populous cities of the world, which will be more than Beijing. (ibid). Another report shows that, around 5 to 7 lakh new people begins their living in the Dhaka per year. (ibid). Though, the statistics include all types of income group of people, it is sure that, the

scarcity of land for building shelter for these people in the near future will become a burning issue for the Government of the country.

But it is a matter of great relief that, at present Government are taking steps to expand the area of the city and making different housing proposals in the areas where city habitant is yet to flourish. And it is expected to fit all the incoming future inhabitants of the city in these housings. There still remains a lot of complexity in the urban fabric of the city as a whole. Due to creating random and unplanned housing both by Government and private sectors inside the city, the balance in the existing urban fabric pattern is harmed. As a result, the open spaces including water bodies and green are getting diminished due to newly made building blocks. This can bring unbalance in the climate and thermal comfort for the building where the city dwellers activate their daily activities.

On the contrary, due to the current economic condition of the country, it is often not possible to provide all the facilities or utilities needed for the user group inside a housing complex. And so, minimizing the cost will also become an integral part of the design, providing all the demands needed by the user group of the respective housing. The project is expected to be designed after considering these facts.

3. Site Appraisal

3.1. Photographs of the Site



3.1.1 Figure: Panorama View from Shialbari More, south-west of the site



3.1.2 Figure: Panorama View from inside the site, beside the mosque on south-east of the site

3.2 Site Map

3.2.1 Legend

	Residential Zone
	Industrial Zone
	Commercial Zone
	Green Spaces
	Nearby Bus Stand

3.2.2 Figure: Map of neighborhood of site through zoning

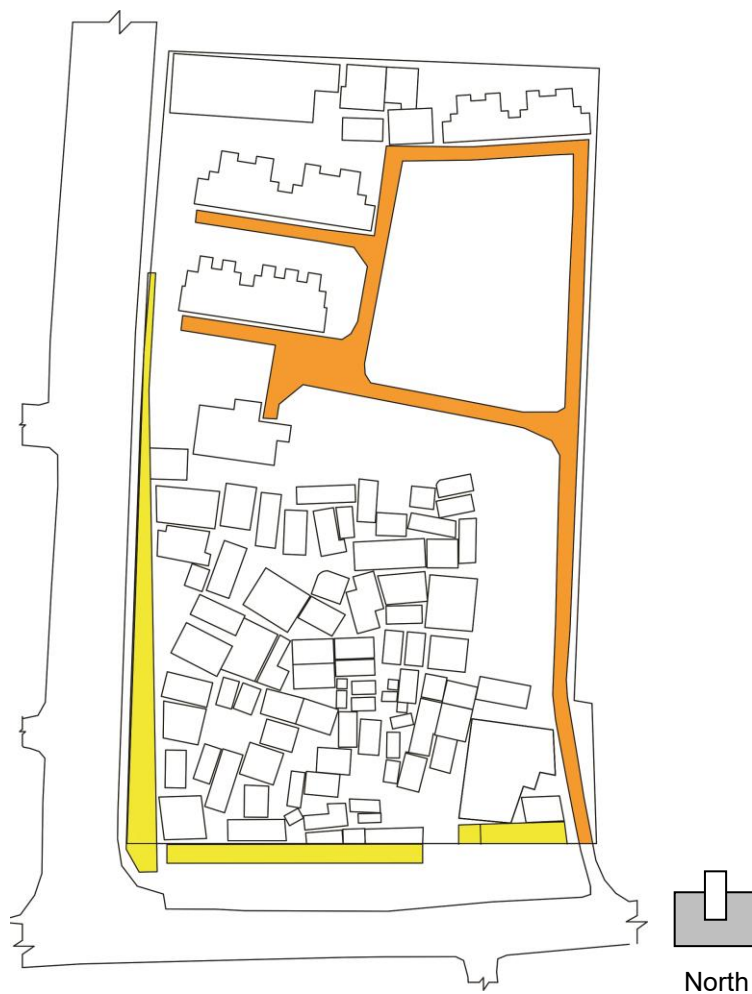


3.3 Internal Circulation & Commercial Zone

3.3.1 Legend

-  Commercial Zone (Tin Shade Market), Should be incorporated inside the site
-  Internal Circulation, Buildings should be placed taking as a reference

3.3.2 Figure: Diagram of internal circulation and commercial zone



3.4 Findings & Probable Solution

- North of site needs a buffer from industrial area, can be done by placing multipurpose & kindergarten school
- Flow of green is from east-west, so as the view
- Existing playground is in north-east of the site, can be used commonly for both the inhabitants and the kindergarten school
- Commercial belt is seen alongside road on the east of the side, can be included inside the site to give buffer
- Existing mosque in south east, should be kept as it is
- Entry should be from the secondary road on the east of the site, will also promote the importance of the road
- Existing natural pedestrian circulation around the field can be kept and used as reference of placing building blocks
- Flow of green can be kept uninterrupted by keeping the existing pedestrian along the east of the site, also acts as buffer of the site.

4. Case Study

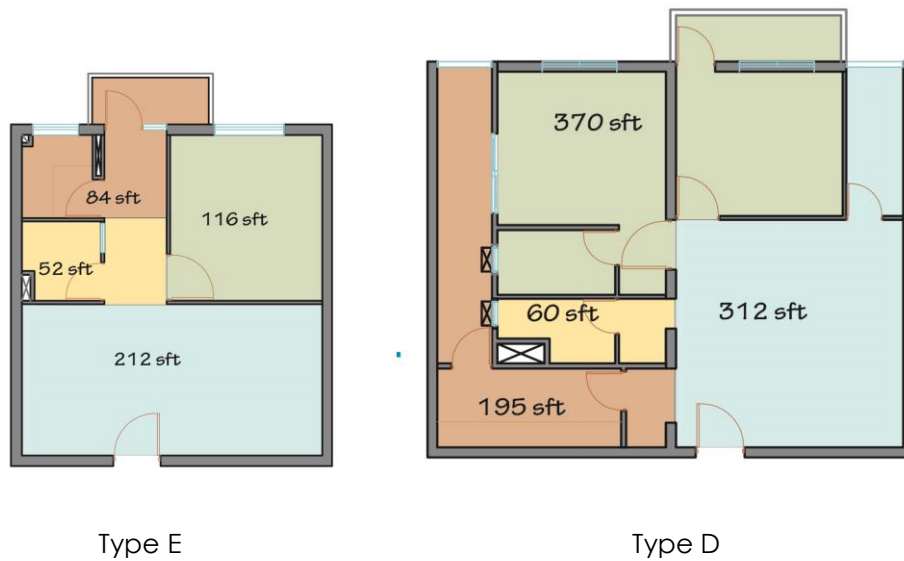
4.1 Lake City Concord Apartments

4.1.1 Project Information

- Total Units: 4215
- Building Height: 16 Storied
- Total Building Footprints: 266150 sq.ft.
- Site Location: Khilkhet, Dhaka

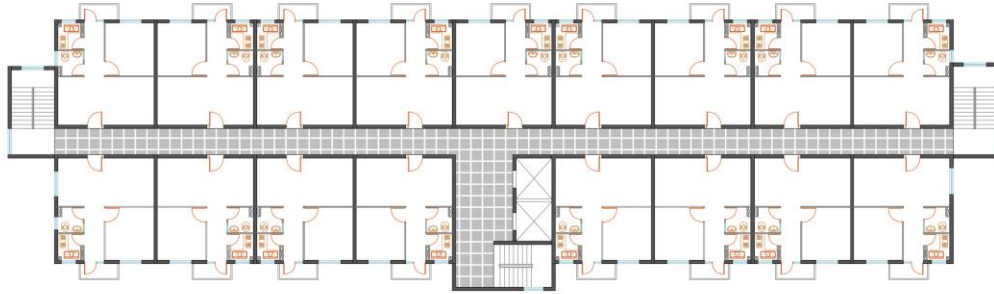
- 5 Types of Apartments:
- Type A: 1260 sq.ft.
- Type B: 1306 sq.ft.
- Type C: 1250 sq.ft.
- Type D: 1080 sq.ft.
- Type E: 590 sq.ft.

4.1.2 Comparison of space quantity between Type D & E



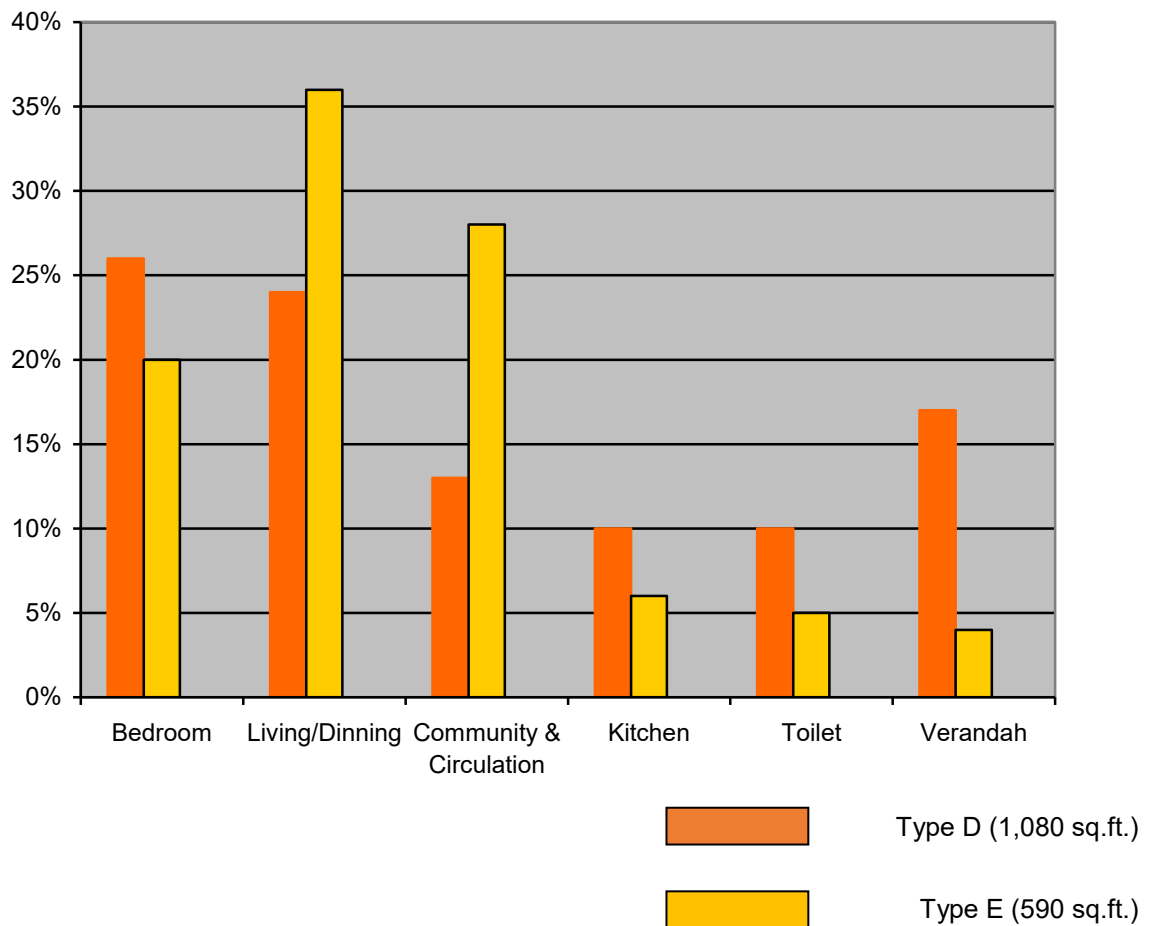
4.1.3. Notable Findings

- Type D & E are chosen for the analysis of plan to find out desired space arrangements of the flats with 1,080 sq.ft. And 590 sq.ft. respectively
- The building block of Type D, is arranged with the linear circulation at the center of the building with 17 flats in a single floor



4.1.4 Figure: Plan of Type D Block

4.1.5. Figure: Percentage of space allocated for Type D & E



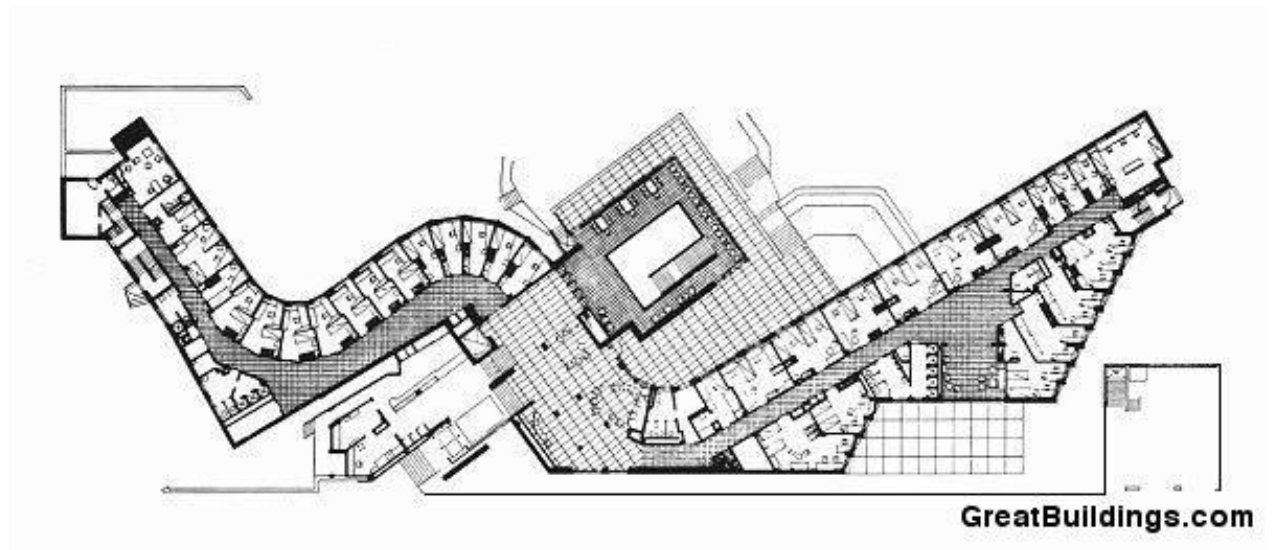
4.2 MIT Baker House Dormitory

4.2.1 Project Information

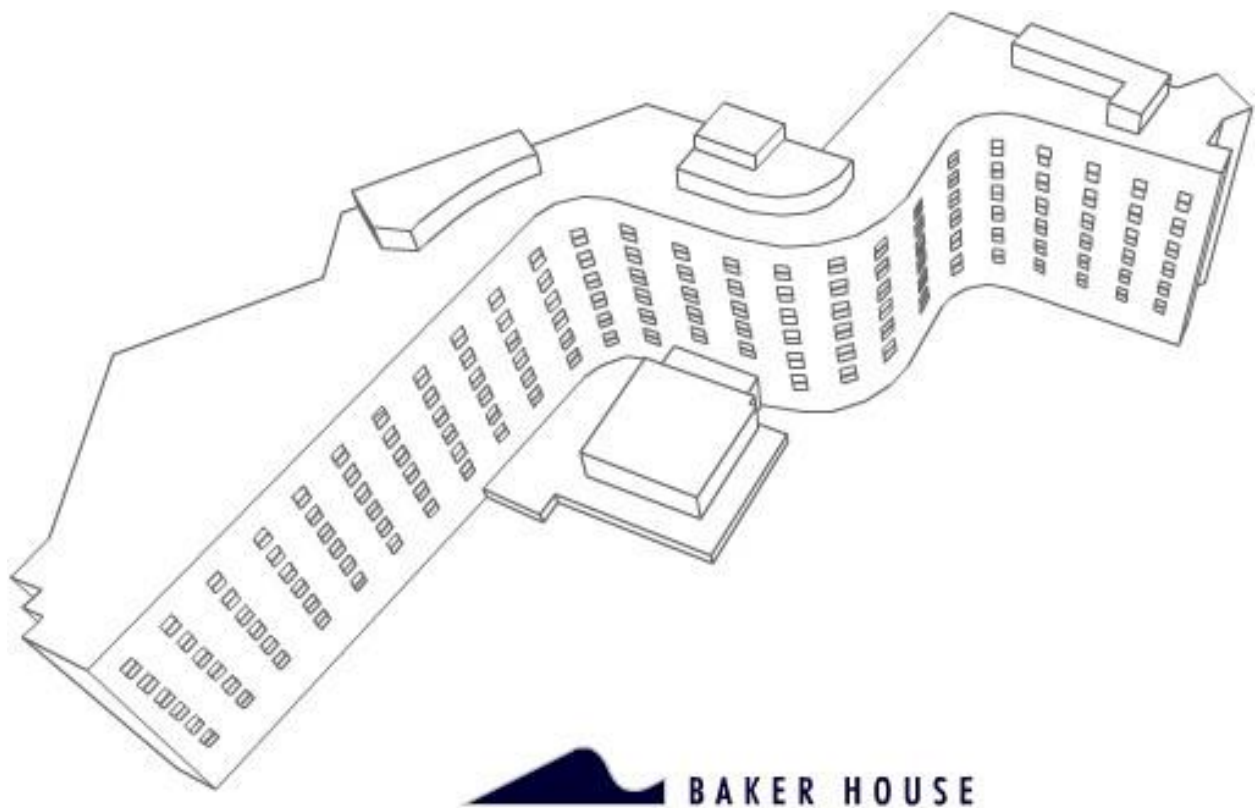
- Architect: Alvar Aalto
- Location: Cambridge, MA, United States
- Project Year: 1948



4.2.1. Fig: View of the Dormitory



4.2.2 Fig: Plan of the Project



4.2.3 Fig: Axonometric View of the Project

4.2.4 Notable Findings

- The rooms are arranged aligning with curved circulation taking the reference of the Charles river
- Thus, maximum number of rooms can get the view of the river from the room

5. Program Development

5.1 Rationale of the Project

- Name of the Project: Middle Income Group Housing
- Address of the Site: Shialbari More, Mirpur, Dhaka
- Total Site Area: 1, 09,598.6sq.ft.
- Client & Funding Body: Ministry of Housing and Public Work
- Project Requirement: Total 288 Units (to be built in the given site)

5.2 Program Analysis

The given proposal is questioned considering the density standard. The unit type is also reduced considering the income of the inhabitants taking the above mentioned studies as a reference. The ratio of flat types is achieved from the given proposal.

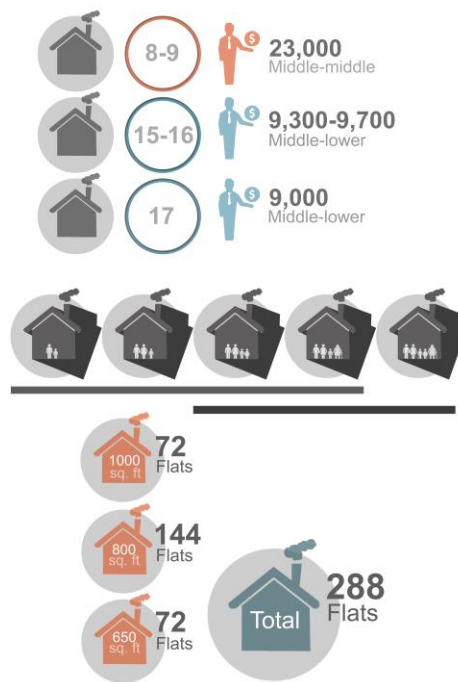
For the community, male and female gymnasium, indoor games room, a library, a medical room, community theatre and a multipurpose room is designed.

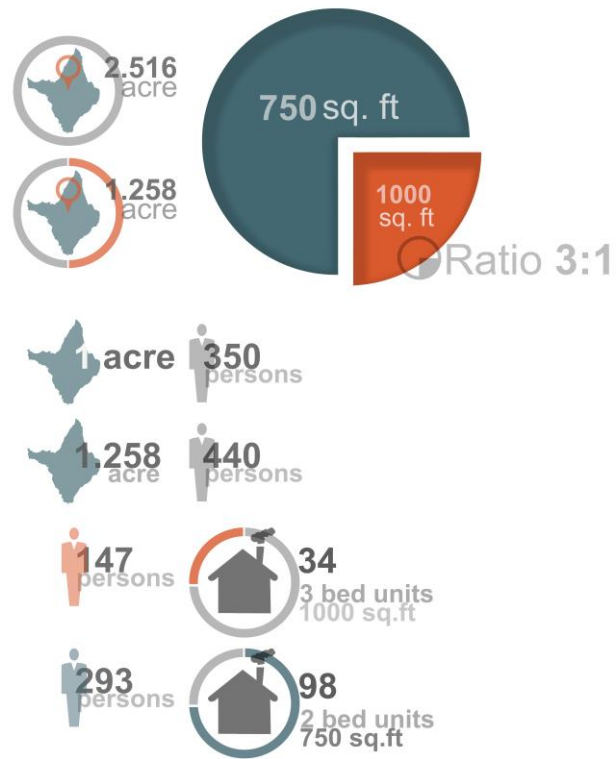
Considering the standard, flats are divided into 2-bed and 3-bed and a total number of 121 units are designed in the three buildings.

5.2.1 Figure: Table showing the allocated spaces of the community function

Name of the Community Function	Allocated Spaces Approx. (sq.ft.)
Gymnasium	2,000
Medical Room	1,000
Library	4,500
Indoor Games Room	7,000
Community Theatre	4,000
Multipurpose Room	3,500

5.2.2 Figure: Diagram showing the income group of inhabitants and given project proposal





5.2.3 Figure: Diagram showing the revised proposal

5.3 Additional Program

- Mosque = 2300 sq.ft.
- Commercial single storied blocks on South-West of the site = 6,300 sq.ft.

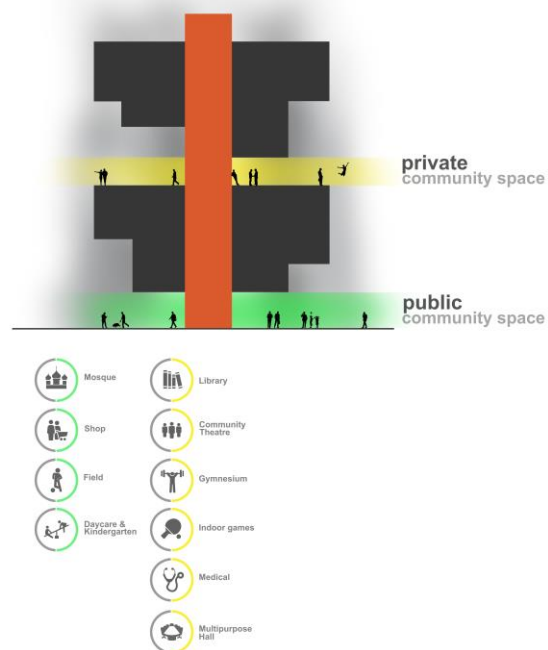
6. Concept & Design Development

6.1. Concept

The main idea of the project was to create individual homes rather than just housing people, as it was in the given proposal. In order to do so, community spaces were allocated in mainly two levels, the private community space dedicated only for the inhabitants of the housing and the other is the public community space merging the neighborhood with the inhabitants.

On the other hand, since the site is under a green belt, an intention to keep the vista uninterrupted is made from west towards east. And thus, the nature of porosity is followed in the design to maintain the view for the people living within and surrounding the community.

6.1.1 Figure: Diagram showing the distribution of community space

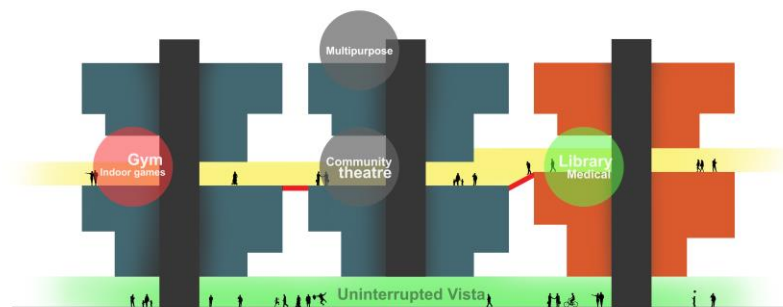


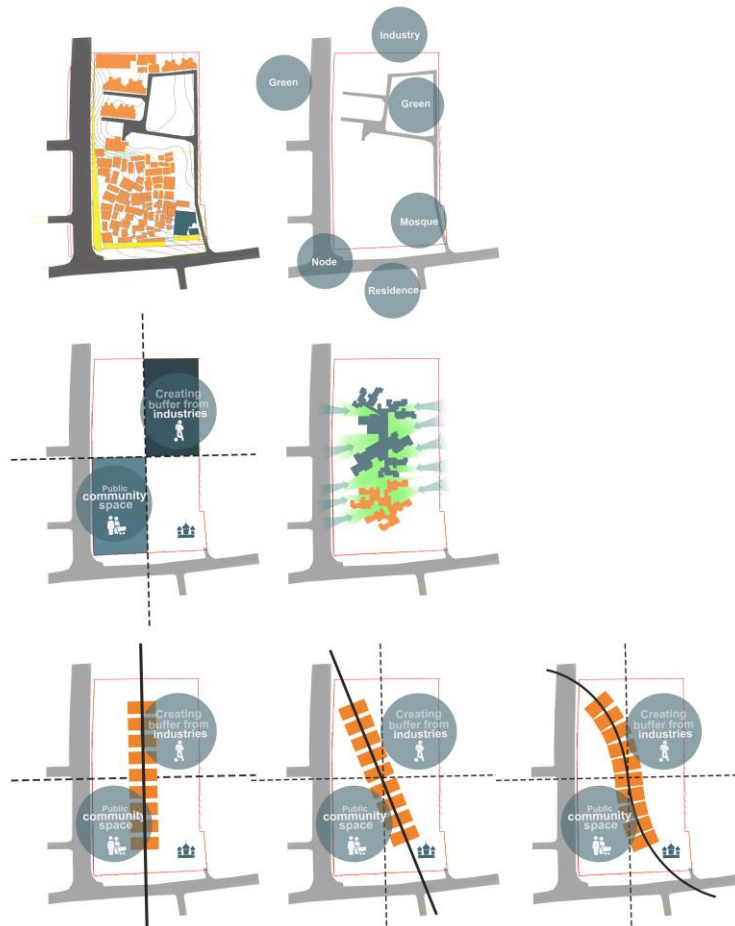
6.2 Development of the Design

The design is developed by maintaining buffer from the industrial zone in the North-East through keeping a playground and a kindergarten school for the community people. Whereas, on the South-West corner of the site, a commercial belt is introduced as a means of communication with the people living in the neighborhood and the inhabitants of the building. The existing mosque is re-designed by keeping uninterrupted vista through the ground floor in its previous location i.e. South-East corner of the site. The front i.e. the west of the mosque is to be used as the desired space for the interaction of the people. The existing contour is kept and the main circulation is designed considering it as a reference, flowing from south towards north.

The mass is designed from North-West towards South-East terminating at the mosque. The circulation of the building is designed with reference from the contour. The units are placed in rectangular shape to ensure proper ventilation from North-South and less heat from the West. A corridor is designed in each unit terminating at the master bedroom. Each master bedroom gets a balcony facing towards the vista. Two units are placed side by side and a common balcony from living of each units are faced each other, in order to maintain the communication between the units.

6.2.1 Figure: Sectional diagram showing the public and private community space



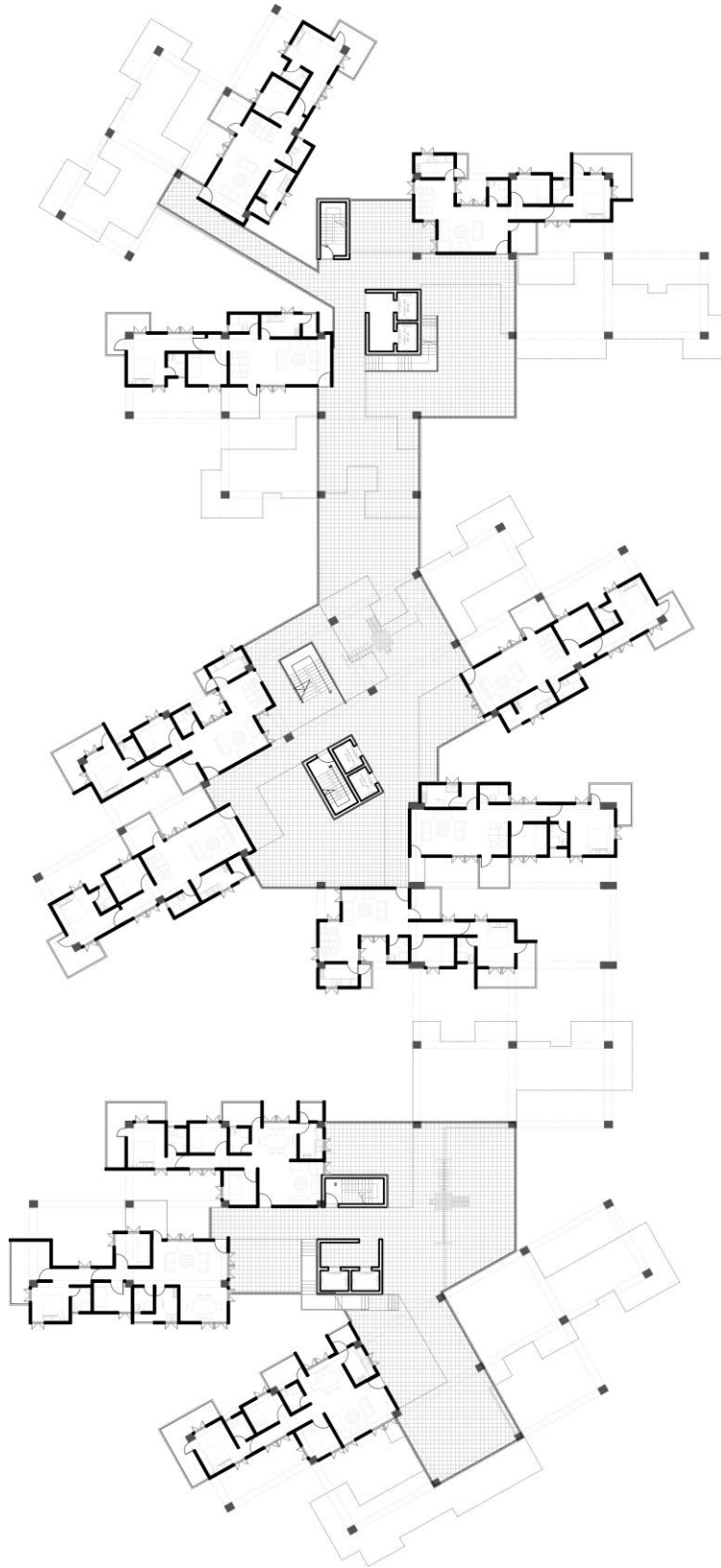


6.2.2 Figure: Diagram showing the placement of the building

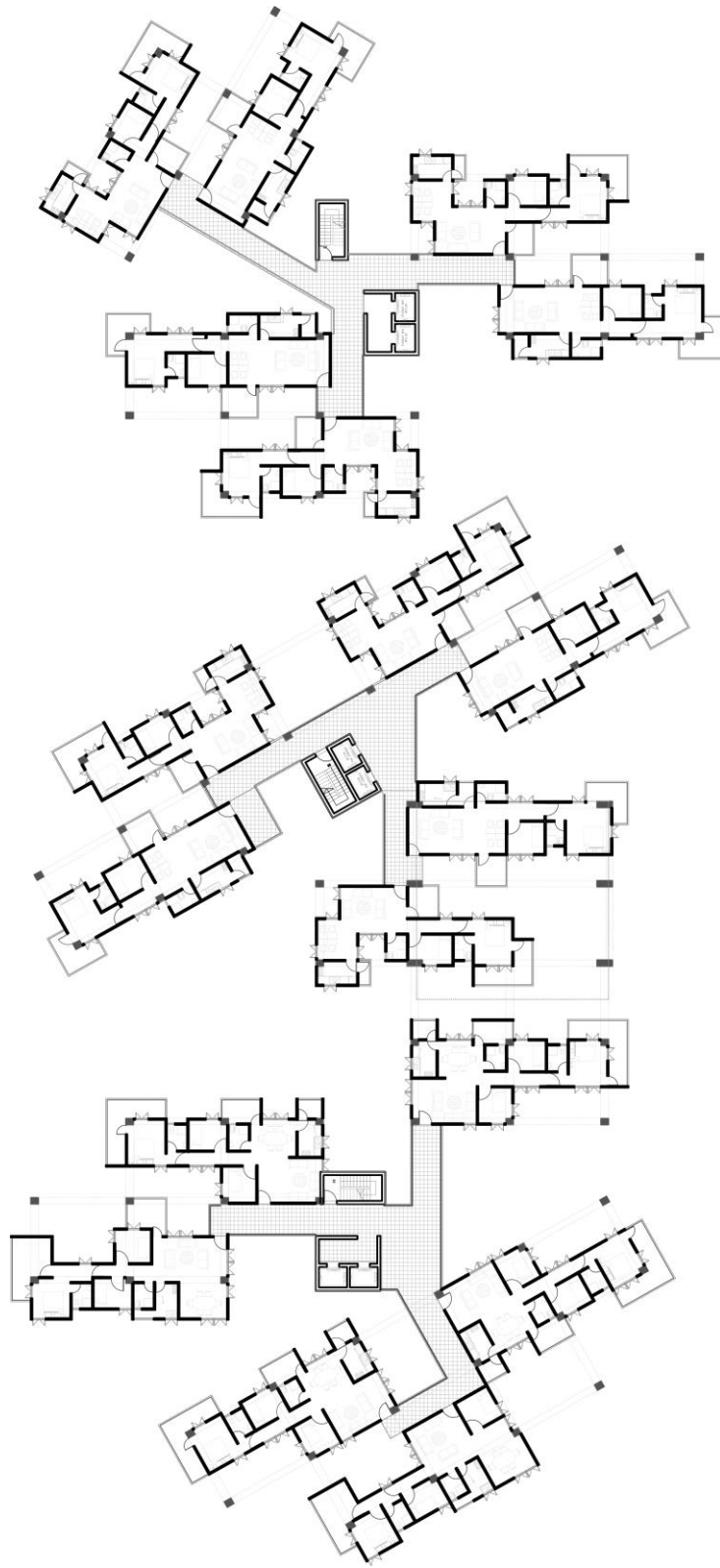
6.3 Drawings

6.3.1. Figure: Ground Floor Plan

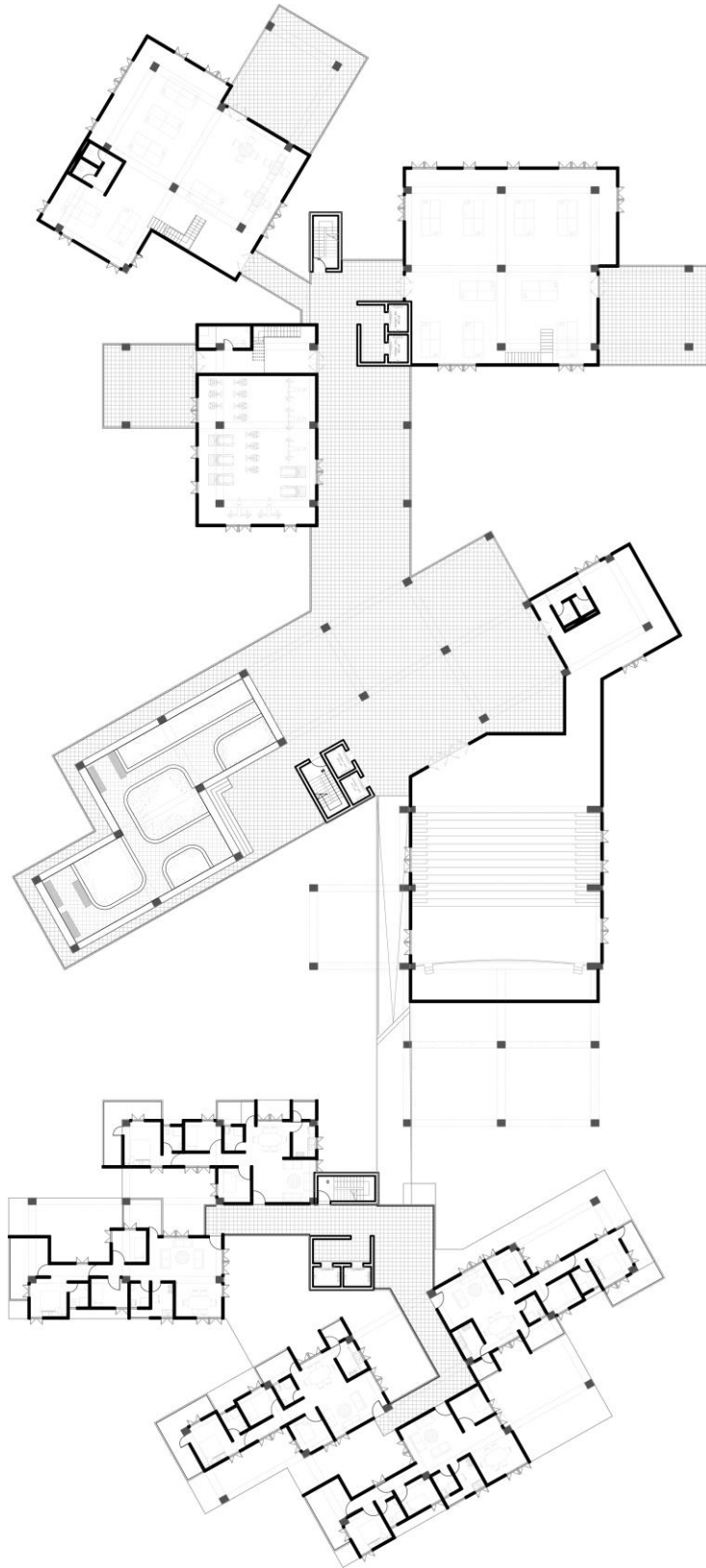




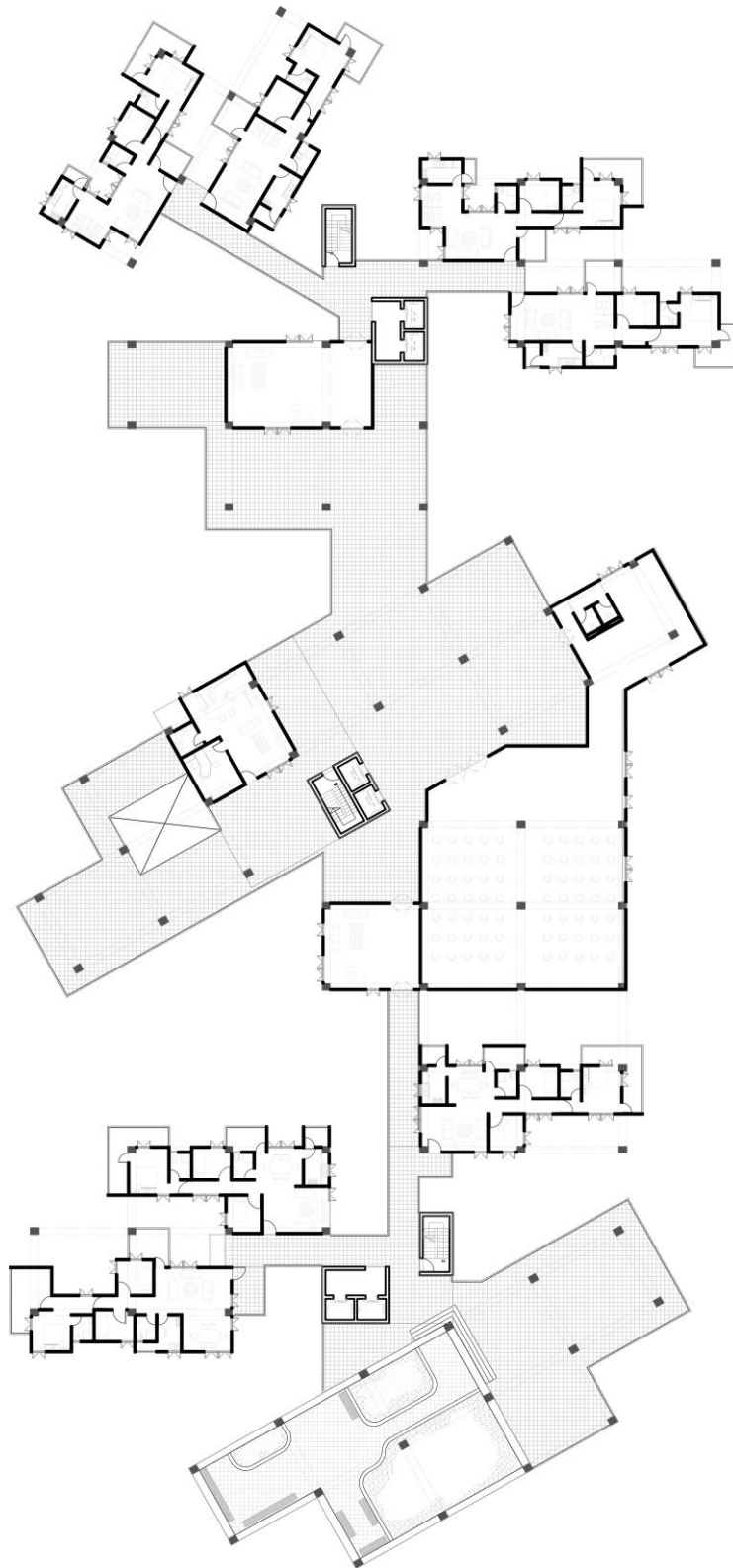
6.3.2. Figure: Second Floor Plan



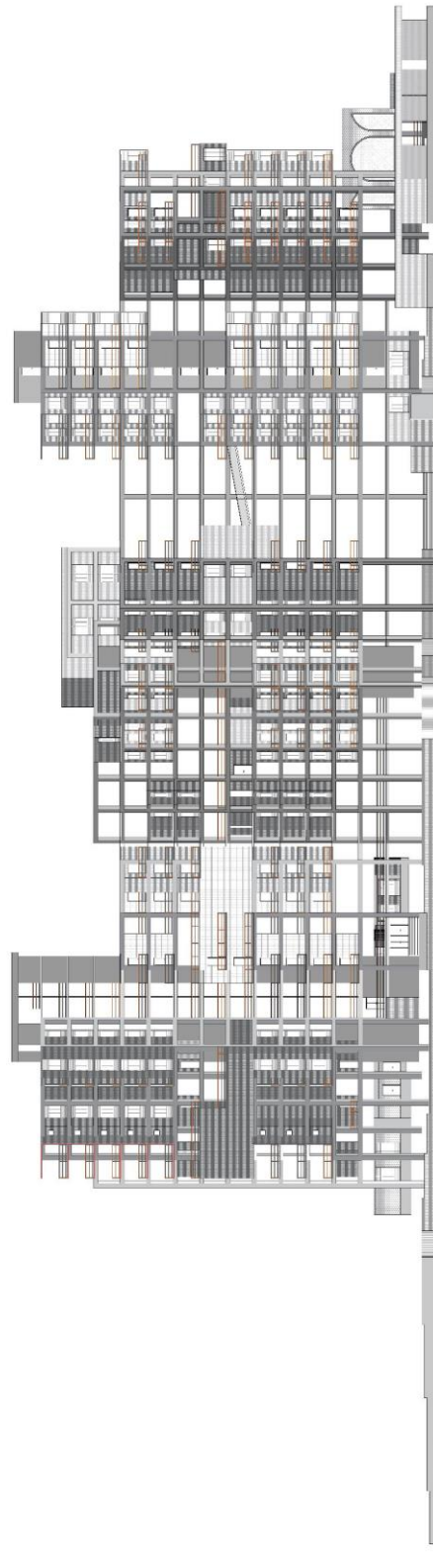
6.3.3 Figure: Typical Floor Plan



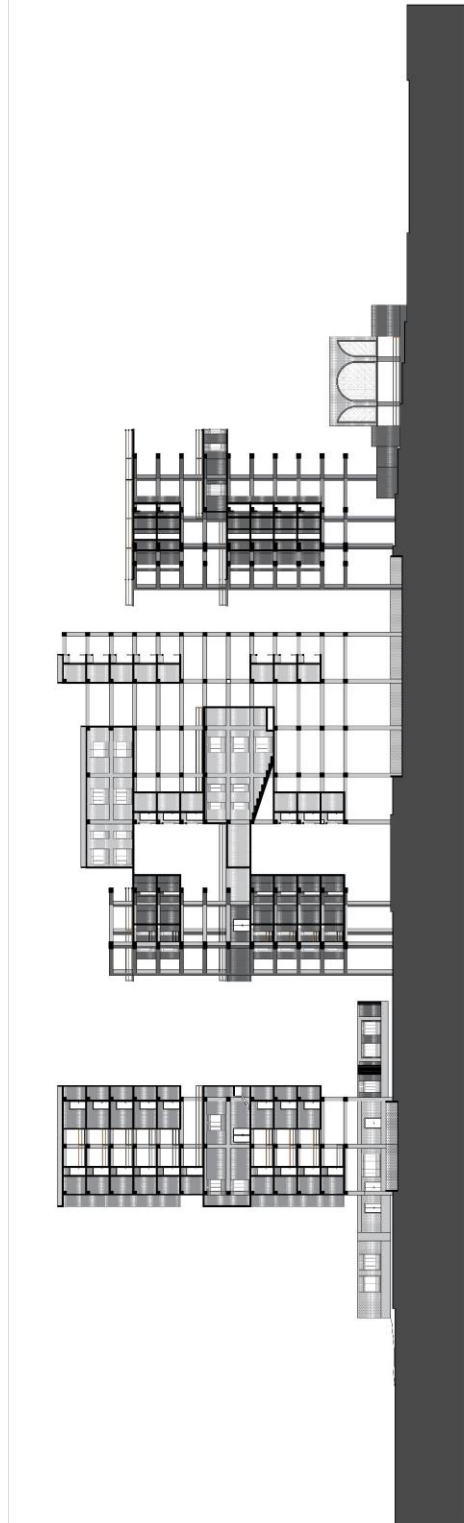
6.3.4 Figure: 6th Floor Plan



6.3.5 Figure: 11th/ Terrace Floor Plan



6.3.6. Figure: West Elevation



6.3.7 Figure: Section

6.4 Model Images







6.5 Render Images







Conclusion

Designing a living condition i.e. 'home' for a family is always a tough job to me. And when it comes to designing multiple homes, then the complexity of the job gradually increases. One of the biggest challenges of the project was to create multiple homes in a single building, ultimately making the building a living one. The intention to keep the uninterrupted vista through porous architecture on an undulating surface was another challenges tried to meet through the design. Moreover, the given proposal is revised and an intention to create a healthy and friendly environment is tried to achieve in this project. The neighborhood is also given priority and some additional functions are incorporated to create bridge among the people of different status. Above all, the climate is considered as one of the main force in shaping the building mass, starting with each unit. Internal communication in between the units is also ensured through the design.

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