INTEGRATED LIVING FOR ORPHANS AND ELDERLY, LUCKNOW, UTTAR PRADESH

Thesis submitted in partial fulfilment of the requirements for

The award of the degree of

BACHELOR OF ARCHITECTURE

By

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BHOPAL.

Declaration

I **Tanushi Goyal**, Scholar No. **2015BARC020** hereby declare that, the thesis titled **Integrated Living for Orphans and Elderly, Lucknow, Uttar Pradesh,** submitted by me in partial fulfilment for the award of degree of Bachelor of Architecture at School of Planning and Architecture, Bhopal, India, is a record of bonafide work carried out by me. The design work presented and submitted herewith is my original work and I take sole responsibility for its authenticity. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

Tanushi Goyal

Date: 20.07.2020

Certificate

This is to certify that the student **Ms. Tanushi Goyal** Scholar No. **2015BARC020** has worked under my guidance in preparing this thesis titled **Integrated Living for Orphans and Elderly, Lucknow, Uttar Pradesh.**

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Abstract

A tender stage in life where a person is very delicate and requires continual love, care and nurture to develop a strong set of values and morals is their childhood. This necessary love and care are by and large conferred to us by our families. However, there are numerous youngsters not lucky enough to get this opportunity - ORPHANS.

A similar situation wherein the individuals are denied their family's affection and assistance is that of elderly, living in old age homes. Family is viewed as the fundamental help and security for the older people. The principle issues faced by elderly in old age homes are in adjusting socially and personally; issues of depression, dejection, monetary weakness and in familiarizing themselves.

By carefully studying and incorporating the needs for both the ages, a homely and familiar environment which has a sense of family and attachment can be created to produce a positive effect and bring about better physical and emotional well-being, which is missing by both the age groups.

This integration of the living spaces for the two generations can be mutually beneficial for both. It can help to "Make elderly young and children wiser".

Keywords: *Interaction spaces, Integrated Living, Orphans, Elderly*

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Elderly

India, like multiple other developing nations is experiencing rapid urbanization, modernization and globalization which have led to a change in the family structure to a great extent. This has resulted in the fragmentation of joint families into nuclear families, resulting in most elderly members living alone or in institutional care facilities. The elders who are abandoned need to fight for themselves. The traditional feeling of obligation and commitment of the youth towards their elderly is being dissolved. The elderly are caught between the decrease in traditional values on one hand and the insufficient social security system on the other. This is prompting an expanded risk of minimization of the geriatric population.

Although the idea of an old age home is moderately new to India, having been embraced from the West because of changes in societal standards and the increasing nuclear family model, it is gaining popularity currently.

We might assume that a large number of elderly stay with families. The family's position as the main provider of voluntary support and care, though, has now shifted. As a consequence, the number of families putting their older family members in institutional care homes has risen.

A report by Jones Lang LaSalle Meghraj (JLLM) in 2011 states that:

- Approximately 7.5% of the indian population is above the age of 60 years.
- Currently, there are over 81 million elderly people with the scope of the figure rising to 177 million by 2025 and it will be about 240 million by 2050.
- Life expectancy has increased from 41 years in 1951 to 64 years today, which has led to hundreds of old age homes being set up in India.

According to Population Census 2011 there are nearly 104 million elderly persons (aged 60 years or above) in India, out of which 53 million are females and 51 million males.

2015-16 AISCCON survey shows that 60 per cent of elderly living with their families face abuse and harassment, 66 per cent are either 'very poor' or below the poverty line and 39 per cent have been either abandoned or live alone.

1.1.2 Orphans

NHFS–4 (2015-16) defines an orphan as a child who is below 18 years of age and who has lost one or both parents.

Numbers of orphans are increasing in India because of the nonappearance of biological parents who are unable or unwilling to deal with them.

As per the NHFS– 4 (2015-16), overall, 5% of children under age of 18 years are orphans. The percentage of children who are orphans rises rapidly with age, from less than 1% among children under age 2 years to 9% among children age 15-17 years.

According to 2011 population estimates,

- Out of 20 million children, about 4% of the population are orphan.
- Out of this percentage, orphans due to death of parents are around 0.3%.
- Remaining have been abandoned due to poverty.

Age in years	Percentage withone or both parents dead
<2	0.6
2-4	1.5
5-9	3.3
10-14	6.3
15-17	9.2

Table 1. Age Wise Distribution of Orphans<NHFS, 2015-2016>

An orphanage is a housing committed to the care of vagrants—youngsters whose biological parents are expired or generally unfit or unwilling to deal with them. Biological parents, and in some cases biological grandparents, are lawfully in charge of supporting children, yet without these, no named godparent, or other relatives willing to tend to the kids, they turn into a ward of the government, and orphanages are one method for accommodating their care, housing and education.

1.1.3 Current Scenario of Orphanages and Old Age Homes

In spite of the fact that the issues of solace, wellbeing and security might be tended to by an institutional care, the psychological needs are regularly neglected for essential physical and restorative needs. The condition and appearance of these facilities is far from what a person can refer to as home. This remains constant wherever in the world. Both orphans and elderly are forced to live without the love and care of a family, and feel neglected and lonely.

1.1.4 Integrated Living

The idea of "non-familial intergenerational interactions" is based on the apparently basic thought that old and young can bring new vitality, knowledge and excitement to one another's lives. By carefully studying and incorporating the needs for both the ages, a homely and familiar environment which has a sense of family and attachment can be created

to produce a positive effect and bring about better physical and emotional well-being, which is missing by both in an individual institutional care facility.

1.2 PROJECT BRIEF

Proposing Authority: Lucknow Development Authority

The project aims to design an integrated living facility for both the generations in an urban context, which will cater to all their basic needs. The facility will be designed to cater to elderly belonging to the Middle Income Group and orphans between the ages of 0-18 yrs.
The project also intends to incorporate inter mingling with people outside the home, by provision of activities such as library, café, a small vocational training centre, etc. so that the residents can feel a part of a larger society, rather than only the care facility. The activities could also be guided by the elderly living in the facility, which could act as source of income for the elderly so that they do not lose their self-worth.

Requirements:

Entrance	Lobby, Reception, Security
Administrative Areas	Offices, Meeting Rooms, Toilets
Technical Support	Storage, Parking, Maintenance, Kitchen
Common Facilities	Laundry, Salon, Dining Area, Temple/Praying Room, Infirmary, Vocational Training Block, Convenience Store
Recreational Activities	Multipurpose Hall, Amphitheatre, Canteen, Library, Television Lounge , Gymnasium, Game Room, Swimming Pool, Badminton/Basketball/Cricket Field, Playground, Jogging Track
Residential Units for Elderly	Private Rooms, Twin Sharing Rooms
Residential Units for Children	4 BHK Family Homes with caretaker rooms
Services	STP, Water Tanks, Substation

Table 2. List of Project Requirements<Author>

1.3 RATIONALE

Human life starts out as dependent and through aging ends-up as dependent. The two stages of life- childhood and old age are very similar to each other. In both stages, a person requires the support of family to function properly. Unfortunately, everyone is not lucky enough to get this support. There are many children who are abandoned or due to the death of parents, are forced to live their lives as orphans.

Similarly, in many cases, the elderly are forced to spend their lives away from their family in old age homes either because they are considered as a burden by the family members or because they don't have anyone to support and take care of them.

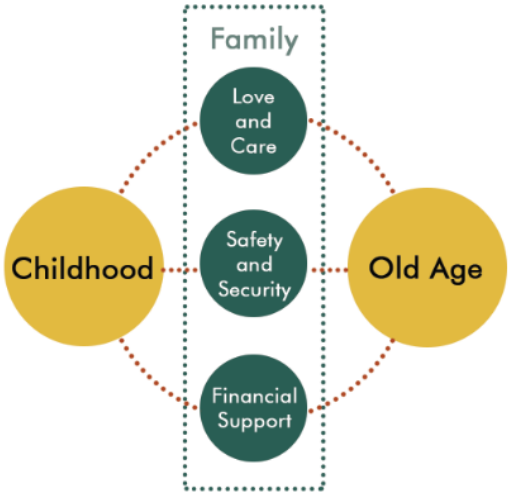


Figure 1. Things imparted by family during childhood and old age<Author>

The similarities in the two generations make them very compatible with each other and thus, it can be thought upon to combine the institutional care for both. Both children and elderly share a **symbiotic relationship** wherein they can provide each other what they otherwise lack in an orphanage or old age home individually.

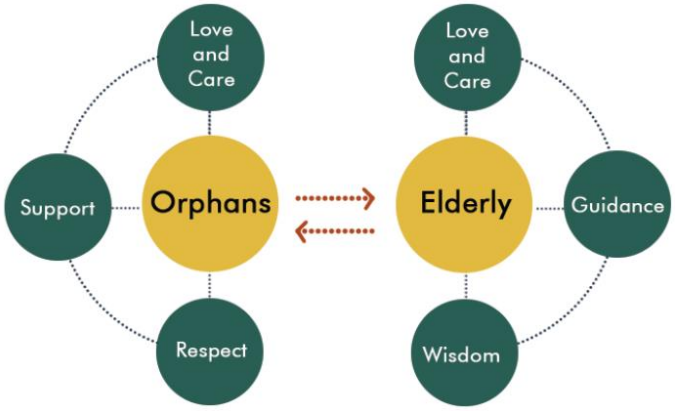


Figure 2. Symbiotic Relationship Between Orphans and Elderly<Author>

1.4 AIM

To design an integrated living for orphans and elderly, and create a platform wherein both the generations can co-exist and learn from each other and grow.

1.5 OBJECTIVES

- To design an integrated living for orphans and elderly, while incorporating their needs and catering to psychological problems through design.
- To provide activities and facilities suiting to the needs of both the generations.
- To integrate both the generations with each other and with the society by providing interaction spaces and opportunities.
- To incorporate a vocational training centre for the children living in the facility to develop skills and allow opportunities for employment in future.
- To provide teaching opportunities to elderly in the vocational training centre to allow for financial independence.
- To sensitise children towards the needs of elderly and create an age friendly environment.

Figure 3. Project Objectives<Author>

1.6 METHODOLOGY

Different steps involved are as follows:

- Justifying the scope and purpose of the thesis topic based on the background research.
- Selection of the project which fulfils the enlisted scope and purpose. Studying and understanding the selected project and enlisting the requirements.
- Site Context- Documentation of site (existing conditions, topological surveys, geographical, natural and, physical and social patterns, pedestrian and vehicular patterns and connections and site potentials and constraints relative to the Thesis).
- Site Analysis- Conducting a detailed study of the selected site to determine wind direction, temperature, rainfall pattern, possible design features that can be accommodated, etc.
- Selection of live and literature case studies of buildings/projects, which are used for similar kind of functions or location, to extract the basic idea of thesis.
- Live/Literature Case Studies Analysis: Critical study of the buildings/projects and its various aspects.
- Understanding the various features implemented and critically analysing them.
- Conducting a survey or interviews with the user, owner and designer to understand their perspectives. This gives us a practical insight into the requirements of the people who will be the potential buyers or users of the building.
- Conducting a detailed literature study of the topic to understand the basic features or details that are required to be followed while designing the building.
- Conducting a literature study on building typology, byelaws, various rules and regulations that have been set by the Government or are specifically mentioned in the Standards.
- Compilation of additionally acquired data with previously obtained data to form a clear picture of the topic in hand and what steps to follow to get the desired outcome.
- Concept Development Stage: The concept based on the project understanding is evolved.
- Design Development Stage: The design is evolved based on the concept and the requirements of the project.
- Checking at regular time intervals if the work is progressing in the desired manner.

2. LITERATURE STUDY

There are numerous ways in which multiple authors have described mental health. Patel described it as described as a state of psychological well-being or the absence of any mental disorder. It is the “psychological state of someone who is functioning at a satisfactory level of emotional and behavioural adjustment” as described by Mandell. From a psychological viewpoint, mental health can include the ability of a person to enjoy life and create a balance between life activities and emotional resilience efforts. (Afsana, 2016)

2.1 PSYCHOLOGICAL NEEDS OF ORPHANS

Being an orphan in resource poor country can have several negative impacts, which include traumatic grief, diminished cognitive and emotional growth, reduced access to education, and a greater probability of being exploited for child labour.

Various studies have been conducted that show that various psychological and emotional problems, and social issues are predominant among children living in orphanages and other institutional cares, as compared to the ones living with their families. These problems might be due to exposure to abuse, exploitation, and neglect, lack of love and care of parents and inadequate individual care. This makes them insecure, emotionally needy, and can result in social, emotional and mental impairment of the children.

2.1.1 Emotional problems

These are correlated strongly with gender, justification for being in the facility, age at the tim e of admission to the facility, and various behaviour problems.

2.1.2 Psychological problems

Most kids living in an orphanage face one or the other psychological issue mentioned below.

- **Depression and stress:** Depression can be observed in physical ailments such as digestive problems, sleep disorders, chronic fatigue and consistent boredom. It can often be confused for other problems in children, like attention deficit disorder, aggressiveness, physical illness, sleep and eating disorders, or hyperactivity.
- Research shows that, owing to their stay in the orphanage and also due to loss of parental love, many children feel sad and depressed.
- **Lack of self-esteem, purpose and identity:** Children usually lack self-esteem purpose in life, with majority of them feeling worthless and good for nothing.
- **Loneliness and helplessness:** In-depth interviews showed in various studies reflect that most orphans feel lonely and helpless.

- **Love and affection:** Most children, especially the younger ones who are unaware of how they ended up staying in an orphanage, have a need for love and affection because of parental neglect. Seeing other children with their families reminds them about their own.

  Studies show that, owing to their experiences, many kids often miss their family and have a problem sleeping.

2.1.3 Social issues

- **Behavioural disorders:** Most children have attitude and isolation problems. Apart from the orphanage, they remain quiet and less social and vocal. They prefer to withdraw from engaging with any stranger since they don't know what to say, and therefore refuse to voice their opinions. Attachment problems among children were also prevailing as per studies.

  A study in Karachi, Pakistan, on various types of behavioural problems in SOS or other conventional orphanages found that 9% of children had emotional problems, 50% conduct problems, 13% hyperactivity, 84% peer problems, and 47% problems in prosocial behaviour. (Kaur, Vinnakota, Panigrahi, & Manasa, 2018)
- **Lack of guidance:** They feel that there is an absence of grown-up direction and backing, and are doubtful about how they will adapt to life once they leave the shelter.
- **Rejection:** Living in an orphanage where the environment and people can in no way substitute the love, and affection of parents; children frequently feel rejected or disowned. Most kids are nervous about whether they will be able to fit in society or even more whether society will embrace them. They become afraid of expressing their thoughts out of the fear of being ridiculed.
- **Security:** Orphans live a difficult life and are likely to slip into deprivation after they leave the orphanage due to lack of any specialized training or work security. It leads them into believing that their future is uncertain and bleak because if something fails there's no one to guide them.

  Also, a lack of a sense of safety is felt, when they are forced to live in an unfamiliar environment.
- **Isolation:** A common issue for children living in orphanages is that, most of them feel left out and alone inside, as well as outside leading to an enormous lack of social engagement.
- **Lack of Privacy:** Research by Robert Lafore and Wolfe shows that children know what privacy is, and it is important in their lives. Another Golan-led study revealed

that lack of privacy could influence the self-esteem, sociability of an orphan and can lead to aggressiveness and distractibility.

Due to the above mentioned problems, home life (97.7%) is most commonly affected, followed by classroom learning (88.8%), leisure activities (82.2%), and friendships (64.4%). (Kaur, Vinnakota, Panigrahi, & Manasa, 2018)

2.2 PSYCHOLOGICAL NEEDS OF ELDERLY IN OLD AGE HOMES

Psychological care needs are contentment and fulfilment of life aspects, a sense of having accomplished everything in one's existence, achieved stability, and attained joy.

Older people residing in an institutional care may suffer from loneliness, social isolation, feelings of depression, and emotions of extreme despondency and hopelessness, contributing to a decline in overall physical and psychological functioning.

All our skills— sensory perception, cognitive sensitivity, balance, and motor skills— begin to deteriorate with age. This section aims to study the inner general feelings of the elderly such as: happiness, isolation and loneliness, sadness, varying moods, safety and vulnerability– emotional, social, financial, and physical assistance and care.

The older people acknowledge the need for psychological care. They described feelings of sadness, loneliness and helplessness, emotional desires, choice and control, and involvement in religious activities as significant aspects of their psychological care needs in the studies carried out in old age homes over time.

2.2.1 Feelings of sadness

- When people experience the process of aging and transfer to a long-term care facility, they suffer much more pain due to the loss of loved ones in their life.
- Their absence causes a depressing environment that makes them feel alone, isolated unhappy and miserable.

2.2.2 Loneliness and helplessness

- Elderly residing away from their homes experience feelings of loneliness that comprise feelings of family abandonment, failure to have social relationships or too few connections with other older people, and unwillingness to engage in healthy social events.
- The loss of familiar surroundings and comfortable environments can trigger this loneliness and the absence of someone to chat to about daily problems can contribute to frustration as well.

- A study on old-age homes in Jammu indicates that 20% of residents regarded old age as a lonely phase in their lives. (Dubey, Bhasin, Gupta, & Sharma, 2011)
- The fact that elderly individuals living alone have a higher level of financial stress, more depressive symptoms than in others, and a lower level of happiness and satisfaction (feelings of helplessness) was indicated in a study conducted by Chou and Chi.
- Most loneliness-focused approaches aim at involving people in a variety of social relationships and activities to address their psychological needs. Numerous scientific findings have shown that care providers at long-term care facilities need to recognize the importance of carrying out constructive activities in order to enhance the psychosocial well-being of older people.

2.2.3 Emotional desires

In various studies carried out on this subject, the need for emotional need satisfaction was noted among older people. In this aspect, residents marked their desire to live with family, hope and still feeling like a family. (Tabatabaei, Ebrahimi, Rahimi, & Riji, 2015)

2.2.4 Choice and control (Authority and privacy)

- Concerns are essential for older people than any other care needs. Ofparticular, resi dents must have flexibility and influence over most of their practices within the faciliy as well as outside the facility to meet their needs for psychological care.
- Older people seek a dignified and healthy way of living. They prefer to be self-reliant, self-sufficient and successful.
- Lack of personal autonomy, limitations on their activities, and loss of control over vari ous aspects of their lives may result in a loss of self-esteem and confidence.

2.2.5 Mental strain and problems

- A study carried out by the Department of Geriatric Mental Health, Lucknow revealed that a majority of elderly in old age care facilities suffer from depression (Males = 50.0%; Females = 28%). In males, the subsequent disorder was found to be dementia (20%) followed by anxiety (10%) and schizophrenia (5%), while anxiety disorders being second leading in females. (Tiwari, Pandey, & Singh, 2012)
- Depression in old age contributes to negative effects and medical decline. The underl ying illness tends to be more serious if depression coexists with other medical conditi ons.

2.2.6 Religious Activities

- It is believed very commonly that people appear to be more drawn towards religion and spirituality in old age.
- To some point, a kind of social assistance in the form of personal contact is experienced at religious meetings with other individuals whom they can share their thoughts with.
- It is understood that the life of the elderly centres around this social and religious involvement.

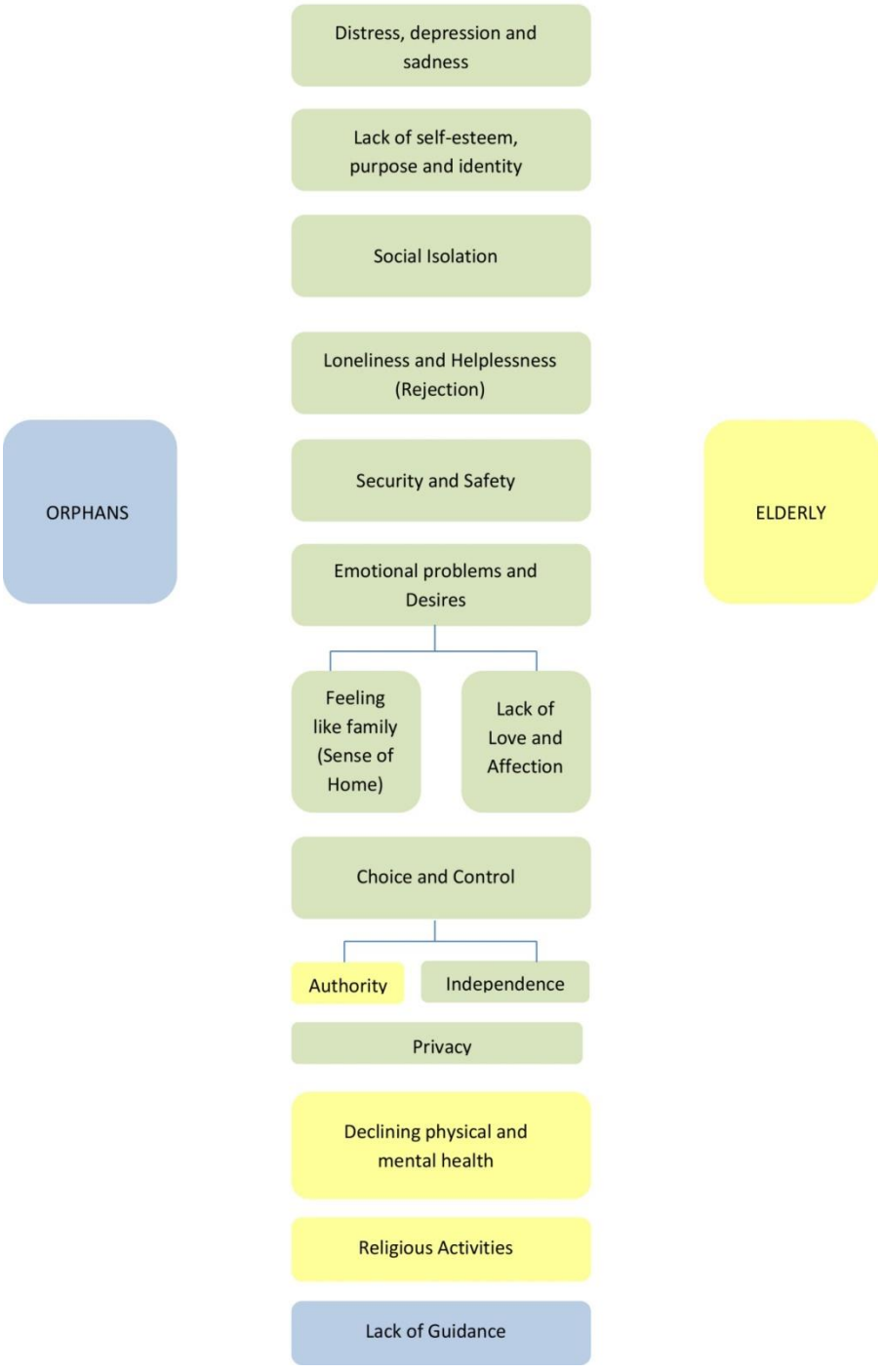


Figure 4. Integrated Needs of Orphans and Elderly<Author>

2.3 SPATIAL DESIGN OF LIVING SPACES TO INCORPORATE PSYCHOLOGICAL NEEDS

Various studies on the human environment that validate the fact that our feelings, responses and ways of coping with everyday life are greatly impacted by our specific living spaces have led designers to believe that some of our physical, behavioural and psychological issues can be tackled by a change in our environment, in a more realistic and sustainable manner.

The idea of a built environment is that of a material, spatial, and cultural object that incorporates physical elements and resources in living, functioning, and playing. In the “Public Health: Seattle and King County’s Push for the Built Environment” report, Karen Roof and Ngozi Oleru define it as "the humanitarian-made space in which people live, work, and recreate on a day-to-day basis." In order to create a built environment to mitigate some of the biggest challenges in the development of institutional care facilities, it is important to realize that the environment affects us not only physically but also psychologically. (DeMello, 2016)

It is important that design elements must be created in a way that allows both the generations to grow physically, psychologically, and emotionally.

Design should be such, that it encourages autonomy, helps to sustain a sense of community and introduces people to nature's healing properties. It is, in turn, essential to simply give people the impression that they still have their freedom, and this self-worth can be accomplished by designing on a way that citizens are allowed to make choices in their daily activities.

When considering the spatial design of an institutional care, we can focus on how the following aspects- **Spatial Organization, Creating a sense of Home, Lighting, Colour and Ventilation, and Open and Natural Environment;** which if designed properly, can help to achieve physical, psychological and emotional well-being of the residents.

These four aspects are overlapping and closely related to one other.

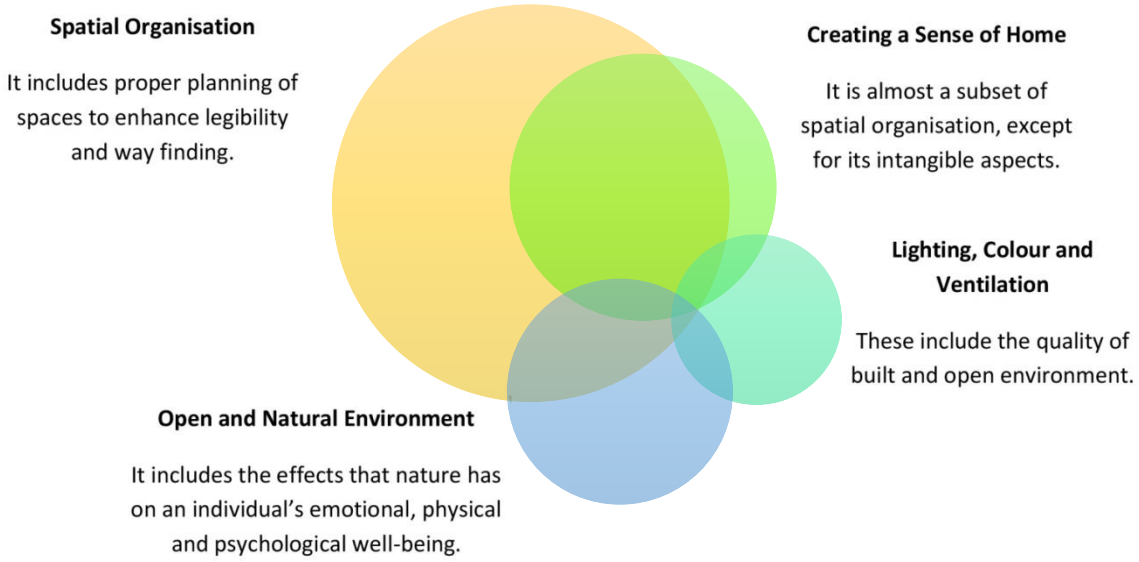


Figure 5. Relationship between Design parameters<Author>

2.3.1 Spatial Organization

Spatial organization includes multiple factors including how to divide spaces, how to integrate outdoor and indoor areas, how to coordinate social/public spaces with one another and the kind of social and public spaces. In simpler terms, it includes two main aspects: Zoning and Circulation.

It is the driving force in understanding the built environment and navigating and experiencing it and if worked out properly, it may help to promote both privacy and **social interactions**.

2.3.1.1 Planning and Division of Spaces at Macro level (Zoning)

- Different units should be planned such that they are integrated with outdoor areas and landscape elements to provide places for social interaction between both the generations.
- Planning should be done such that multiple settings are created for kids to enjoy, jump and play, as these are the things that interest them the most and allow them to implement themselves.
- A designer can help in aiding increased physical activity by providing longer distances between various areas within the facility which can encourage the residents to walk more and maintain physical activity.

2.3.1.2 Circulation and Path Configuration

- The design can offer multiple circulation paths to the users in order to allow them to choose the path they prefer.
- These circulation paths if planned in L, H and square shape with minimum number of directions to take turn in, can allow the residents to better orient themselves spatially.
- Navigation can further be simplified by providing limited number of entry and exit points. Being able to navigate without help from anyone makes people feel in control of their lives and helps boost their self-esteem.

2.3.2 Creating a sense of home

Home is generally conceived as a site of physical, psychological and emotional security and an affirming symbol of self-identity. Cooper-Marcus argues, "A home fulfills many needs: a place of self-expression, a vessel of memories, a refuge from the outside world, a cocoon where we can feel nurtured and let down our guard." (Fay & Owen, 2011)

If there is a **positive relationship between user needs and the environment** then belonging to the place would be maintained and encouraged. The main man-place activities involve addressing needs and delivering functions. Place's physical and operational attributes may influence a degree of belonging to a place. (Khanbabaei, 2016)

Privacy and independence (van der Horst 2004; Hauge and Heggen 2007) are two of the most' fundamental things' to be catered to for the design of any living facility, especially a one involving elderly. **The design of a living unit and the arrangement of these units play a major role in distinguishing an institutional care from a home.**

- Privacy issues are typically focused on providing personal bedrooms and bathrooms, as well as reducing the institution's presumed scale to groups and clusters.
- To incorporate a sense of home in an institutional care facility, it is advisable to avoid massive and bulky buildings having a long, continuous façade and long straight corridors and rather plan in the form of small units with balconies and terraces in clusters.
- The building's design, along with the vocabulary of size and structure, determines whether or not the facility has a more residential and homely appearance as compared to an institutional setting.
- Providing the access to a bedroom from a common area, rather than a direct entry from the corridor can add to the homely environment.

2.3.3 Lighting, Colour and Ventilation

Two major elements of both built and open environment are light and colour, the impact of which influences man's psychological reactions and physiological well-being (Mahnke & Mahnke, 1987).

2.3.3.1 Lighting

Light is one of the fundamental elements of architecture in providing visual comfort and projects a different psychological impact on humans. Studies have reported that natural light has a beneficial effect on people; as a result of which they feel cheerful and happy. (Ghasemabad & Sharifabad, 2016)

The quality of a space, perception of colours and social interaction can be enhanced by providing effective and efficient lighting. This also aids in easier navigation.

2.3.3.2 Colour

Being an after-effect of light energy, colour is also a form of energy that the brain consciously or unconsciously identifies and therefore influences the function of the body and its emotions. Colours play an important role in helping easy navigation.

It is easier for both children and elderly to remember buildings by their colours rather than other features. If used effectively colours along with various textures and patterns can create a 'visual identification system' to ease visual perception and assist people in orienting themselves and navigating easily.

Also, using vibrant colours can induce feelings of life and happiness in the residents, as colours are known to have a profound impact on the psychology of an individual.

2.3.3.3 Ventilation

Studies show that fresh air can have various positive impacts on an individual’s physical and psychological well-being. Thus, it is important to provide for natural ventilation in the building wherever possible. This can be done by introduction of courtyards, proper placement of openings, and carefully orienting the building to take maximum advantage of the prevalent wind direction.

2.3.4 Open and natural environment

Another key element in architecture is the development of environments that foster physical, psychological and emotional wellbeing through the integration of nature's therapeutic properties.

There are not only research studies that support the hypothesis that gardens have therapeutic potential in developing living and outdoor spaces, but there are also a variety of social beliefs which affirm the profound positive impact nature can have on individuals. (Ulrich & Parsons, 1992)

- For suitable planning or design, physical and sensory exposure to open spaces or nature is a prerequisite. When architectural design offers natural light and ventilation and allows open environmental and natural scenery, it is health-effective.
- The interaction of the building and the environment with elements of nature such as water and plant covers creates a positive psychological impact on residents improving friendly relationships and fostering community.
- Based on research, green-covered windows improve the cognitive abilities of children as opposed to waste land. Kids want open space to provide opportunities for their movement and sports, noisy games, various activities, leaping, jumping and running.
- Elderly mostly utilize open spaces for passive recreation like sitting, talking and watching. These open areas should also be fitted with sun-protected furniture, plantations and sheds for protection from weather.

3. SITE STUDY

3.1 SITE LOCATION

The site is located in Lucknow, Uttar Pradesh. It is situated in the northern part of the Indian peninsula. The city is at an elevation of about 123 metres (404 ft) above sea level.Sitthing on the northwestern shore of River Gomti, Lucknow district covers an area of 2,528 square kilometres (976 sq mi). It is surrounded by Barabanki on the east, Unnao on the west, Raebareli on the south and Sitapur and Hardoi in the north.

In its forward-looking vision, the Uttar Pradesh government has proposed building a new township-Chak Ganjaria City, in the Gomti Nagar Extension area, to cater to the growing population of the state capital Lucknow.

Figure 6.Location of Site<Author>

3.1.1 Accessibility

Charbagh Railway Station 13.8 km	Ahmamau Village Bus Stop 4 km	Chaudhary Charan Singh Airport 19.5 km away

3.1.1 Surrounding Context and Land Use

C.G. city is master plan by the Architectural firm Archohm Consultants, Noida. In the southern part of the city, residential zone is planned in which a land for senior living has been proposed. The site being located in a designed city is

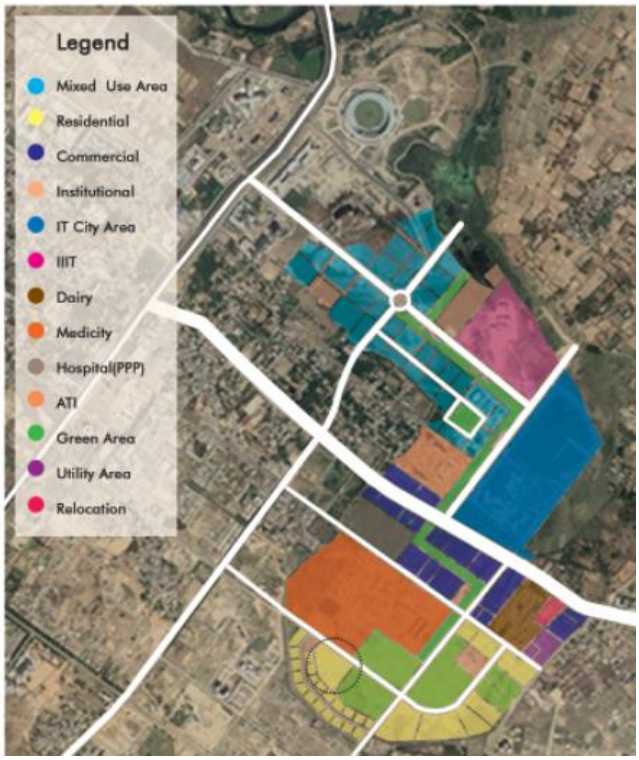


Figure 7. Proposed Master Plan of C.G. City<LDA>

surrounded by all basic necessities and amenities including schools, hospitals, parks, etc. The site is immediately adjacent to a green patch, a nursery school and residential plots. Opposite to the site is the proposed medicity.

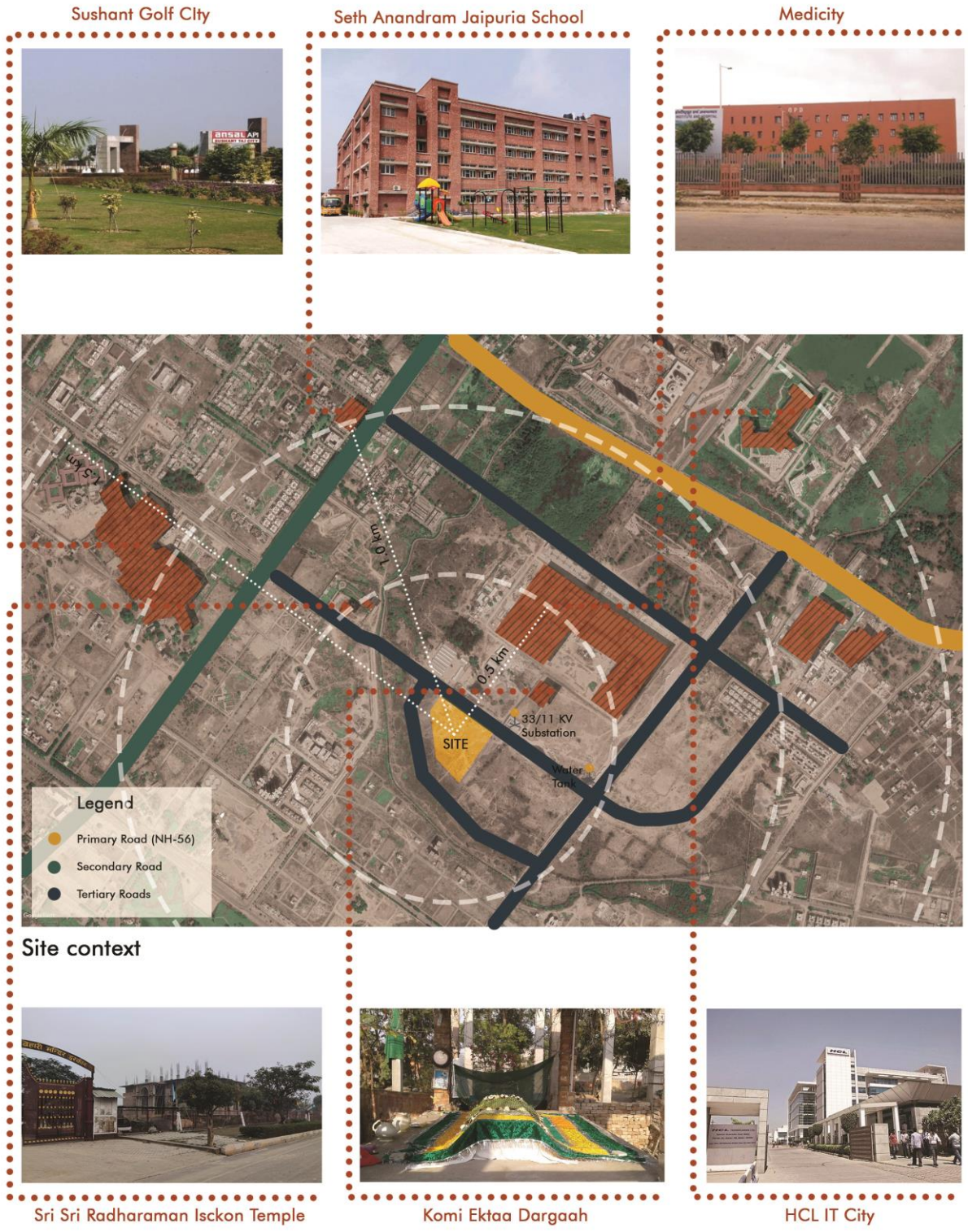


Figure 8. Site Context Map with Images of Surrounding Buildings<Author>

3.2 SITE ORIENTATION, SHAPE, DIMENSIONS

The longest side of the site is approximately 230 m which is along the main access road and is oriented towards north east.

Figure 11. Site Boundary and Dimensions <Author>

Figure 9. Site Photos <Author>

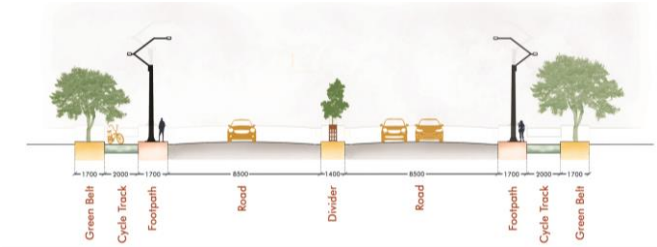


Figure 10. Road Section <Author>

3.3 BUILDING BYELAWS

- Ground Coverage: 35%
- FAR: 1.5
- Maximum Height = 15m
- Setbacks: 5m on all sides for buildings having a height upto 15 m
- 1 sq.m. per person or 15% of the site area, whichever is more should be left as open space.
- Minimum width of staircase= 1.5m

3.4 SITE ANALYSIS

3.4.1 Access and Circulation

The site can be accessed only by one road that runs along the longest side.

There are two possible points of access to the site by considering the breaks in the dividers and movement of traffic.

Figure 12. Site Access<Author>

INFERENCE: Based on the position of the site access points, the site can be divided into public, semi-public and private zones.

NEEDS: Privacy, Security

3.4.2 Soil Type and Water Table

- Sandy soil locally known as Balu which is easily cultivable and absorbs water easily. Vegetables, fruits and flowers etc. can be grown easily.
- The current ground water level is approximately 3m.

Figure 14. Soil on Site<Author>

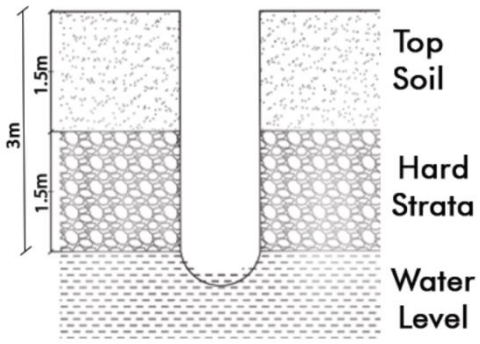


Figure 13. Water Table on Site<Author>

INFERENCE: Raft foundation used for high rise, so strip or pad foundation maybe used for a G+1 structure.

Good for developing green areas, farming and gardening.

Ground water can easily be utilised through bore wells.

NEEDS: Mental Health, Independence and Control

3.4.3 Vegetation

Currently the site has only a light vegetation cover of wild grass with a green patch proposed directly adjacent to the site.

INFERENCE:

- Need for development of green areas in the site.
- The proposed adjacent green patch might help to regulate the microclimate during the summers.

NEEDS: Social Interaction, Mental and Physical Health, Sadness and Loneliness, Privacy

Figure 15. Local Vegetation Around Site<Google Images>

3.4.4 Noise

- The main road abutting the site can be a source of noise due to traffic.
- On site areas such as amphitheatre, etc. can also be a source of noise.

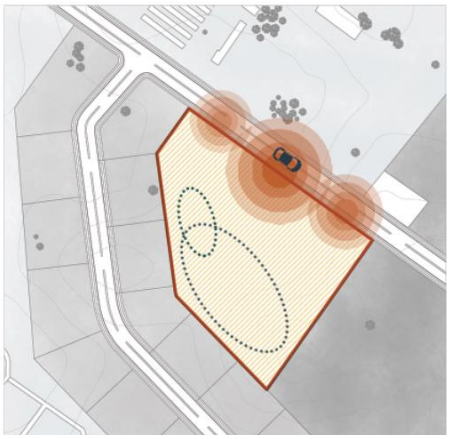


Figure 16. Noise on Site<Author>

INFERENCE: The residential units for the elderly, and other functions such as meditation hall, library, etc. can be planned away from these areas to prevent disturbance due to noise.

NEEDS: Mental Health, Privacy

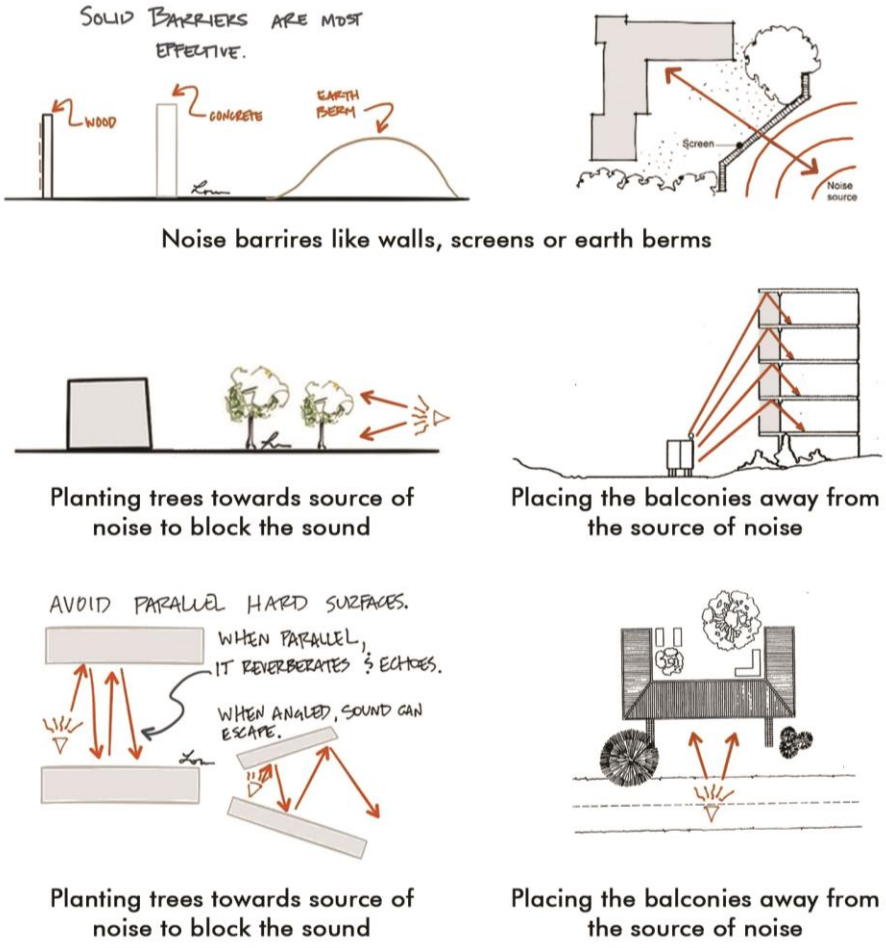


Figure 17. Methods to Reduce Noise on Site<Google>

3.4.5 Topography

- The site is nearly flat with a gentle slope along the North-West direction.
- The maximum slope percentage lies between 1- 5%.

INFERENCE:

- The entire site is suitable for construction.
- All the functions can be placed anywhere on the site when considering the topographical context.

NEEDS: Physical Health, Safety

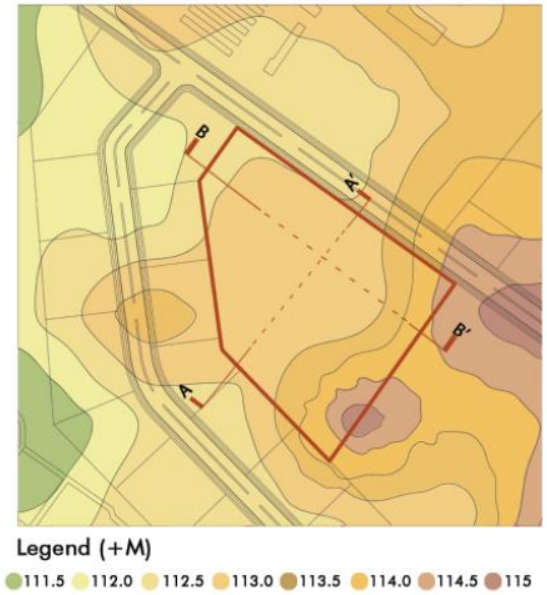


Figure 19. contour Intervals on Site<Author>

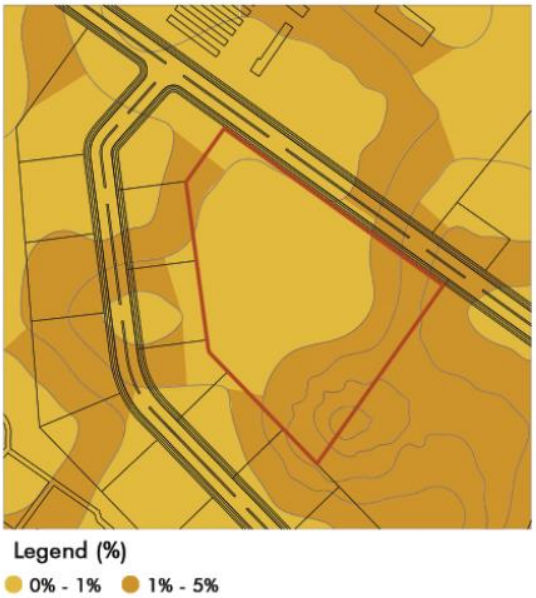


Figure 18. Slope Percentage Map<Author>

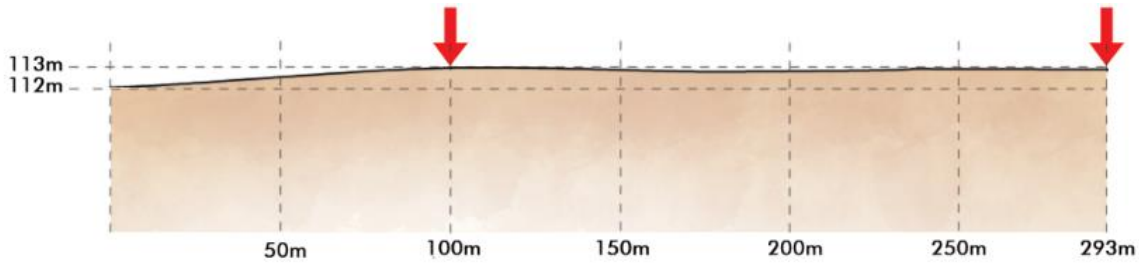


Figure 20. Site section A-A'<Author>

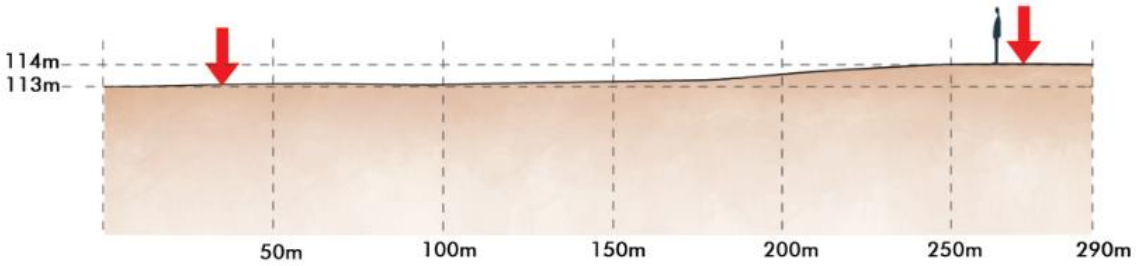


Figure 21. Site Section B-B'<Author>

3.4.6 Hydrology

Due to the existing slope, all the water from the site flows towards the North West.

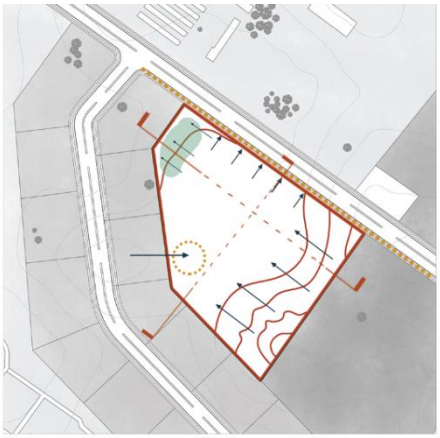


Figure 22. Hydrology Map<Author>

INFERENCE:

- The water from the site can easily be drained out to the municipal drains and manholes.
- The entire area from the centre of the site moving North West can be used to catch water and create ponds, lakes, etc.

Average annual Rainfall in Lucknow is about 900mm. Monsoon starts from mid-June and ends in September.

The rain water can be harvested on site and used for filling water bodies.

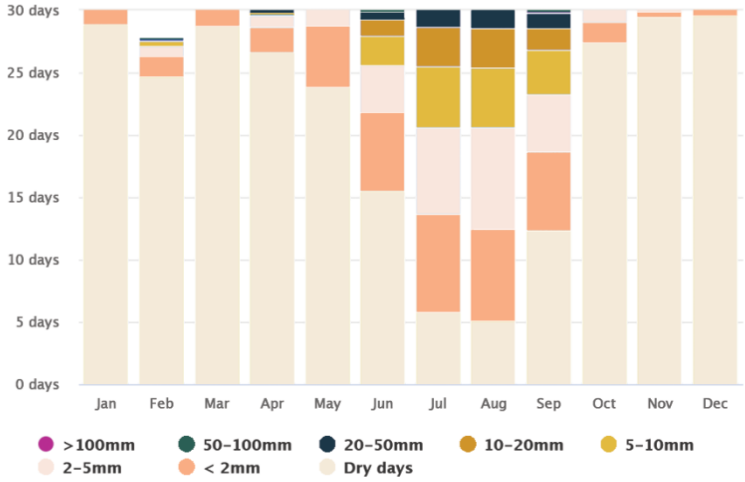


Figure 23. Precipitation Chart of Lucknow <Meteoblue>

3.4.7 Views

Green belt is proposed in front of the site and also adjacent to it. It can provide for views.

INFERENCE:

- There are no options for views except for the proposed green area. Thus, various elements need to be added in the design which provide views to the residents.
- Views of the adjoining park can also be provided.

NEEDS: Social Interaction, Sadness and Loneliness, Mental Health

Figure 24. Views on Site<Author>

3.4.8 Site Services and Infrastructure

- Electrical

  There is 33KV substation located - km from the site, nearby the cancer hospital.
- Water Supply

  The water supply can be fed from an overhead water tank located - kms from the site.
- Sewage and Drainage

  There are municipal drains running along the periphery of site.

  Manholes present towards the back end of residential plots.

INFERENCE:

- A step down transformer needs to be accommodated on site.
- OHT can be provided on the higher end of the site to store water.

Figure 25. Site Services and Infrastructure<Author>

3.4.9 Climatic Analysis

3.4.9.1 Solar Analysis

Lucknow has a mild temperate climate (CWA) with cold, dry winters from mid-November to February and warm, hot, sunny summers from March to mid-June. During winter the temperature ranges between 8 °C - 25 ° C in the month of January. The hot season lasts from April to mid-June, with most days temperature rising over 40 ° C.

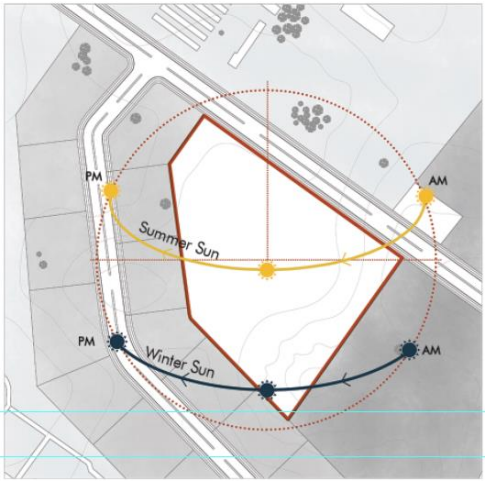


Figure 26. Sun Path in Lucknow<Author>

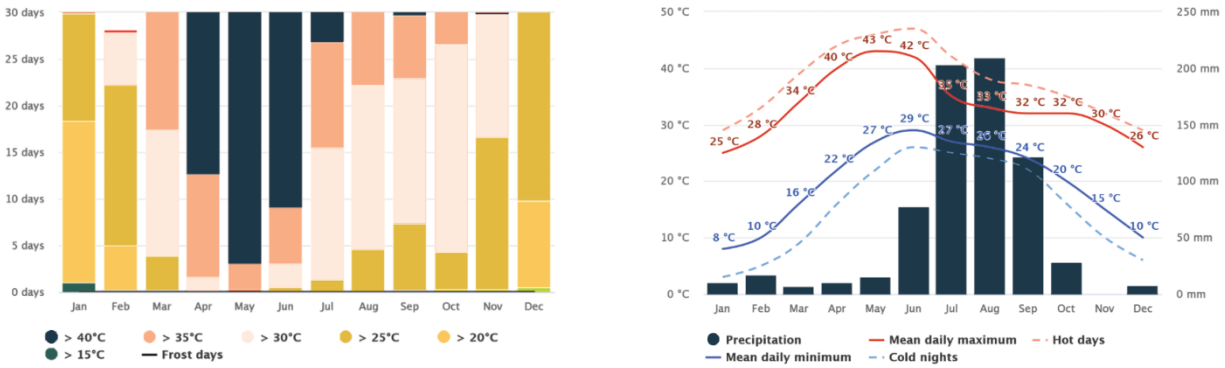


Figure 27. temperature Graphs of Lucknow <Meteoblue>

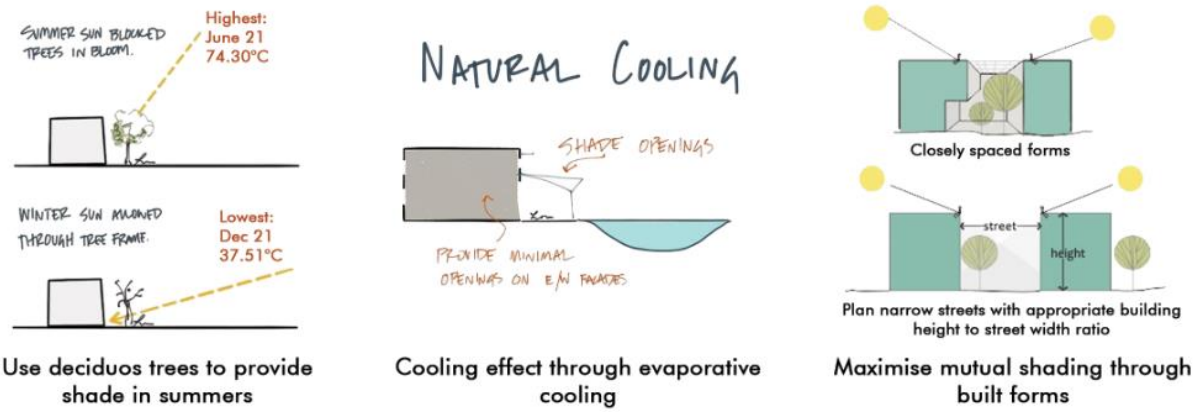


Figure 28. Design Strategies to Tackle Sun

3.4.9.2 Wind Analysis

In Lucknow, the typical hourly wind speed exhibits major seasonal variability across the course of the year. The windier portion of the year continues for 7.8 months, with average wind speeds of more than 6.2 miles an hour, from January 21 to September 14. The calmer time of year lasts for 4.2 months, with the lowest average hourly wind speed of 4.4 miles per hour from September 14 to January 21.

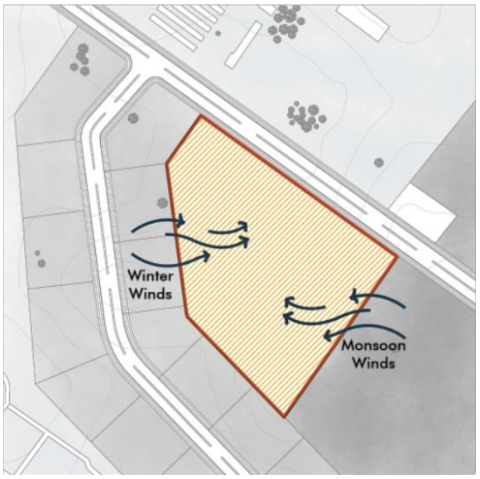


Figure 29. Wind Direction in Lucknow <Author>

The wind rose diagram for Lucknow shows that wind is predominantly from the east and west directions. Monsoon winds flow from east and north east and the winter winds from west and North West.

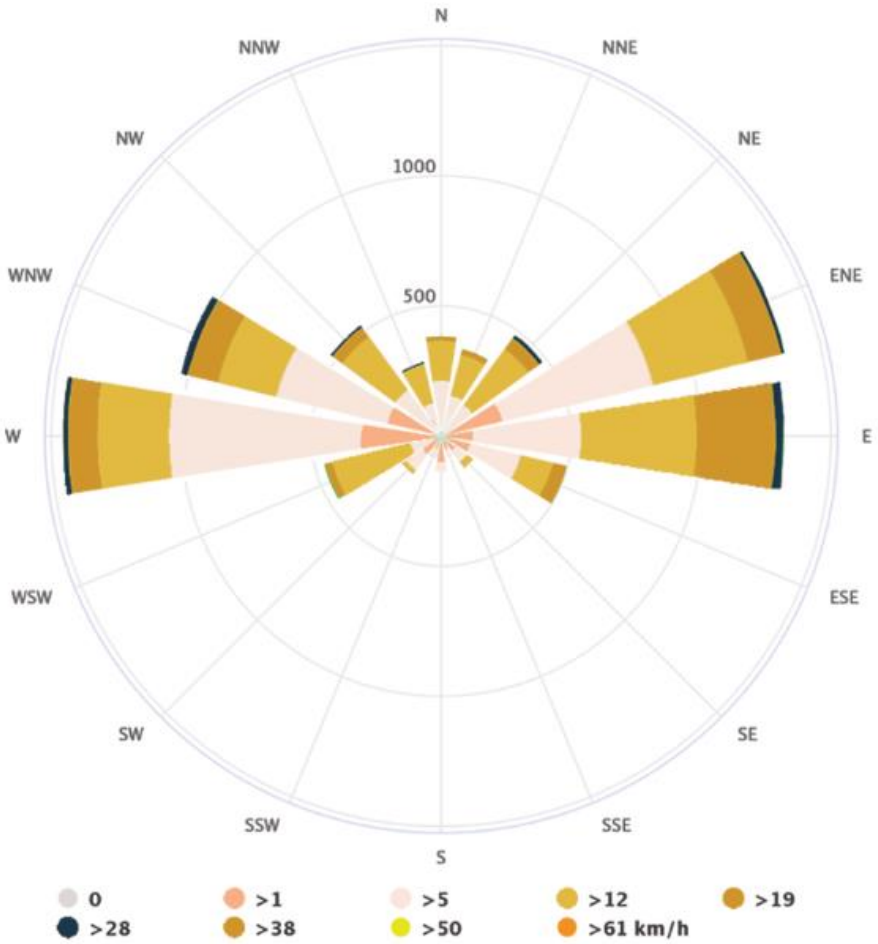


Figure 30. Wind Rose Diagram of Lucknow <Meteoblue>

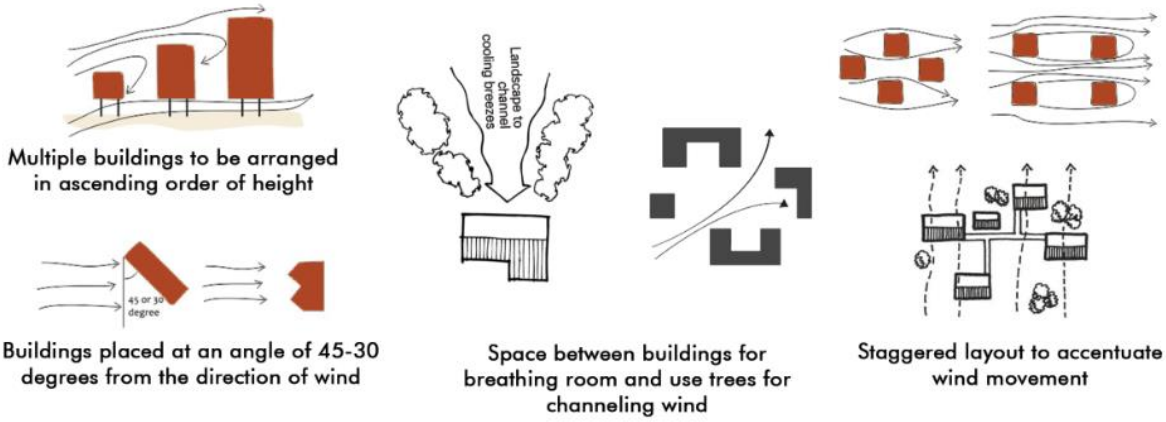


Figure 31. Design Strategies to Channelise Wind on Site <Google>

4. CASE STUDIES

4.1 LITERATURE CASE STUDIES

4.1.1 Tsukaguchi Senior Housing Community, Osaka, Japan

This senior living facility allows senior citizens to reside in a lush mountain-side community in Osaka, Japan, and aims to create a mixed-use environment that goes beyond the stereotypical typology of institutionalized old-age housing.

It is situated on a site within a suburban area and is in near proximity to a hospital with condominium building on either sides with small-scale houses and a proposed public park on the remaining two sides, highlighting the need to incorporate the elderly into the broader community. The adjacent public park offers residents the opportunity to enjoy and interact with the public in an active environment.

OBJECTIVE: The Purpose of this case study is to understand the types of activities that can be incorporated to integrate general public with the residents, and how it can be done.
It can also help to understand how nature can be incorporated into design to take advantage of its healing effect.

Multiple open spaces having a different character and essence are designed, offering various opportunities for interaction and peace.
A calm and cool colour palette is used in all areas.

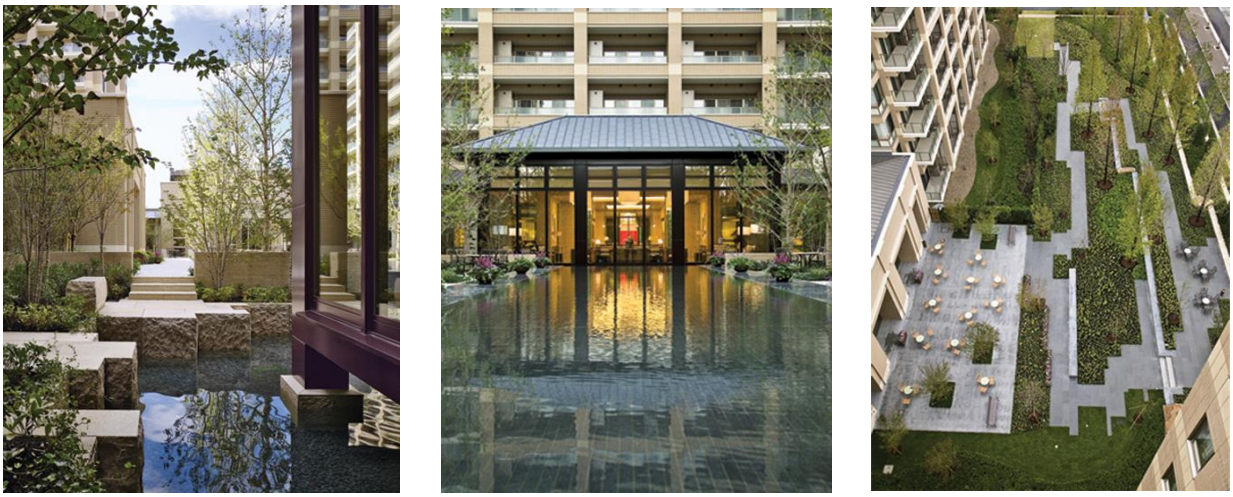


Figure 32. Features Used to Incorporate Nature into the Design<BAR Architects>

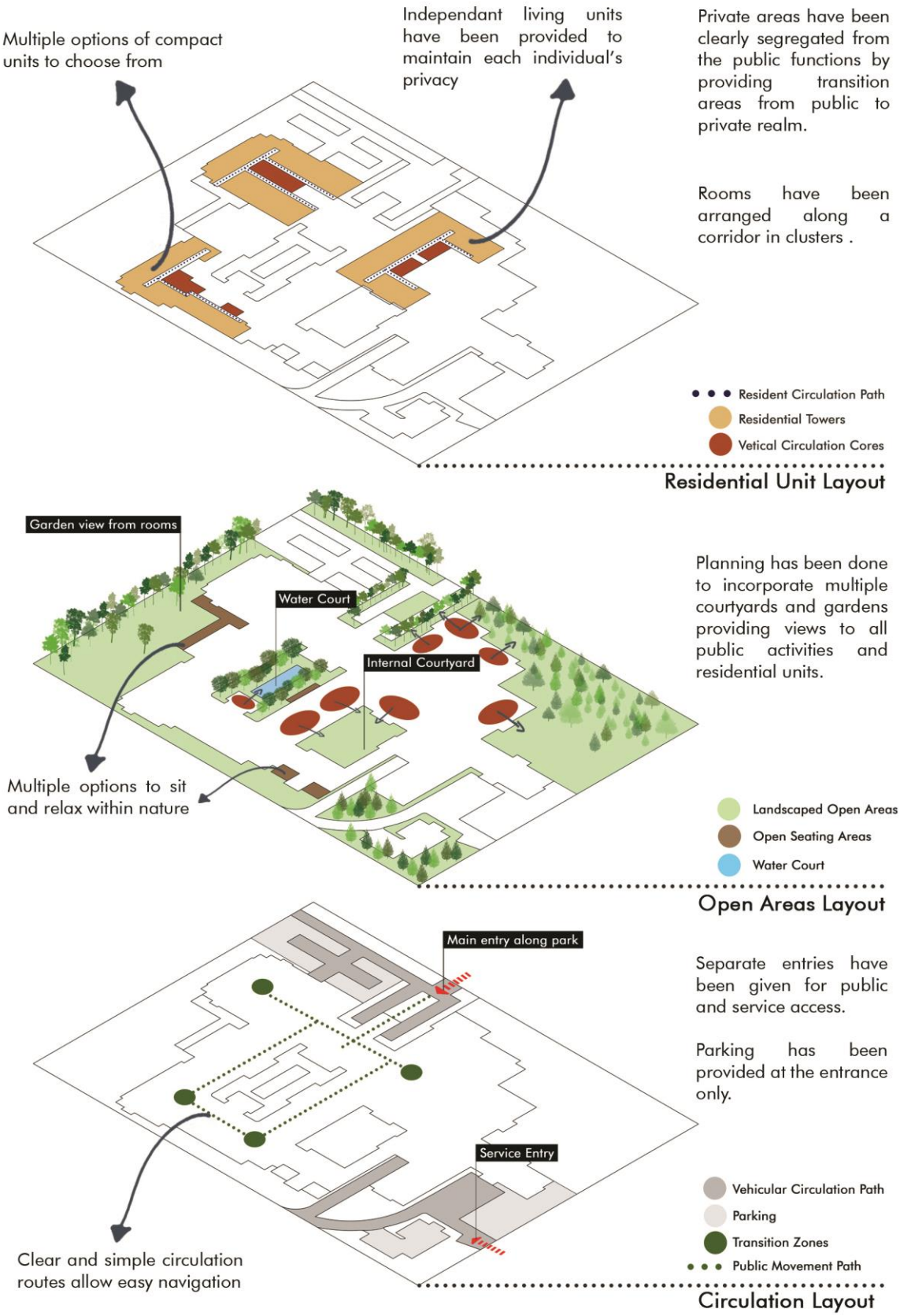


Figure 33. Axonometric View of Circulation, Open Areas and Residential Units <Author>

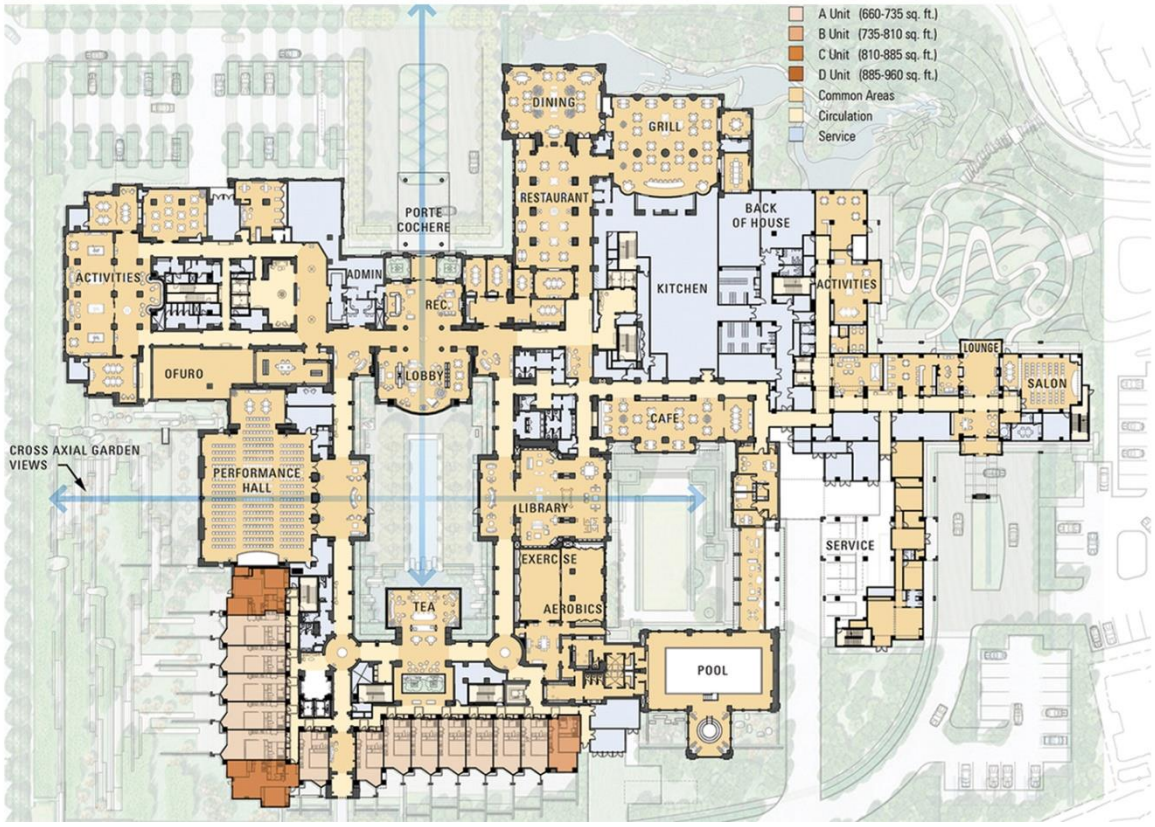


Figure 34. Ground Floor Plan <BAR Architects>

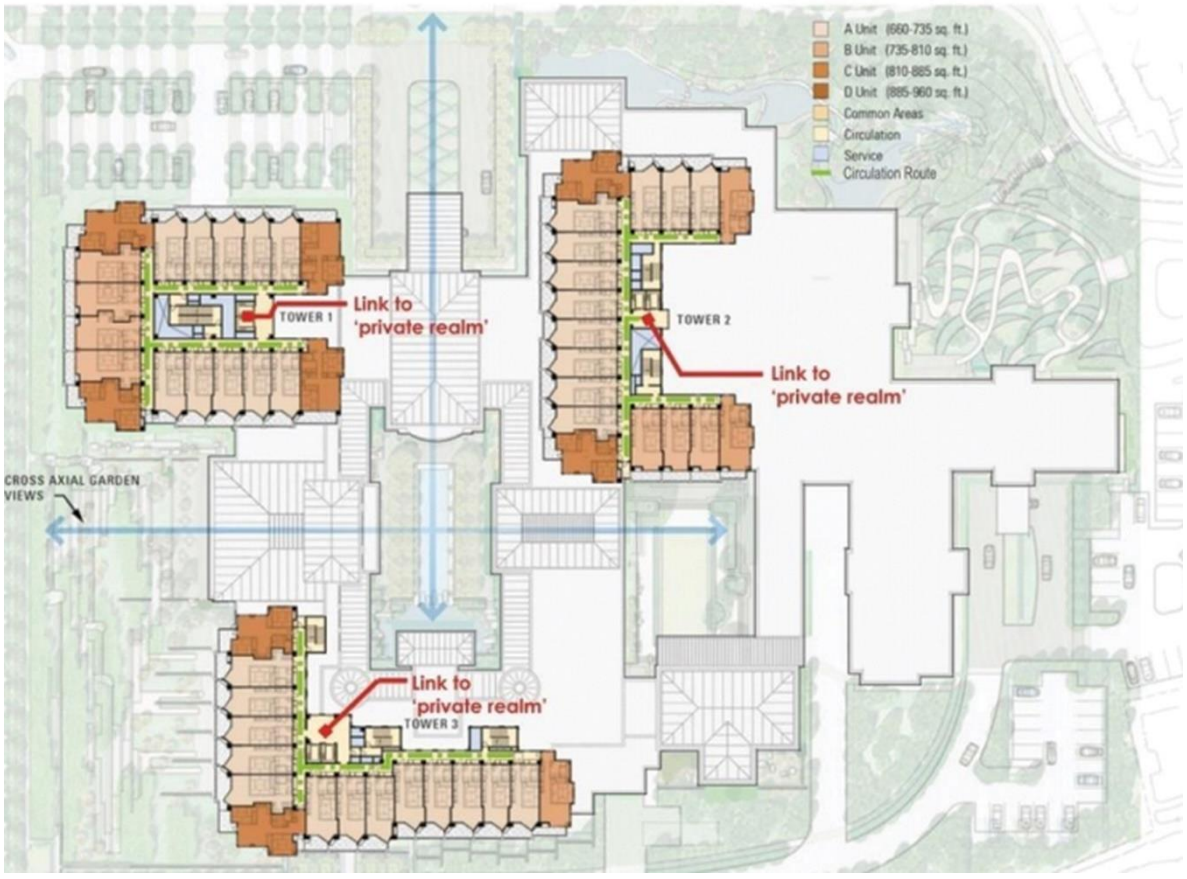


Figure 35. First Floor Plan <BAR Architects>

Figure 36. View of Tsukaguchi Senior Housing Community <BAR Architects>

Key Takeaways

- Multiple open spaces offering a variety of areas for interaction.
- Use of Cool colours for a soothing effect.
- Planning of activities with views of green areas and water features.

4.1.2 Municipal Orphanage, Amsterdam

The design tries to achieve a balance by creating an environment of a home as well as a small city, on the suburbs of Amsterdam City. This orphanage provides accommodation to 125 children between the age groups of 0-20**.**

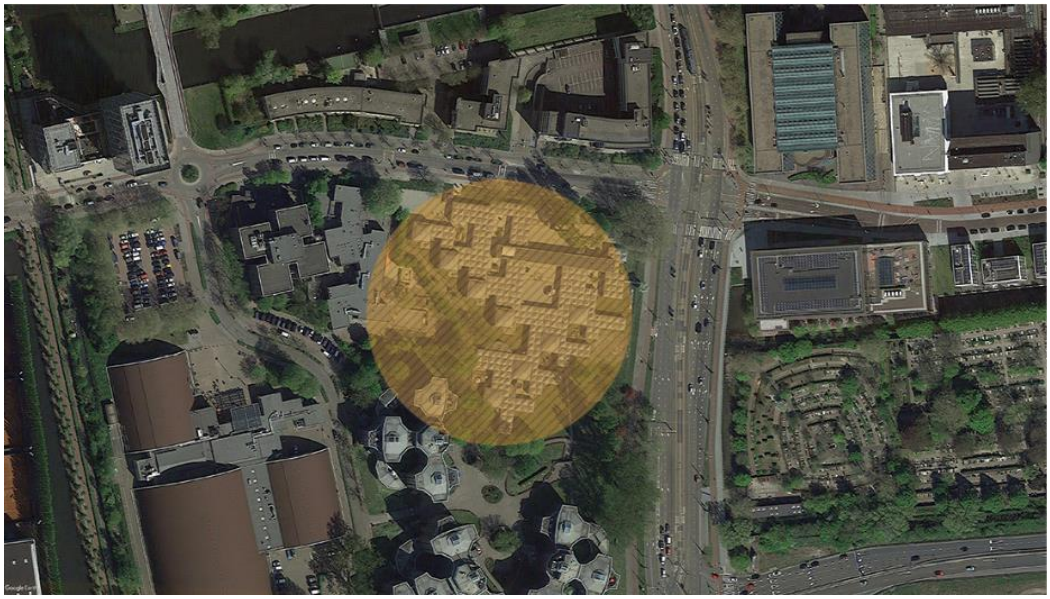


Figure 37. Location and Context Map <Google Earth>

OBJECTIVE: This case study is done to understand the overall planning of an orphanage including the types of spaces and their layouts, creating a balance between built and open environment and providing proper lighting and ventilation.

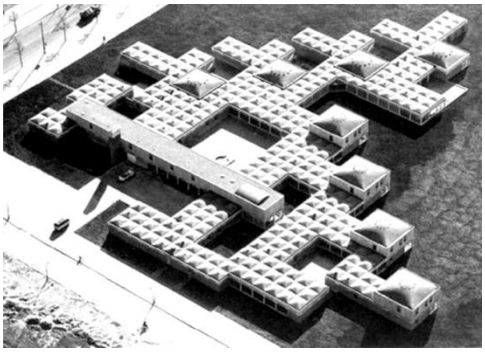


Figure 38. View of Municipal Orphanage, Amsterdam <Archdaily>

Program units, within the orphanage are planned on an orthogonal grid and are connected to two diagonal paths in order to provide multiple exterior façades for each unit.

Each unit within the grid is provided with its own outdoor area. The design comprises two modules sizes, the smaller size used for the residential units, and the larger one dedicated to community spaces.

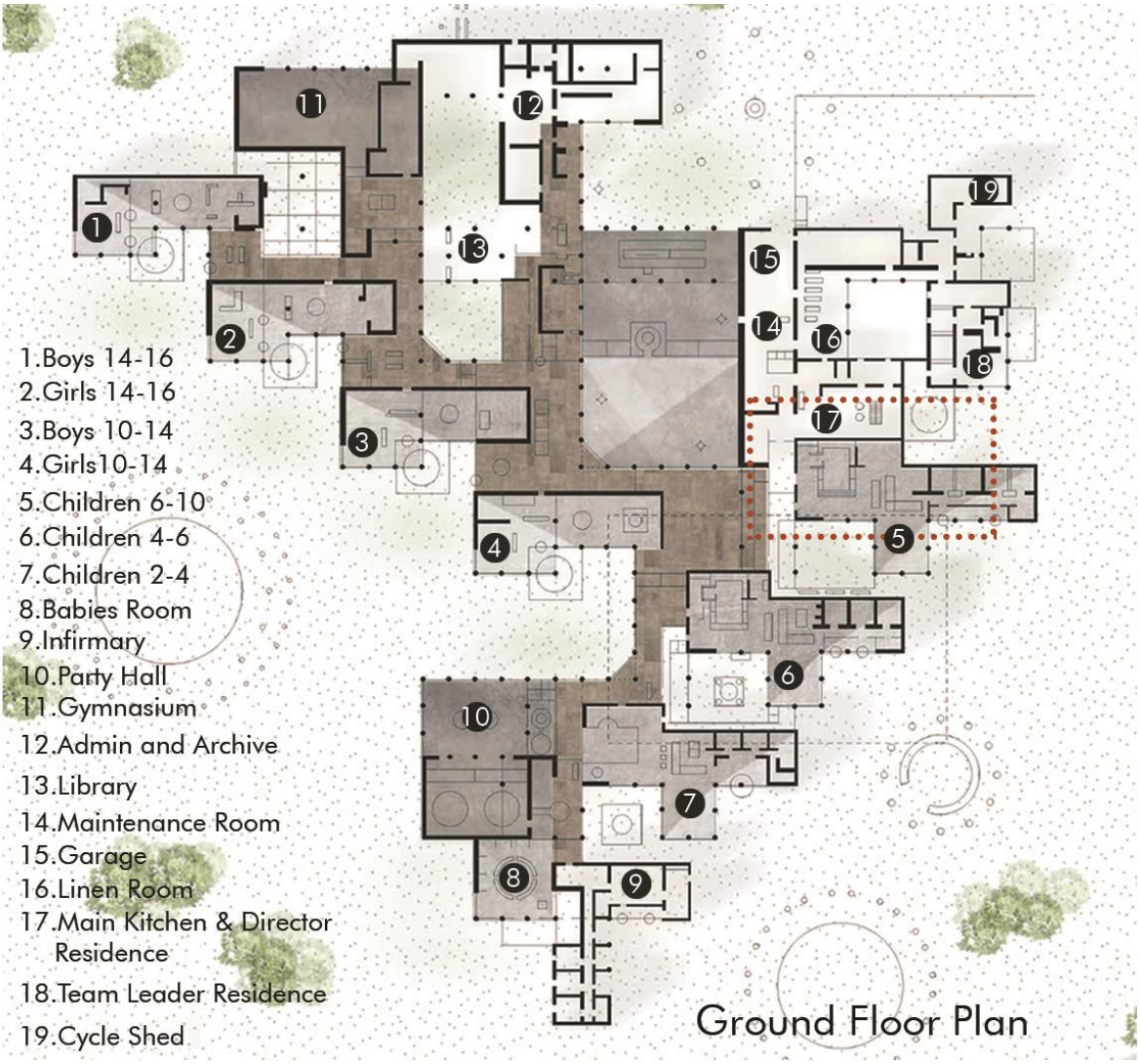


Figure 40. Ground Floor Plan <Architzer>

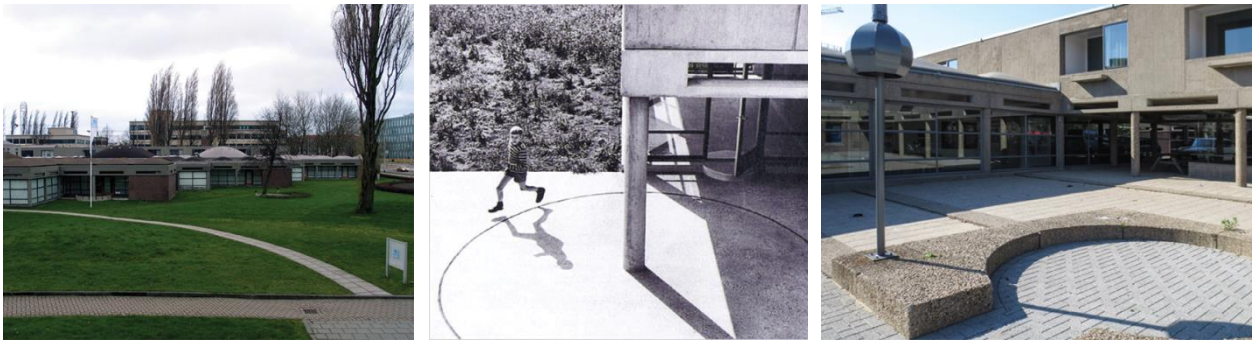


Figure 39. Views of Open Areas for Kids <Archdaily>

These seamless interactions between all rooms prevent establishing a central point within the orphanage.

All transitional spaces are articulated with defining views or moments allowing individuals to see the destination ahead of them as well as the place from which they came; at the same time not making any one location seem more important than the other.

Circulation and interaction is encouraged between different dormitories of different age groups inviting children to mix and enjoy each other's company.

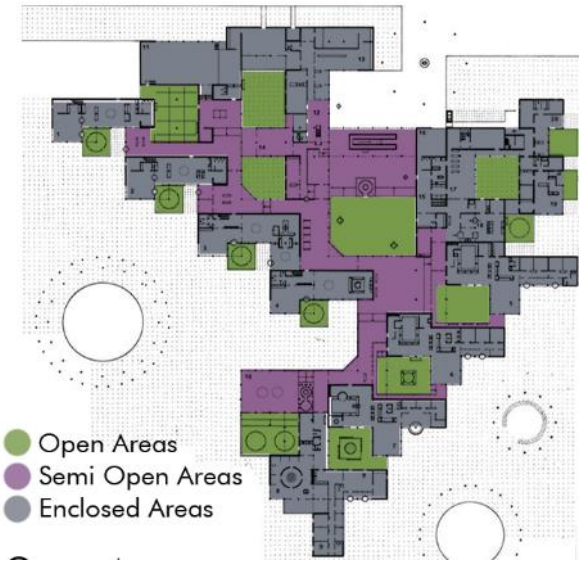


Figure 41. Open Area Plan, Amsterdam Orphanage <Author>

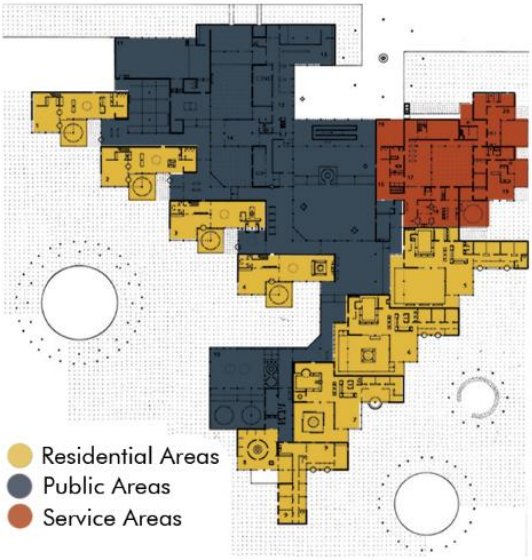


Figure 42. Site Level Zoning <Author>

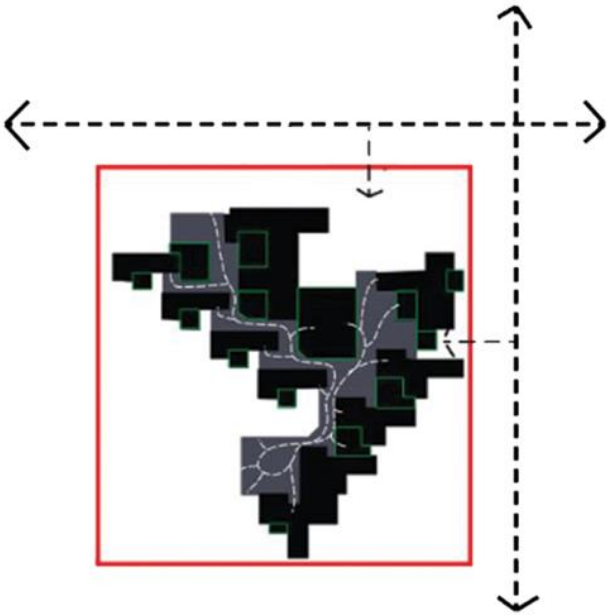


Figure 43.Site Circulation <Author>

The relationship between a child and spaces are shown as the design of units change based on the age group of a child.

The unit modules contain four circular columns at the corners with a pre-cast concrete domed roof on top. The floor is concrete too. The building's other facades are either a glass curtain, or a dark brown brick wall.

Figure 45. Unit Plan for Children 6-10 yrs Old <Architzer>

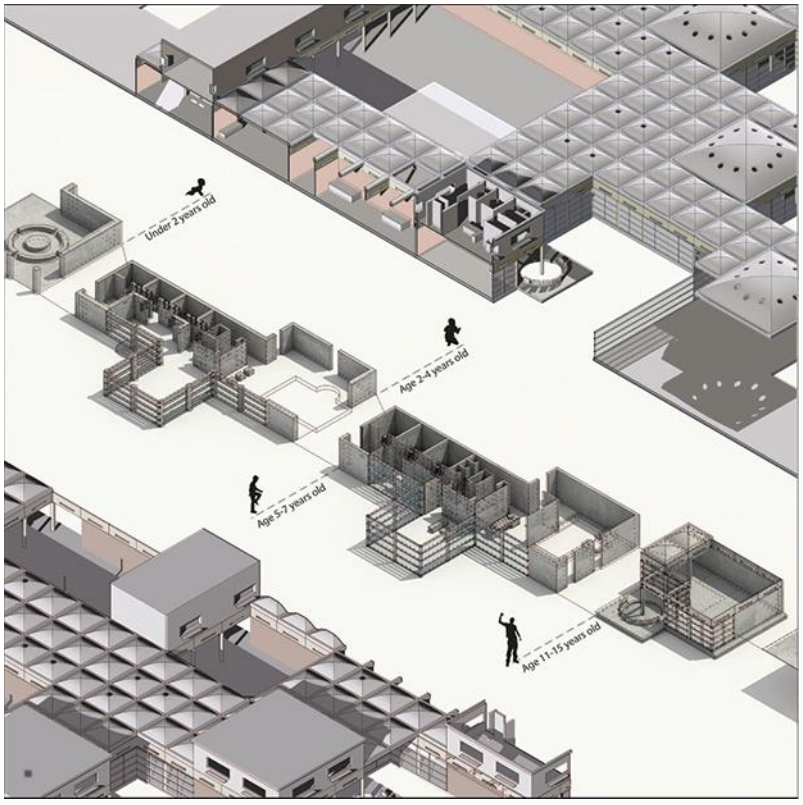


Figure 44. Age- Specific Unit Design <Architzer>

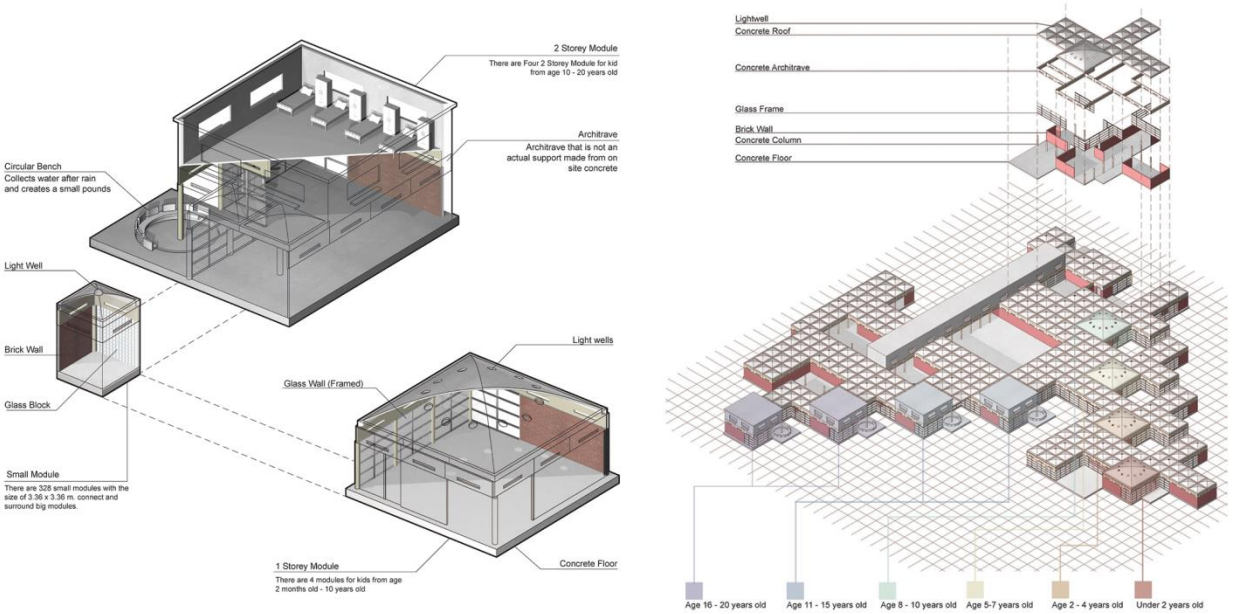


Figure 46. Material and Construction Details <Architzer>

The main corridors are enclosed by glass walls which provide beautiful views of the multiple courtyards while walking, and also allow the entry of natural light throughout the orphanage.

Courtyards acting as light traps, light wells provided in the domes, and clerestory windows allow proper natural lighting of all the spaces.

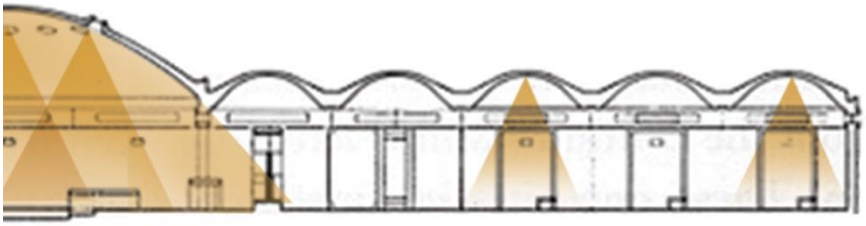


Figure 49. Section Depicting Light Entering Through Skylights

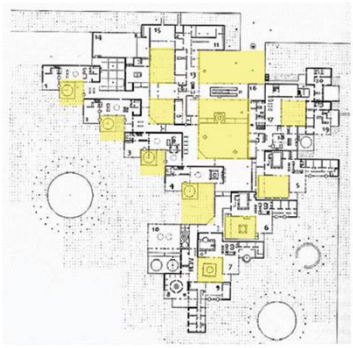


Figure 48. Courtyards to Trap Light <Author>

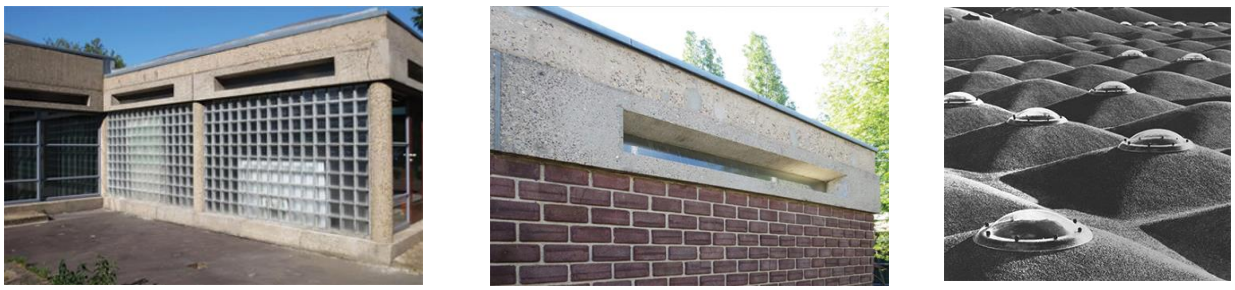


Figure 47. Clerestorey Windows, Glass Bricks and Skylights to Allow Natural Lighting<Archdaily>

Amsterdam has a Cfb climate which is characterised by cold winters and warm and comfortable summers with the highest temperature reaching 22 deg celcius.

To gain maximum advantage of the southern sun, all the walls towards south have been constructed using glass bricks which allow ample of southern sun to enter the building, while also maintaining the privacy.

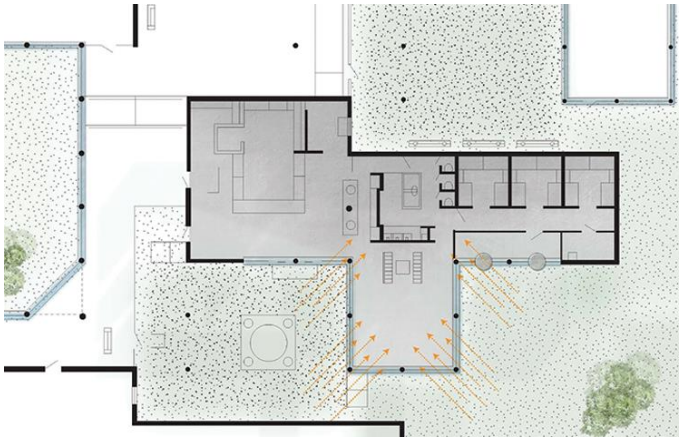


Figure 51. Use of Glass Brick Walls on Southern Facade to Allow Natural Light <Architzer>

Figure 50. Staggered Arrangement of Units to Allow Sun <Author>

Key Takeaways

- Break form into smaller blocks.
- Provide multiple open spaces with different levels of privacy and character.
- Circulation to encourage interaction and mixing of age groups.
- Design living units in accordance to the needs of different age groups.
- Use of courtyards in planning to allow proper lighting and ventilation of spaces.
- Use of materials like glass bricks that permit light without hindering privacy.
- Use of clerestory windows and light wells.

4.2 LIVE CASE STUDIES

4.2.1 Ashiana Utsav Senior Living, Ashiana Village, Bhiwadi, Rajasthan

Ashiana Utsav Senior living in Bhiwadi is a part of the Ashiana Village Complex Which also has comfort homes and villas, along with a mall other facilities.

This senior Living has been designed keeping in mind the challenges presented by aging. It is designed to have all the comforts of a home with additional functions suiting to the needs of the older population.

Site Area	Built-Up Area	Ground Coverage	No. of Units
15 acres	75,500 sqm.	15,500 sqm. approx.	600

Figure 52. Site Location and Context <Google Earth>

OBJECTIVE: The objective of this case study is to understand how activities and open spaces can be designed to meet the needs of the elderly. The main focus would be on the types of activities provided and the planning of open landscaped areas and also planning at site level.

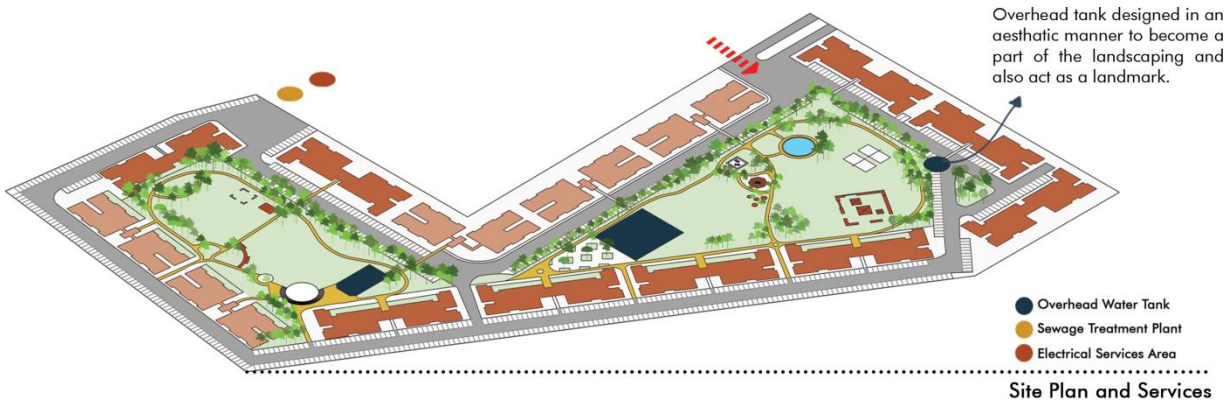


Figure 53. Site Plan with Services <Author>

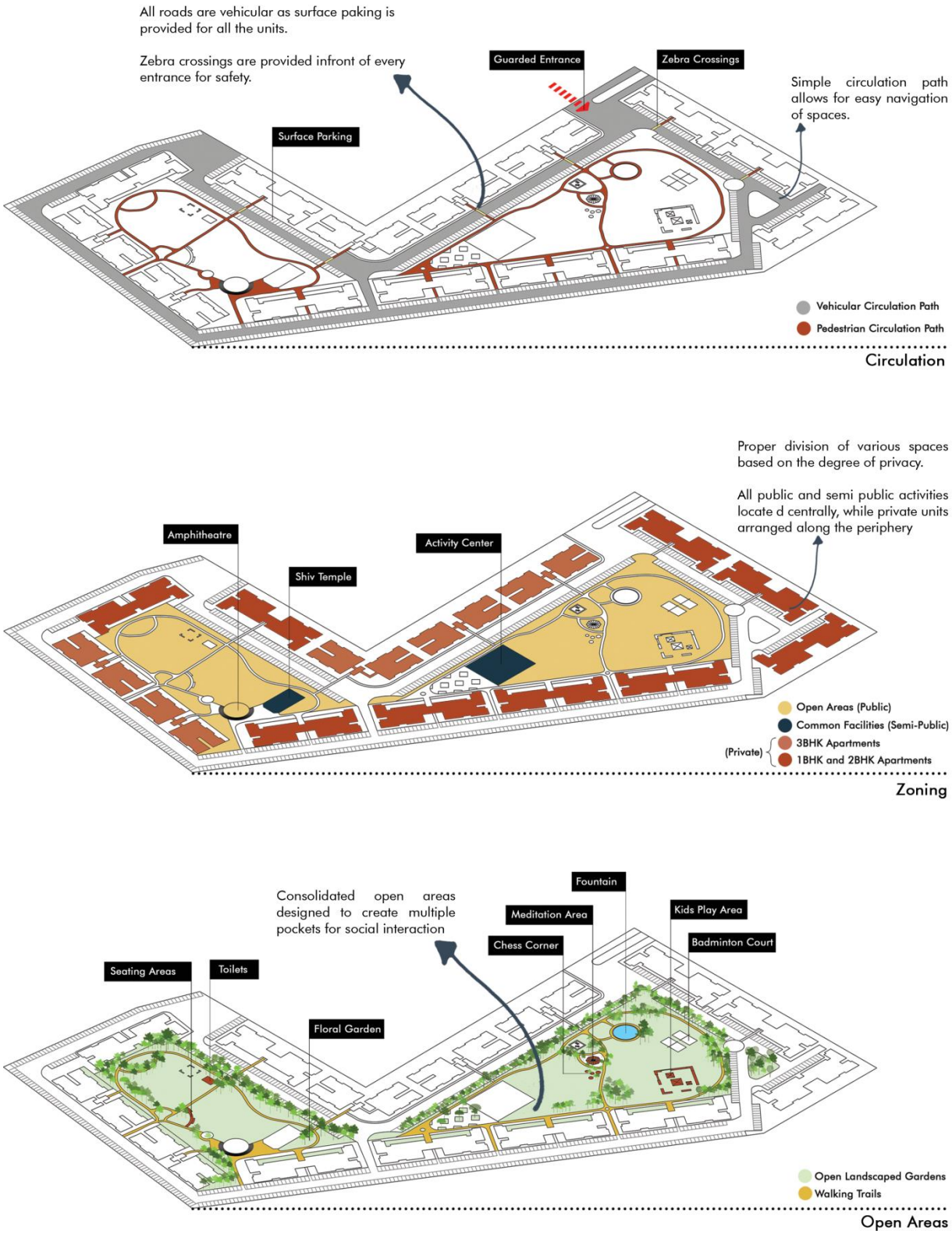


Figure 54. Axonometric View of Circulation, Zoning and Open Area Distribution <Author>

4.2.1.1 Open Areas

- Well-designed open parks with multiple walking tracks that promote the physical health of elderly.

- Small activities like chess boards, meditation area, kids play ground, etc. planned along walking tracks which promote interaction between residents.
- Multiple small pockets within large open areas for interaction, along with secluded areas for sitting in quiet.
- Kids play area in the campus promotes intergenerational bonding.

Figure 55. Various Activities Incorporated in the design of Open Areas <Author>

4.2.1.2 Activity Centre

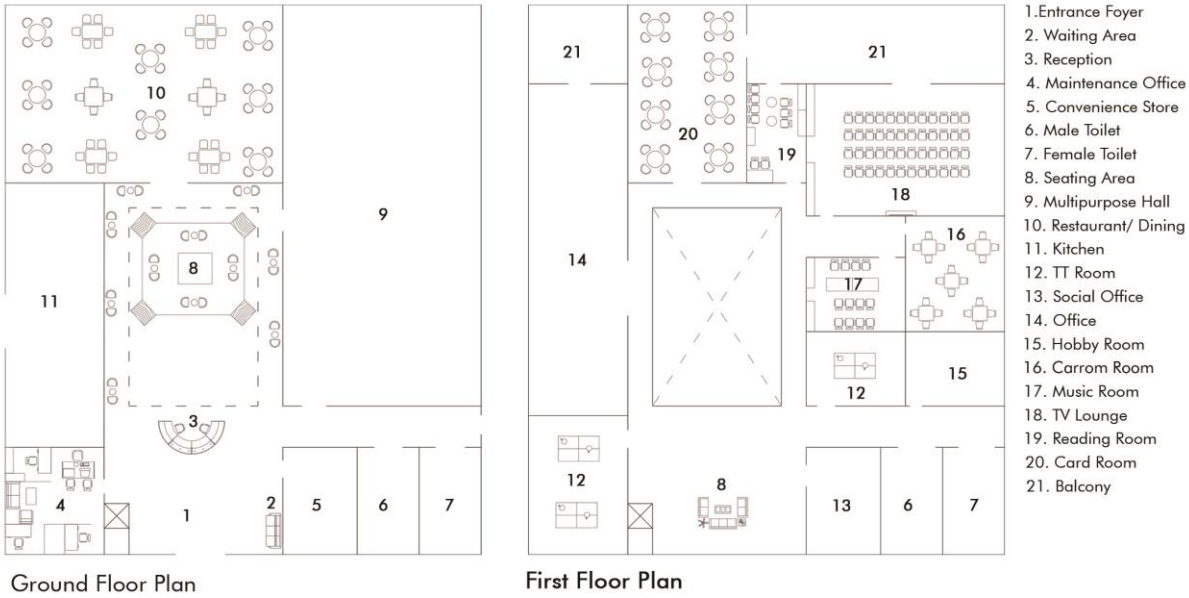


Figure 56. Floor Plans o Activity Centre <Author>

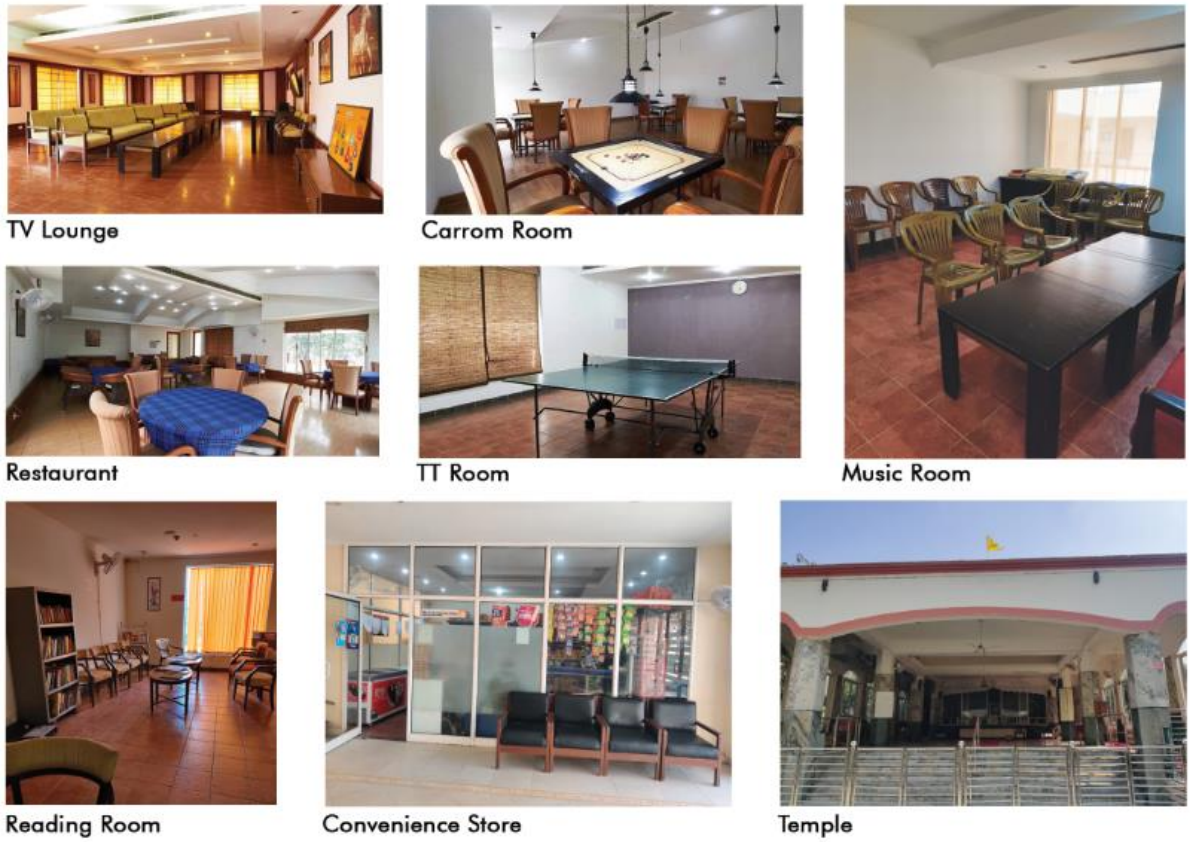


Figure 57. Pictures of Various Activity Rooms in the Acivity Center <Author>

- The Activity Centre offers multiple activities to engae the elderly, without causing much physical exertion.
- Apart from recreational activities, provision of a temple has been made for various religious activities.

4.2.1.3 Unit Plans

Figure 58. 1 BHK Unit Plan <Ashiana Builders>

1BHK Unit
Built Up Area- 80 m2
No of units - 70
No. of units occupied- 67

2 BHK Unit
Built Up Area- 105 m2
No of units - 300
No. of units occupied- 215

Figure 59. 2 BHK Unit Plan <Ashiana Builders>

3 BHK Unit
Built Up Area- 140m2
No of units - 230
No. of units occupied- 129

Figure 60. 3 BHK Unit Plan <Ashiana Builders>

Design considerations for elderly

- Anti-skid Flooring
- Chamfered wall corners
- Ramps
- Open lifts with collapsible doors
- Emergency buttons in rooms
- Arthritis friendly bathroom fittings
- Grab rails in washrooms and corridors
- All dimensions considering wheelchairs
- Benches at regular intervals
- Soothing and light colours.
- Gas Leak detectors in rooms

Key Takeaways

Within large open spaces, provide small pockets for seating and integrate various other activities in the design of open spaces to encourage people to use these areas.

Plan circulation paths and walking tracks along seating spaces to promote interaction.

4.2.2 Ayudham Society for Old and Infirm, Najafgarh, Delhi

The senior citizen home provided by Ayudham society is located in pollution free, eco-friendly green environment in the village Rewla Khanpur, near Najafgarh in Delhi.

The facility along with providing shelter to elderly also runs a program by the name of “Aastha”, wherein children from different age groups belonging to the nearby villages come to study and also to gain some vocational skills.

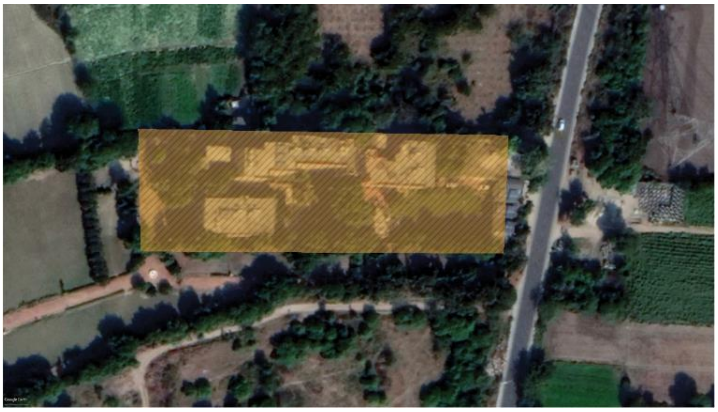


Figure 62. Site Context and Location <Google Earth>

OBJECTIVE: This case study is conducted to understand the type of residential units that are provided in old age homes, and also to study how the kids in the Aastha program interact with the elderly residents.

Site Area: 1acre | Built up Area:1500 m2 | Occupancy: 60

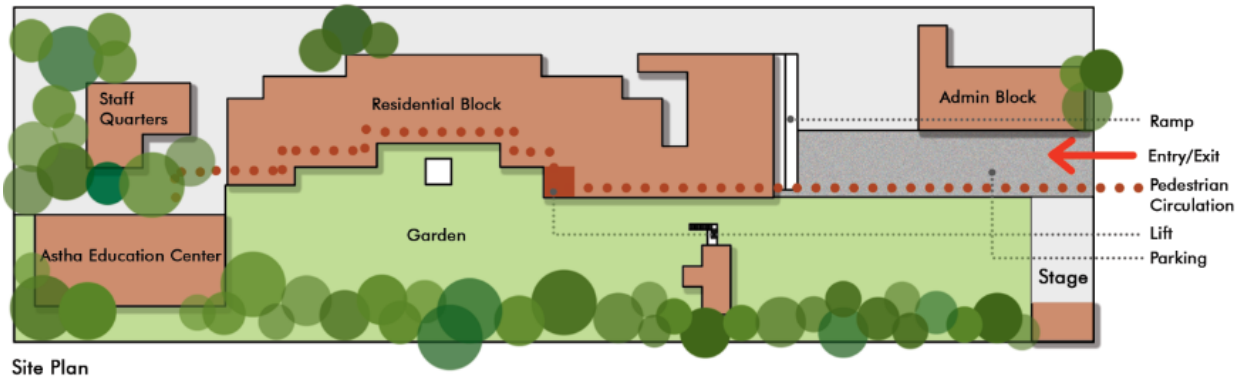
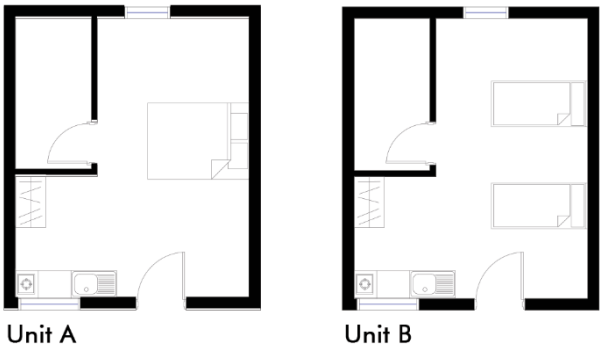


Figure 61. Site Plan <Author>

4.2.2.1 Unit Plans



The residential units A and B are same, apart from the fact that one is on twin sharing basis and one is an independent private unit.

These units are for the destitute elderly who have very limited, or no means to support them financially.

Figure 63. Unpaid Unit Plan <Author>

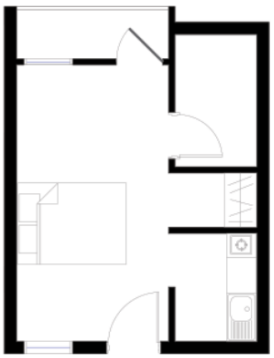


Figure 64. Paid Unit Plan <Author>

This residential unit is for elderly who can pay some amount for living in the facility. These units have a separate kitchenette and also a back verandah.

Figure 65. Residential Units

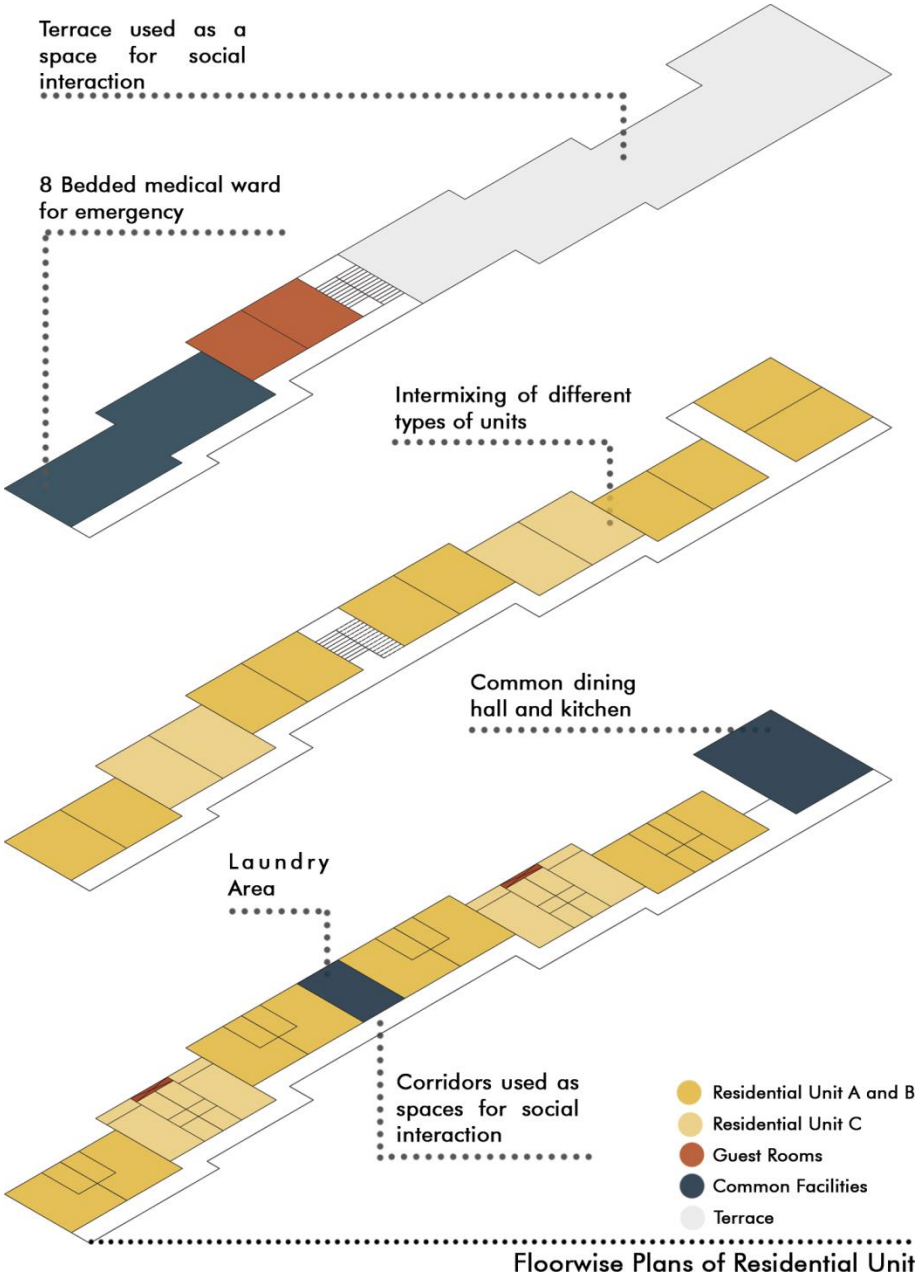


Figure 66. Vertical Zoning and Arrangement of Units <Author>

4.2.2.1 Administration Block

The Administration Block is located right at the entrance which provides surveillance for the safety of the residents.

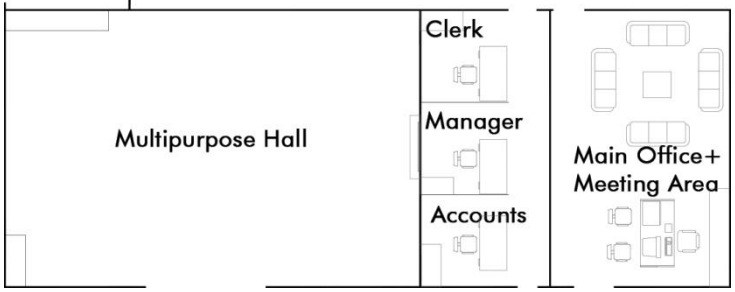


Figure 67. Plan of Admin Block <Author>

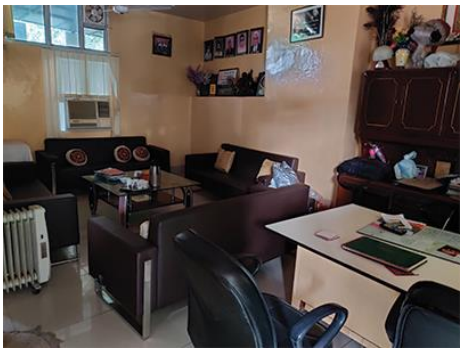


Figure 69. Main office and Meeting Room <Author>

The multipurpose hall is used as a TV lounge, gathering space during events, and also has provision of a small library for the residents. This is the only space for community activities in the entire campus.

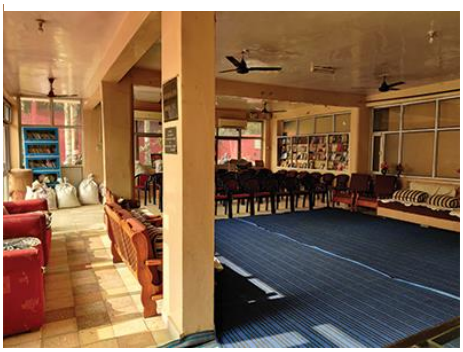


Figure 68. Multipurpose Hall <Author>

4.2.2.2 Aastha education Centre

The school building for Aastha program is located at the farther end of the site. Due to this, the children have to walk through the residential block of the elderly to reach the building. This provides a chance of interaction between the two generations and also allows the surveillance of children by the elderly.

No provision of lifts or ramps, thus it is difficult for the elderly to access the school building, which hinders an opportunity of interaction.

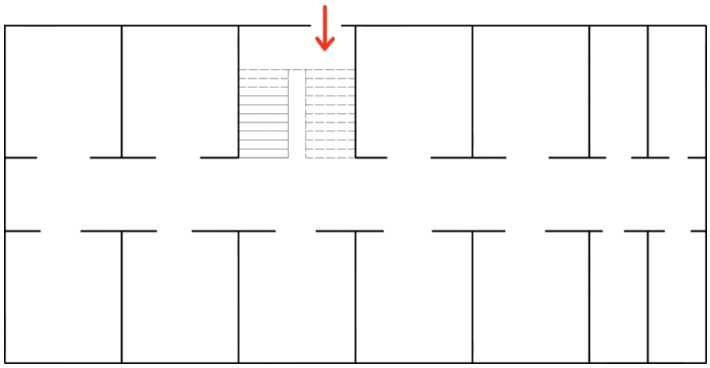


Figure 70. Plan of Aastha Education Centre <Author>

Figure 71. Aastha Education Centre <Author>

4.2.2.3 Guest House and Physiotherapy

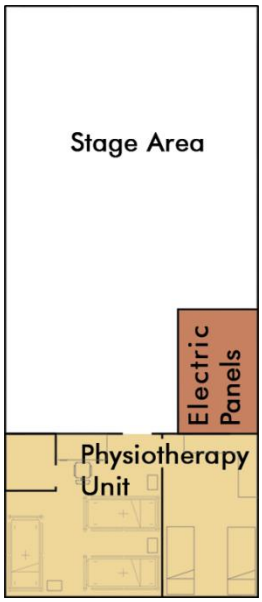


Figure 72. Physiotherapy Plan <Author>

At the entrance of the site, there is a stage facing the open area, to bev used in case of school events.

When not in use, the area doubles up as a parking space for visitors.

The physiotherapy room is placed along the stage, which is not a very appropriate location for it.

The guest house provides two bedrooms with attached toilet and a common kitchen.

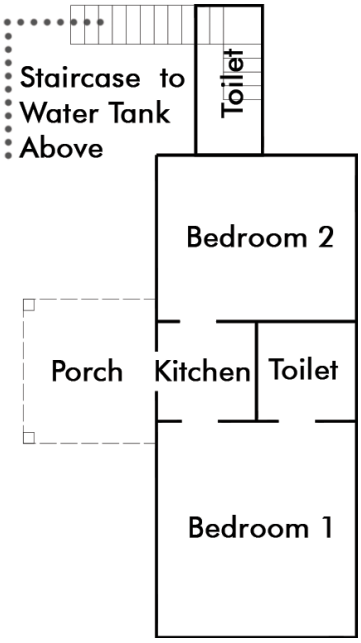


Figure 73. Guest House Plan <Author>

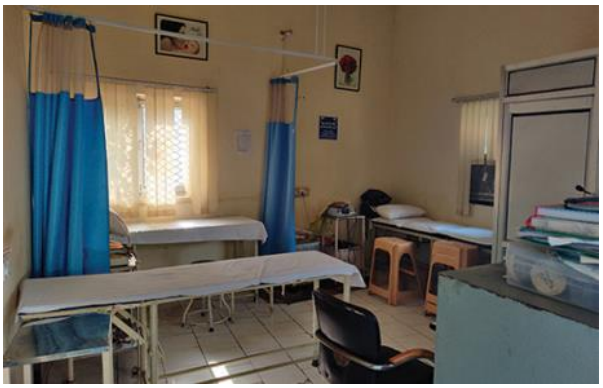


Figure 74. Physiotherapy Room <Author>

Figure 75. Guest House <Author>

4.2.2.4 Open Areas

There is only one large open area in the campus. The design of this area is not very impressive as there are no features which encourage or attract the residents to come out and sit there.

Figure 76. Open Area <Auhor>

4.2.2.4 Climatic Considerations

The building is appropriately designed, elongated in the E-W direction. This allows ample north light to enter all the bedrooms.

The shaded corridor acts as a buffer between the rooms and the summer sun, while acting as a good sit out area during winters.

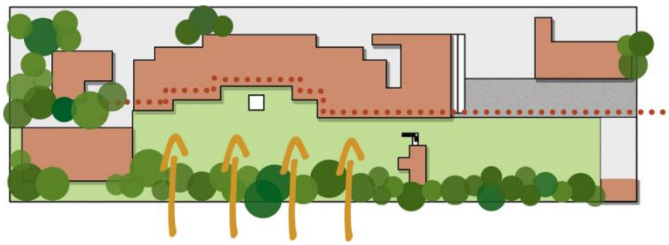


Figure 77. Building Orientation According to Climate <Author>

Key Takeaways

- Provide various types of units to cater to individuals with different requirements.
- Provide common dining area and kitchen along with independant kitchens in living units.
- Give provision for basic medical care of elderly in case of emergency.
- Provide grab rails and bars in all toilets.
- Plan circulation in such a manner that encourages interaction between the generations.

4.2.3 SOS Children's Village, Khajuri Kalan, Bhopal

The SOS Children's Village in Khajuri Kalan, Bhopal, is one of its kind as it provid es shelter to normal as well as disabled orphans up to 20 years of age.

The village has 14 family houses with 6 children living in each house. Apart from this, there is also a youth home for boys above the age of 14

Figure 78. View of SOS Children's Village, Khajuri Kalan <Google Images>

Completion	Site Area	Occupancy
2003	70 Acres	106

OBJECTIVE: This case study is done to understand the design of **"Family Homes"** which are typical to SOS Children's Villages. Also, it will help to understand the idea of planning in clusters to create a neighbourhood-like environment.

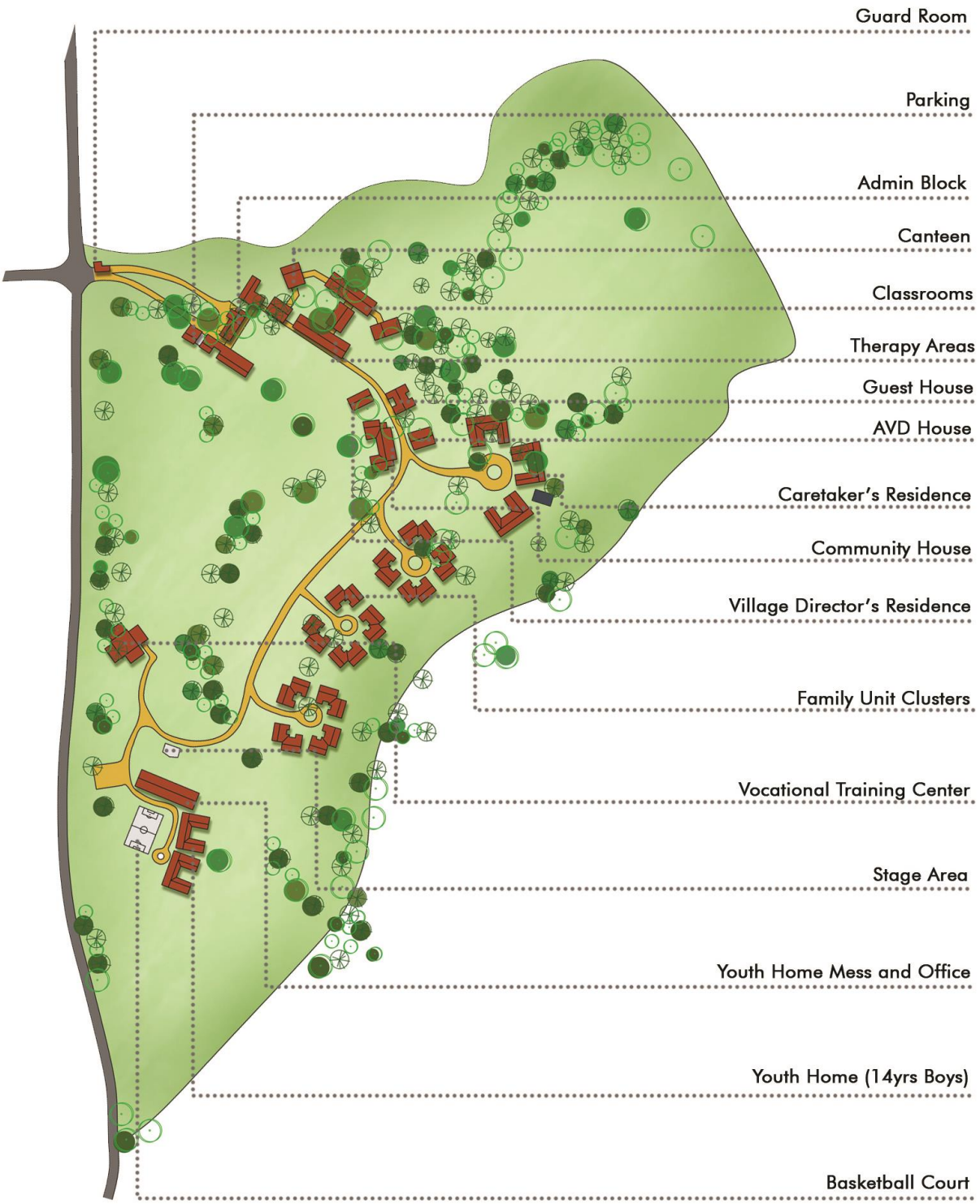


Figure 79. Site Plan of SOS Village, Khajuri Kalan <Author>

4.2.3.1 Zoning and Circulation

There is a clear segregation in zoning within various types of uses.

Organic yet simple and legible circulation path to allow easy navigation for the children.

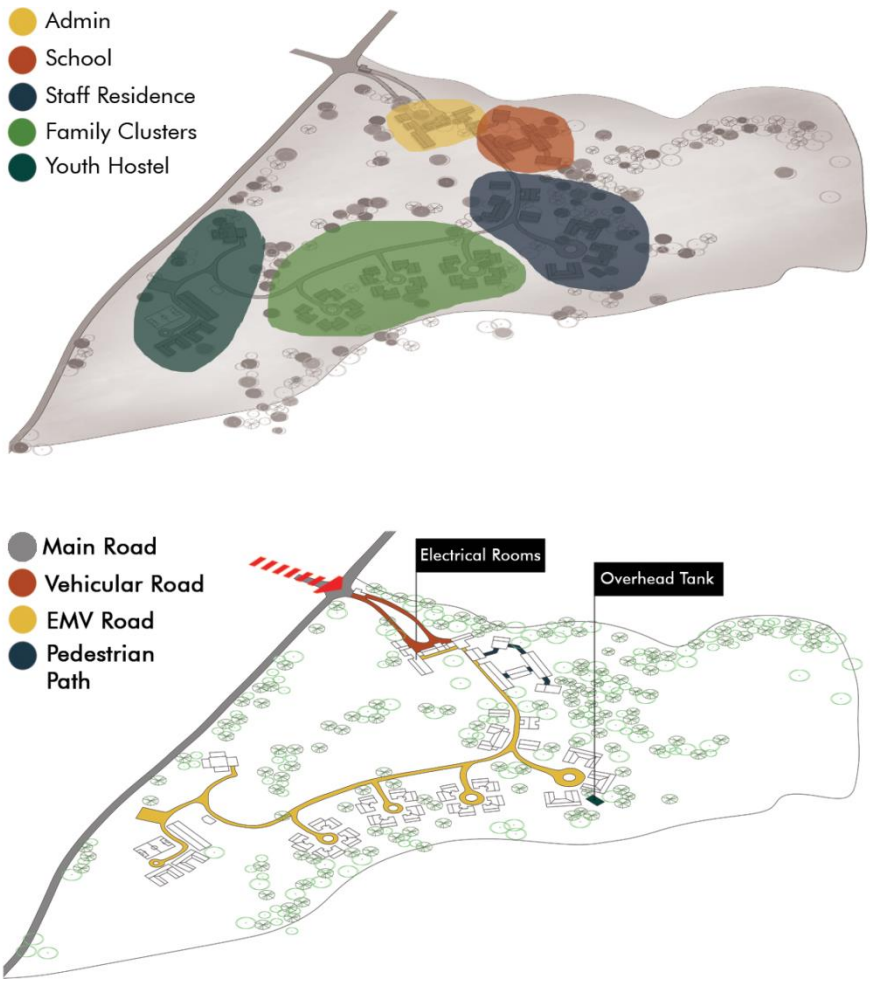


Figure 80. Axonometric View of Zoning and Circulation <Author>

4.2.3.1 Family Home Cluster

Each cluster has four family units arranged around a central courtyard. Each family unit has three bedrooms each shared by two children, along with a caretaker's room for the mother and aunt. Each unit has a store room or pooja room and common washroom for all 8 residents. Food is prepared by the "mother" for the six children residing in each family unit

There is a common open area for each family unit apart from central open area.

Figure 81. View of Central Courtyard <Author>

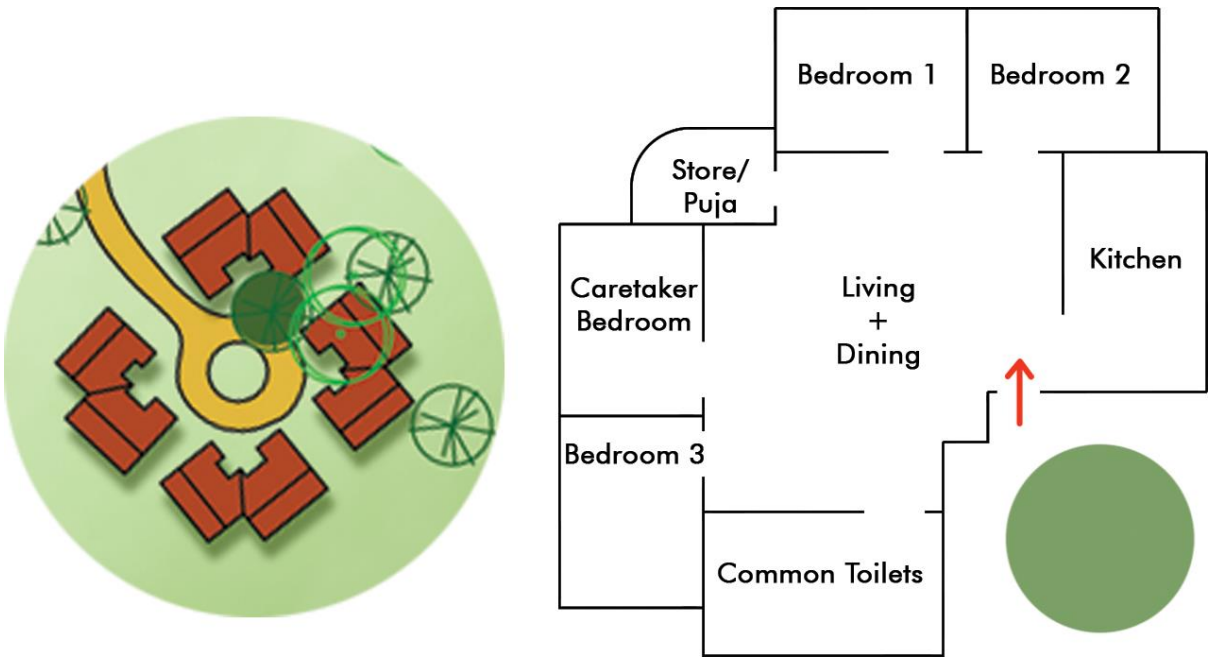


Figure 82. Plan of Family Homes and their Arrangement in Clusters <Author>

4.2.3.2 Caretaker's Residence Cluster

A separate residential wing has been planned for the co-workers who apart from taking care of children also look after their education and teach in the school.

These residences are located immediately before the children's' residential units which helps in surveillance of children.

Two bedroom units have been designed for each co-worker to accommodate their family members too, if needed.

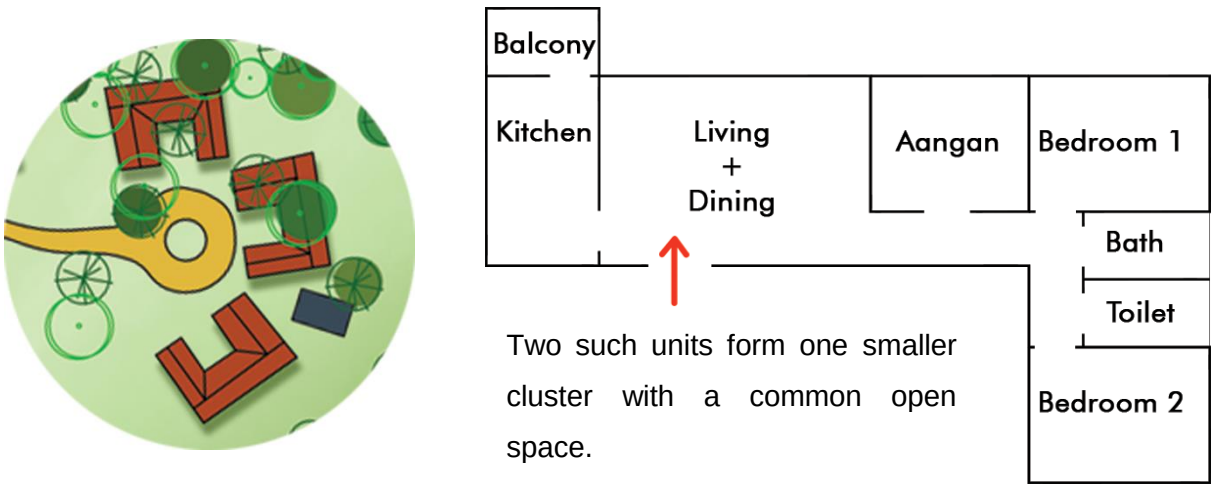


Figure 83. Plan of Caretaker's Unit and their Arrangement in Clusters <Author>

Figure 84. Central Courtyard in front of Caretaker's Unit <Author>

4.2.3.3 Youth Home

A separate wing has been made for boys above 14 years of age. This youth home has a common dining area and kitchen along with an activity room and a basketball court. The rooms are arranged around a courtyard and two such clusters have been designed with 8 children per cluster.

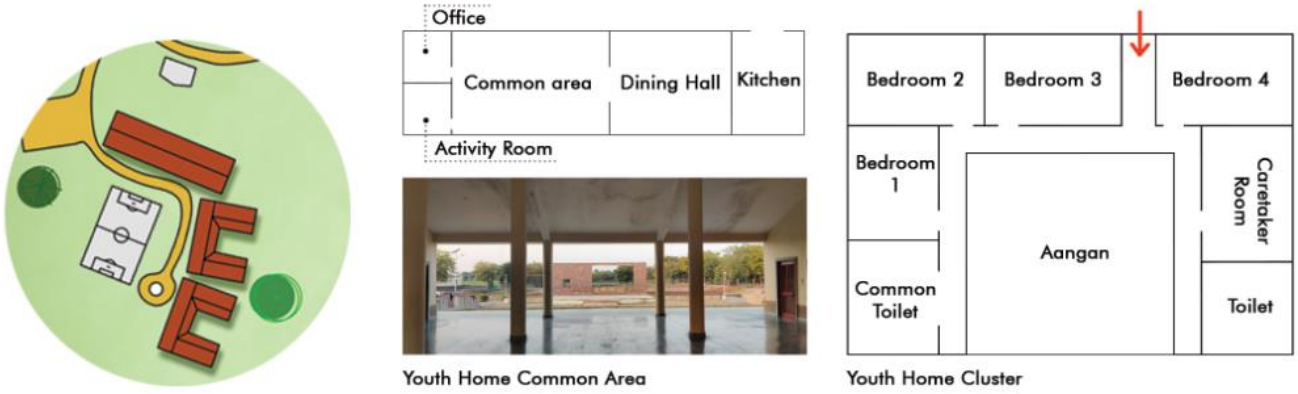


Figure 85. Plan of Youth Home Cluster and Common Areas <Author>

Key Takeaways

- Design residential units for kids in a typical house layout rather than providing dormitories like other institutional cares.
- Planning in clusters to promote social interaction.
- Plan different units for different age groups and separate units for boys and girls above 14 years of age.

4.3 COMPARATIVE ANALYSIS OF CASE STUDIES

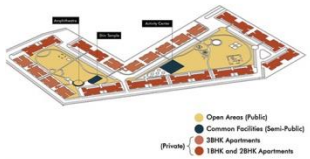
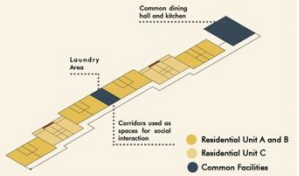
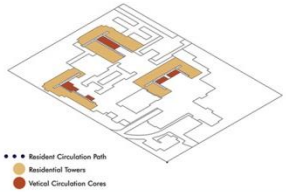
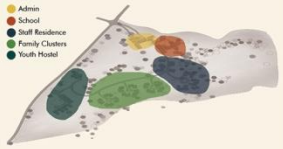
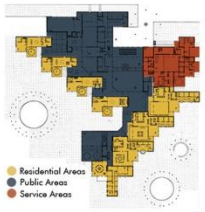
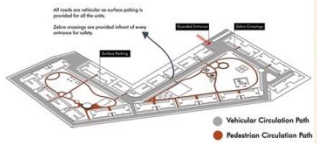
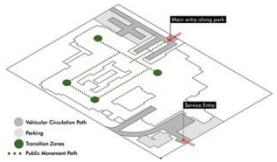
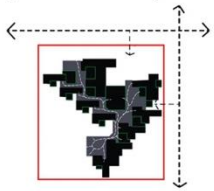
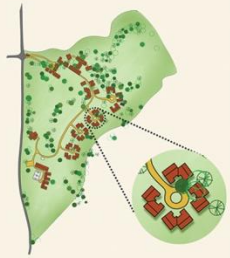
Ashiana Utsav Senior Living, Bhiwadi, Rajasthan Site Area: 15 acre	Ayudham Society for Old and Infirm, Delhi Site Area: 1	Tsukaguchi Senior Housing Community, Osaka, Japan	SOS Children's Village, Khajuri Kalan Site Area: 70 acre	Municipal Orphanage, Amsterdam Site Area: 3.5 acre	Inferences
Location					
Located in the Ashiana Village Complex in Bhiwadi- - Nearby all basic facilities and amenities - Scope for integration with the society	Located on the outskirts of Delhi with almost no development nearby.	Located in a suburban development, adjacent to a city park and with all the basic facilities nearby	Located on the outskirts of Bhopal with Rewla Khanpur village nearby.	Located in a developed area with facilities like schools, sports complex, and other facilities nearby.	Site should be located in a residential area with access to public activities and amenities. NEEDS: Social Interaction
Entrance/Exit					
One common entry and exit for the entire campus	One common entry and exit for the entire campus	Separate entry points for public and services.	One common entry and exit for the entire campus	Separate entry points for public and services	One entry and exit point NEEDS: Safety and Security
Spatial Composition					
It is a G+4 structure with clusters of residential units arranged around two large open spaces. All common activities are located centrally in these open spaces.  	It is a G+2 structure with rooms arranged along a linear corridor, facing an open ground. School building for Astha Program towards the farther end of the site.  	Rooms in each tower arranged along a linear corridor. Towers arranged around two court-yards, along with the common activities.  	Only G structures arranged in clusters around a central courtyard. Caretaker Units placed such that there is surveillance.  	A compact composition of living spaces connected through a one side open corridor, further connecting them to the open spaces.  	Planning in the form of clusters around courtyards and in such a manner that interaction is encouraged between different age groups. Optimum distance between various activities to encourage exercise. NEEDS: Social Interaction, Sense of Home, Love and Affection, Physical Health Caretaker units to be integrated with living units for children below 14 years. NEEDS: Safety and Security
Path Configuration and Circulation					
A simple path configuration (triangular and rectangular) is provided for easy navigation. All the roads are vehicular with surface parking along them. Footpaths not present throughout.  	A simple linear path is provided with functions placed along both sides. Parking is nearby the entrance, thus the linear path being pedistrian. 	A simple path is provided along the courtyards leading from the main entry and connecting the three residential towers. Parking is nearby the entrance, thus the paths being pedestrian.  	The path configuration is organic, yet simple, ending in cul-de-sacs for easy movement of on campus vehicles. Main parking is at the entrance, thus restricting the vehicular movement inside.  	A simple path configuration of two diagonal paths planned on an orthogonal grid. The paths are pedestrian due to parking being restricted to the entry. 	Use simple and clear path configurations as it allows easy navigation. Provide multiple circulation options. NEEDS: Choice and Control, Independence Plan vehicular and pedestrian paths separately for the safety of residents of both the generations. NEEDS: Safety and Security

Table 3. Comparative Analysis of Case Studies <Author>

Outdoor Areas and Link to Nature					
Two well defined open areas with multiple walking tracks. Activities like chess corner, kids play area, and meditation corner, badminton courts integrated into the design of open spaces. Multiple small settings within large open areas for seating and interaction. Fountains and floral gardens. Toilets in open areas for comfort.  	Only one open garden as a space for recreation. Terrace and corridors can be used as open space for recreation and interaction. 	Multiple courtyards with water courts and plantations. Circulation routes articulated with plants and trees. Gardens planned nearby residential units. Multiple seating options provided to sit and relax. Activities like library, restaurant, meditation room, etc. placed with views of gardens  	The entire 70 acre site is full of distributed green areas used for various functions like recreation, gardening, seating, playing, etc. All functions are arranged with an adjoining green area. 	Multiple courtyards, with a larger courtyard connecting all the units and other areas. Each unit with its own attached outdoor space with sand pits. Larger sized module used for open spaces to prioritize the integration of nature into built. Views of gardens from corridors through glass walls.  	Provide **multiple small open spaces** having different characters **according to the age group** and also a different **degree of privacy.** **Integrate activities** into open spaces and plan them **along circulation paths** to promote interaction. Place **Units and activities** such that they get a **view of green spaces** or are in some form linked to the natutre. **Articulate the circulation spaces** with natural elements. NEEDS: Social Interaction, Mental and Physical Health
Community Activities and Functions					
All activities that engage elderly. An activity center with a card room, TT room, reading room, Music room, TV room, restaurant, carrom room, multipurpose hall, etc. Convenience store also provided. In campus temple. 	Not many community areas apart from a multipurpose hall. Garden, terrace and corridor mostly used for community activities. 	Multiple community areas present in the campus including restaurant, library, swimming pool, auditorium, cafes, tea garden, etc. Multiple courts and corridors also used for community activities. Salon also provided. 	Various activity rooms are provided for children like music room, dance room, swimming area, etc, which also act as therapy areas for the children with disability. The courtyards along which clusters are planned act as community interaction areas. Lack of acitvities like library, multipurpose hall, etc. 	Multiple commuity areas present including theatre, gymnasium, festive hall, library, etc. Multiple open courtyards can also be used for community activities.	Provide activities that are age specific and also ones that can be of interest to both the generations. Integrate functions to allow access of public into these areas to encourage community interaction like- library, restaurant, etc. NEEDS: Social Interaction, Love and Affection, Sadness and Loneliness
Types of Units					
Properly designed 1BHK, 2BHK and 3BHK units. 	**Unit 1** Twin sharing with attached washroom and cooking station. **Unit 2** Private Room with attached washroom and cooking station. **Unit 3** Private Room with attached washroom, kitchenette and built in storage. 	Independant living units with attached washroom. 	**Unit 1 (0-14 yrs)** Family units with 3 children's bedrooms, 1 caretaker's room, common toilet, store/puja room and a kitchen.  **Unit 2 (14 yrs onwards)** Youth hostel with twin sharing rooms, common toilets and common dining area.  	Dormitory type units with common storage area, common washroom, play areas, kitchette, etc. Units designed with different features for different age groups.  	Provide multiple options for the types of units based on different requirements. Integrate caretaker units with those of children. Fore elderly, provide independant units or twin sharing rooms. Separate living units for boys and girls above 14 years of age. NEEDS: Safety and Security, Privacy, Comfort

5. AREA PROGRAMMING

5.1 Area Program Table

Different areas discussed above have been tabulated as follows:

S. NO.	FUNCTION	CASE STUDY-1		CASE STUDY-2		CASE STUDY-3		CASE STUDY-4		STANDARDS	PROPOSED			
		Ashiana Utsav Senior Living, Bhiwadi		Ayudham Old Age Home, Delhi		SOS Children's Village, Bhopal		Municipal Orphanage, Amsterdam		TSS and Neuferts				
		Area (sqm.)	Capacity	Area (sqm.)	Capacity	Area (sqm.)	Capacity	Area (sqm.)	Capacity	Area (sqm.)	Area (sqm.)	Capacity	Quantity	Total
1	**Entrance**													
	Security Guard Room	2	2			2	1			2.25/person	5.4	2	1	5.4
	Parking	12.5/car	640		2		3							
	Entrance Foyer	50								50-60	50			50
	Reception	35						114		25-30	30			30
	Visitors Room	10	4	20	12					1.2/person	1.6/person	5	1	14
2	**Administration**													
	Director's Office					15	1			25	25	1	1	25
	Assistant Director			41		15	1	18		3/person		1		
	Accountant	4.5	1	7	1	15	1	11		3/person	7	3	1	7
	Manager's Office	6	1	7	1			11		3/person	7	1	1	7
	Assistant estate Manager	9		7	1			11		3/person	3	1	1	3
	Social Worker's Office	4.5				15	1			3/person	7	2	1	7
	Surveillance Room										10	2	1	10
	Meeting Room	7.5				45				7/person	30	10	1	10
	Store Room									30	30		1	30
	Toilets													
3	**Clubhouse/ Activity Center**													
	Reception	35								25-30	9		1	9
	Visitor's Area	10								1.2/person	15	10	1	15
	Manager's Office	6								3/person	7	1	1	7
	Storage							15			30		1	30
	Carrom Room	40	20								50	20	1	50
	TT Room	27	1 table								55	2 tables	1	55
	TV Lounge	100	75								130	100	1	130
	Card Room	80	30								40	15	1	60
	Game Room													
	Multipurpose Hall	290		96	70			110		1.5/person	675	450	1	675
	Library	21.6	15							4.6/person	230	50	1	230
	Meditation Room									1.5/person	30	20	1	20
	Gym													
	Toilets													
	Salon													
	Convenience Store	30									30		1	30
	Temple/Prayer Hall	**150**									75		1	75
	Laundry			12	3									
	Dining Hall	180	100	54	40			72	12	1.5	225	150	1	225
	Kitchen			27				54		0.5-0.7 meals/hr	75		1	75
	Kitchen Store	**96**												
	Swimming Pool													
	Pump Room													
	Changing Room Male									1.9/person	1.5	1	10	15
	Shower Area Male									0.8-1/person	1.5	1	10	15
	Changing Room Female									1.9/person	1.5	1	10	15
	Shower Area Female									0.8-1/person	1.5	1	10	15

4	**Vocational Training**													
	Reception							221		25-30	25		1	25
	Waiting Area									1.2/person	15	10	1	15
	Staff Room			18						4/person	40	10	1	40
	Staff Toilets			18										
	Music Room	**27**	15	18						4.5/person	90	15	1	90
	Dance Room										80	20	1	80
	Art and Craft Room	**27**	15	18						2/person	30	15	1	30
	Knitting and Embroidery									4.5/person	90	15	1	90
	Computer Room			18						4/person	60	15	1	60
	Toilets													
5	**Medical Facilities**													
	Reception							84		25-30				25
	Waiting Area									1.2/person	25			
	Doctor's Room			15	2						15	1	1	15
	Physiotherapy Room			24	3						40	5	1	40
	Psychologist Room										7	1	1	7
	Dressing Area										10	1	1	10
	Care Unit			100	8 beds					7.4/bed	200	20	1	200
6	**Residential Unit Kids**													
	Infant's Unit							184	16		120	14	1	120
	Junior Unit (2-10)							230	54					
	Kids' Bedroom					12	2				150	6	12	1800
	Kitchen					15								
	Caretaker's Bedroom					12	2							
	Living+Dining					45								
	Common Toilets					15		17	3					
	Store Room													
	Puja Room					6								
						130								
	Senior Unit Boys (14-18)							241	20		150	6	11	1650
	Junior Unit (10-14)							241	20		150	6	4	600
	Senior Unit Girls (14-18)							241	20		150	6	4	600

Table 4. Area Programming <Author>

7	Residential Units for elderly													
	Single Person Unit													
	Bedroom			12						30	15			
	Kitchenette			3.5							4			
	Storage			2							2			
	Toilet			4.5						12	6			
											27	1	100	2700
	Twin sharing Unit													
	Bedroom			14.3						40	20			
	Kitchenette			3.5							4			
	Storage			2							3			
	Toilet			4.5						12	4.5			
											31.5	2	50	1575
	Bedroom	16								40	20			
	Kitchen	7.5								19	8			
	Living	9.5									10			
	Dining	**6.8**								30	8			
	Toilet	**4.5**								12	4.5			
	Store										5			
	Puja Room	10									5			
											60.5	1	100	6050
8	Guest House Unit													
	Bedroom			14							15			
	kitchenette			3.2							3			
	Toilet			3.2							4.5			
											22.5	2	10	225
9	Staff Residence Unit													
	Double Occupancy Room			10										
	Dormitory													
10	Services													
	STP													
	OHT													
	Electric room													
11	Open Areas													
	Badminton Court	15 x 7								13.4 x 6.1				
	Basketball Court					26 x 14				28 x 15				
	Football Field									30 x 15				
	Cricket Field									2.9 x 4				
	Play Area for kids													
	Amphitheatre/OAT	**200**										500		
	Meditation Garden													
	Total Built up Area	**26600**												

5.2 Water Calculations

Water Requirement for residence =135 L per head/day

Total No. of Occupants = 500

Total No. of care givers = 170

Total water requirement of occupants = 670 x 135 = 90450 L/day

Water Requirement for restaurant = 70 L per head/day

Total No. of Seats = 100

Total water requirement of restaurant = 100 x 70 = 7000 L/day

Water requirement for temporary staff=45 L per head/day

Total No. of temporary staff = 50

Total water requirement of temporary staff= 45 x 50 = 2250 L/day

Total Water requirement per day=99700 L

Capacity of water tank=99700 x 2 = 199400 L

UGT Capacity=0.6 x 199400 = 119640 L

OHT Capacity=79760 L

Quantity of waste water=0.8 x 99700 L = 79760L

Capacity of STP=1.2 x 79760 L= 95712 L

6. DESIGN PROPOSAL

6.1 DESIGN CONCEPT

Social interaction or people's reaction to each other is by far the most basic sociological concept, because such an interaction is the primary component of all of the human society's relationships and groups.

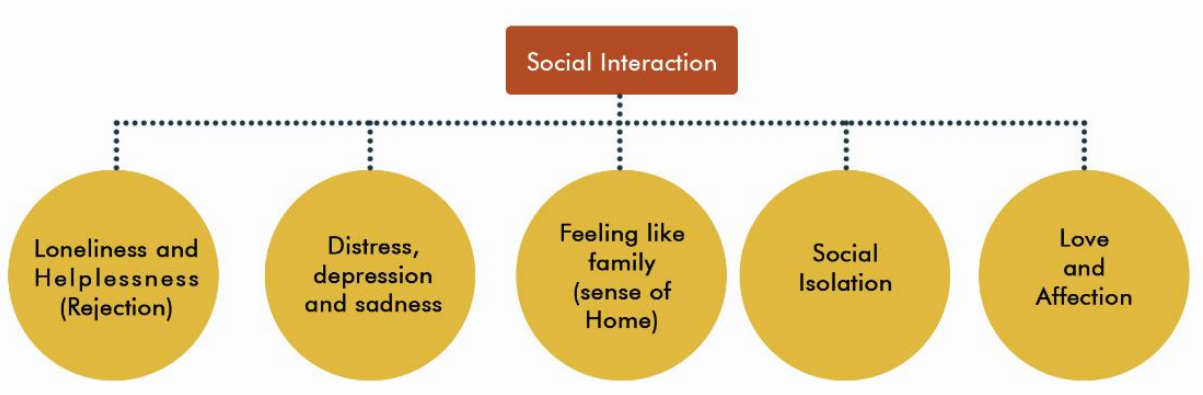


Figure 86. Psychological Needs Catered to by Social Interaction <Author>

Social interaction in itself can cater to a number of psychological needs of both the generations.

In an institutional care setting, social interaction and community activities become essential to help lead a normal life, thus, enabling SOCIAL INTERACTION between the age groups is the primary basis of the design.

Figure 87. Benefits of Social Interaction <Author>

6.1.1 Degrees of Social Interaction

Each human being is very different from the other and so is their behaviour in the society. The preferred levels and degree of interaction maybe different for different people. Thus, the design should be such that it encourages people to interact at different degrees at their comfort, and not force them to do so.

Figure 88. Degrees of Social Interaction <Author>

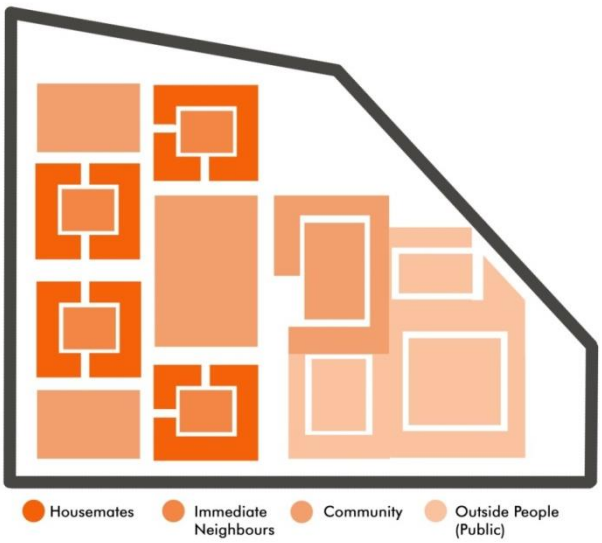


Figure 89. Site Zoning <Author>

Zoning has been done keeping in mind the different degrees at which people interact, and also the security and privacy of the residents.

6.1.2 Types of Social Interaction

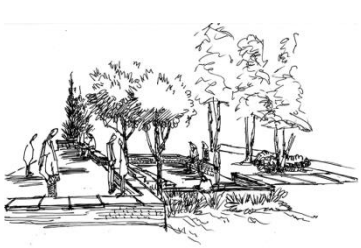
Social interactions can be differentiated into four types:

Accidental	Regular	Repeated	Regulated
Interactions those are unplanned and unlikely to be repeated.	Not planned but bound to happen from time to time due to some factors	Can be planned or unplanned and are very common to be repeated	Planned interactions which are regulated by some factor

Design should be such that it encourages all kinds of interactions and for the safety of the residents it's important for the interactions to be regulated.

6.1.3 Qualities of a Social Interaction Space

The following qualities should be tried to be incorporated in the planning of a space to promote interactions:



Seating Spaces

Things to look at
(Passive Engagement)

Things to Do
(Active Engagement)

Shaded Areas

Figure 90. Qualities of a Social Interaction Space <Google>

6.1.4 Open Areas

Instead of one large open area, pockets of open spaces have been planned having different sizes, characters and degrees of privacy. Each open space has been planned to have a different character suiting to the needs of both generations individually and together.

Open Areas should have various qualities to make them suitable for social interaction and community activities.

Figure 92. Open Area Distribution

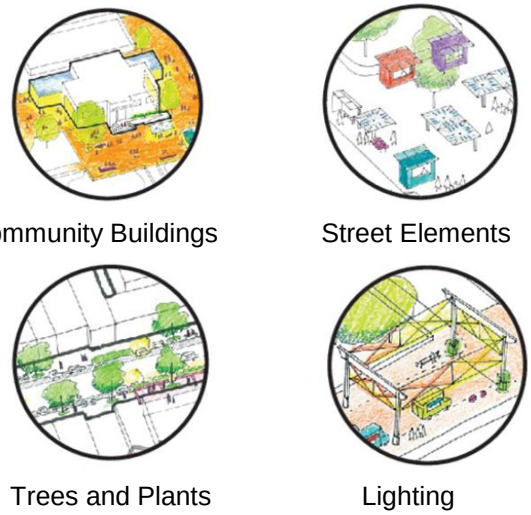


Figure 91. Qualities of Open Space <Google>

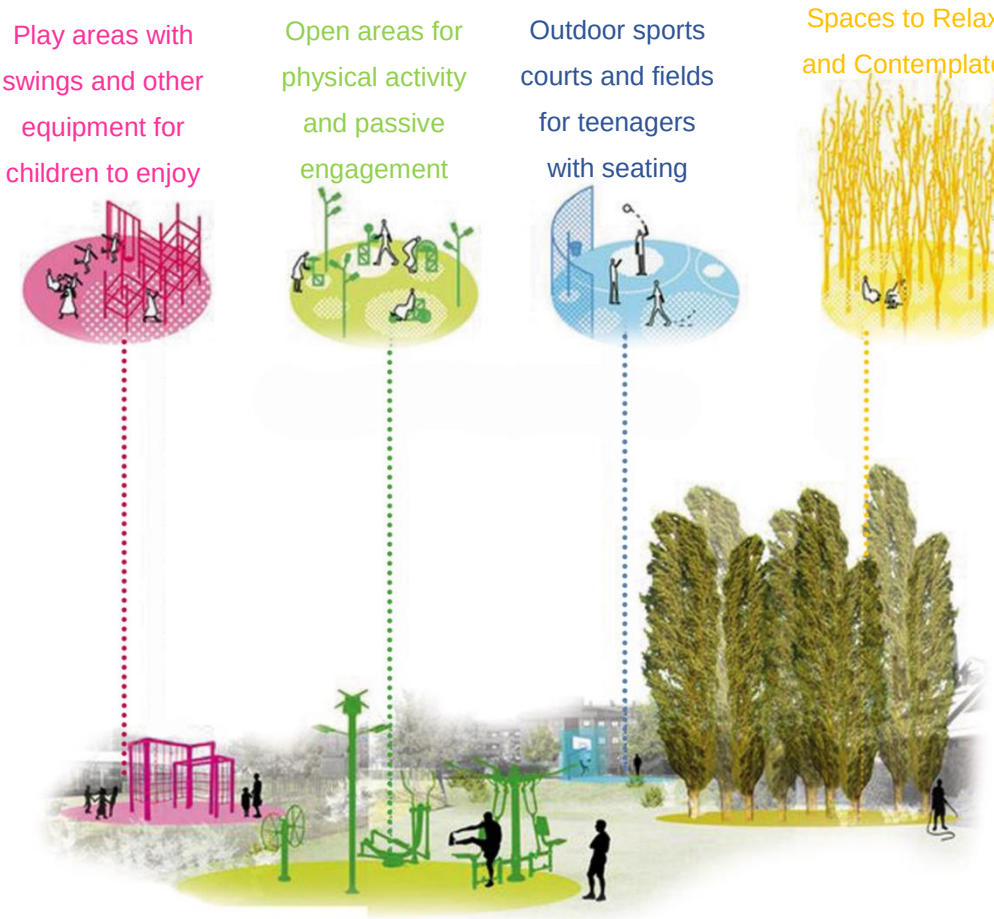


Figure 93. Open Spaces with Different Characters <Author>

6.1.5 Routine Analysis

The routine for both children and elderly were studied to identify the common times and activities where the two could interact. Based on these common activities, spaces were planned throughout, to promote interaction whenever possible.

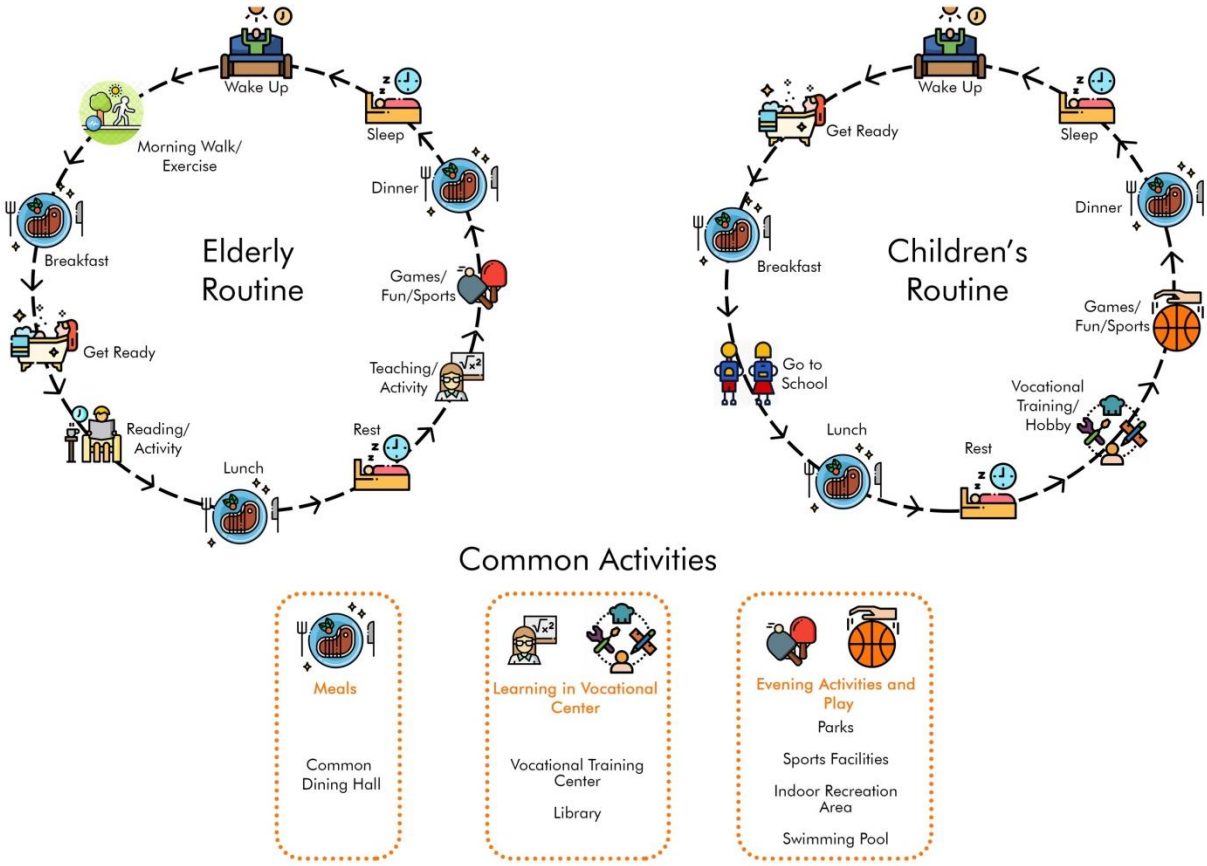


Figure 94. Routine Analysis of Children and Elderly <Author>

6.1.6 Staggering Units

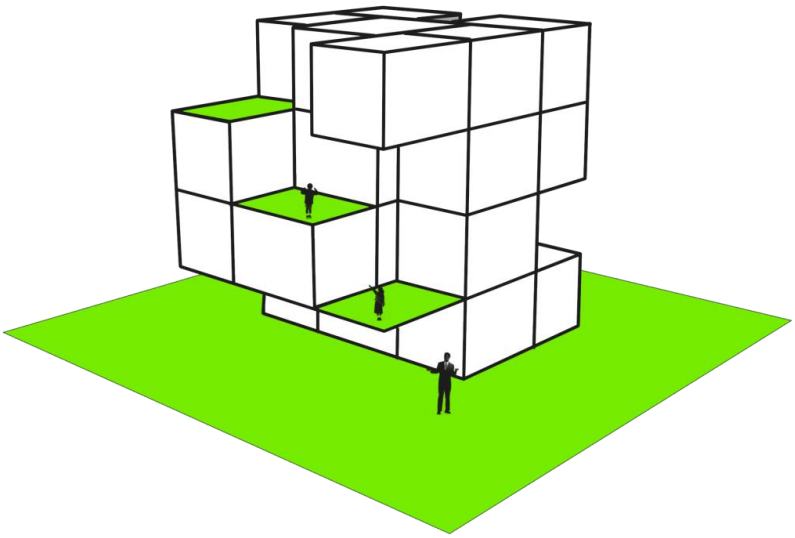


Figure 95. Staggering of Units <Author>

Children's Units have been placed vertically in a staggered arrangement to create balconies and terraces which can be used as social interaction spaces.

This allows visual connect between balconies and allows scope of interaction vertically as well.

6.2 DESIGN DEVELOPMENT

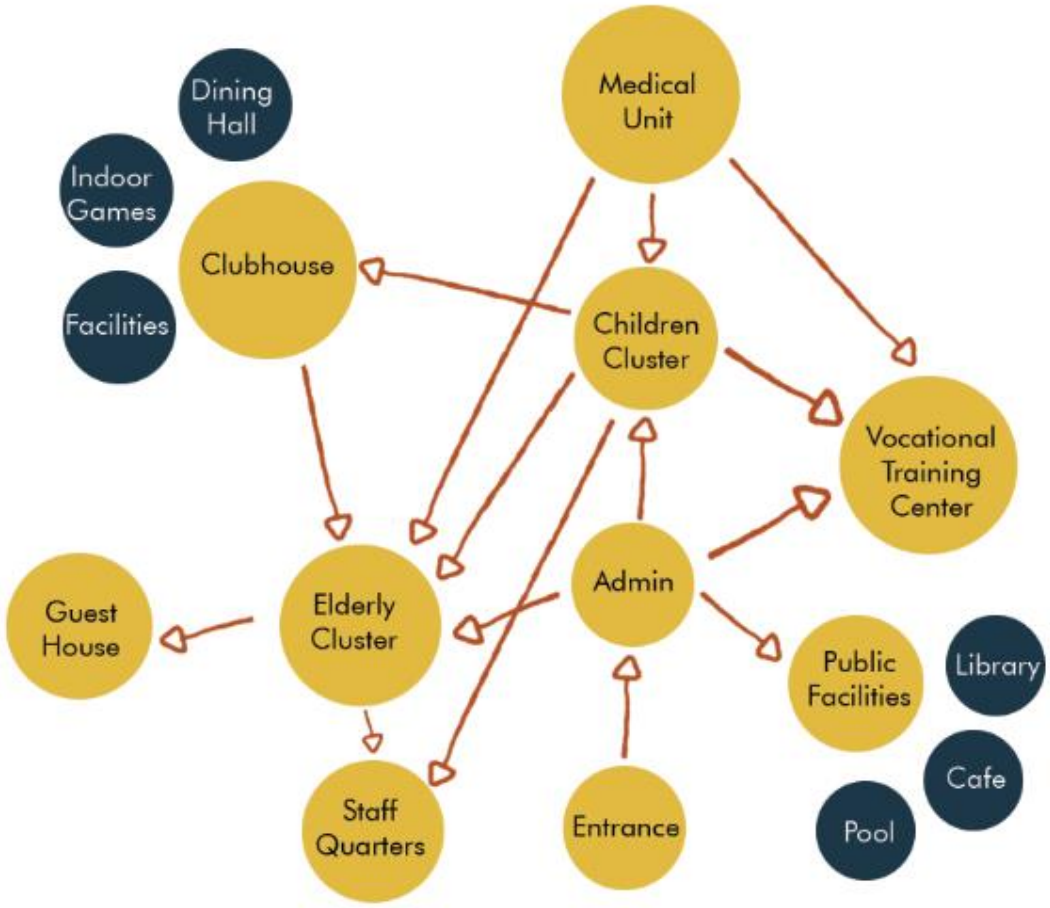


Figure 96. relationship Diagram of Design Requirements <Author>

The flow of spaces in case of all residential units is is such that a person enters to a common room/Living Room through a courtyard or a corridor instead of directly entering the bedroom. This reduces the feeling of an institutionalised care and develops the setting of a Home.

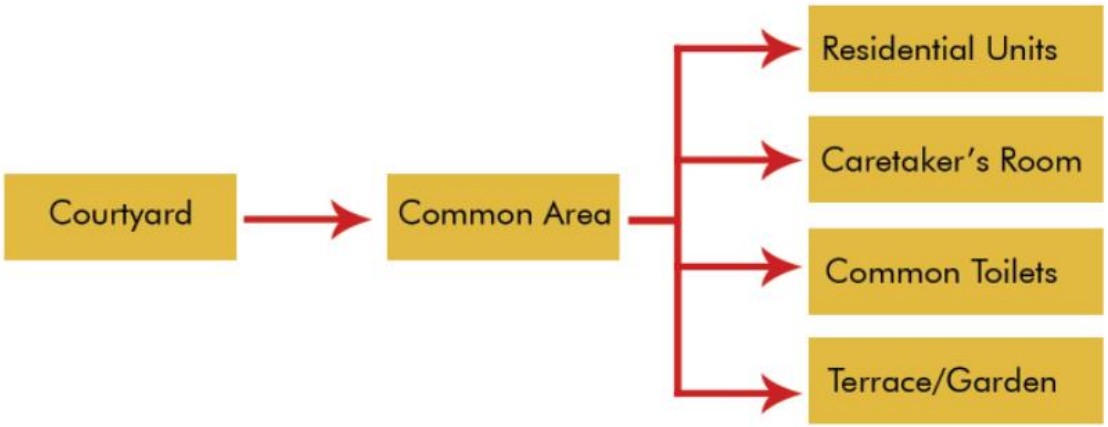


Figure 97. Flow of Spaces in Children's Unit <Author>

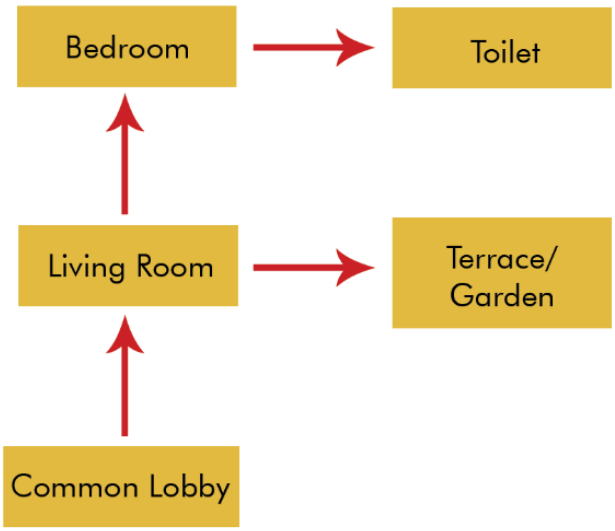


Figure 99. Flow of Spaces in Elderly Unit <Author>

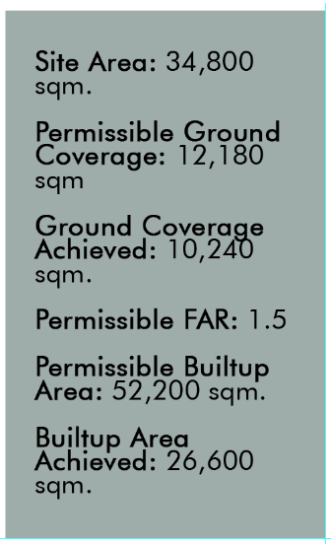


Figure 98. Area Statement <Author>

6.2.1 Site Plan

Figure 100. Site Plan

The plan shows how the residential clusters are connected to one another and to various open areas on site.

All clusters have two access points which connect them to the open areas and the adjacent residential cluster.

Figure 101. Ground Floor Plan-Connectivity Diagram

Figure 102. View of Residential Units from Central Open Area

The central open area has been designed to incorporate various activities for both children and elderly. This includes shaded seating areas, outdoor gym, walking and cycling tracks, amphitheater, a temple, swing area, chess corners, etc.

Figure 103. View of Stilt Area between Residential Clusters

This open area has been designed with seating areas for elderly and children. Along with that, this area can be used for cycling and playing nearby the house with surveillance of the caretakers. It can also be used to park the children's cycles.

6.2.2 Residential Cluster

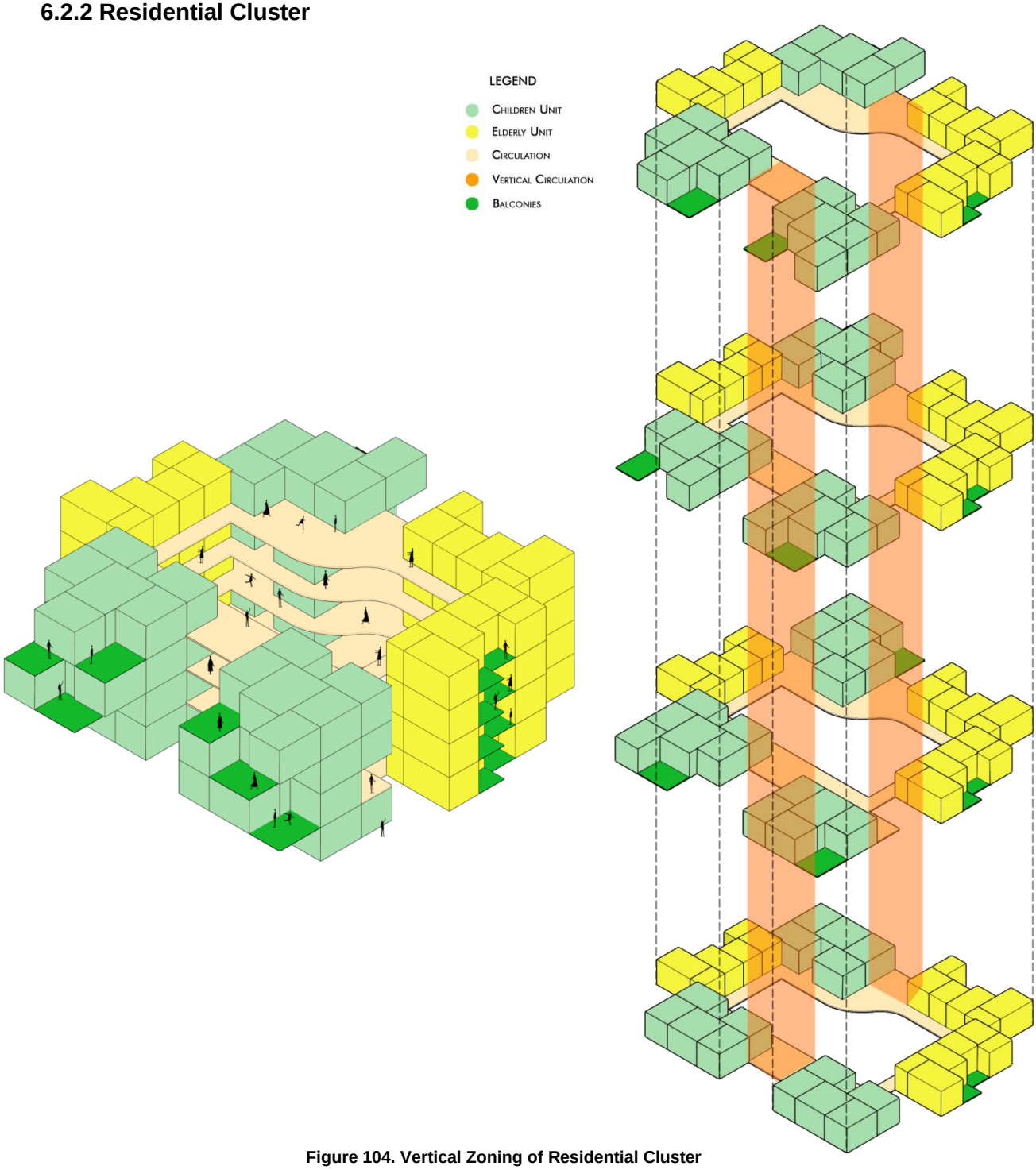


Figure 104. Vertical Zoning of Residential Cluster

Both elderly and Children Units are planned in the same cluster to allow intermingling.

Children Units have been staggered vertically to create terraces which can be used as spaces for interaction and play.

This staggering has also helped to create small intermingling areas on each floor to allow the scope of social interaction.

Figure 106. Cluster Plan - Ground Floor

Figure 105. View of Internal Courtyard

The residential units have been arranged in clusters around a central courtyard.

This courtyard has been designed to incorporate the needs of both the generations.

Bird feeders, Tulsi Plant, Hopscotch, Swings and seating areas have been incorporated along with trees and flowers to provide a natural environment for interaction. The ground floors in all clusters are dedicated to infants and very young children (up to 6 years).

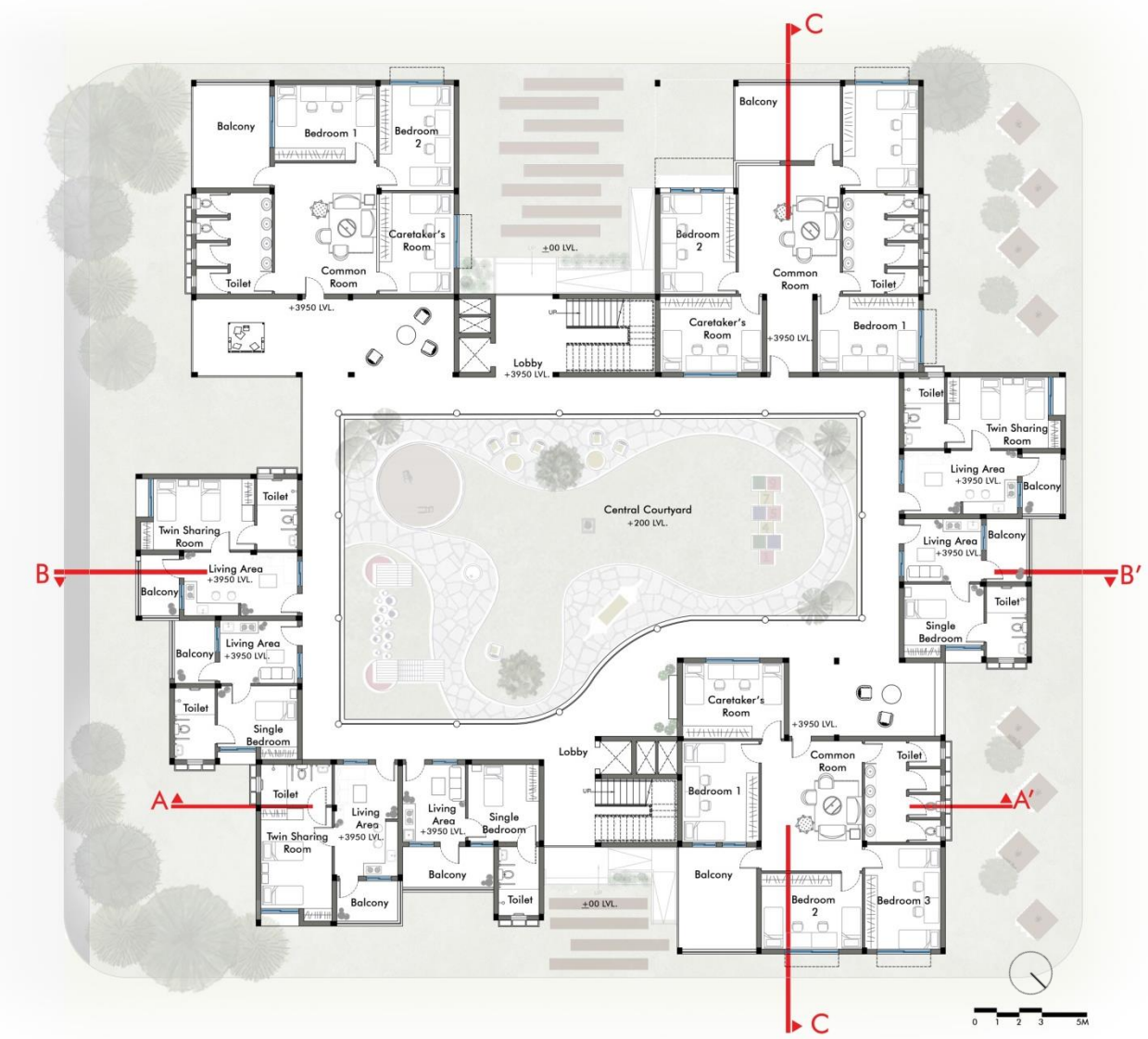


Figure 108. Cluster Plan - First Floor

Figure 107. View of Spill out Area on First Floor

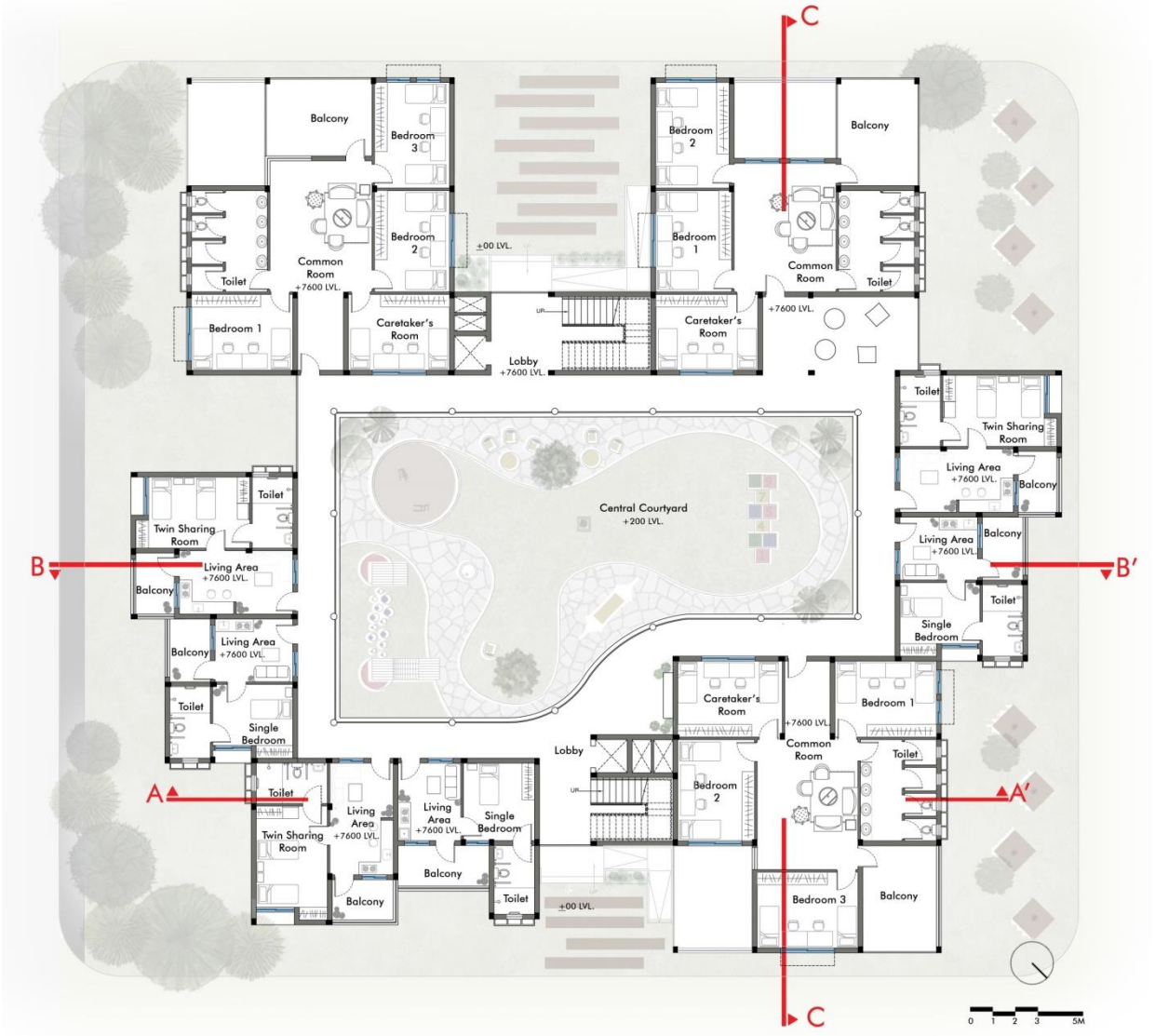


Figure 110. Cluster Plan - Second Floor

Figure 109. View of Spill out Area on Second floor

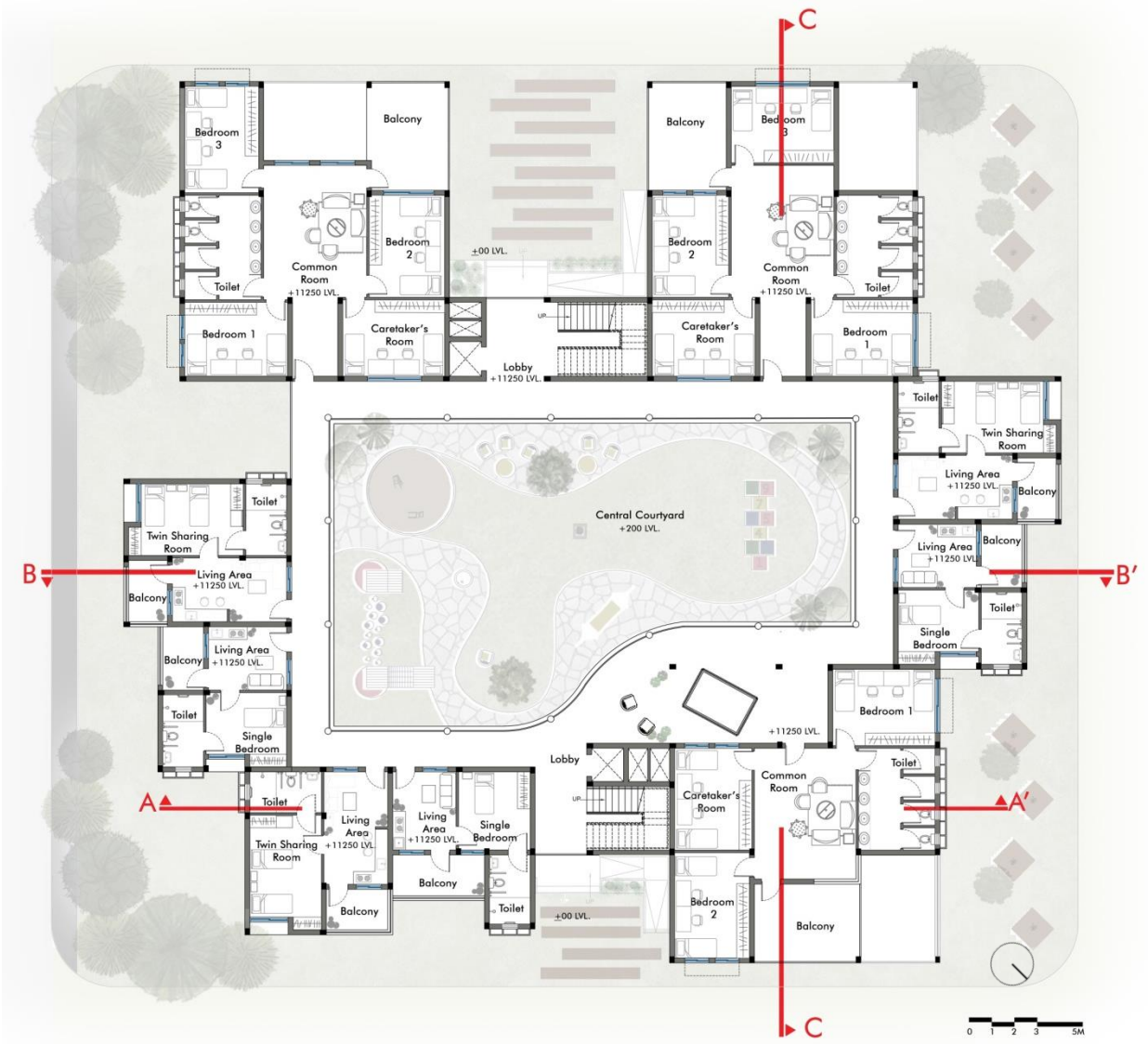


Figure 112. Cluster Plan - Third Floor

Figure 111. View of Spill out Area on Third Floor

Figure 113. Cluster Elevation A

Figure 114. Cluster Elevation B

Figure 115. Cluster Elevation C

Figure 116. Cluster Elevation D

Figure 117. Cluster Section A-A'

Figure 118. Cluster Section B-B'

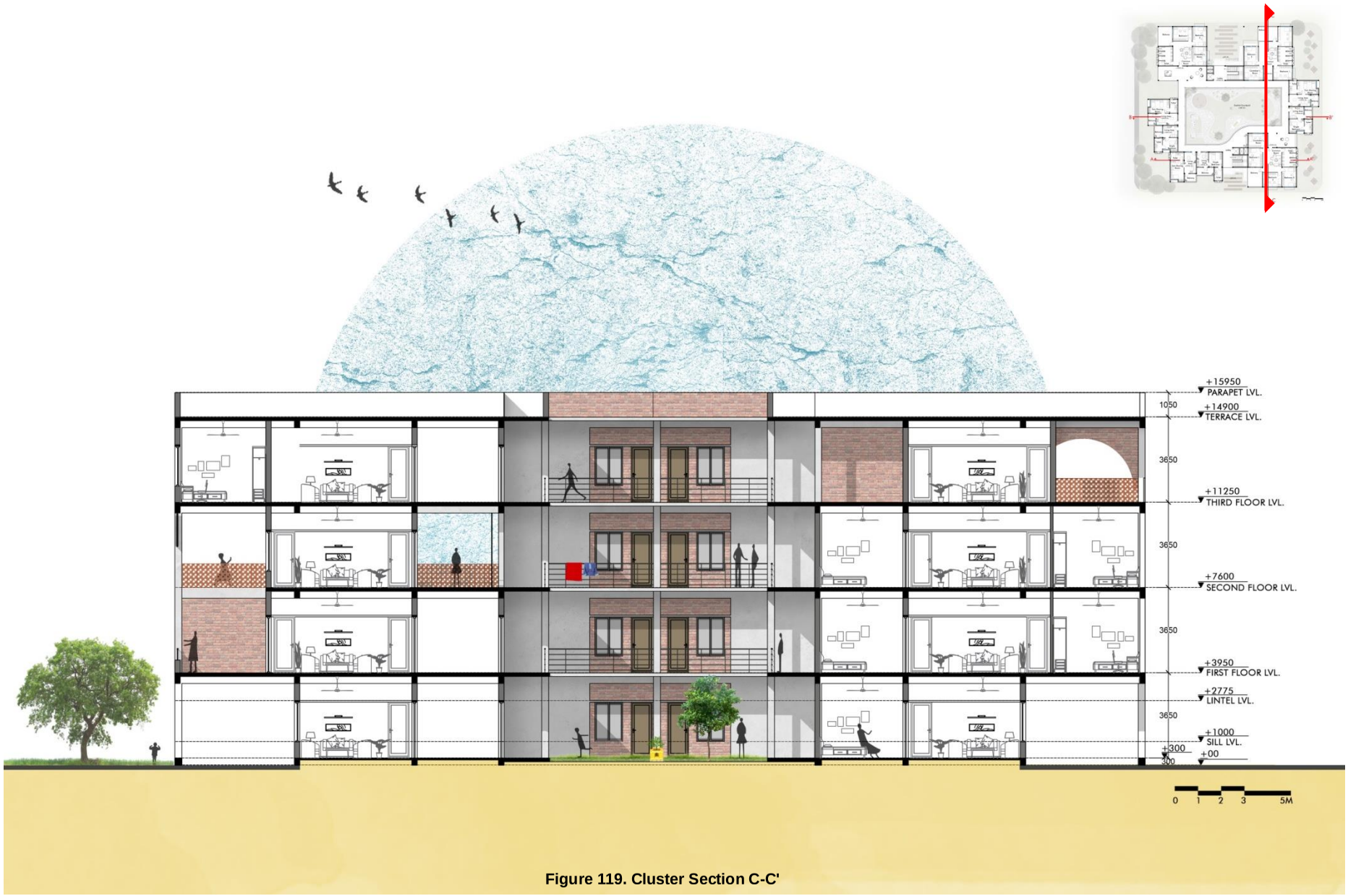


Figure 119. Cluster Section C-C'

6.2.3 Residential Unit

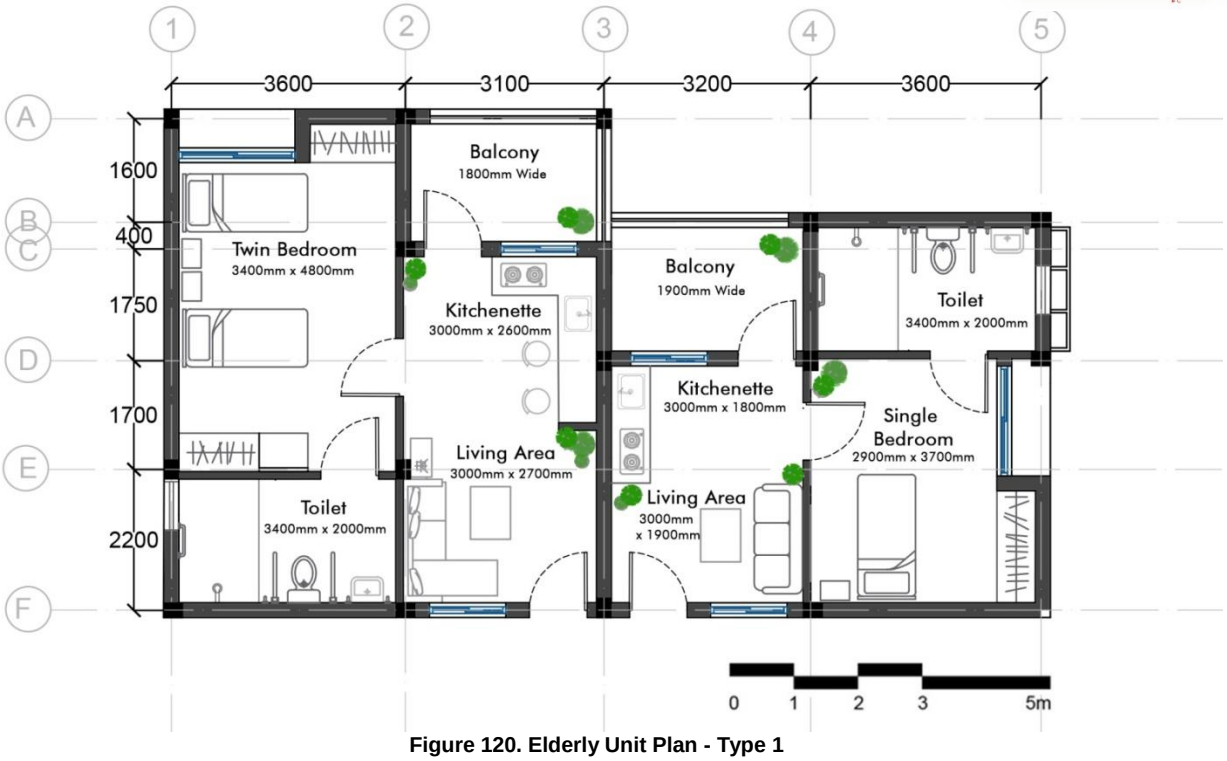


Figure 120. Elderly Unit Plan - Type 1

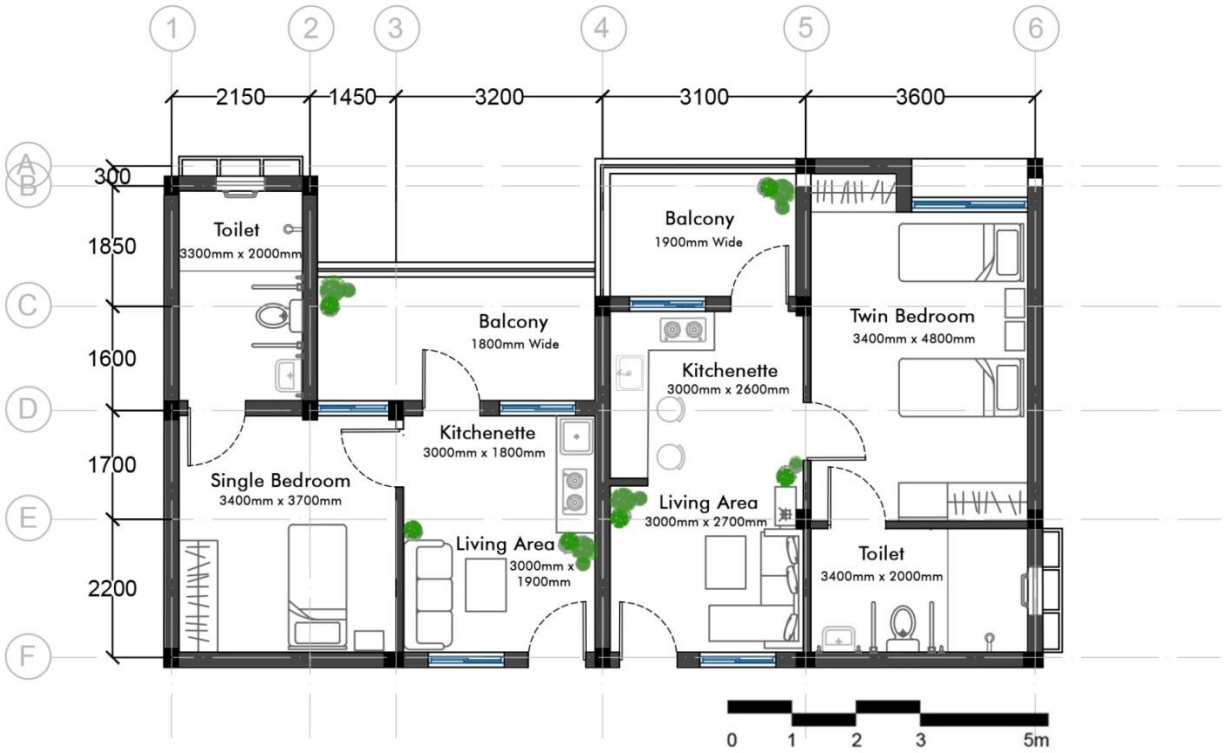


Figure 121. Elderly Unit Plan - Type 2

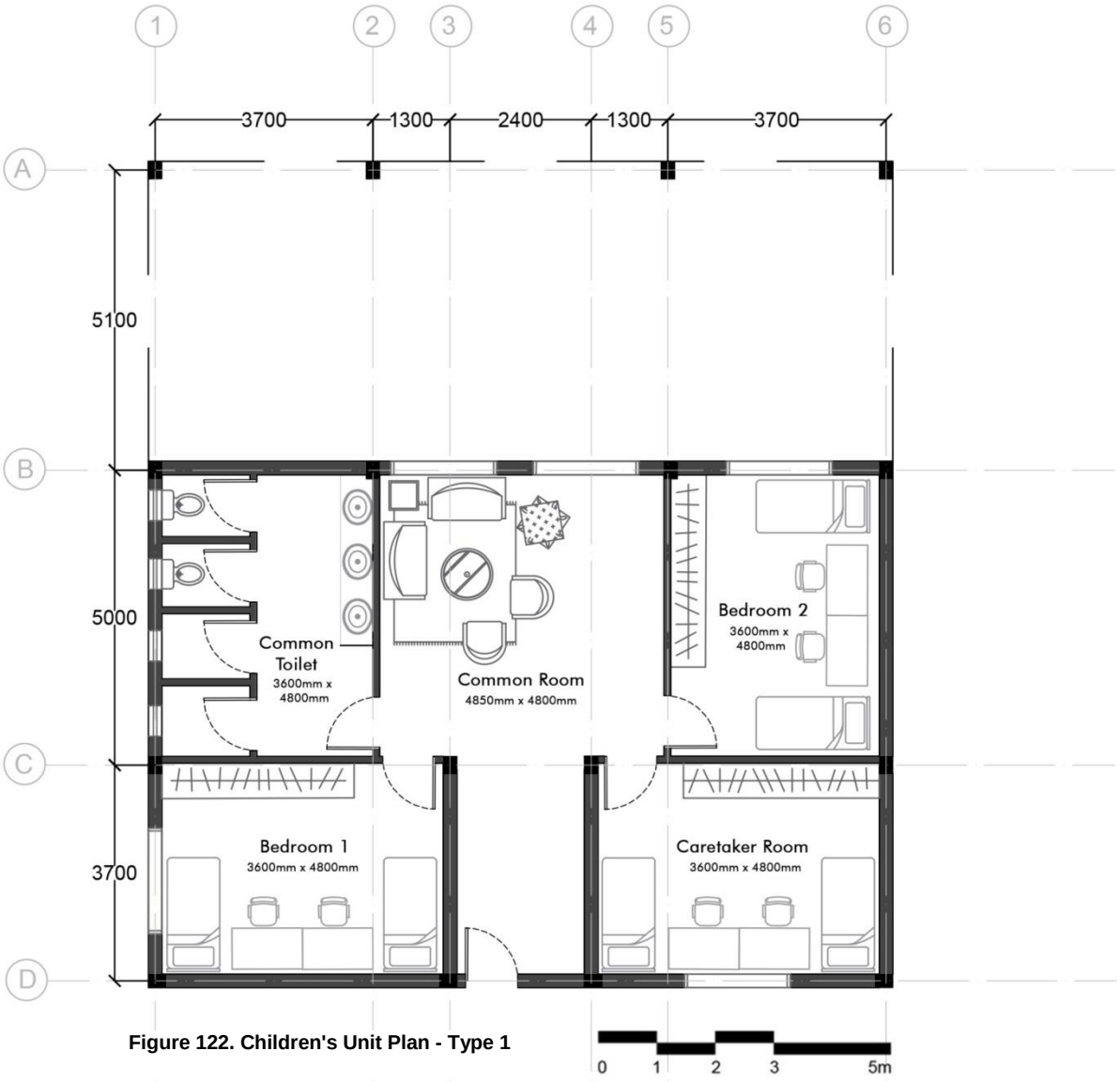


Figure 122. Children's Unit Plan - Type 1

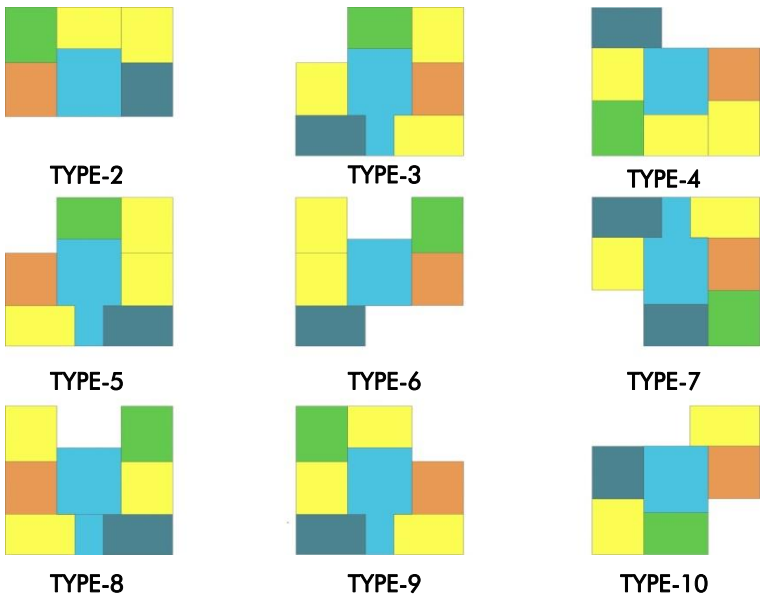


Figure 123. Children's Unit Plan Iterations

6.2.4 Vocational Training Centre, Admin and Clubhouse

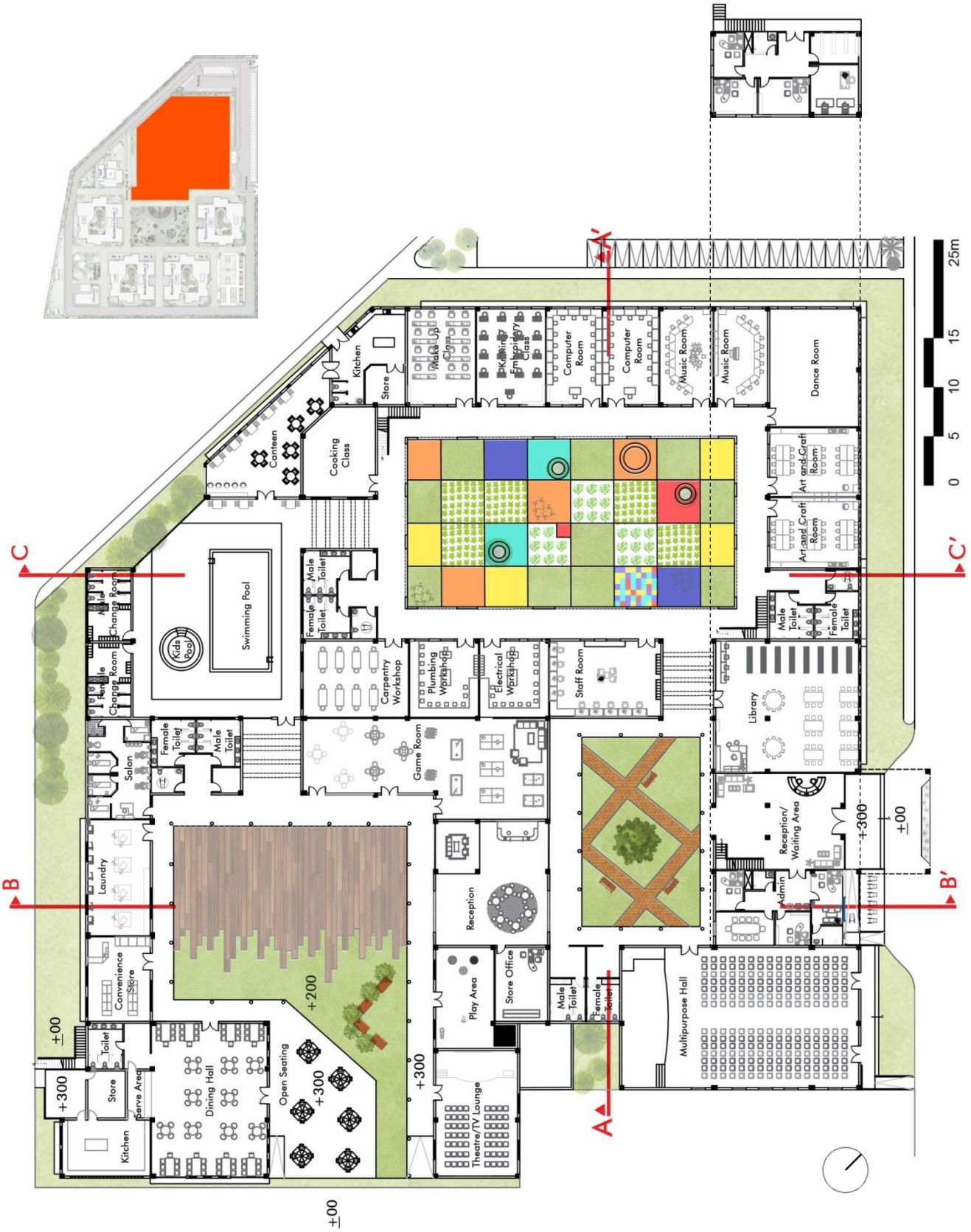


Figure 124. Plan of Vocational Training Centre, Clubhouse and Admin

Figure 126. Vocational Training Block- Elevation A

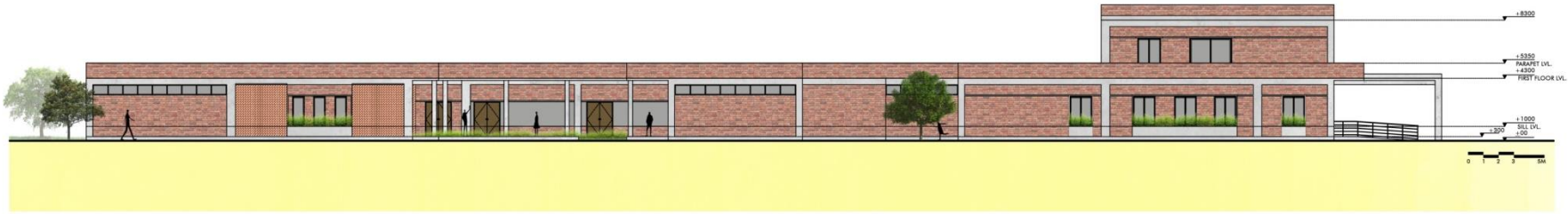
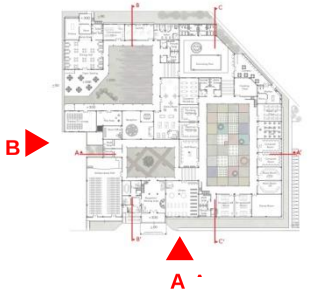


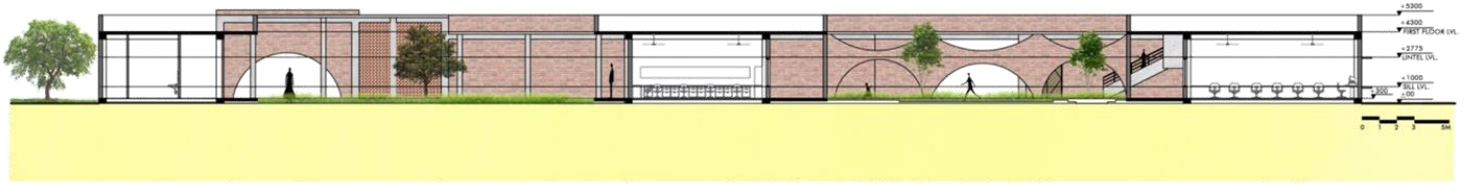
Figure 125. Vocational Training Block- Elevation B

Figure 127. View of Dining Hall and Clubhouse

Along with outdoor play and recreation areas, indoor game rooms, TV Lounge, etc. have been provided.

Along with these facilities like common dining hall, laundry, salon and convenience store have also been provided in the clubhouse.





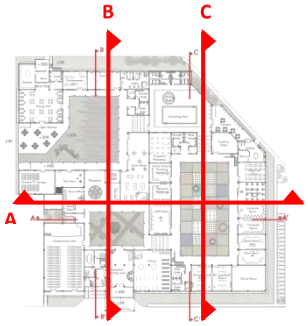


Figure 130. Vocational Training Center Section A- A'

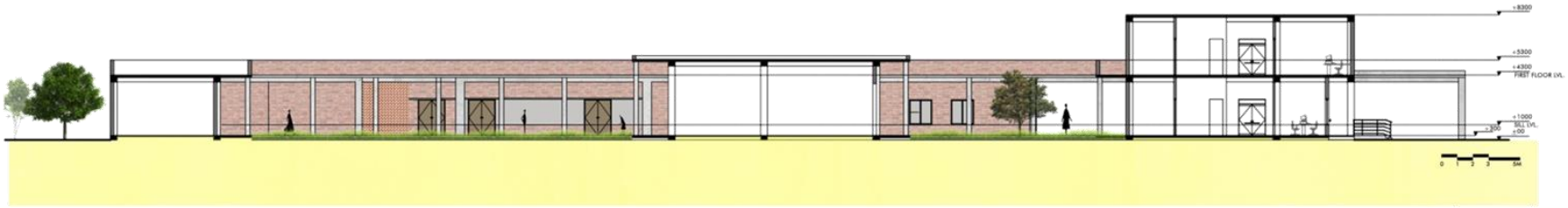


Figure 129. Vocational Training Centre Section B-B'

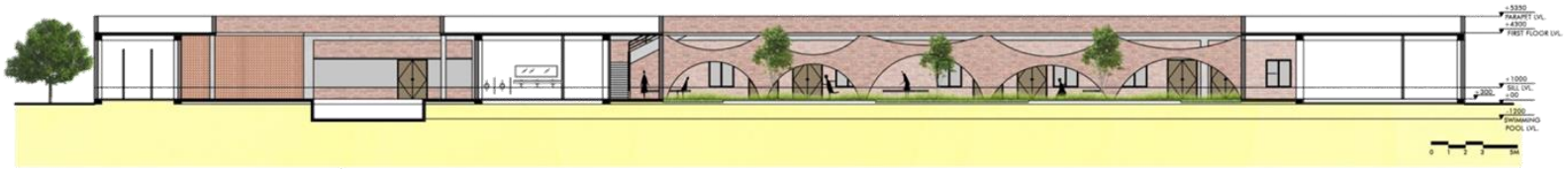


Figure 128. Vocational Training Centre Section C-C'

Figure 131. View of Internal Courtyard in Vocational Centre

6.2.5 Infirmary

Figure 132. Plan of Infirmary

6.2.6 Guest House and Staff Quarters

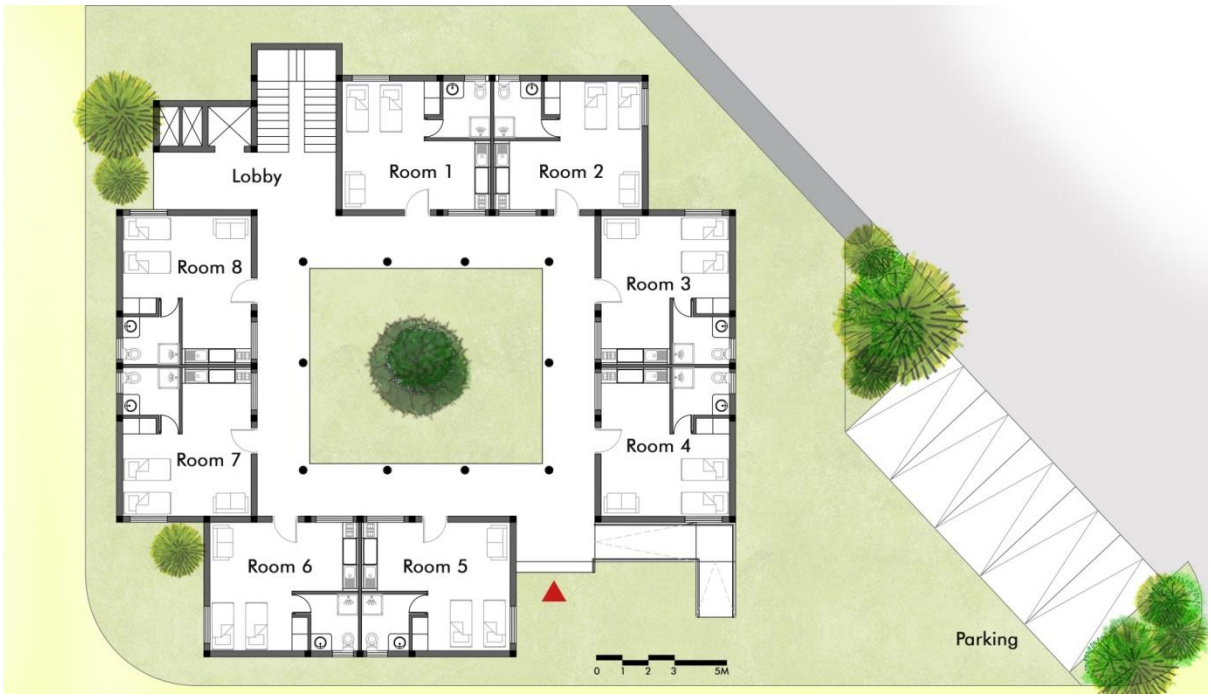


Figure 133. Guest House and Staff Quarters Plan

6.2.7 Service Layout

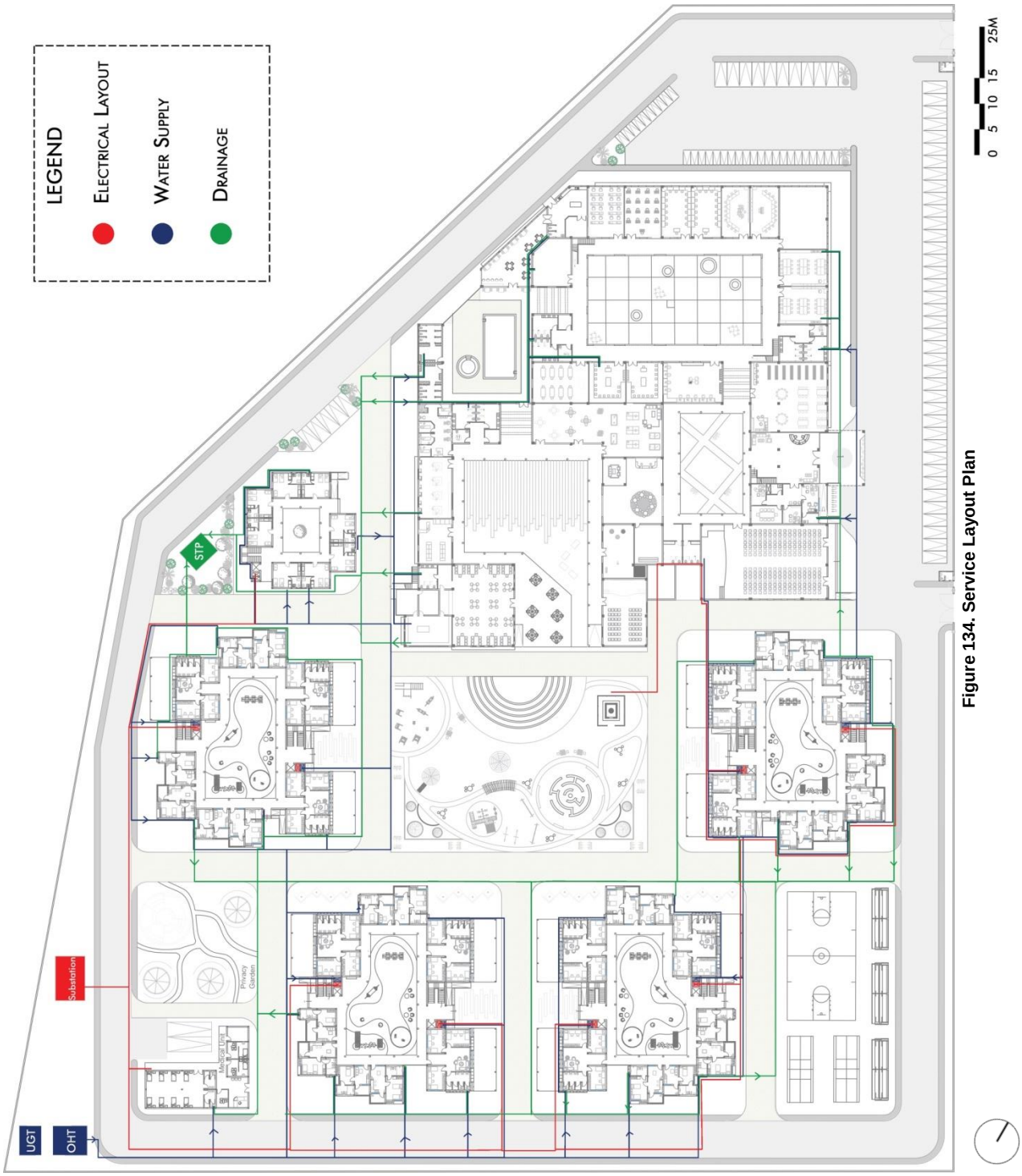


Figure 134. Service Layout Plan

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ANNEXURE I

(Thesis review Presentation)

INTEGRATED LIVING FOR ORPHANS AND ELDERLY

Lucknow, Uttar Pradesh

Tanushi Goyal
2015BARC020

NEED FOR THE PROJECT

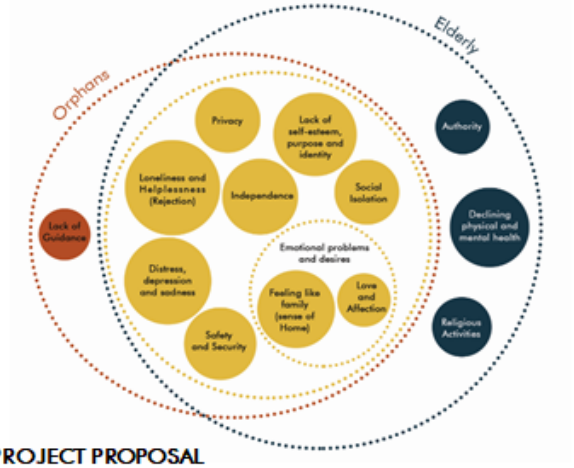
Human life starts out as dependent and through aging ends-up as dependent. The two stages of life- childhood and old age are very similar to each other. In both stages, a person requires the support of family to function properly. Unfortunately, everyone is not lucky enough to get this support.

SYMBIOTIC RELATIONSHIP

The idea of "non-familial intergenerational interactions" is based on the apparently basic thought that old and young can bring new vitality, knowledge and excitement to one another's lives.

SIMILAR NEEDS AND PROBLEMS

By carefully studying and incorporating the needs for both the ages, a homely and familiar environment which has a sense of family and attachment can be created to produce a positive effect and bring about better physical and emotional well-being, which is missing by both.



PROJECT PROPOSAL

This project aims to create a platform wherein both the generations can co-exist and give each other, what they are missing. This will help create an environment where they can learn from each other and grow.

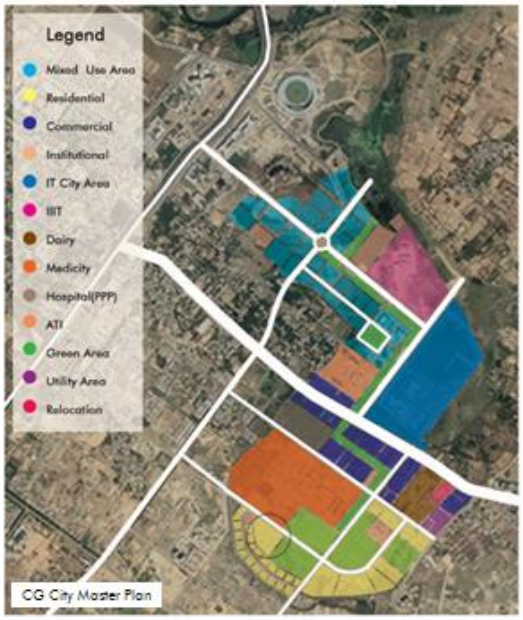
Site Location

The site is located in Chak Ganjaria City in Lucknow. The master plan for the CG City is given by the Architectural firm Archohm Consultants, Noida. In the southern part of the city, residential zone is planned in which a land for senior living has been proposed.

Orientation, Shape, Dimensions

The longest side of the site is approximately 230 m which is along the main access road and is oriented towards north east.

Accessibility



02 SITE INTRODUCTION

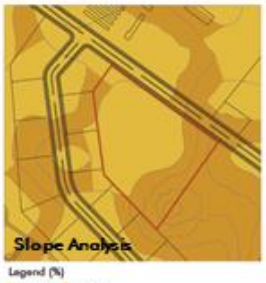
Integrated Living for Orphans and Elderly

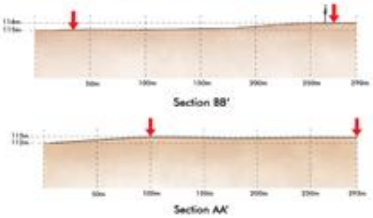
Design Thesis Semester X

Building Bye-Laws

Ground Coverage: 35%
FAR: 1.5
Maximum permissible Height= 15m
Setbacks: 5m on all sides

1 sq.m. per person or 15% of the site area, whichever is more should be left as open space.





Topography

The site is nearly flat with a gentle slope along the North-West direction.

The maximum slope percentage lies between 1- 5%.

Mild temperate climate with cool, dry winters and dry, hot summers with sunshine.

Monsoon winds flow from east and north east and the winter winds from west and north west.

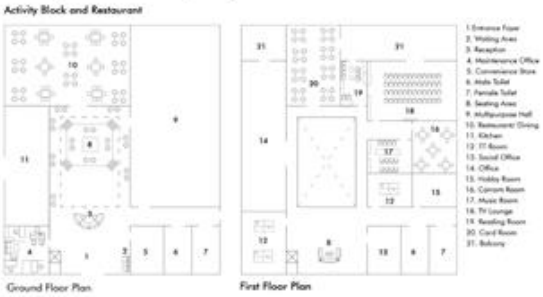
03 SITE STUDY

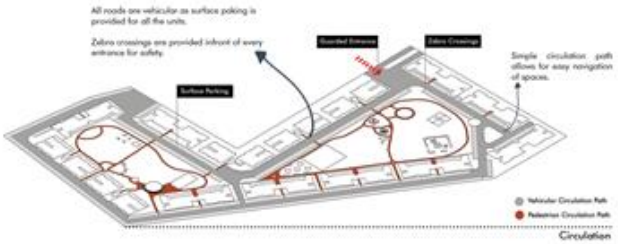
Integrated Living for Orphans and Elderly

Design Thesis Semester X

Ashiana Utsav Senior Living, Bhiwadi, Rajasthan

OBJECTIVE: The objective of this case study is to understand how activities and open spaces can be designed to meet the needs of the elderly. The main focus would be on the **types of activities** provided and the **planning of open landscaped areas** and also planning at site level.

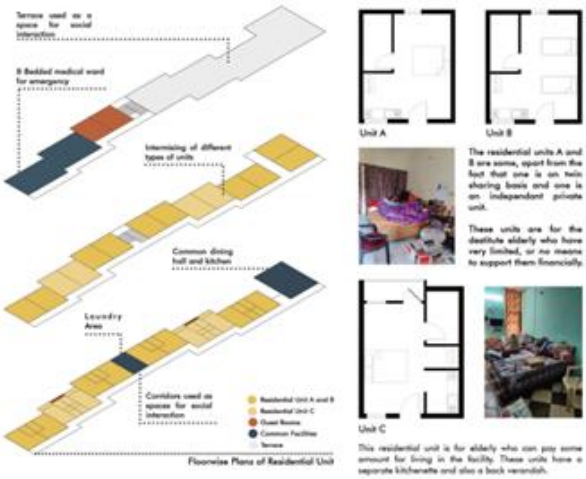




Ayudham Society for Old and Infirm, Delhi

The facility along with providing shelter to elderly also runs a program by the name of "Aastha", wherein children from different age groups belonging to the nearby villages come to study and also to gain some vocational skills.

OBJECTIVE: This case study is conducted to understand the **type of residential units** that are provided in old age homes, and also to study how the kids in the Aastha program interact with the elderly residents.



The residential units A and B are same, apart from the fact that one is on twin sharing basis and one is an independent private unit.

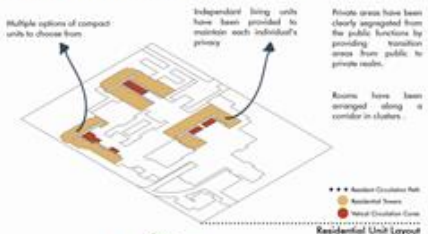
These units are for the destitute elderly who have very limited, or no means to support them financially.

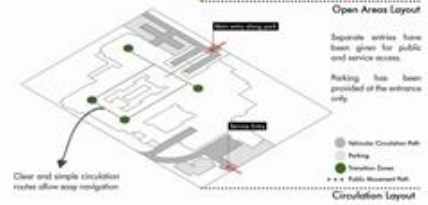
This residential unit is for elderly who can pay some amount for living in the facility. These units have a separate kitchenette and also a back verandah.

Tsukaguchi Senior Housing Community, Japan

This development accommodates senior citizens in a lush mountain side community and creates a mixed-use environment that goes beyond the stereotypical institutionalized housing typology for the elderly.

OBJECTIVE: The Purpose of this case study is to understand the **types of activities** that can be incorporated to integrate general public with the residents, and how it can be done.
It can also help to understand how **nature can be incorporated** into design to take advantage of its healing effect.





Municipal Orphanage, Amsterdam

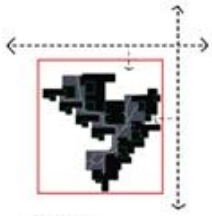
The design tries to achieve a balance by creating an environment of a home as well as a small city, on the suburbs of Amsterdam City.

OBJECTIVE: This case study is done to understand the overall planning of an orphanage including the types of spaces and their layouts, creating a balance between built and open environment and providing proper lighting and ventilation.

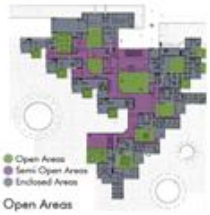
Ground Floor Plan

Program units, within the orphanage are planned on an orthogonal grid and are connected to two diagonal paths in order to provide multiple exterior façades for each unit.

Each unit within the grid is provided with its own outdoor area. The design comprises two modules sizes, the smaller size used for the residential units, and the larger one dedicated to community spaces.


Circulation

Zoning

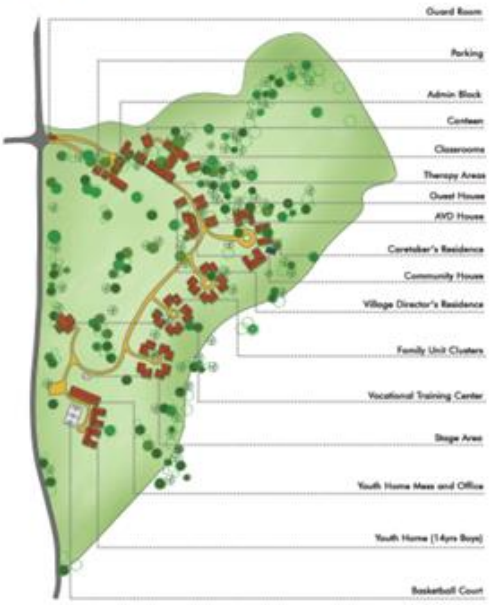


Open Areas

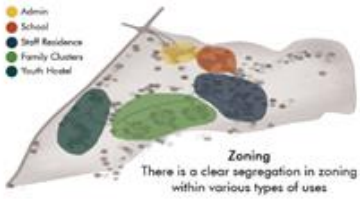
SOS Children's Village, Khajuri Kalan, Bhopal

The SOS Children's Village in Khajuri Kalan, Bhopal, is one of it's kind as it provides shelter to normal as well as disabled orphans upto 20 years of age.

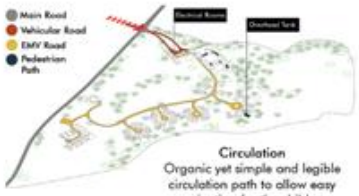
OBJECTIVE: This case study is done to understand the design of **"Family Homes"** which are typical to SOS Children's Villages. Also, it will help to understand the idea of **planning in clusters** to create a neighbourhood-like environment.



Site Plan

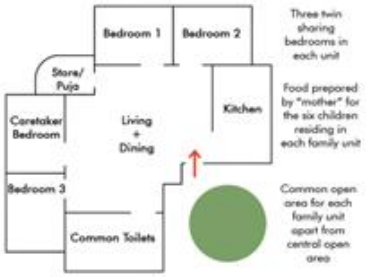


Zoning
There is a clear segregation in zoning within various types of uses



Circulation
Organic yet simple and legible circulation path to allow easy navigation for the children

Family Unit Cluster



Key Takeaways from Case Studies

Spatial Planning
- Planning in the form of **clusters around courtyards** and in such a manner that interaction is encouraged between different age groups.
- Optimum distance between various activities to encourage exercise.
- **Caretaker units to be integrated** with living units for children.

Path Configuration and Circulation
- Use **simple and clear path** configurations as it allows easy navigation.
- Provide **multiple circulation options.**
- Plan **vehicular and pedestrian paths separately** for the safety of residents of both the generations.

Outdoor Areas and Link to Nature
- Provide **multiple small open spaces** having different characters according to the age group and also a different degree of privacy.
- Integrate activities into open spaces and plan them along circulation paths to promote interaction.
- Place Units and activities such that they get a **view of green spaces** or are in some form linked to the natutre.
- Articulate the circulation spaces with natural elements.

Community Activities and Functions
- Provide **activities that are age specific** and also ones that can be of interest to both the generations.
- Integrate functions to allow access of public into these areas to **encourage community interaction like- library, restaurant, etc.**

CASE STUDY
Integrated Living for Orphans and Elderly
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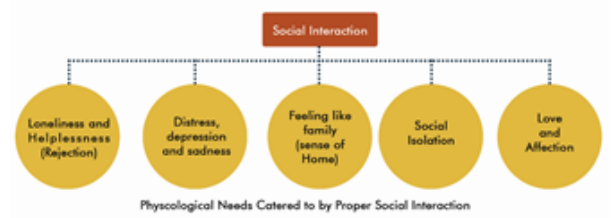
SOCIAL INTERACTION

Social interaction or the responses of individuals to each other, is perhaps the basic sociological concept, because such interaction is the elementary component of all relationships and groups that make up the human society.

Social interaction in itself can cater to a number of psychological needs of both the generations.



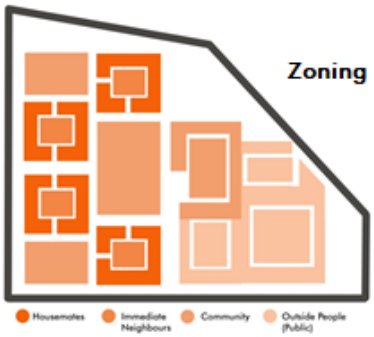
Physcological Needs Catered to by Proper Social Interaction

In an institutional care setting, social interaction and community activities become essential to help lead a normal life, thus, enabling SOCIAL INTERACTION between the age groups is the primary basis of the design.

Degrees of Social Interaction

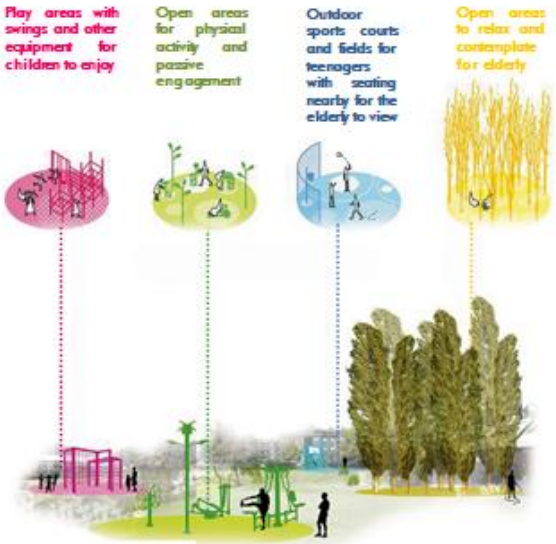
Each human being is very different from the other and so is their behavior in the society. The preferred levels and degree of interaction maybe different for different people. Thus, the design should be such that it encourages people to interact at different degrees at their comfort, and not force them to do so.

House mates < Immediate Neighbours < Community < Outside People



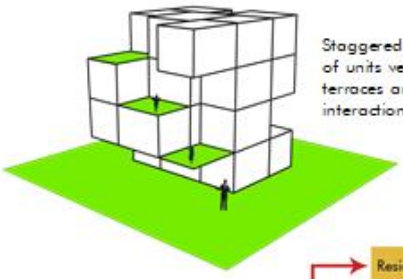
Zoning has been done keeping in mind the different degrees at which people interact, and also the security and privacy of the residents.

Instead of one large open area, pockets of open spaces have been planned having different sizes, characters and degrees of privacy.



Each open space has been planned to have a different character suiting to the needs of both generations individually and together.

Open Areas should have various qualities to make them suitable for social interaction and community activities

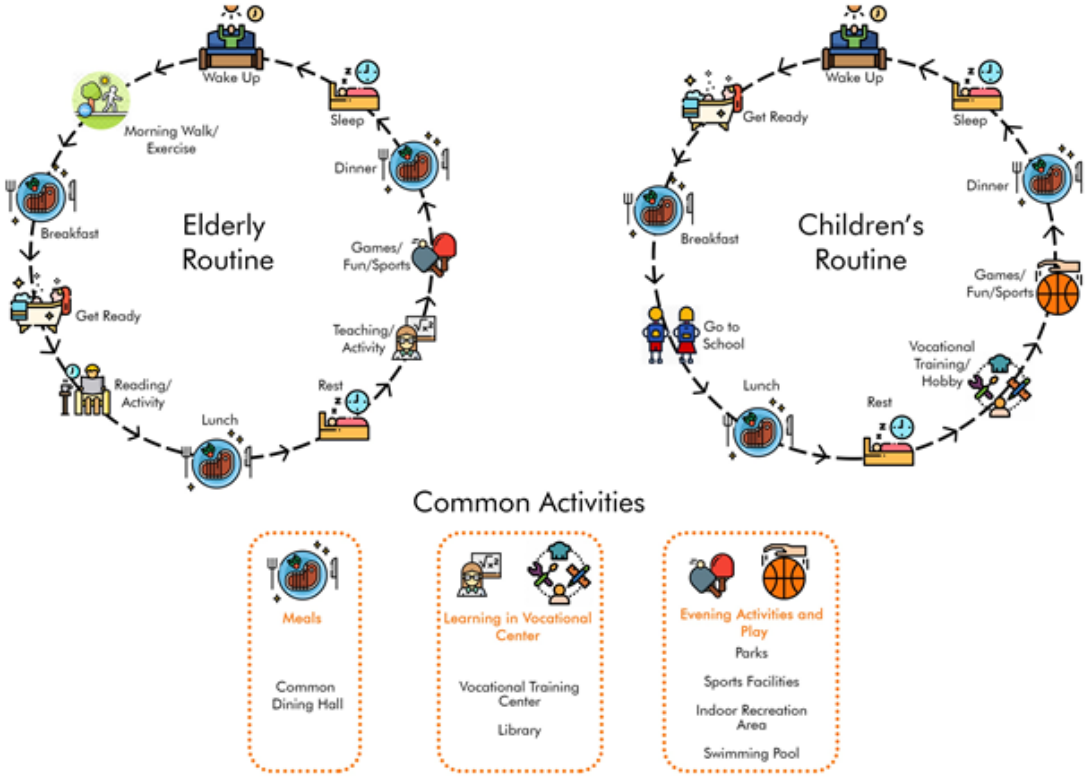


Staggered arrangement of units vertically, to form terraces and permit social interaction

Relationship Diagram of Children's Unit

Relationship Diagram of Elderly Unit

Site Area: 34,800 sqm.
Permissible Ground Coverage: 12,180 sqm
Ground Coverage Achieved: 10,240 sqm.
Permissible FAR: 1.5
Permissible Builtup Area: 52,200 sqm.
Builtup Area Achieved: 26,600 sqm.



DESIGN CONCEPT
Integrated Living for Orphans and Elderly

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06 **SITE PLAN**
Integrated Living for Orphans and Elderly

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The plan shows how the residential clusters are connected to one another and to various open areas on site.

All clusters have two access points which connect them to the open areas and the adjacent residential cluster.

07 **GROUND FLOOR PLAN-Connectivity Diagram**
Integrated Living for Orphans and Elderly

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Semester X

View of Residential Units from Central Open Area

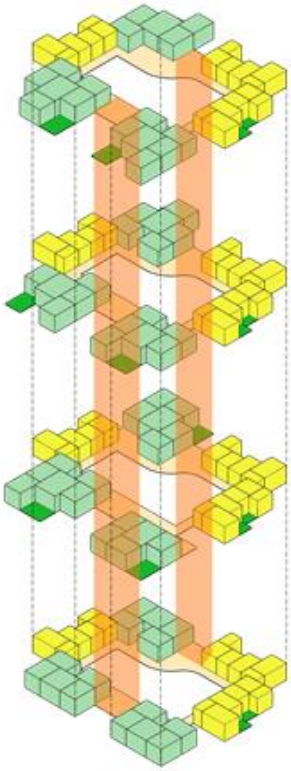
The central open area has been designed to incorporate various activities for both children and elderly.

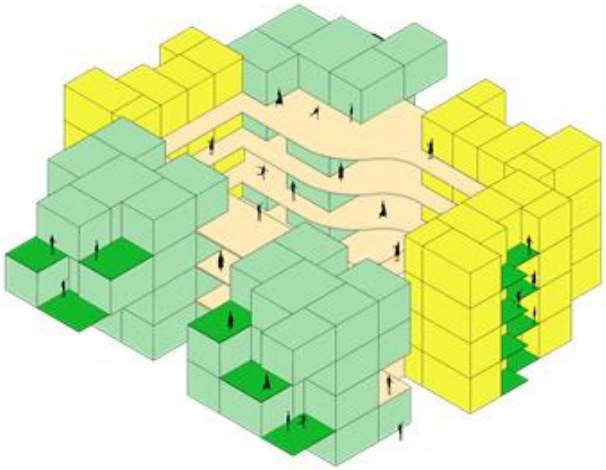
This includes shaded seating areas, outdoor gym, walking and cycling tracks, amphitheater, a temple, swing area, chess corners, etc.

View of Stilt Area between Residential Clusters

This open area has been designed with seating areas for elderly and children. Along with that, this area can be used for cycling and playing nearby the house with surveillance of the caretakers.

It can also be used to park the children's cycles.





LEGEND

- Children Unit
- Elderly Unit
- Circulation
- Vertical Circulation
- Balconies

Vertical Zoning of Clusters

Both elderly and Children Units are planned in the same cluster to allow intermingling.

Children Units have been staggered vertically to create terraces which can be used as spaces for interaction and play.

This staggering has also helped to create small intermingling areas on each floor to allow the scope of social interaction.

08 RESIDENTIAL UNIT CLUSTERING
Integrated Living for Orphans and Elderly

Design Thesis
Semester X

The residential units have been arranged in clusters around a central courtyard. This courtyard has been designed to incorporate the needs of both the generations.

Bird feeders, Tulsi Plant, Hopscotch, Swings and seating areas have been incorporated along with trees and flowers to provide a natural environment for interaction.

The ground floor in all clusters are dedicated to infants and very young children (upto 6 years).

KEY PLAN

09 RESIDENTIAL CLUSTER GROUND FLOOR PLAN
Integrated Living for Orphans and Elderly

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Semester X

View of Internal Courtyard in Residential Clusters

View of Intermingling Space on First Floor

RESIDENTIAL CLUSTER SECOND FLOOR PLAN

Integrated Living for Orphans and Elderly

Design Thesis
Semester X

View of Intermingling Space on Second Floor

KEY PLAN

RESIDENTIAL CLUSTER THIRD FLOOR PLAN

Integrated Living for Orphans and Elderly

Design Thesis Semester X

View of Intermingling Space on Third Floor

10 RESIDENTIAL CLUSTER - ELEVATION A
Integrated Living for Orphans and Elderly

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KEY PLAN

RESIDENTIAL CLUSTER - ELEVATION B

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KEY PLAN

RESIDENTIAL CLUSTER - ELEVATION C

Integrated Living for Orphans and Elderly

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KEY PLAN

RESIDENTIAL CLUSTER - ELEVATION D

Integrated Living for Orphans and Elderly

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KEY PLAN

11 **RESIDENTIAL CLUSTER - SECTION A-A'**

Integrated Living for Orphans and Elderly

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RESIDENTIAL CLUSTER - SECTION B-B'
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RESIDENTIAL CLUSTER - SECTION C-C'
Integrated Living for Orphans and Elderly

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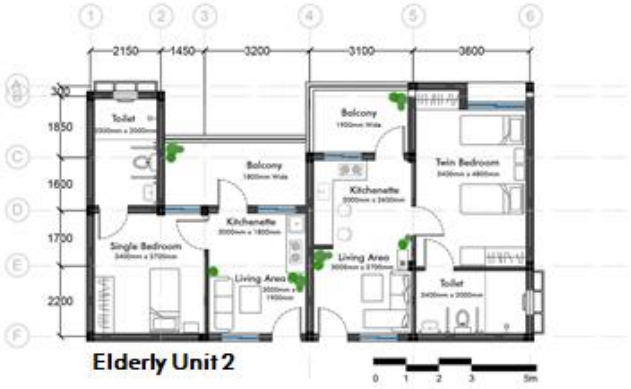
Semester X

Elderly Unit 1

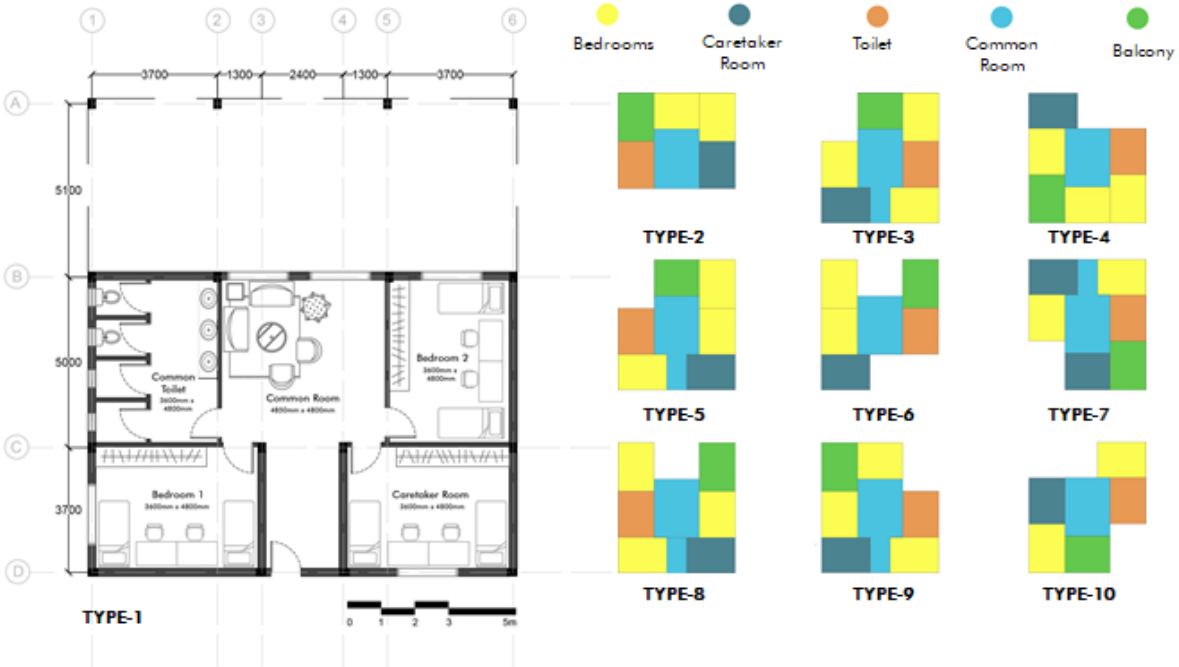


Elderly Unit 2

KEY PLAN

12 **UNIT PLANS – ELDERLY UNIT**
Integrated Living for Orphans and Elderly

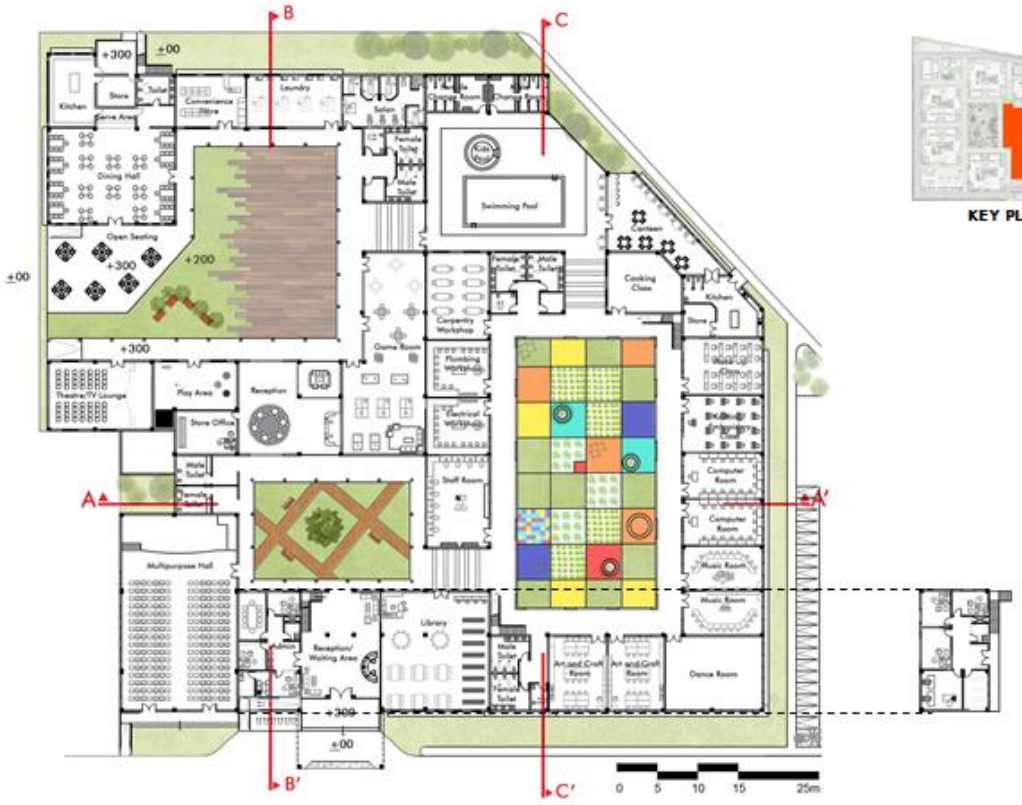
Design Thesis
Semester X



Plan Iterations for Children Unit

UNIT PLANS – CHILDREN UNIT
Integrated Living for Orphans and Elderly

Design Thesis
Semester X



KEY PLAN

13 **VOCATIONAL CENTER AND CLUBHOUSE PLAN**
Integrated Living for Orphans and Elderly

Design Thesis
Semester X

Elevation A

Elevation B

View of Dining Hall and Clubhouse

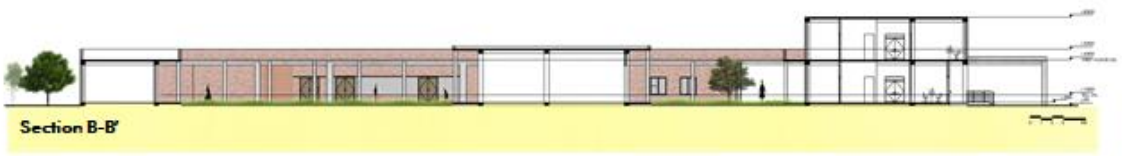
Along with outdoor play and recreation areas, indoor game rooms, TV Lounge, etc. have been provided.

Along with these facilities like common dining hall, laundry, salon and convenience store have also been provided in the clubhouse.

KEY PLAN

14 **VOCATIONAL CENTER AND CLUBHOUSE - ELEVATIONS**
Integrated Living for Orphans and Elderly

Design Thesis
Semester X



Section C-C'

15 **VOCATIONAL CENTER AND CLUBHOUSE - SECTIONS**
Integrated Living for Orphans and Elderly

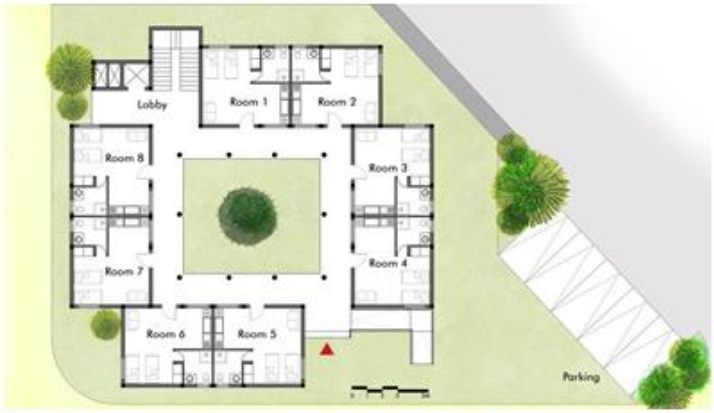
Design Thesis
Semester X

View of Internal Courtyard in Vocational Training Center

KEY PLAN

KEY PLAN

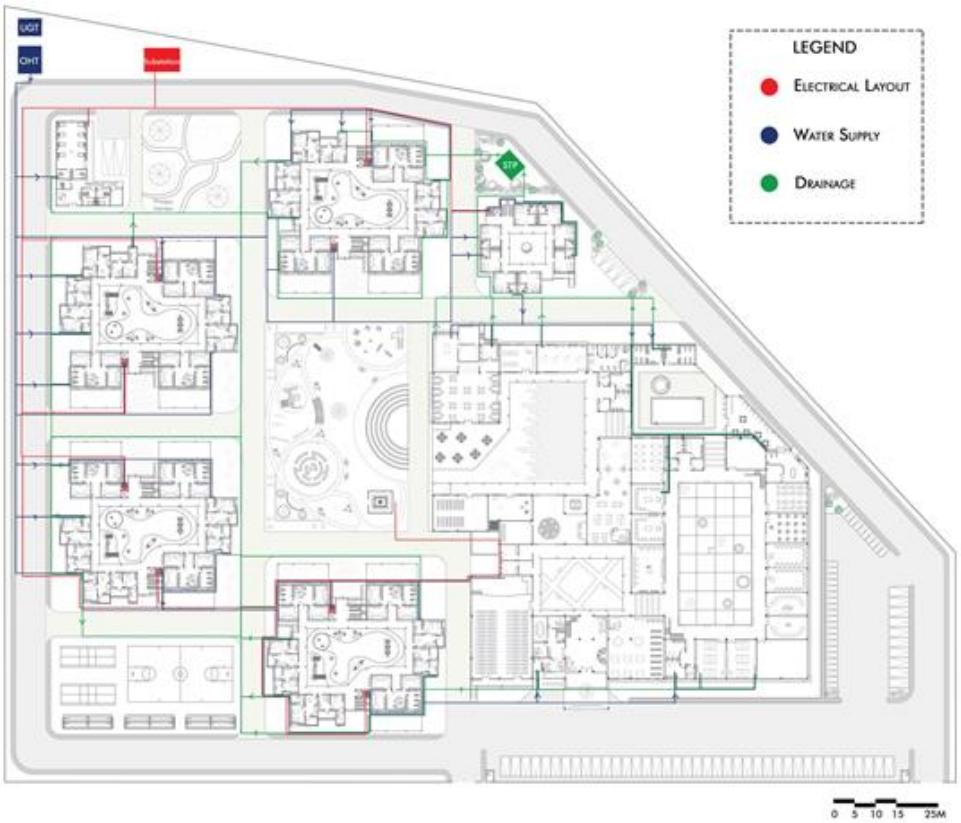
Infirmary



Staff Quarters and Guest House

16 **INFIRMARY AND STAFF QUARTER PLAN**
Integrated Living for Orphans and Elderly

Design Thesis
Semester X



17 **SERVICE LAYOUT ON SITE**
Integrated Living for Orphans and Elderly

Design Thesis
Semester X

ANNEXURE II

(Jury Comments)

There was a difference in opinion regarding the concept of children and elderly living together in a similar facility.

There were no comments on the design itself.