

URBAN RETIREMENT HOME

(REVIVIFYING RETIREMENT HOME)

A THESIS

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Architecture degree

By

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DEPARTMENT OF ARCHITECTURE
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SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY) Accredited

With Grade “A” by NAAC

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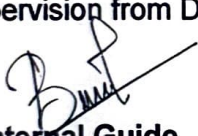
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BONAFIDE CERTIFICATE

This is to certify that Thesis Report is the bonafide work of **ATHIKA V S(39210011)** who carried out the Thesis entitled "**URBAN RETIREMENT HOME**" under our supervision from Dec 2023 to May 2024.


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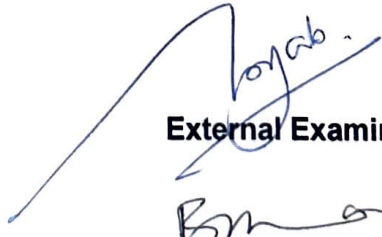


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Submitted for Viva voce Examination held on 15-05-2024


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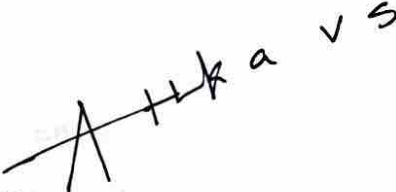

External Examiner

DECLARATION

I, **Athika v s** hereby declare that the Thesis Report entitled "Urban Retirement Home- (Revivifying Retirement Home)" done by me under the guidance of **Ar. Brindha** (Internal Guide), **Ar. Catherine** (Internal Review Member) and **Ar. Sriram Ganapathy** (External Guide) Sathyabama Institute of Science and Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Architecture Degree.

DATE: 15-05-2024

PLACE: Chennai


SIGNATURE OF THE CANDIDATE

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ATHIKA V S

THESIS SYNOPSIS

Aging is an extremely complicated procedure developed in time. Aging is part of our development, as we age,

we learn, and as we learn, we develop physically, mentally, socially.

"Aging is under environmental and genetic control but it is not programmed nor it is inevitable."

Thus, issues accompanying aging like the loss of bodily function were the spirit wants but the body fails to execute in bound to happen. The transition time from adult to senior is the period where the value of a person to the rest of the people and its own identity begins to be in question. The realization of physical boundaries, endurance and fear of injury, the development of chronicle illnesses along with negative emotions of losing control from the facts happening around, are all signs of aging were things are not as they used to be. During the aging process, the living needs change, the tiered body starts declining, and chronic diseases start emerging. Inhabitation, mobility, and living isolation start becoming an everyday problems and the need for assisting help a must. This is the period were seniors start recognizing the extra need for assisting in order to perform the simplest activities of everyday life.

This thesis is proposing a different type of Senior Living were the environmental conditions will be able to improve the residents quality of life by bringing them together with a variety of ages and activities demonstrating how it will be beneficial on their mental and physical state. Having in mind, which types of environmental conditions can create the appropriate response is like having in an optimist point of view the power to direct the users' feelings a crucial key for the designing not only of a senior housing project as well as of any kind of building.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

A retirement home, an elder-friendly community, are residential alternative designed specifically for senior citizens after they've retired from full-time work. While there are different types of retirement homes with varying levels of services and amenities.

1.2 NEED OF THE PROJECT

Education is the foundation of any society. It is responsible for the social, economical, and development of society. Schools play an important role in molding a nation's future by facilitating all round development of its future citizens. The lack of proper advanced facilities and maintenance of the existing structures, is an issue that needs farther attention and new solutions. The living space no matter the age of the user always has the ability to influence the users.

In India both the share and size of elderly population is increasing over time. For a country like India this may pose mounting pressure. To reap the advantage of demographic dividend, the focus is mainly on the children and the youth and fulfilment of their basic needs for proper development, there by ignoring the aged. Also, the changing family value system, economic compulsions of the children, neglect and abuse has caused elders to fall through the net of family care. Also, this segment of people face medical and psychological problems. But the problems and issues of its grey population has not been given serious consideration in our country.

From 5.6% in 1961 it is projected to rise to 12.4% of population by the year 2026 and the old-age dependency ratio has climbed from 10.9% in 1961 to 13.1% in 2001. About 65% of the aged are dependent on others for their day-to-day maintenance.

The phenomenon called 'grand dumping' is becoming common in urban areas these days as children are being

increasingly intolerant to their parents health problems. According to an estimate nearly 40% of aged living with their families are reportedly facing abuse of one kind or another, but only 1 in 6 cases actually comes to light. Half the oldest-old population are widows. More than 9 million people die every year in India. WHO estimate is that 5.4 million (60%) of these people die in pain and misery.

1.3 AIM AND OBJECTIVE

To use architecture as a key element in designing an intentional community for senior citizens where the needs and requirements will be met along with creating an atmosphere which is peaceful, harmonic, and promotes unity in diversity.

1.4 OBJECTIVE

STUDY OBJECTIVE:

-To study their psychological and mental state, their lack of preparedness for ageing and most importantly their health concerns.

- To study the aspects of barrier free.

To study about independent units, assisted living and skilled nursing care.

- To study the various facilities, services and activities.

DESIGN OBJECTIVE:

-To provide recreational spaces to keep them healthy and happy.

-To provide learning and growing spaces to keep them engaged.

-Promoting sense of community between residents, including clusters of residences and shared commons.

To offer independent units, assisted living and skilled nursing care.

- To establish a flow across various spaces.

-To provide activities that makes the community self sustained.

-To provide a universal design.

1.5 SCOPE

An Elder-friendly Community engages in a community building process that involves assessment, planning that anticipates and prepares for the aging of its citizens, and implementation. This results in policies and actions that maximize opportunities to age successfully.

As long as possible, older residents of an Elder-friendly Community are:

- * Meeting their basic food, shelter, medical, and safety needs.
- * Self-sufficient & independent.
- * Physically, mentally, and spiritually healthy.
- * Living in a safe and comfortable community-based home setting.
- * Active and engaged in their community.

CHAPTER 2

THEORITICAL STUDY

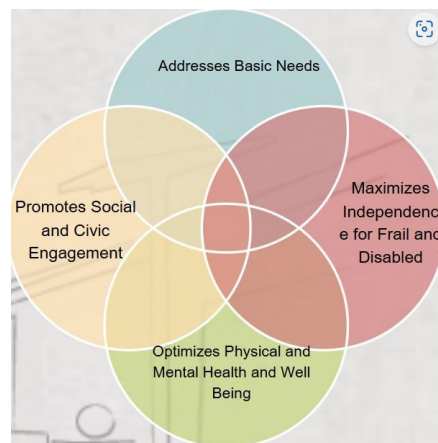
2.1 SENIOR LIVING IN INDIA

India seventy-five years ago there was no requirement of separate senior living as there existed this concept of Joint living where the seniors were taken care of by their children relatives so aging in their own homes was common. The disintegration of this concept of joint families into nuclear families and independent living due to the globalization has made aging in their own homes for the vulnerable senior citizens difficult. This difficulty mainly arises due to the designers not considering the old and the frail while designing.

The Census data of 2011 states that 15 million elderly Indians were living alone and almost three-fourths of these were women. As per 2015 report, The State of Elderly in India, published by non-profit organisation HelpAge India, there are more than 100 million senior citizens currently in India. By 2021, this number is expected to reach 143 million. A recent report by Confederation of Indian Industry (CII) called Indian Senior Care Industry 2018, states that "In about 30 years from now, the elderly population in India is expected to triple from 104 million in 2011 to 300 million in 2050, accounting for 18% of the total population in 2050."

In India, a country of over a billion people, one in every two elderly individuals suffers from loneliness, says a study by the Agewell Foundation. India's ageing population struggling with loneliness. In addition, according to the study, every fifth senior citizen in the country is in need of some kind of psychological counselling. Almost every second elderly person (48.88 percent) is living with their spouse only and as many as one in every four (25.3 percent) are living alone. [1]

2.1.1 INTERGENERATIONAL CONCEPT



Present Built Environment In Metropolitan Cities.

here's millions of people living in the cities passing by thousands of people everyday, yet the people feel the most isolated in such metropolitan cities. The need for privacy is increasing and tolerance for compromise is reducing. Our communities and family structure have also changed with the demise of the joint family system and there is an exponential increase in the number of nuclear families and single people.[1] There are many studies proving the adverse effects of regular interactions on the mental and physical state of people. Social isolation has been determined to be "on a par with high blood pressure, obesity, lack of exercise or smoking as a risk factor for illness and early death." [2]

Densely populated metropolitan landscapes pose unique psychological challenges not found in other environments. Social isolation and chronic loneliness in cities is a growing epidemic. [3]

A study on "Undoing solitary urban design: a review of risk factors and mental health outcomes associated with living in social isolation" by Kevin Bennett, Tyler Gualtieri and Becky Kazmierczyk published on the website of Urban Design Mental Health discuss what factors of the urban housing feel similar to a prison design where isolation(solitary confinement) is used as a form of punishment which only has proven negative psychological effects.

Social isolation and the need for the community:

As the demand for housing increases in metropolitan cities, the value of land increases which leads to accommodating high density in the available land. This is possible by the construction of high rise structures which satisfies the requirement of housing for the desired density. The increase in the value of land makes the contractors/architects utilize the maximum available space in any given plot for the construction of units which reduces the number of interaction spaces and open spaces. This lack of interaction spaces and housing for high density would lose the sense of community as people wouldn't get to know each other making them confined to their homes.

We people have mastered private life but in doing so we ignored public spaces that provide structure to our social lives "community cannot form in the absense of communal space". The people who're getting affected by such communities are mainly people who are living alone and would like to lead an active community life.

Creating a community specifically for people who would like to form new relations might create a positive impact on the lives of the residents and could influence the design of future communities.

Strategies for Building Community

In the Urban planning level, the sense of belonging to a place is lacking due to private housing being encouraged. Nature, in 2011, published a research that said the

"brains of urban dwellers become physically more susceptible to stress compared to their country counterparts" because of social fragmentation, noise, lack of control, subordination and overcrowding.

The solution for this problem is considering the senior citizens and young adults who get affected by the built environment of the urban spaces and would like to lead an active life where people feel that these spaces were designed considering their requirements too.

Dunbar's number is a suggested cognitive limit to the number of people with whom one can maintain stable social relationships in which an individual knows who each person is and how each person relates to every other person.

Community ideals of new urbanism which consists of cluster dwellings which make the community feel more closely knit encouraging the people to communicate by providing more civic spaces and open green spaces for community members to share, enjoy and socialize.

Making this community to human scale where people feel safe and feel like they belong to this neighborhood is the main goal. Co-housing combines the privacy requirements of individuals perfectly with socialization required.

2.2 SENIOR HOUSING

Whole interiors are done with paper tubes. Paper tubes are supported by brick wall of height 0.2m from the floor level. And top of the brick wall 2 inch concrete coping is done and on that paper tubes are placed and screwed with iron rod inside the paper tube for stability to with stand. Each paper tube is of 100mm thick and each paper tube is screwed with another paper tube for the stability of the wall. Paper tube wall does not take any structural load. Paper tubes are used only for the interiors partition walls

Mobility limitations are defined by impairment or dependence in movement and affect between one third and one half of adults aged 65 or older [1]. This plays a major role in the mental health as well as physical health for people in urban spaces where their requirements are not considered while designing making accessibility to spaces even for their basic requirements a matter of concern. Isolation and loss of social tie › resulting from reduced mobility can lead to depression and other adverse mental health outcomes [2].

Age segregated communities for senior citizens restricts the freedom of the residents who want to lead an active life. Living in an age segregated community would make them talk more about their health issues which could lead to depression among seniors.

Usually age segregated communities are located far from the active cores of cities to create a peaceful environment for the seniors but such locality makes them feel like outcasts as the transportation would not be available easily at affordable rates. Asking a few senior citizens about their stay in old-age homes revealed that the lack of communication with the rest of the society makes them feel left out and the lack of open green spaces ‹there people can communicate makes the facilities feel formal and like institutes. The reasons stated in an Agewell study were less interaction with family members, poor health, and isolation and non-availability of social interaction. The fact that India's elderly population can grow to 173 million by 2026 suggests that there lies huge untapped potential, with very minimal current supply in the senior living segment. As per Anarock data, there are currently around 4,500 senior living units available in the market, and more than 2,000 units are in different stages of construction.

2.3 : Types of Senior living

1. Independent Living

2. Options with Assistance

In Search Of An Active Life:

Senior citizens feel excluded from the current urban areas because design considerations to make places universally accessible are the last things to be considered due to spacial constraints and financial constraints. Another issue of the age segregated communities designed specifically for seniors are usually not integrated into existing communities. This creates a feeling of exclusion and lose their individuality making them isolate themselves. Creating a diverse environment combined with an assisted living would be beneficial for the different age groups. The Earth ship, as Reynolds calls it, seeks to make the most of the energy of the sun, water, wind, and earth. The surroundings are sensitive to the orientations, opening to the north to make the most of light and solar energy through a wide glass corridor that acts as a distributor of the three classrooms and two wings of the school.

Design Considerations

Designing for senior citizens requires considering various factors other than just barrier free design elements. Design of the community as a whole like its scale, Colours used and spatial organization play an important role while designing for all the age groups and especially senior citizens. A book named "Design For Assisted Living : Guidelines for Housing the Physically and Mentally Frail" by Victor Regnier explains the requirements of senior housing related to the environment of the facility.

1. Privacy

Provide opportunities for a place of seclusion from company or observation where one can be free from unauthorized intrusion.

2. Social Interaction

Provide opportunities for social interaction and exchange.

3. Control, Choice/Autonomy

Provide opportunities for residents to make choices and to control events that influence outcomes.

4. Orientation/Wayfinding

Foster a sense of orientation within the environment that reduces confusion and facilitates wayfinding.

5. Safety/Security

Provide an environment that ensures that each user will sustain no harm, injury, or undue risk.

Consider matiplato and acesbity as atieroquirement for any functional enviornment.

7. Stimulation/Challenge

Provide a stimulating environment that is safe but challenging. This is important because a stimulating environment keeps the older person alert and engaged. Stimulation can result from color, spatial variety, visual pattern, and contrast.

8. Sensory Aspects

Changes in visual, auditory, and olfactory senses should be accounted for in the environment.

9. Familiarity

Environments that use historical references and solutions influenced by local tradition provide a sense of the familiar and enhance continuity.

Do sigs theirs ane paaappear attractive, provoking, and noninstitutional.

11. Personalization

Provide opportunities to make the environment personal and to mark it as the property of a unique single individual.

12. Adaptability

An adaptable or flexible environment can be made to fit changing personal characteristics

CHAPTER 3

BARRIER FREE

Barrier Free Environment is one which enables people with disabilities to move about safely and freely and to use the facilities within the built environment. The goal of barrier free design is to provide an environment that supports the independent functioning of individuals so that they can get to, and participate without assistance, in every day activities such as procurement of goods and services, community living, employment, and leisure.

TYPES OF DISABILITIES:

Various, disabilities which have been considered while preparing the guidelines for barrier free built environment are broadly classified under four categories

1. Non-Ambulatory : Impairments that, regardless of cause or manifestation, for all practical purposes, confine individuals to wheel & chairs.
2. Semi-Ambulatory : Impairments that cause individuals to walk with difficulty or insecurity. Individual using braces or crutches, amputees,

arthritics, spastics & those with pulmonary & cardiac ills may be semi-ambulatory.

3. Sight: Total blindness or impairments affecting sight to the extent that the individual functioning in public areas is insecure or exposed to danger.

4. 4. Hearing : Deafness or hearing handicaps that might make an individual insecure in public areas because he is unable to communicate or hear warning signals.

Construction and Maintenance Standards

SPECIAL NEEDS FOR THE PERSONS WITH DISABILITIES:-

With regard to the design guidelines the special needs of the persons with disabilities for construction of built environment are as follows.

A. NON-AMBULATORY DISABILITIES

Persons restricted on wheel chair should use the facilities within the built environment alone without a helper's assistance.

Wheelchair Users

A wheelchair may be operated by the user alone or with a helper's assistance. However, wheelchair design must assume that, the user should be able to operate the wheelchair without help.

The width and length of the wheel chair, its control and the diameter of the casters decide the following:

- Width of entrances and exists (clear 900mm)
- Width of the passage / corridor (min. 900mm)
- Slope of the climbing (min. ramp slope 1:12)
- Passing over different levels and grooves (Grating with narrow slots in the direction of movement and---level difference to limit to 2cm or less).

B. SEMI-AMBULATORY DISABILITIES

Persons with impaired walking

Persons in this category who use walking aids such as crutches or canes, who are amputees, who have chest ailments or heart disease. The persons in this category include those who can not walk without a cane and those who have some trouble in their upper or lower limbs although they can walk unassisted.

Design requirements

- Width of passage for crutch users (min. 900 mm)
- Finishes of floor surface with non slip floor material.
- Installation of handrail to support the body weight at the critical places e.g. staircase, toilet, ramp, passage with a change of level (800-850 mm).
- Extension of handrail on the flat landing at the top and bottom of the stairs (300mm).
- To prevent slipping off the cane or crutch from the side of the stairs or ramps (20mm high lip on the exposed edge).
- To prevent a cane or crutch tip from slipping off the side of the stairs or ramp, install a 20 mm high lip on the exposed edge.

MEANS OF ACCESS

- every building or plot shall abut on a public/private means of access like street/roads duly formed meaning .

WIDTH OF MEANS OF ACCESS

- The residential plots shall abut on a public means of access like street/road. Plots which do not abut on a street/road shall abut/front on a means of access, the width and other requirements of which shall be as given in Table 1.

Table 1: Width and Length of Means of Access (Clause 4.3)		
Sl. No.	Width of Means of Access	Length of Means of Access
(1)	(2)	(3)
i)	4.5	75
ii)	7.5	150
iii)	9.0	250
iv)	12.0	400
v)	15.0	1,000
vi)	24.0	above 1,000

NOTE: — If the development is only on one side of the means of access, the prescribed widths may be reduced by 50% in such case.

FOOTPATH

- Minimum Width 1.8 m. The footpath shall be level, non-slip and continuous, and shall be provided with tactile orientation, kerb and kerb ramp.

Sl. No.	Description	Width in m.
i)	Minimum free walkway width and recreational/road use areas	1.8

PATHWAY

- The length of the pathway shall not be more than 30 m. The safety concern of cyclists and pedestrians should be addressed by encouraging the construction of segregated rights of way for bicycles and pedestrians.

HABITABLE ROOMS

HEIGHT

- The height of all rooms shall not be less than 2.75 m.

SIZE

- The area of habitable room shall not be less than 9.5 m², where there is only one room with a minimum width of 2.4 m. Where there are two rooms, one of these shall not be less than 9.5 m² and the other not less than 7.5 m², with a minimum width of 2.1 m.

KITCHEN

HEIGHT

- The height of a kitchen shall not be less than 2.75 m.

SIZE

- The area of a kitchen where separate dining area is provided, shall be not less than 5.0 m² with a minimum width of 1.8 m. Where there is a separate store, the area of the kitchen may be reduced to 4.5 m². A kitchen, which is for dining area, shall have a floor area of not less than 7.5 m² with a minimum width of 2.1 m.
- Mandatory 'gas leak detection systems' shall be installed in all kitchen and rooms with attached kitchen.

PARAPET

- Parapet walls and handrails provided on the edges of roof terraces, balcony, Verandah, etc, shall not be less than 1.0 m and not more than 1.2 m in height from the finished floor level.

BATHROOMS AND WATER-CLOSETS

HEIGHT

- The height of a bathroom or water closet shall not be less than 2.1 m.

SIZE

- The area shall not be less than 1.8 m with a min width of 1.2 m. The floor area of the water closet shall be 1.1 m with a min width of 0.9. If the bath and water-closet are combined, its floor area shall not be less than 2.8 m with a minimum width of 1.2 m.
- Wash basins should be provided with provision of grab rails.
- Toilet paper roll dispensers shall be able to withstand heavy loads.
- Bathrooms shall be provided with outward opening doors.
- Minimum size : 1500 X 1750 MM.
- Min clear opening of the door = 900mm.
- Vertical/horizontal handrails width 50mm. clearance from wall shall be made in the toilet.
- The W.C shall be 500mm from the floor.
- Bathrooms must have anti-skid tiles.



REQUIREMENTS FOR ACCESSIBILITY IN BUILT ENVIRONMENT FOR ELDERS AND PERSONS WITH DISABILITIES

These requirements deal with barrier free access to, movement within and around buildings, by elderly persons and persons with disabilities. The goal of barrier-free design is to provide an environment that supports the independent functioning of differently able individuals so that they can get to, and participate without assistance, in everyday activities such as procurement of goods and services, community living, employment, and leisure.

TYPES OF BARRIERS/DISABILITY

1. Non-Ambulatory

Consists of individuals in wheelchairs.

2. Semi-Ambulatory

Individual using braces or crutches, amputees, arthritics, spastics & those with pulmonary & cardiac ills may be semi-ambulatory.

3. Sight

Total blindness or impairments affecting

4. Hearing

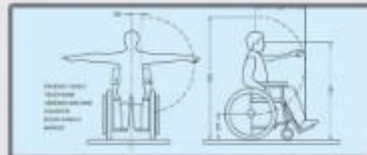
Deafness or hearing handicaps.



MOBILITY DEVICE AND SPACE ALLOWANCE



Necessary Space under counter for ease of wheel chair



Reach Range



Circulation dimensions



Clear floor space



Space Allowance for Crutch Users

SITE PLANNING AND DEVELOPMENT

Walkways and Pathways.

- Texture change in walkways adjacent to seating shall be provided for persons with vision impairment utilizing warning blocks.
- not less than 1 800 mm for two-way traffic (see key 1 of Fig. 26); which may be reduced to a minimum of 1 500 mm, provided that a passing and turning space of at least 1 800 mm x 2 000 mm should be provided for every 25 m (see keys 2 and 5 of Fig. 26); and not less than 1 200 mm for one-way traffic (see key 3 of Fig. 26); which may be reduced to a minimum of 1 000 mm, provided that a passing and turning space of at least 1 800 mm x 2 000 mm should be provided for every 25 m (see keys 4 and 5 of Fig. 26).

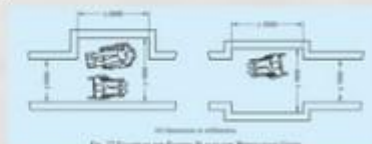


FIG. 27 Dished Channels and Profiles for use in Walkways and Ramps

DRAINAGE OF PATH/ACCESS ROUTES

- boundaries of a path or ramp. Dished channels shall have a maximum width of 150 mm and a maximum drop into gulley of 5 mm.

LIGHTING FOR WALKWAYS

- lighting fixtures not exceeding a height of 4 m from ground level should be provided.
- Lighting shall be provided every 20 m to 30m, focusing light not on the car lanes, but on the walkways.

FLOORS IN CORRIDORS

- Complex patterns shall be avoided.
- Floor patterns that could be mistaken for steps, for examples stripes, shall not be used for floors in corridors.

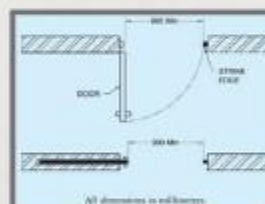
ACCESS WITHIN THE BUILDING

GENERAL REQUIREMENTS

- A clear, firm and level landing of at least 1 800 mm x 1 800 mm shall be provided on either side of the entrance door.
- not be less than 900 mm and the width of the corridors or passageways leading to and from such access door shall not be less than 1 200 mm.
- Routes should preferably intersect at right angles to each other and be easy to follow.
- The minimum unobstructed width of corridors shall be 1 500 mm, with a preference for a width of 1 800 mm.
- Long paths of travel shall be avoided and resting areas shall be provided at frequent intervals not exceeding 30 m.
- Internal floor surfaces shall be of materials that do not impede the movement of wheelchairs. If mat is provided it shall be in level with the floor finish.
- Persons with visual impairments find it easier to locate doors if there is a texture difference in the floor around the doorway from the rest of the flooring.

DOORS

- Bathroom (toilets/washroom) doors should swing out/should be two-way opening type.
- Doorways shall be leveled.
- The minimum clear opening of doorways shall be 900 mm.
- Manoeuvring space at doors:
- On the pull side, a minimum space of 600 mm.
- On the push side, a minimum space of 300 mm.



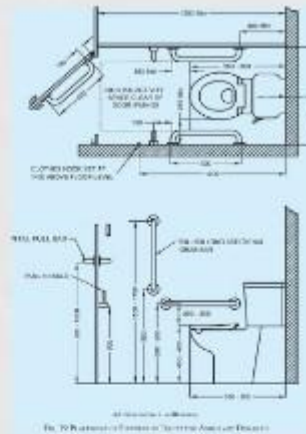
RAMPS

- Ramp Shall Be Finished With Anti-Skid Material.
- Width = 1800mm With 1:12 Gradient
- Shall Not Exceed 9m And Handrails Should Be Provided On Both Sides Of The Ramp With 800mm Height.
- Minimum Gap From Adjacent Wall To The Handrail Shall Be 50mm.

Table 10 Requirements for Ramp
(Clause B-6.2.2)

Sl No.	Level Difference	Maximum Gradient of Ramp	Ramp Width (mm)	Handrail on Both Sides	Other Requirements
(1)	(2)	(3)	(4)	(5)	(6)
(i)	150 mm to 300 mm	1:12	1 200	✓	---
(ii)	300 mm to 750 mm	1:12	1 500	✓	Landings after every 3 m of ramp run
(iii)	750 mm to 1 000 mm	1:15	1 800	✓	Landings after every 3 m of ramp run
(iv)	More than 1 000 mm	1:20	1 800	✓	Landings after every 3 m of ramp run

WHEELCHAIR USER ACCESSIBLE TOILET ROOMS



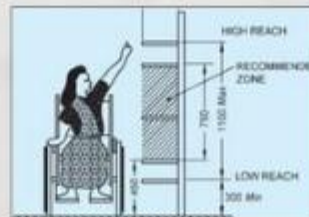
SPACE ALLOWANCE FOR LIVING AND DINING

ACCESSIBLE BEDROOMS IN NON- DOMESTIC BUILDINGS

- Rooms accessible for wheelchair users shall be designed for two beds. If a single bedroom accessible for wheelchair users is provided, a queen size bed is preferred,
- 1 500 mm width x 2 000 mm length.
- Free space on at least one of the long sides of the bed shall be provided. This space should be 1 500 mm, and shall not be less than 1 200 mm. At the foot of the bed, at least 1 200 mm is required .Sufficient clear manoeuvring space is needed to gain access to facilities, including the shower. There should be a bench for luggage at a height between 450 mm and 650 mm.

ACCESSIBLE BEDROOMS IN NON- DOMESTIC BUILDINGS

- Essential kitchen appliances (oven, refrigerator, etc) should be usable by persons both standing and sitting in a wheelchair, and a worktop should be located beside all appliances. The sink taps should be reachable and easy to operate with one hand. The sink should be reachable for a wheelchair user.
- If a knee recess is provided under a sink, its underside should be insulated. Counter tops should be between 750 mm and 800 mm in height and provide for clear knee space for a wheelchair user. The clear knee space for a wheelchair user is at least 900 mm wide, 480 mm deep and 680 to 700 mm high.



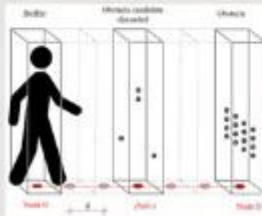
BARRIERS AND HAZARDS:

Unavoidable free standing posts or columns within access routes on pathways shall leave at least unobstructed walking width of 1 000 mm and be clearly marked with visual indicators, one at a height between 800 mm and 1 000 mm above floor level, and the other between 1 400 mm and 1 600 mm above floor level.

The headroom along a path shall be maintained at a height of not less than 2100 mm above the surface of the path..

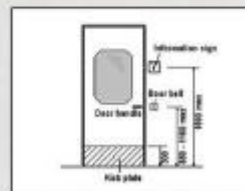
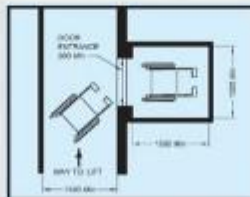
IDENTIFICATION

- Raised letters or numbers shall be used to identify rooms or offices. Such identification shall be placed on the wall, to the left of the door, preferably at a height of 1 500 mm from the floor.



WALKWAY:

- Walkway Should Be Constructed With Non-Slip Material And Different From Other Areas.
- Staircase:
 - Clear Width Not More Than 1500mm
 - Height Of The Riser < 150mm
 - Width Of The Tread - 300mm
 - Handrails Should Be Provided On Both The Sides.
 - 12 Treads in A Single Flight (Maximum).
 - Spiral Stairs Should Be Avoided.
 - Radium / Fluorescent Strips Should Be Installed In All The Stairs.
 - Square Nosing and Open Stairs Should Be Avoided.
 - Steps Should Not Be Introduced Into Corridors.
 - Provide Handrails / Grab Bars On the Stairs. Handrails Shall Be Extended 300mm On Top and Bottom of Each Flight of Steps.



AVERAGE SIZE OF DWELLING UNITS

Area	Number of rooms	Dwelling unit size (sq.mts.)
Plots	1 BHK	40-60
	2 BHK	50-80

INDICATIVE NORMS FOR RETIREMENT HOMES AS GROUP HOUSING

Area	Medical Room	Common Day Space	Convenience Store	Total Open Spaces
Plot	Minimum 15 sq.m (25 sq.m as per norm)	2 sq. ft. per person or 500 sq.m whichever is lesser	2% of Built-up Area (50 sq.m or 30 sq.m, whichever is lesser)	50% of Site area

SPECIFICATION FOR COMMUNITY FACILITIES AND OPEN SPACE

No.	Plot size (sq.mts.)	Ground Coverage (%)	Club	Swimming Pools (sq.mts.)	Target Population (sq.mts.)
1	1000	25	1000	1000	1000

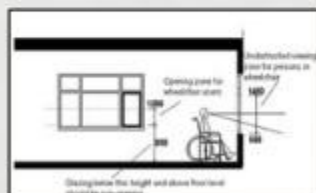
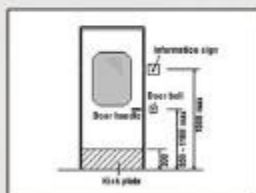
PHYSICAL STANDARDS AND NORMS

GREEN BUILDING PRINCIPLES:

- In order to minimize the exposure of senior citizens to the fumes and exhaust arising from combustion of fossil fuels, it is desirable that there should be maximum (near-total) use of non-polluting and renewable energy sources in Retirement Homes.

BUILDING DESIGN:

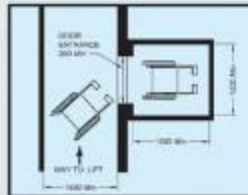
- All buildings of more than one floor must be provided with lifts that are suitably equipped to accommodate users requiring assistance and using wheelchairs and similar equipment/mobility tools.
- All the internal and external design of building spaces should consider the free movement of wheelchairs.
- Door openings (between jambs) should not be less than 900 mm in width.
- Preferably sliding windows should be used.
- Easy to grip door knobs and lever type handles of large size to be used.
- Ergonomic design of furniture specific to the requirements of senior citizens.
- Furniture should be lightweight, sturdy and without sharp edges.



LIFTS:

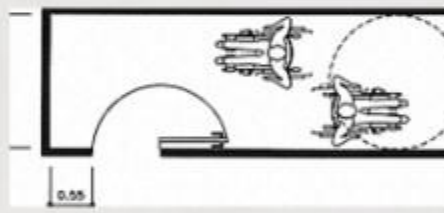
- All lifts must have audio and visual signage and signalling systems and to accommodate users requiring assistance and using wheelchairs and similar equipment/mobility tools.
- Mandatory ramps to be incorporated throughout the building to provide for wheelchair access.

- Clear Internal Width = 1100mm
- Clear Internal Depth = 2000mm
- Entrance Door Width = 900mm
- Lift Lobby = 1800 X 2000mm Or More
- Handrail = 1000mm Above The Floor Level
- Door Closing : 5 Sec



CORRIDORS:

- Steps should not be introduced into corridors. If change in level is unavoidable, then ramp may be provided.
- Where there is difference in the floor level, the steps must be distinguished with contrasting strips on the edges.
- It is essential to provide handrails along the walls on either side of the corridor, at suitable heights above the floor level.
- Minimum Width Of The Corridor Shall Be 1500mm
- Slope Shall Always Be Provided With A Ratio Of 1:12.
- Handrails Shall Be Provided For Ramps And Corridors.
- Guiding Floor Materials, Anti-Skid Tile Shall Be Provided To Guide The Person With Difficulties.

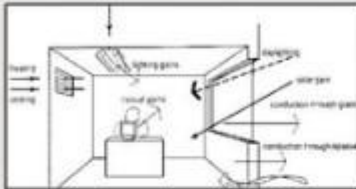


STAIRCASE:

- Provision of clear width not less than 1500 mm.
- Handrails should be fitted on both sides of stair flights.
- Treads and risers should be as per the standards prescribed in Harmonised Guidelines applicable to senior citizens.
- Avoid long flights of steps; in no case with more than 12 treads in a single flight.
- Projecting nosing and open stairs should not be provided to minimize the risk of stumbling. Spiral stairs should be avoided.
- Illuminated/fluorescent/radium strips should be installed to act as guides, especially in low light and night-time conditions. Handrails should be extended 12 inch at top and bottom of the staircase and ramps. Ends of handrails should be rounded.

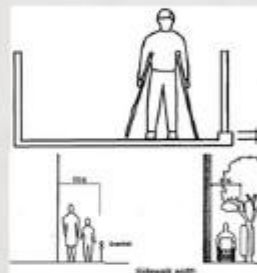
LIGHTING AND VENTILATION:

- Power backup facilities to be provided in each apartment of Retirement Home and with mandatory connection in bathroom and kitchen.
- The lighting and ventilation for all buildings and components to be in compliance to MBBL and NBC.
- Adequate lightings in the common areas including corridors, lobby and lifts to be supplied uninterrupted electricity with power-backup facility.



Fitness Facilities

- Jogging and walking tracks with non-Slippery and non-skid surfaces.
- Efficient signage and clearly marked hedges and boundaries to avoid collision.
- Green Area for outdoor activities, equipped with elderly friendly furniture as per standards prescribed under the NBC and other guidelines as applicable.
- Organise games, cultural programmes and other initiatives to enhance social cohesion and teamwork among the residents for time to time.



MEDICAL SERVICES

- 24/7 on site ambulance services, tied up with nearest hospital.
- Basic First aid facilities. Emergency contacts displayed outside common areas of services.
- Emergency rooms provision for one or two patients and an attendant, attached toilet, medicines and medical accessories.
- Regular medical check ups for residents.

Common Basic Services for all the Residents-Retirement Home project.

- Provide adequate and appropriate recreation facilities, including both indoor and outdoor activities, as per the profile of residents in particular location and cultural context.
- Adequate security and housekeeping services.
- Minimum 1 KVA power backup facilities in each apartment.
- Yoga, Physiotherapy, Exercise Centres to be provided as feasible.
- Caregiving facilities for those residents, requiring special care.
- Opportunities for residents to provide community services to their peers and other residents.

CHAPTER 3

CASE STUDY

3.1 Parkside Retirement Homes

Architects - Mindspace

Location - Bangalore, India

Year - 2018

Building Characteristics

Number of Units - 156 Units

Number of Stories - Stilt + Ground floor + 7 floors

Area - 3000000 ft

Housing type - 1BHK AND 2BHK

Types - 61 1bhk and 95 2bhk units

1BHK - 94.76 to 138.43 Sq.m.

Carpet area - 49.81 to 55.11 Sq.m.

2BHK - 130.06 TO 142.14 Sq.m..

Carpet Area - 72.09 to 73.2 Sq.m

Summary -

Park side retirement homes are a part of Brigade Orchards an integrated township located at Devanahalli, Bangalore, India. Parkside houses 156 number of 1+2 bhk units with all handicap friendly and wheelchair accessible spaces. The design followed standard guide for senior living addressing the general requirements to be followed while designing for seniors like wide corridors, grab bars wherever required and regular resting areas. The site has a view towards Kempegowda International Airport on South and an existing temple of worship towards North. As a response to this context podium level is opened up and connected to the temple with wide steps and cascading terraces at higher levels(5-7 stories) along the South side is created to

view the flights take off and land. The form of the building follows the shape of the site having a central atrium on the ground floor which is open to single loaded corridors around it on the floors above.

PROJECT FEATURES

Residential Appearance -

- * Colours : The building is painted completely white and is painted with neutral colours to highlight a few features on the facade and the walls of the corridors.
- * Scale : The scale of the building is reduced towards the north and south corner by the use of cascading terraces. The mass of the building has also been reduced through the use of voids. The facade is articulated with overlapping double height volumes accentuated with colors to visually scale down the ten floor facade.
- * Corridor and Services: One main corridor towards the west side of the building has 2 main service cores with 2 elevators each. The east side of the block is divided into 3 parts and are connected to the main axis corridor via bridges. The length of the building is visually broken down due to the curvature and the corridors are naturally lit due to the central atrium. There's one staircase for every four units approximately.

Unit Design-

- * All spaces in the units made considering requirements of wheelchair users.
- * Visual access and ventilation to outside world through balcony and windows directly facing outside.
- * Second bedroom made for use in case of having guests so it was designed using minimum dimensions considering barrier free norms.
- * All units have a balcony providing all residents with a view outside the building.
- * Each home has recessed well defined entry with a shelf to place their baggage.
- * Grab bars in bathroom, anti skid flooring, user friendly fixtures and fittings for comfort.
- * Fire detectors and sprinklers, gas detectors, call buttons and emergency assistance alarms within the homes.



Concept And Design Logic -

- * Longer side of the building oriented along North - South direction to reduce the heat gain.
 - * The housing is placed into the context of this particular site by opening up the building at podium level stepped towards the temple on the North and cascading terraces at higher level towards the south to open up to the view of the flights taking off and landing.
 - * The facade is articulated with overlapping double height volumes accentuated with colours to visually scale down the ten floor facade.
 - * Atrium has huge openings towards the east to let in cool breeze. The atrium skylight is designed in a way to bring in eastern light and avoid glare.
 - * To create an inviting atmosphere the main entrance is into the atrium through a double height opening with the width being 1/3rd of the length of the building. This opening also allows the cool wind breeze enter into the atrium.
- Bridges with an activity on each level connecting the two sides of the building at various intervals gives a good visual access throughout the building.
- * Voids are used throughout the building in such a way that it facilitates for air to flow throughout the building.



Analysis of Floor layout -

- * Regularly used amenities placed in the ground floor so that all of the residents would have regular interaction.
- * Visual privacy created for the gymnasium by placing a green strip outside it and a water pond in the atrium to create a buffer space.
- * Wheelchair users cannot directly go into the building or get out of it because of only staircases present on the western entry as well as eastern entry.
- * Closest hospital is 3.4 km away and takes approximately 10 minutes to reach.
- * Senior citizens housing separated from other housing complexes in the same project this makes the senior citizens feel isolated.
- * Orientation - Longer side of the building oriented along North - South direction to reduce the heat gain.
- * Wind direction West - East



GROUND FLOOR ISOMETRIC VIEW
Connection between temple and Ground floor

SUVIDHA RETIREMENT HOME

Architects: Jaisim-Fountainhead

Location: Nice Ring Road, Bangalore

Project Year: 2004

Area: 30 Acres

The genesis of the concept was the good doctors recognising that many of their elderly patients who seemed to have no particular physical ailments did suffer from the "empty nest" syndrome-- almost all of them had children who had moved away to other countries / cities. And, with the joint-family system not a feature of urban living any more, the effects of that syndrome had become even more acute. Hence, the doctors decided to set up what is, arguably, the first assisted living facility of its kind in the country.

The SUVIDHA Retirement Village has been set up by Sushruta Vishranthi Dhama Ltd. This quite unique "assisted living" facility was conceived by a few doctors of the Bangalore Hospital, which is situated at the South End Circle, Jayanagar, Bangalore. This is one of the reasons why nearly 70% of the investors in the Company are from the medical profession.

The Bangalore Hospital, established over 20 years ago,

was Bangalore's first multi-disciplinary hospital in the private sector apart from those run by religious institutions.

As the Village is in the Green Belt outside Bangalore, it is subject to the rules governing any non-agricultural activity in the Belt, which are:

- Lane cannot be parcelled and so is
- Construction must be restricted on only 20% of the total land available.
- * No structure can be higher than ground+1 floors.
- * No geological features like large rocks etc can be touched.

'Let NATURE be the RELEVANCE of man.'

- Ar. Jaisim

Cottages

Phase A: The Village consists of single dwelling units. Each single unit measures 925 sq.ft. and the general configuration of each of these units is one living-cum-dining-cum kitchenette + one bed room with an attached bathroom + one extra room (which can be used as a smaller bed

room or kitchen or study + a bathroom across the entrance lobby and with verandahs on two sides.

Phase 1A: This phase consists of single and double dwelling units. Single unit measures 999 Sqft and double unit measures 1998 Sqft.



Ar. Jaisim

Philosophy in STONE

"STONES SING-IS ALL OF LIFE AND MUSIC.AS FAR AS THE MIND IS CONCERNED BOTH HAVE ALWAYS BEEN THERE.EONS HAVE COME AND GONE, MANY MORE WILL COME, YET EACH STONE IS AN INDIVIDUAL.NOT ONE BEFORE OR AFTER SHALL BE THE SAME.THERE HAS NEVER BEEN AND NEVER SHALL BE TWO STONES THAT ARE THE SAME."

COTTAGE 126,SUVIDHA:

"Sincerity to the space with content and context."-Ar. Jaisim

Cottage 126, is a cottage of Ar.Jaisim.The cottage looks like a tree house which is an element of surprise in the village.There is a drastic change in the materials used for this cottage when compared to the other cottages.The ground is coated with terracotta tiles and sand. While the false ceiling is made up of series of inverted basket painted with white coating.

Small trees and stones act as an element of landscape.In the stilt,there is a semi-open sit out

space which is the coolest and most relaxing place in the village. The general configuration of the cottage is workspace, study,lounge, kitchen and bedroom.

The materials used in this cottage are brick,clay,terracotta, stone, wood and glass.These materials are locally available and play a major role in maintaining the temperature of the cottage.The cottage has 2 turbine ventilators that keeps the cottage well

ventilated

Sustainable elements:

- Conservation of natural elements on site
- Honesty to space and materials
- Energy Efficiency
- Building Materials and Resources
- Indoor Environmental Quality
- Reuse and recycle

Landscaping:

Suvidha has extensive landscaped areas, about 10 acres - both around cottages and common areas. There are over 3000 trees planted in Suvidha and every year there is a tree planting programme to add to the tree population in Suvidha

A plant nursery set up about 18 months ago caters to the landscaping needs and replenishment of plants due to mortality. An eco friendly waste Management system was set up about a year ago which takes care of both Kitchen & Garden waste.

An organic kitchen garden was set up, the produce from this is used in the kitchen.

Primary Health Care Centre

Sutabally turnisnea Health centre located in the dormitory block near the Club House has been functioning. It is equipped for both primary & emergency health care with a Pulse Oximeter, an Oxygen Concentrator, a Heartstart Monitor/ Defibrillator, etc.

There is also a small operating theatre for minor surgical procedures. A senior nurse is posted in the Health Centre from 10am to 5pm for any injections, dressings etc., and one of the permanent residents is the doctor on the premises



Primary Health Care Centre(North Facade)

The primary health care centre consists of a lounge, dining, doctor's cabin, 3 private rooms, a small operation theatre and services like kitchenette and store room. The major loophole is that it has only one entrance which makes it tough for the workers to perform its duties like dumping the waste collected in operating the centre.

MELLUR MEADOWS

Melur Meadows is designed by Architect Suhasini Iyer. Melur Meadows is a gated enclave of 150 cottages on 9 acres between Coimbatore and Ooty hill station. The layout of the project follows the natural contours of the site which is shaped like a bowl like in an amphitheater. Here are 4 types of dwelling units on the terraces site offering private and green spaces with the design of the cottages that allow for maximum outdoor living to recreate the proverbial village.

The Programme consists of four unit typologies making a total of 124 units and covering a built up area of 88,600 sq ft under residential area. Common amenities include Dining, Lounge, Kitchen, Community hall, Temple, Grocery store, Gym and reading room.

ROOMS WITH MEDICAL CARE

* 24 X 7 MEDICAL HELP & THERAPEUTIC CARE

PLA

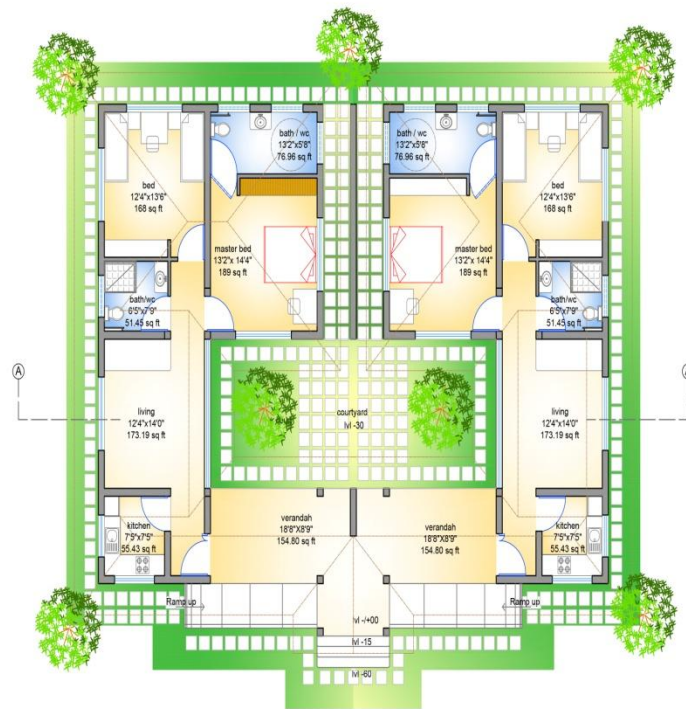
* Club house

- * Cafeteria
- * Gym
- * Library
- * Home delivery
- * Spa and Wellness center
- * Workshop Area
- * 24/7 security
- * Buggy service
- * Dining
- * Store

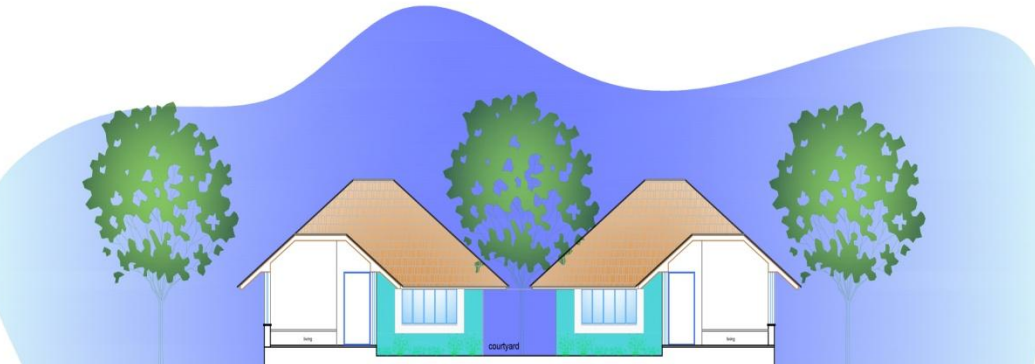




ELEVATION A



Super deluxe cottages - ground floor only
 2 bed + bath with living / kitchen / verandah / garden courtyard
 1100 ft 2 built up area & 952 ft 2 carpet area



SECTION A A

ANTARA SENIOR LIVING, DEHRADUN, UTTARKAND

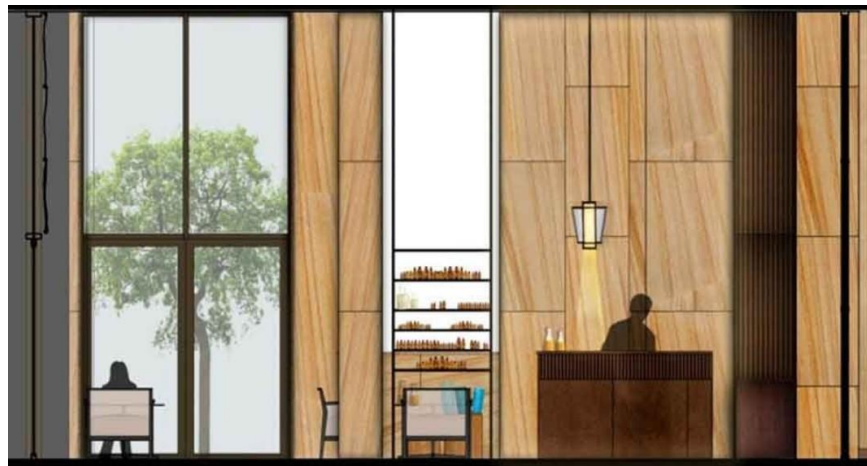
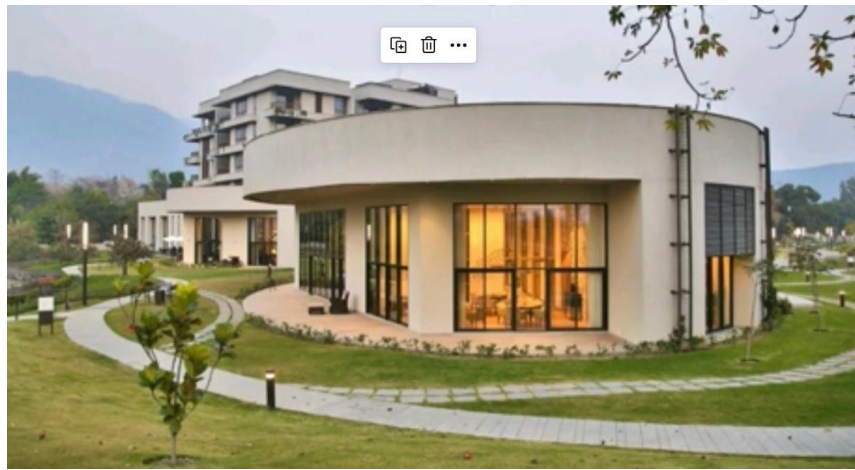
- **Project Name** -Antara Senior Living
- **Location** -Dehradun, Uttarakhand
- **Architect** - Bradford Perkins, Perkins Eastman
- **Interiors** - Esteva Arquitectura From Mallorca, Spain
- **Construction Company** - Arcop Associates
- **Owner** - Max India Group
- **Total Area** -13.2 Acres
- **Availability** - New And Resale
- **Housing Type** -Premium Housing
- **Types Of Apartmental Units** - 1BHK, 2BHK ,3BHK
- **Total Launched Apartments** -224
- **Apartment Sizes** -1402 Sqft To 5971 Sqft
-



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

- Antara dehradun has been intended to meet its inhabitants' physical, spiritual, and emotional requirements.
- Antara dehradun, designed by globally renowned architects perkins eastman of new york and esteva i esteva of pallonji, is a complete environment that provides its people with the highest standard of living.
- Use the library to explore new ideas and arguments, Join a seminar, lecture or discussion group or take classes in cooking, art, photography or music. Start a new venture of your own or support one started by another resident.

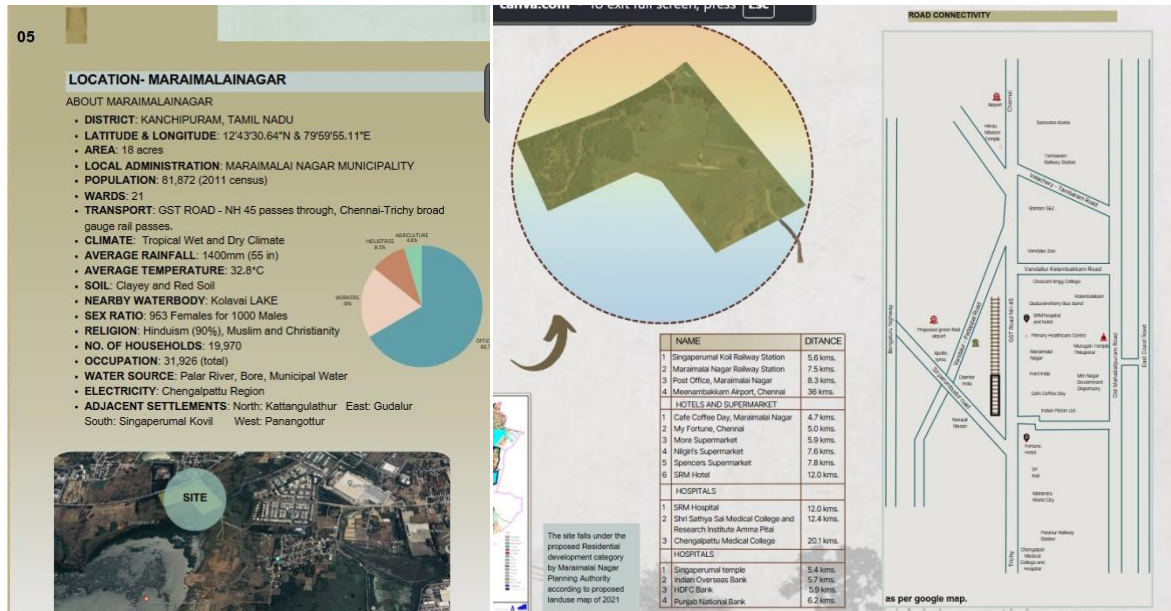
- The landscape design incorporates various sustainability features such as rainwater harvesting, minimal grading changes, and native planting zones. The land has been sloped to generate a series of terraces.
- Preservation of existing trees
- addition of higher toilet seat heights
- grab bars.
- All master bathrooms are ada-compliant,
- with easy mobility and
- covered shower panels.
- products such as Commode Chair, Toilet Seat Raiser, Urinal Pot, Grab Bars, Anti-Slip Tape, and bathroom aids for the elderly.
- The site has ramps to provide access to all apartments. There are electric buggies for easy circulation within the community.
- Vehicle and pedestrian traffic has been separated to ensure residents' safety while moving about the community.



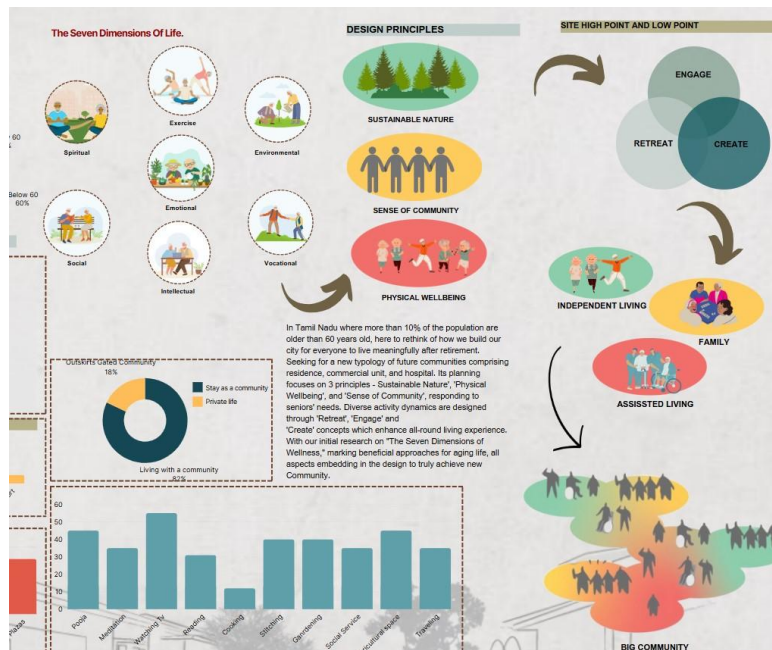
CHAPTER 5

DESIGN APPROACH

SITE ANALYSIS



DESIGN CONCEPT



AREA STATEMENT

05

RETIREMENT HOME

Area

1. Built Up Area: 14,157 Sqm/3.5 Acres
2. Circulation Area: 4045 Sqm/1 Acres (40% of built up area)
3. Farm Area: 12,135 Sqm/3 Acres
4. Total Site Area: 101171 Sqm/25 Acres

Master Plan:

- 1-Parking
- 2-Meditation Center
- 3-Administration Block
- 4-Dining Hall
- 5-Community Center
- 6-Health Center
- 7-Housing
- a) Independent Living-50 Cottages
- b) Assisted Living-50 Rooms
- 8-Commercial shops
- 9-Guest House
- 10-Staff's Housing
- 11-Services

Landscape

- 1-Community Garden
- 2-Herbal Garden
- 3-Farming
- 4-Hobby Garden
- 5-Reflexology Walkway
- 6-Mini golf court
- 7-Swimming Pool
- 8-Spa and massage center
- 9-Badminton Court
- 10-Goshala
- 11-Other Landscape Elements

FACILITY	TYPE	IN MY COMMUNITY
Independent houses	Cottages • 1 bhk • 2 bhk	✓
Apartment	Studio • 1 bhk • 2 bhk	✓
• Independent cottages- 50 • Apartment units-100		

AREA STATEMENT

CATEGORY	NO.OF PERSON	AREA IN SQ.M	INFERENCE
1 Parking	40 Car for residents (200/5 as per standards) 20 Car for staff/guests 30 Bike for residents/staff/guests	8/car 3/bike For 51-100 parking stalls required 3 are designated stalls required for use by persons with disabilities 33	Parking shall be near the entrance and restricted till the Admin block only Other blocks -buggies
2 Meditation Centre	60	25	Shall have ample amount of natural ventilation and light.
3 Administration Block			Shall be located near the entrance
Lounge	10	10*3.25=32.5	
Help Desk	2	14	Shall have a warm welcoming aesthetics
Director's Office	1	20	
General Office	3	14	Shall be provided with well planned work space and furniture
Conference Room	10	14	
Toilet		100	
4 Dining Hall	100		Shall be located near housing blocks
Toilet		100*1.80=180	
Kitchen		100*0.2=20	Shall be furnished with formal and informal furniture
Waste Disposal		100*0.3=30	
Chilled Goos storage		100*0.3=30	Materials shall be chosen wisely
Ambient storage		100*0.8=80	Shall be surrounded by recreational spaces
Kitchen Area		100*0.12=12	
Dish Washer		100*0.08=8	Services shall be well planned and shall have a separate entry
Walter's Equipment		100*0.50=50	
Staff washing facilities and WC		Total=1,230	
5 Community Center			Shall be designed to encourage the residents to keep themselves fit and happy
Office	1	12	
Lounge	20	40	
Library	30	30*2.5=75	Zoning of all the spaces shall be done per the noise level
Gym	30	30*3.3=100	
Indoor Games			To build a positive environment
Squash	1	62	
Polo	2	50	Each space shall have its own identity
Table Tennis	2	50	
Carrom/Chess	4	30	
Art and Craft	20	30	User friendly circulation, equipments, furniture etc
Multipurpose Hall WC	100	325	
Cafe		30	Total=830

CATEGORY	NO.OF PERSON	AREA IN SQ.M	INFERENCE
6 Health Centre			Parking facilities shall be provided.
Lounge	5	15	
Help Desk	1	12	Zoning shall be done properly with emergency room on the ground floor.
Office	3	12*3=36	
Doctor's Cabin	1	20	Well planned nursing area with all the service facilities shall be provided.
Pharmacy	1	12	
X-ray	1	30	Waste disposal shall be provided.
Radiology	1	60	
Minor Operation theatre	1	60	
Physiotherapy	1	75	Separate entry for the services shall be provided.
Pathology	1	30	
Emergency Room	1	25	
Nursing Area	6 Beds + Toilet	30/Room	
Cafe	1	30	
Store	2	20	
Waste Disposal	1	20	
Toilet	2	Total=500	
7 Independent Living			Simple planning with user friendly circulation Design to be maintenance free.
Cottage	50	85*50=4250	
Living Room	1	20	
Kitchenette+Dining	1	10	Facilities like panic attack-emergency switch system, telephone connection, alarm system etc shall be provided.
Master Bedroom+ Toilet	1	20+5	
Single Bedroom	1	10	
Common Toilet	1	5	Total= 4,250
8 Apartment Units			Simple, linear planning shall be done.
Houses	50	75*50=3750	
Living Room	1	15	Maintain short travel distances (towards the room from the entry of the building).
M.Bed Room+Toilet	1	20+5	
Bedroom	1	10	
Kitchen + dining	1	10	Shall have well lighted corridors (make use of natural light)
Toilet	1	5	Total=3750
9 Staff Housing			Shall be located away from all the other blocks.
Rooms	20	12*20= 240	
Dormitory	2	12	Shall be maintenance free.
Toilet	1	Total=240	

RETIREMENT HOME

01

INTRODUCTION ABOUT RETIREMENT HOME

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REG NO: 39210011
ROLL NO: 19521003

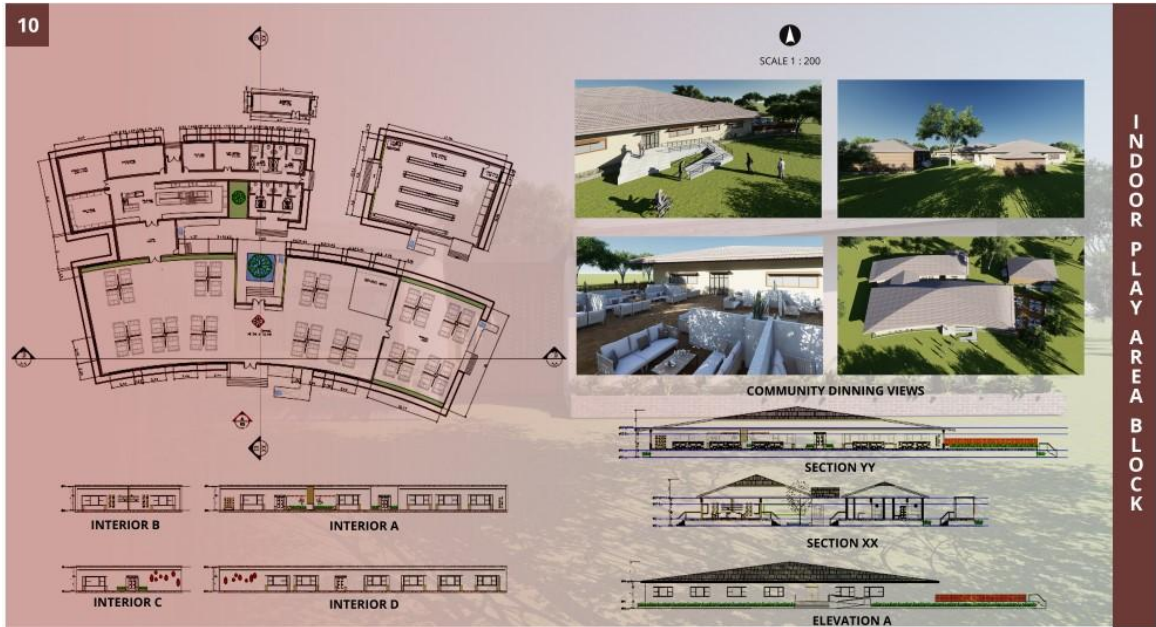
YEAR & SEC: 5th year & "A"

SITE PLAN



BLOCKPLAN





CHAPTER 6

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