



**Politecnico  
di Torino**

# Housing for Elderly People

Master Degree Thesis in  
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**"A society will  
ultimately be  
judged by how it  
treats its elders"  
(Albert Einstein)**

To my mother,  
To my wife and my children

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# Introduction

Countries all across the world are increasingly transitioning into an aging society.

With the old population increasing and the elderly group rapidly expanding.

Usually this group of people are somehow isolated, and their facilities are treated like hospitals rather than homes or avenues that carries warmth and memories.

It was necessary for the study to well research the types of retirement communities, and understand the spectrum of the seniors living to be able to find the right variation for the case (the project) and improve where possible.

Taking into consideration the best practices provided by research/government institutions internationally, that highlights many of technical and functional aspect of the senior community (Sustainability, Social connections, Place and Identity, safety, ETC....)

it is pretty hard to find official information regarding the elderly in Syria due to the war situation that tore the country and its institutions apart, and doing any demographic scan is an impossible mission, fortunately I found some interviews done on SANA (Syrian Arab News Agency) with officials working in Social Services at the Syrian Ministry of Social Affairs and Labour, those interviews are sufficient to enlighten the reader about the tough situation.

Damascus (the location of the project) is the oldest capital in the world, and the fourth holiest city in Islam (Birke, 2013), and looking to its architecture and its appearance can pave the road to find the suitable forms and treatments.

I hope this project will contribute to the country that suffered a lot in the last decade.....



## Population Ageing

People are living longer lives all across the world. Most people nowadays can expect to live into their sixties or beyond. Every country in the globe is seeing an increase in the number and proportion of older people in its populations.

By 2030, one in every six persons on the planet will be 60 or older. At this point, the proportion of the population aged 60 and up will rise from 1 billion in 2020 to 1.4 billion. By 2050, the world's population of adults aged 60 and up will have doubled (2.1 billion). The number of people aged 80 and more is predicted to treble between 2020 and 2050, reaching 426 million.(WHO, 2022)

Between 2019 and 2050, the number of people aged 80 and over is expected to climb by the greatest proportion in Eastern and South-Eastern Asia, as well as Northern Africa and Western Asia. Population aging has been fastest in Eastern and South-Eastern Asia, as well as Latin America and the Caribbean.

The proportion of the population aged 65 and up has nearly doubled in Eastern and South-Eastern Asia, rising from 6% in 1990 to 11% in 2019, and in Latin America and the Caribbean, rising from 5% in 1990 to 9% in 2019. The ratio of older people is predicted to be more than double between 2019 and 2050 in four regions: North Africa and West Asia, Central and South Asia, Latin America, Caribbean, and East and South-East Asia.

An adult turning 65 between 2015 and 2020 can be expected to live an additional 17 years on average.

That figure is predicted to rise to 19 years by 2045-2050.

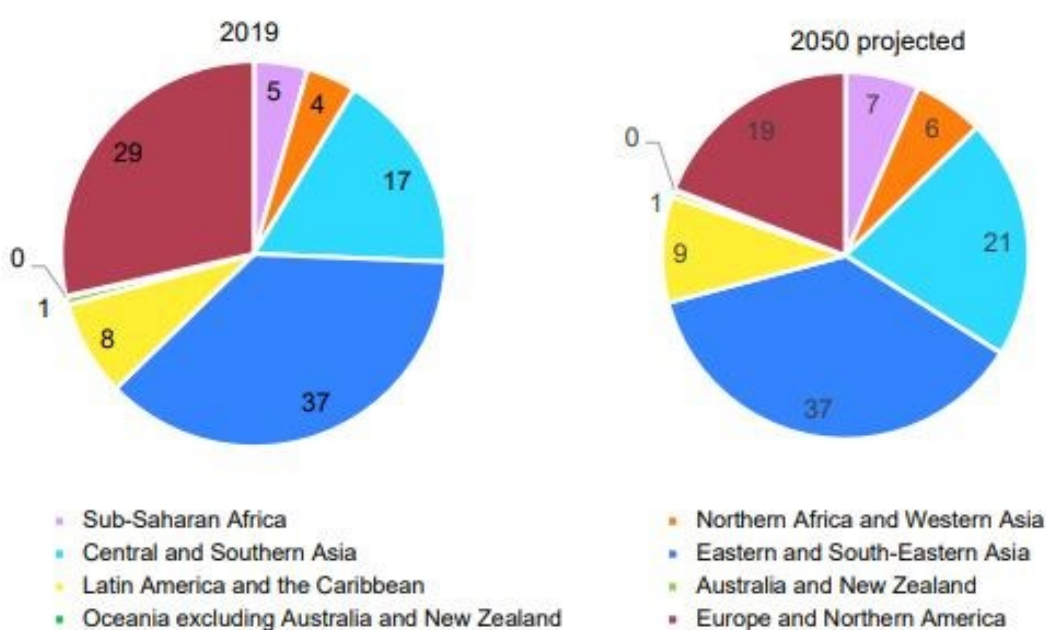
At the age of 65, the highest life expectancy is currently elder people in Australia and New Zealand (21 years), followed by Europe and North America (19 years). Life expectancy at 65 is expected to rise in all regions between 2015 and 2020, and again between 2045 and 2050.

Although men's survival rates are anticipated to rise, women are expected to outlive men on average. (UN,2019)

Number of persons aged 65 years or over, 2019 and 2050  
(UN, 2019)

Region	Number of persons aged 65 or over in 2019 (millions)	Number of persons aged 65 or over in 2050 (millions)	Percentage change between 2019 and 2050
<b>World</b>	<b>702.9</b>	<b>1 548.9</b>	<b>120</b>
Sub-Saharan Africa	31.9	101.4	218
Northern Africa and Western Asia	29.4	95.8	226
Central and Southern Asia	119.0	328.1	176
Eastern and South-Eastern Asia	260.6	572.5	120
Latin America and the Caribbean	56.4	144.6	156
Australia and New Zealand	4.8	8.8	84
Oceania excluding Australia and New Zealand	0.5	1.5	190
Europe and Northern America	200.4	296.2	48

Figure I.2. Global distribution of population aged 65 years or over by region, 2019 and 2050 (percentage)



World Population Ageing 2019 report

# Senior Living

Senior living is a concept that encompasses a variety of housing and lifestyle options adapted to the challenges of age-related health issues, such as limited mobility and susceptibility to illness, for the elderly.

(North Carolina Division of Aging and Adult Services, 2012)

## Senior Living Spectrum

This graph represents how various types of senior care overlap, as well as the relationship between the amount of care and the cost.

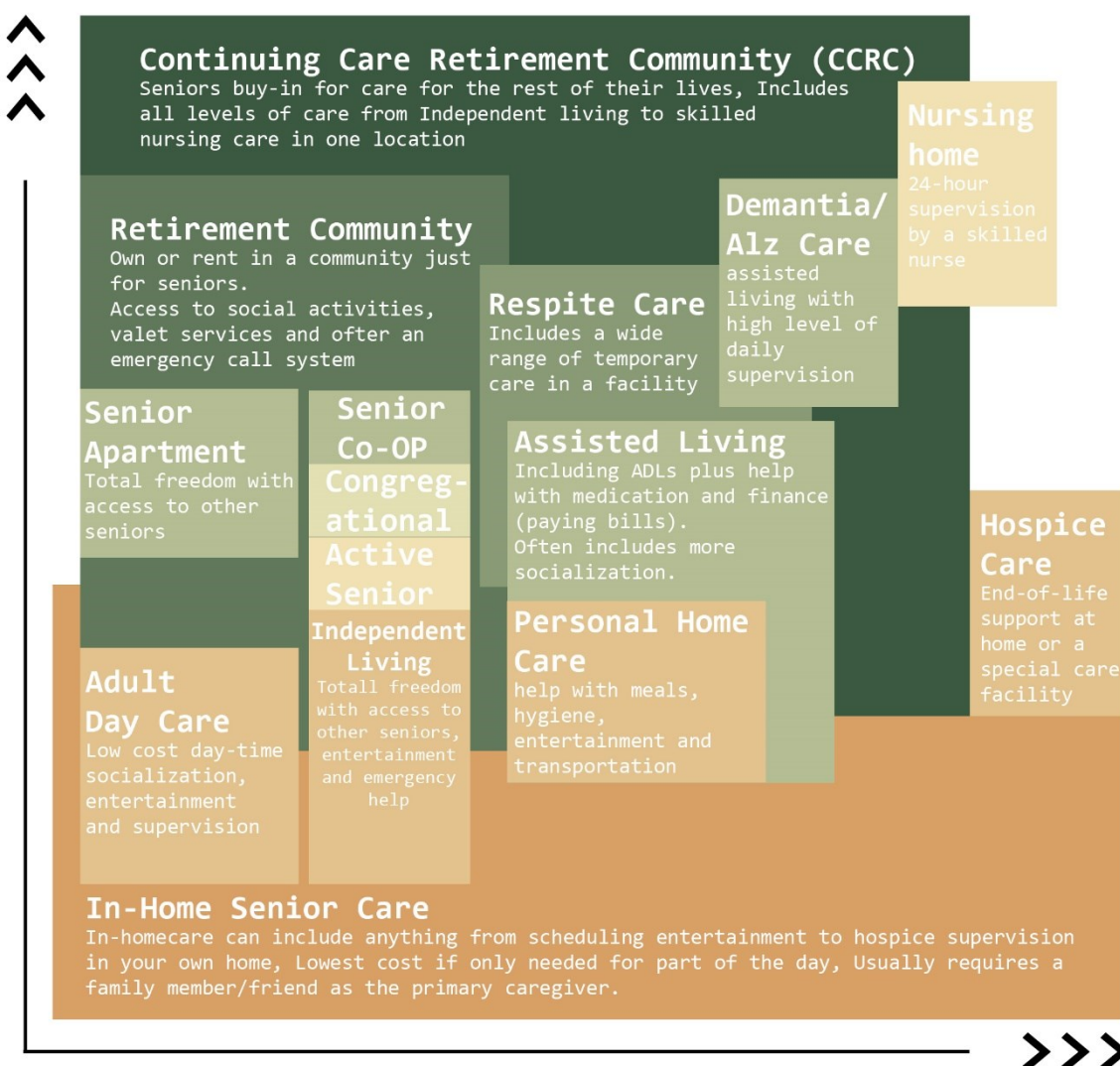


Chart illustrated by the author based on a chart Available at: <https://www.seniorliving.org/>

## Senior Retirement Community

A housing complex or residential community for elderly people who can largely take care of themselves; some communities may allow assistance from home care services, and activities and socialization opportunities are frequently offered. (North Carolina Division of Aging and Adult Services, 2012)

The community must be age-qualified or age-restricted, and residents must be partially or fully retired. Additionally, the community must provide shared services or amenities.

A variety of amenities are available in retirement communities, including fitness centres and medical facilities. Within each of these bigger communities, there are subgroups that cater to specialized lifestyles, such as resort and golf communities, RV living, and single older adults.

A retirement community is more than just a neighbourhood for elderly, but there are now dedicated communities for every stage of elder living and lifestyle.

Retirement communities include amenities, conveniences, and ease of use.

A nearby hospital, a shopping centre, or an on-site restaurant could be considered conveniences.

Houses are traditionally designed with easy-to-reach cabinet doors, higher toilets, open and single-level floor plans, and other features to simplify senior living. Fitness centres, craft classes, billiards rooms, walking trails, indoor/outdoor pools, tennis courts, golf courses, religious services, local transportation, security, and a variety of other activities are available. (Hoyt, 2022)

Illustration on the right

Available at: <https://www.seniorliving.org/>



# Types of Retirement Community

Security, senior-focused accommodations, and a sense of community are the three main features of a senior retirement community. A sense of community enables seniors to maintain social connections with other residents their age. This description applies to four different types of senior living communities. (NIC, 2017)

## Assisted Living Retirement Communities

offer a moderate level of care, Seniors can live in their own homes under this type of living arrangement (i.e., apartments, condos, or single-family dwellings). They do, however, receive assistance with basic and critical needs such as dressing, meal preparation, laundry, medication management, and transportation.

According to the National Centre for Assisted Living, these establishments may also specialize in dementia care or provide specialized therapy for specific conditions.

It's important to note that an assisted living facility does not directly provide most health care services. These facilities, will collaborate with health-care providers including such dentists, hospice nurses, podiatrists, psychologists, and physiotherapists. Residents can receive specialized care whilst residing in assisted living rather than needing to transfer to a nursing home or hospital facility. (Witt, Redding, 2022)



Image source: <https://www.seniorliving.org/>

**According to the National Centre for Assisted Living, include:**

- 24/7 aid and oversight, personal care and assistance with everyday activities.
- Programs for exercise, health, wellness and Medication management.
- Services such as laundry, cleaning, and other housekeeping and maintenance meals and transportation.

### **The Different Levels of Assisted Living**

#### **Level One:**

Medication and appointment reminders throughout the day

Monitoring is required while assessing blood sugar levels or supplying injections.

Best For: Seniors who are mainly self-sufficient yet require periodic reminders during the day.

#### **Level Two:**

ADL assistance, such as showering or dressing.

Medication management

Best For: Seniors with limited mobility who require assistance but can still dine on their own.

#### **Level Three:**

ADL assistance, such as showering or dressing, navigating and using the restroom, including medication management.

Best For: Seniors with significant physical or cognitive impairment who require assistance with the majority of daily activities.

(NCAL, 2022)



## **Independent Living Retirement Communities**

Intended for active, healthy elderly who can live independently. You have the option of living in a house, a townhouse, a condominium, or even a mobile home or RV. You can own, rent, or live in a cooperative. Consider it similar to living in your previous neighbourhood, except that many communities have age limitations – usually over 55 – and most provide amenities such as clubhouses, gyms, yard maintenance, cleaning, and security. Transportation, laundry service, group meals, and social and cultural activities are also common in independent living communities. (Witt, Shuman, 2022)

### **Services and Activities:**

Independent living communities provide a variety of services and activities for elders. Some properties may include a golf resort and golf carts. Others are directly in the heart of the city, allowing excursions quite convenient.

Some of the most common services and amenities are as follows:

- Fitness programs, gym, and outdoor recreational areas are available.
- Book clubs, cooking clubs, gardening clubs, Bible studies, card clubs.
- On-site seminars, lectures, and classes
- Meal preparation, dining facilities, housekeeping,
- Opportunities for travel and cultural immersion
- Bingo, movie nights, and game nights
- linen and laundry service
- Security around the clock

A senior's life is significantly changed by socialization, it lengthens their life and reduces their chance of depression. Elderly people who are socially active may experience slower memory loss.

Independent living communities offer methods to maintain social, mental, and physical activity through integrated services and programs. (Harvard, 2014)

## Types of Independent Living Facilities:

### 1- Continuing Care Retirement Communities (CCRC)

A continuing care retirement community (CCRC), also known as a life plan community, provides independent living and an amenity-rich lifestyle, as well as access to more advanced care on-site if medical needs emerge.

#### **positives:**

- It provides independent living with a variety of residential options such as condominiums, cottages, duplexes, and studios.
- It guarantees access to advanced healthcare help on-site, such as assisted living and memory care.
- It allows for flexibility for spouses or partners who require different levels of medical or personal care.
- With a wide choice of activities and amenities, it enhances social engagement and expands a senior's social network.
- It provides a maintenance-free lifestyle by providing cooking, cleaning, housekeeping, and yard work.

#### **Negatives:**

- There are significant initiation and monthly service fees.
- There are intricate contracts.
- To be eligible, applicants must be in good physical and mental health.
- It's a rental based model, members live there and receive care and facilities. (Stanley, 2022)



Illustration source: <https://www.seniorliving.org/>



## CCRC Amenities and Services

### Professional Health Services

- Nursing and medical care
- Advanced nursing care
- Assisted living care
- Memory care
- Assistance with activities Of daily living
- Occupational and physical therapy
- Local pharmacy
- Dentist
- advising on nutrition, and mental health

### Commercial Services

- Barber and beauty salon
- Internet and cable TV
- Coffee shop
- Post service
- Food and retail shops
- Banking services
- Private dining room
- home upkeep, Laundry, and repairs
- Transportation
- Security

### Community Services

- Jogging paths
- Swimming pool
- Tennis courts
- Golf course
- Fitness centre
- Library, Craft room
- Game room, Art, and music studio (Stanley, 2022)



Image on the left Available at: <https://palazzohc.com/amenities/>

## CCRC Types of contracts

- Type A, or extensive life-care contract. This option has the highest fees, but it includes a comprehensive set of services. Senior will, for example, receive unlimited assisted living, medical treatment, and skilled nursing care at little or no extra cost.
- Type B, or modified contract This contract provides only a limited set of services. Extra services are subject to higher monthly fees.
- Type C, or fee-for-service contract the initial enrolment fee may be relatively low, but residents must pay for any additional services they require, such as assisted living, skilled nursing, or memory care.

Some facilities also provide a rental contract, Type D, and an equity agreement, Type E, in which the senior purchases a share of his/her unit in exchange for an entry fee.

Contracts for continuing care retirement communities are notoriously complicated, so consult with a lawyer before signing.

(AARP, 2017)

## **2- Senior Apartments**

Accessibility and a sense of community are two of the main benefits of a senior living apartment. Older folks' needs are taken into consideration when designing senior residences. For instance, an apartment complex might have no or few stairs, wheelchair-accessible flats, and handrails in the restroom. Residents are likewise subject to age restrictions, with minimum agree of 55 as requirement.

The size and layout of senior apartments vary. The smaller flats are studio apartments, which are spacious open space featuring a bedroom, living area, and kitchen.

The restroom is the sole room with a door. Some apartments are suite-style, which means that each older person has their own bedroom while sharing a common living area, kitchen, and bathroom with other residents.

Some communities also have town homes, condos, duplexes, and triplexes available for senior apartment complexes similar to single-family homes. Each of these senior flats provides the most personal and private area. (Hoyt, 2022)

## Suits:

- Seniors with a smaller budget.
  - Who want to avoid yard and home maintenance.
  - Who recently divorced.
  - Those moving to a new area to be nearer to friends and relatives.
  - Who need to downsize, such as widows or widowers.
  - Those seeking a position with lower costs (no property taxes, no maintenance, minimal upkeep, etc.).
- (Hoyt, 2022)

## Services and amenities:

choices with one or two bedrooms, Apartments can be individual or shared, flats with all furniture available, safety features in large walk-in showers, climate control, complex's common areas include a living room and TV, meals are prepared in a communal dining area 2-3 times a day, sprinkler systems, smoke detectors, and fire alarms, workstations for computers, washers, and dryers in the laundry rooms. (Hoyt, 2022)



## Age-Restricted Retirement Communities

The idea behind a 55+ senior living community is straightforward: residents 55 and older reside in a planned community with a range of amenities designed with seniors in mind. The amenities are designed to support the active and healthy lifestyles of these individuals. Many different 55+ communities exist. For instance, some communities only allow people 55 and older to live there, so you can end up living next to a young family.

Like any other important decision, deciding if a 55+ community is suitable for you can be difficult. You must conduct some study, consider all of your possibilities, and be aware of potential hazards. In the end, you'll want to visit the neighbourhood of interest.

In general, the environment, design, and amenities are intended to meet the demands of this age group

(55 Community Guide, 2007)

## Types of 55+ Communities:

### **1- Luxury Senior Living Communities**

offer attractive homes in desired locations, as well as services and amenities similar to those found in a fancy resort or hotel on vacation.

Residents typically live in large apartments with balconies or patios.

High-end kitchen appliances, laundry machines, and other desirable amenities are typically included in the flats.

Spas and hair salons, restaurants, swimming pools, exercise facilities, golf courses, and theatres may be available depending on the community. Housekeeping, grocery buying and delivery, transportation, and some health services, such as onsite appointments with visiting doctors, may also be provided.

provide various levels of care, including independent living, assisted living, memory care, and skilled nursing care Life plan communities, in particular, can offer a continuum of care, allowing residents to progress to a higher level of care if they require extra services as they age.

(hipp, garbarino, 2022)



Image Available at: <https://www.forbes.com/>



## **2- Senior RV Parks and Retirement Communities**

For those who desire travel. An RV retirement park for 55-year-olds solves this. Individuals can live as long as they choose with others of similar ages and interests. (Scarpignato, 2022)

## **3- Resort and Golf Retirement Communities**

Seniors might enjoy golf and resort communities. These holiday rentals are only available to anyone over 55.



Image on the right Available at: <https://www.floridaforboomers.com>

Lakewood Ranch Golf & Country Club, Florida

some of what it offers:

Championship golf and world-class sporting facilities are combined with the ease of good friends, wonderful cuisine, and gorgeous surroundings.

From morning matches to national tournaments, Friday night cocktails to Christmas customs, there is a high level of challenge and all the enjoyment a senior is looking for. (Erisman, 2022)

#### **4- University Retirement Community UBRCs**

The university 55+ community is one of the areas of this sort of retirement community that is expanding the fastest.

These communities offer assisted living, a variety of on-campus amenities, and an intergenerational environment in which the senior will be surrounded by college students, working professionals, and other seniors.

##### **Activities:**

- Participation in school athletic and sporting events
- Alumni gatherings (being an alumnus or alumna of the institution is not required)
- Membership and classes at a fitness centre/recreation centre
- Cultural and performance arts events
- Mentoring and volunteer work (Clark, 2022)

Participating in such activities and being around university students can even be beneficial to your health; research has shown that intergenerational connections have significant health benefits. (Martin, 2016)

#### **5- Single Retirement Communities**

A singles retirement community is exactly as it sounds. It is a shared housing facility for those who are not married or in relationships. Many seniors are reluctant to move into retirement communities if they are not married because it does not seem normal. These specific communities, on the other hand, open the door to new experiences and relationships. They are not necessarily intended for people to meet a new significant other, though this may occur. Rather, they are intended to lessen the stigma associated with being a couple and living in a retirement community. (PrivateCommunities, 2021)

## Amenities in 55+ Communities

You'll find a wide range of amenities in different communities. However, the majority will often have a clubhouse, fitness centers, indoor and outdoor pools, hobby and craft clubs, security, and upkeep. Others provide golf courses, marinas, tennis courts, on-site healthcare, dining establishments, live entertainment venues, walking trails, card rooms, libraries, media centers, bocce courts, fishing lakes, and a wide range of other lifestyle-related amenities. There are communities with this care accessible for older persons who require some help with everyday tasks. (Pelley, Garbarino, 2022)



Illustration source: <https://www.seniorliving.org/>

## Best Practices

**ESTABLISHING BEST  
PRACTICES IN  
COMMUNITY DESIGN FOR  
THE ELDERLY PEOPLE  
ARCHITECTURE  
ENSURING THAT SENIORS  
HAVE ACCESS TO  
QUALITY  
HOUSING AND COMMUNITY  
AMENITIES.**



## **Best Practices Principles**

The following principles concentrate on the parts of the physical environment that a resident has access to, both internally and externally.

Creating best practices in community design for the retirement living industry to ensure elders enjoy a high-quality living environment and community experience.

The value of Using good design in the creation of outstanding places to live cannot be overstated.

Good design generates appropriate spaces for us to work and live in, which can result in a variety of positive health and wellness effects.

This is particularly true for the increasing senior population.

Simply said, strong design increases people's ability to live independently, and there is no deeper positive impact on a person's health and wellbeing.

There has been a rapid advance in design thinking linked to designing wonderful houses and environs for seniors during the last few decades. (RLC, 2018)

The structure of this section is heavily inspired by a guidance published in 2018 by The Property Council of Australia conjunction with Thomson Adsett architects, a leading international architecture and design firm with studios throughout Australia and Asia, and a group of retirement living industry representatives, who devised a set of principles that all believe are applicable to good design for seniors.

## **Expectations**

Principle 1

They are a set of principles based on consumer expectations of what a senior's community should be. These are common expectations among prospective residents and their families. (RLC, 2018)

### **1- Independence, Social, and lifestyle**

The physical environment is to establish circumstances that uphold the values of privacy, respect, and dignity.

On the other hand the opportunities must exist for people to make new connections and friendships, this vital to meet people's social expectations.

Technology and a change in culture are contributing to the shift in social expectations, It is crucial that retirement living options encourage a variety of connection opportunities.

(RLC, 2018)

#### **Benefits of Independency for Seniors:**

- Reduce agitation and depression.
- Maintain senior memory skills.
- Create a sense of self-sufficiency and ownership.
- Obtain a sense of accomplishment
- Encourage emotional connection and self-expression.

(Bemis, 2020)

### **2- Social connections**

it's the subjective experience of feelings close to and a sense of belongingness with others.

Benefits of strong social connection:

results in a 50% increase in longevity

boosts the immune system (research by Steve Cole shows that genes impacted by loneliness also code for immune function and inflammation)

aids in the recovery from sickness

may even increase life expectancy

Give residents more options for social interaction within spaces, connectivity should enable the integration of lifestyle and choices, that are safe and activated. (Seppala, 2014)

### 3- Sustainability

Sustainable design results in better health outcomes, including accessible outdoor areas within the community that promote outdoor activity and ensuring that residents can directly perceive the natural light in their homes.

incorporating sustainable practices, It is relatively easy to incorporate elements that keep the heat and warmth inside or implement measures such as recycling and water-saving measures such as rainwater tanks and modified water-saving tapware or even designing for Net Zero Water building.

**A net zero water building (constructed/renovated) is designed to:**

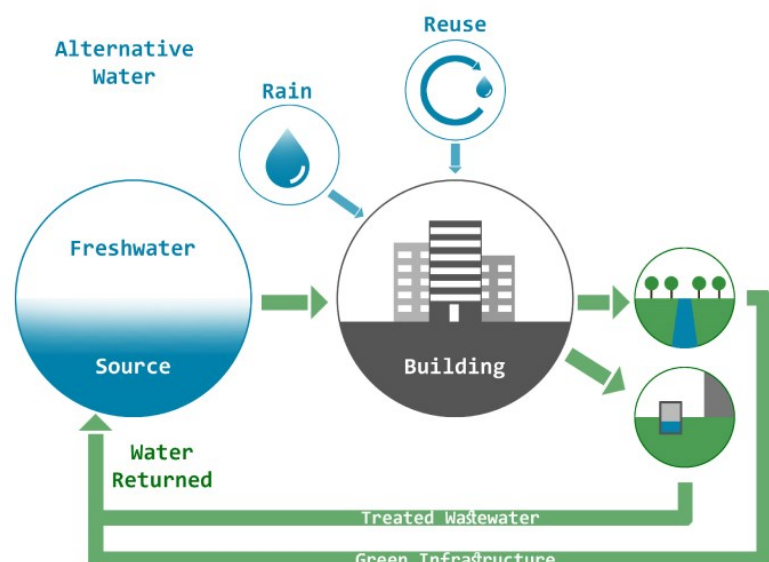
- Reduce water consumption.
- raise the use of alternative sources.
- lessen wastewater outflow from the building and return water to the source.

Net zero water develops a water-neutral building in which the amount of alternative water used and water returned to the original water source equals the total water consumption of the structure.

The purpose of net zero water is to protect the amount and quality of natural water resources while minimizing deterioration, depletion, and rerouting through the utilization of potential alternative water sources and water efficiency methods to reduce the consumption of supplied freshwater.

A net zero water building uses alternative water and returns water to the original water source to totally offset water use.

(US department of energy)



Infography illustrated by the author

based on an infography

Available at: <https://www.energy.gov/>

## Utilization of Renewable Energy Sources

Renewable energy sources, such as solar and geothermal, can be used to create energy for on-site use. Solar panels can be installed for both solar electric and solar hot water systems.

(Mandalay, 2021)



Photographer: ADRIÀ GOULA Available at: [www.archdaily.com](http://www.archdaily.com)

## The Endesa Pavilion

The angular exterior of the Endesa Pavilion was designed by the Institute for Advanced Architecture of Catalonia using parametric design to maximize the performance of the integrated solar panels.

(Budds, 2016)

## Utilization of gardens and green spaces

This is a step toward developing food-growing communities, which will encourage people to be aware of their carbon footprint. Even in the smallest of areas, these spaces can be included into design.

Urban gardens, or farms, also provide escape from the concrete and glass forests of urban cities, as well as stress treatment.





Right image Photographer: Formzero Available at: [www.archdaily.com](http://www.archdaily.com)

**The utilization of gardens** can have a huge positive impact on the quality of the building amenities

Thermal Comfort vegetation can help massively in shading the spaces and preventing the impact of direct sun



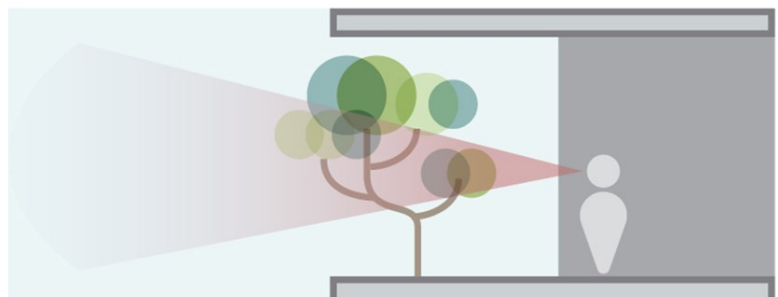
Air Quality can be improved by a huge margin, the polluted air will be purified before Accessing the space



Noise barrier, the vegetation distracts the uproar sound waves



Improve Privacy



(UNStudio, 2018)



### Atrium efficiency in terms of saving and energy conservation

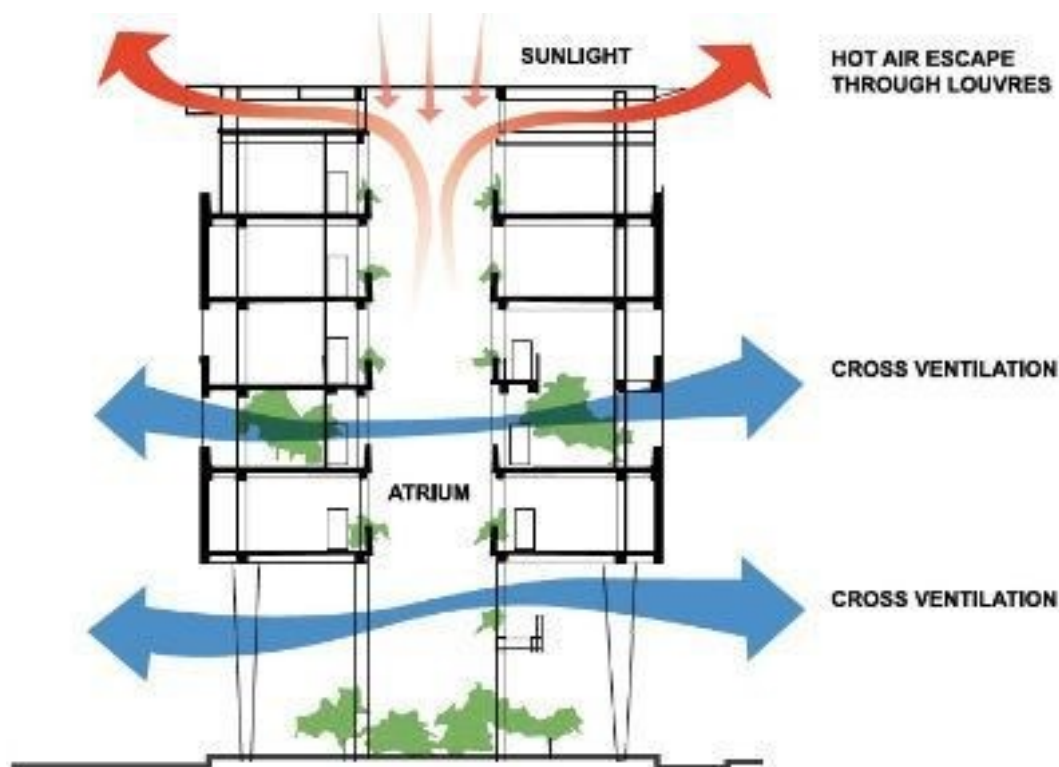
The installation of an atrium in a building, particularly in mixed-use buildings, can result in huge thermal impact, the internal temperature of the atrium, which serves as a buffer region in the form of a thermal interface, is typically 15-18 ° C.

However, the temperature of Atrium varies with changes in ambient temperature and temporal delay.

Adjacent spaces to the atrium are shielded from abrupt changes in the environment, which lowers heat loss caused by their translucent surfaces. The amount of savings is determined by the atrium's internal temperature, ventilation and airtightness, and thermal conductivity coefficients of its constituent materials.

as well as the amount of surface insulation It minimizes the building's heating and cooling loads by pre-heating or pre-cooling the fresh air. If an atrium has heat storage surfaces and is spun to the south, it passively absorbs solar energy for heating in winter days and cooling in summer evenings, reducing energy use. Saving energy in the spaces close to the atrium minimizes heating requirements. Some atria, by their mediating effect, minimize the building's heating needs. However, this ability is also dependent on the atrium's interior heat.

(Pour Ahmadi et al, 2015)



infograph found on google without mention of the author

## The utilization of green roofs

A green roof, often known as a rooftop garden, is a vegetative layer that grows on a rooftop. Green roofs produce shade, absorb heat from the air, and lower surface and surrounding atmosphere temperatures. Green roofs can help to mitigate the heat island effect in cities and other constructed areas with minimal vegetation, especially during the day.

Green roof temperatures can be 0-5°C lower than traditional roof temperatures, and they can decrease city-wide air temperature by up to -15°C. Furthermore, green roofs can cut building energy use by 0.7% when compared to conventional roofs, resulting in lower peak electricity demand and an annual savings of \$0.23 per 10 square meters of roof area.

(General Services Administration, 2011)

These benefits of temperature reduction and energy efficiency are important factors in the growing popularity of green roofs in the United States. (Green Roofs for Healthy Cities, 2017)



Right image Photographer: Michael Moran/OTTO for Andrew Berman Architect  
Available at: <https://www.architecturaldigest.com>

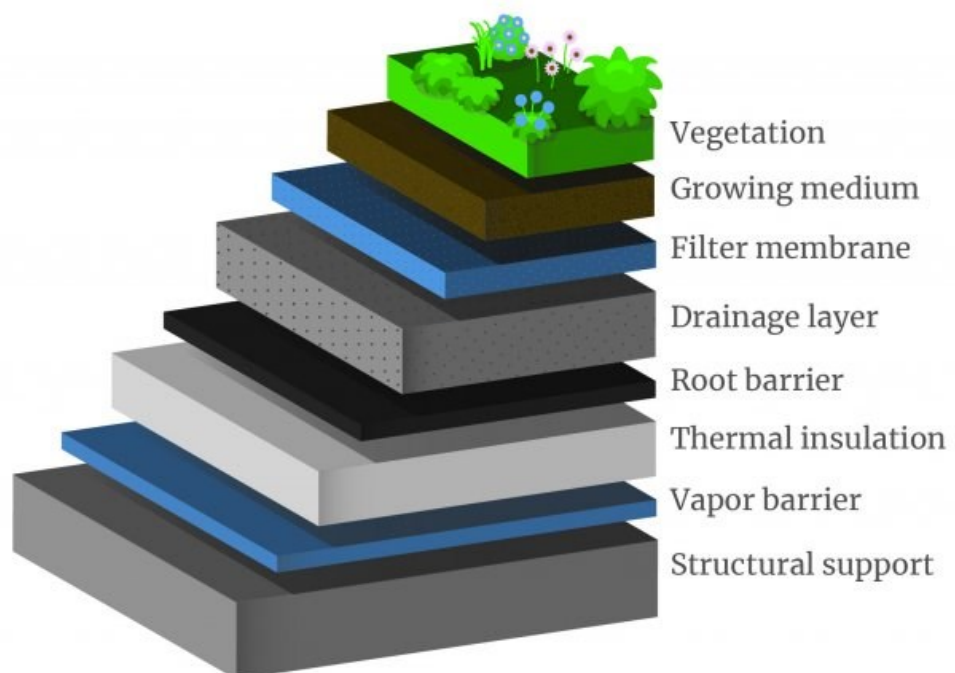


## Types of Green Roofs

- **Extensive Green Roofs**
    - A common type usually simple, with hardy vegetation and a growing medium depth of 5-10cm
    - They are lightweight, they require the least amount of additional structural support.
    - Once established, they require little upkeep.
  - **Intensive Green Roofs**
    - They are more complicated, such as a completely accessible park with trees.
    - Similar to traditional gardens or parks.
    - They are heavier, they necessitate additional structural support.
    - necessitate a large initial investment
    - More comprehensive maintenance is required.
- (EPA, 2022)

Both varieties have the same fundamental layering components, including a number of barriers to prevent water or root damage to the structure, a drainage layer to aid with water drainage, and a growing medium and vegetative layer.

The diagram below depicts the most common design of a green roof, albeit not all of the layers shown are found in every green roof. (EPA, 2022)



Right infograph (EPA,

### **Benefits of Green Roofs**

Green roofs can reduce/remove air pollution and greenhouse gas emissions by lowering air-conditioning demand. This reduces air pollution and greenhouse gas (GHG) production from traditional power sources.

Green roofs remove heat from the air through evapotranspiration and also act as insulators for structures, reducing the energy required to provide cooling and heating.

Green roofs can increase indoor comfort and minimize the incidence of heat stress caused by heat waves by minimizing heat transfer through the building roof.

Green roofs improve the quality of life by providing aesthetic value as well as habitat for plant and animal species.

Improved stormwater management and quality of water: Green roofs can reduce and moderate stormwater runoff in metropolitan areas, as well as filter pollutants from rainfall. (EPA, 2022)

## **4- Enabling and evolving**

Enabled environments address the impact and benefit that technology, design development, and physical and psychological research advances can have on people daily life as well as the quality of experience they have in their home and community.

Signage, door/house numbering, corridor wayfinding, and other similar features that are based on concepts that assist a person's natural development in an convenient, context support a changing environment.(RLC, 2018)

### **Ambient Assisted Living:**

- Ambient Assisted Living is a sub-discipline of Ambient Intelligence.
- A new multidisciplinary field that aims to provide an ecosystem of various types of sensors, computer systems, mobile devices, wireless networks, and software platforms for personal healthcare observing and telehealth systems.
- This is about using ambient intelligent techniques to help elderly people live as independently as possible for as long as possible.
- using methods, procedures, and technologies for environmental intelligence.

- It is a pretty modern ICT trend to incorporate intelligent objects in the environment to assist people (primarily the elderly) in living independently and under supervision.
- Concepts, methods, electronic systems, products, and services that transparently assist people in need in their daily lives
- AAL offers a reliable IoT platform ruled by artificial intelligence algorithms, thereby meeting the reliability metric in safely monitoring patients' health in their place of residence. The AAL system includes patient activity monitoring, which is critical for patients with Alzheimer's disease, bedsores, diabetes, and osteoarthritis.  
(IGI Global, 2013)

## Place and Identity

### Principle 2

#### •Home

To create a sense of belonging in a home by eliciting emotional responses to:

**1-Privacy:** is necessary not only between public and residential spaces, but also in the home itself.

There must be a clear entrance that distinguishes between the outside and the inside, entrance must be under the full control of the home's occupants.

Home privacy can be achieved by organizing spaces from private (WC/bathrooms) to semi-private (bedroom, laundry) to public (living, dining area, kitchen, terraces).

**2-Belonging:** When a resident can personalize and adapt their space to their needs, they develop a sense of belonging. In order to create a sense of belonging, residents must be able to grant permission to enter the space through:

doorbells, peepholes, front door intercom, and security doors.

**3-Retreat:** A resident require privacy and a view through a window or open private space that allows them to rest their gaze and reflect. It will be difficult to accomplish the amount of noise reduction required for a sense of seclusion if the property is located near a busy street.

**4-Relaxation:** Residents must be able to relax in their home, the environment must be well-lit, comfortable, and at a temperature they prefer. Its spatial and loose furniture arrangements must be able to adapt enough to allow for the pursuit of a diverse range of hobbies. The zoning of a home in terms of loud and peaceful areas is an important aspect to consider when planning.

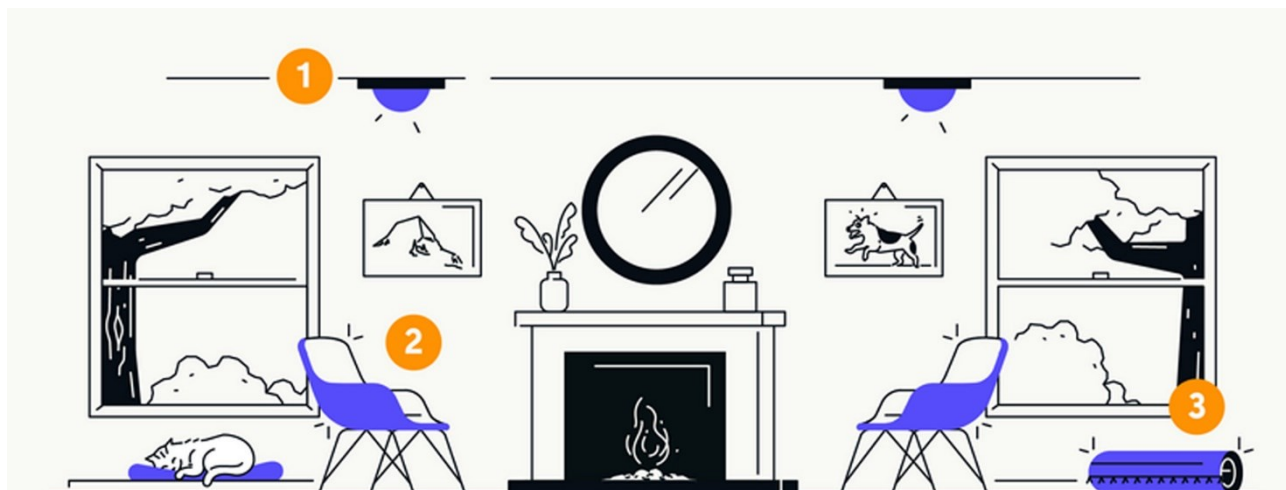
**5-Family and friends:** A house must be able to accommodate family and friends. It should be adaptable enough to accommodate the various types of visitors, Furniture should be able to be moved into a variety of different configurations to accommodate a variety of social activities. When planning the spaces, the segregation of both formal and informal area must be considered.

(RLC, 2018)

## t6-Safety:

AARP reports that one in four adults over the age of 65 falls each year, but there are a few simple adjustments you can make to reduce your chances of falling. Here are some safety tips to make your home as safe as possible. (Meyer, 2022)

### Living room



Illustrations Available at: <https://www.thezebra.com/resources/home/senior-home-safety-guide/>

- Incorporate remote-controlled ceiling lights for elderly people with limited mobility, if visibility in the living area is poor, add track lighting as needed, this can assist improve the lighting in the room to the levels required for seniors Bright lighting should be installed in hallways, closets, and stairwells. Inadequate light in these areas may cause a fall.
- All sofas and chairs must be stable, with no swaying or wobbling, shouldn't be very low, very soft, or very deep, with height arms to help pulling to a standing position, yet lightweight enough to be easier to manoeuvre, this is important for dinning or activities seats that must be moved away from a table for sitting.
- Adding extra lamps, that turn on and off with a touch, make it easier to brighten the room when night-time falls.
- Lighten the colour of the walls. A matte finish reduces glare, whereas paint with a greater Light Reflective Value raises the room's ambient light levels. seniors' vision may require two to six times the amount of light it did when they were younger.
- Light quality is fundamental as greater light levels. Shadows, reflections, and glare should be reduced by good lighting quality, older persons are more susceptible to glare,

- Remove carpets and clutter from walkways to avoid trip hazard.
- Remove rugs that are prone to slipping, use carpet staples, Tiles and natural stone should be avoided, and Increasing the walking stability by installing a hail railing. (Meyer, 2022)

## Bedroom



Illustrations Available at: <https://www.thezebra.com/resources/home/senior-home-safety-guide/>

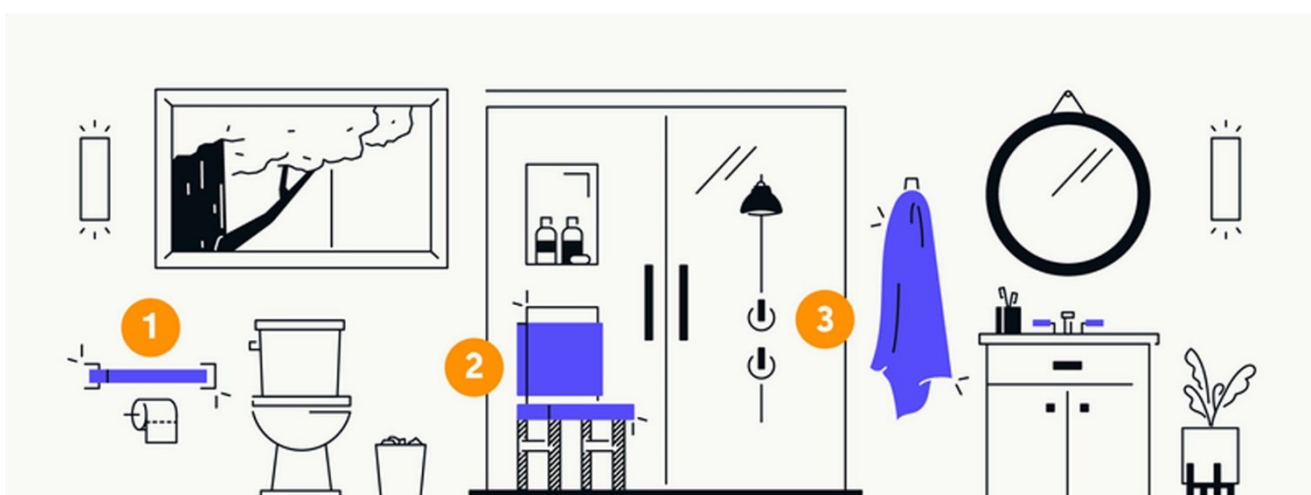
- Install bed rails to prevent falls and to provide additional support when getting in and out of bed.
- For those late-night journeys to the kitchen or bathroom, nightlights and low-wattage string lighting can be left ON at all times.
- provide enough storage space to avoid visible boxes, that may turn into obstacles  
(Meyer, 2022)

## Bathroom

The bathroom is full of rough, slippery surfaces, making it a common area for injury and falls in people of all ages, but notably the seniors. (Meyer, 2022)

to protect a restroom and avoid accidents for seniors:

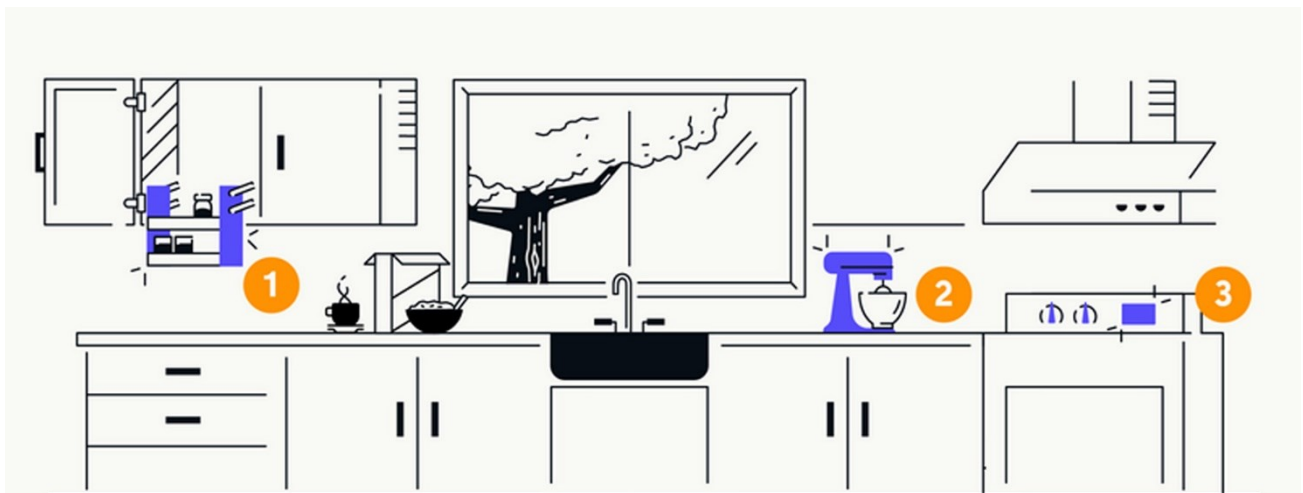
Illustrations Available at: <https://www.thezebra.com/resources/home/senior-home-safety-guide/>



- For further support, install grab bars around the shower and toilet, Individual adjustment is possible with a handheld showerhead on a sliding rail, making it easier to shower while seated.
- Install a bench in the shower for elderly who have trouble standing for lengthy periods of time.
- To avoid scorching, set the water thermostat to no higher than 48 degrees Celsius.
- Anti-scalding mechanisms in the sink, tub, and shower detect when the water is too hot and shut off the flow.
- Raised toilet seats shorten the distance an elderly person must sit when using the toilet.
- The hot and cold shower handles should be immediately recognized for the seniors who are using them. (Meyer, 2022)

## Kitchen

The kitchen is the heart of any home and a location where family members spend a lot of time. With the recommendations below, you may ensure that it is well-equipped for seniors. (Meyer, 2022)



Illustrations Available at: <https://www.thezebra.com/resources/home/senior-home-safety-guide/>

- Use pull-down shelves to store items that are too high to reach.
- Store heavy goods in an easily accessible location so they do not need to be moved frequently.
- Install an automatic range shut-off to avoid leaving the oven or stove on. (Meyer, 2022)



Bottom right image Available at: <https://www.blanco.com/>

### •Community

Create a sense of community by eliciting the emotional responses to the physical environment listed below:

**1-Belonging:** Members of a community develop a sense of belonging when they believe they have responsibilities and rights to that society. To achieve this, community spaces must be culturally relevant, and residents must be able to participate actively in the activities that take place in these spaces.

**2-Engagement:** To encourage resident participation and investment in communal spaces:

- There should be a variety of activities that allow residents to choose how much of their time and energy to devote to the task.
- Easy to participate, and in a pleasant spaces that are appropriate for the task and close to one another to allow interaction.

**3-Activity and activation:** common spaces must be active and activated. Similar activity centres should be clustered together, and important circulation routes should connect them.

Consider the positioning of food and beverage spaces, as well as their closeness to activities, to allow inhabitants to passively observe and interact.

**4-Interaction and meetings:** Residents should be given the opportunity to connect with old and new friends.



**5-Excitement:** Can be produced by activity and movement.

- Placement of community areas near or integrated with major circulation points
- A portion of the community space is big enough to hold a variety of events
- Arranging regular and frequent activities
- The inclusion of long-term activation areas, like a coffee shop, a playground, etc.

Image Available at:

<https://www.moneycrashers.com>



**6-Connection:** Community space is visually, thematically, and physically connected. Community spaces must look cohesive and fit the public realm. Ease of transportation and multigenerational gatherings and activities that invite the wider society should foster connection to the site. Community spaces should offer a variety of ways to meet new people and rekindle old friendships.

**7-Neighbourhood:** A sense of camaraderie can be fostered by providing communal areas where residents can socialize as well as activities they can engage in together. There must be a way for people from outside the community to participate in some activities in order to establish a connection to the larger community context. An illustration might be a local coffee shop or cafe that is open to the general public.

**8-Inclusion:** High levels of transparency and visibility into activity areas are necessary to foster a sense of inclusion in communal spaces. A variety of generations and residents with different abilities should be able to use activity areas, which should be designed with appropriate physical linkages. There shouldn't be any physical or psychological obstacles that prevent a resident from taking part in community activities. A gathering place for the community should promote participation from both locals and guests. (RLC, 2018)

### **•Age friendly environment**

An enabling built environment and a supporting social environment make up the environment. A conducive and encouraging atmosphere guarantees:

- Flexible programs, services, and supports  
The social context encourages meaningful participation, even among the socially excluded.
- The social environment promotes safety and security, respects individual dignity, and lowers the danger of mistreatment, abuse, and neglect.
- The physical environment meets or surpasses current accessibility standards, and older persons can navigate and access built surroundings securely. (UWaterloo, 2018)

Self-efficacy and self-esteem may suffer as a result of unsupportive environments.

Being unable to locate a restroom or requiring assistance to enter a building as a wheelchair user can elicit feelings of dependence. Understanding people's subjective experiences and ambitions in terms of space use and quality of life might promote supportive outdoor spaces. Individuals-centered environments respect the subjective values and meanings of the people who inhabit a space, promote the diversity and needs of older people, and prioritize physically and emotionally inclusive space design. Listening to elderly people's voices is critical throughout the design and planning process.

### **Access to buildings and local transport**

- Building accessibility mapping (heavy doors, steps without handrails or wheelchair access)
- Providing access ramps to public buildings and homes
- Analyzing the location and density of bus stops, as well as their proximity to elderly people's homes (WHO, 2017)

### **Benches and toilets**

- Benches are well distributed and mapped
- Signage for public restrooms should be provided
- The mapping of toilets and their maintenance (WHO, 2017)

## Places for recreation and leisure

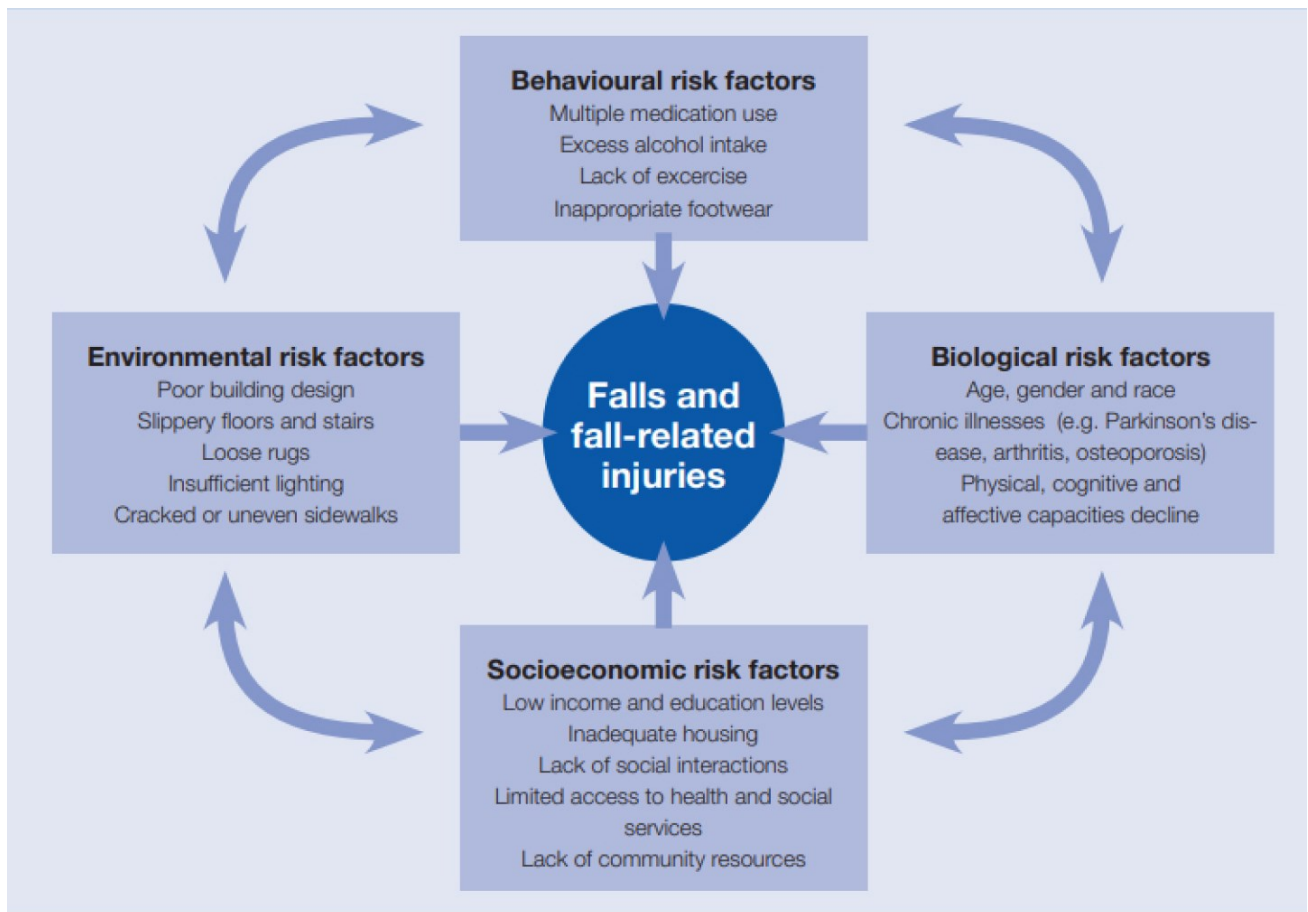
- Adding exercise equipment and locations to public spaces/parks
- Providing swimming pools and leisure centres
- Developing culture and walking paths
- Collaboration with small businesses to support service integration, proximity, and co-location (in particular commercial services such as bakeries, grocery stores, pharmacies and health centres)
- Providing accessible, well-lit, and well-maintained outside areas and building entrances
- linking barrier-free walking and cycling pathways to apartment blocks
- Providing accessible transportation choices (less than 300-metre distance between transportation stops) (WHO, 2017)

As people age, they often become more sensitive to seemingly minor physical elements that may be obstructive or reduce their sense of safety and confidence in outside places, and are thus discouraged or restricted from going outside and moving around. Several studies, however, have shown encouraging benefits from outdoor environmental interventions that address these concerns.

There is evidence that several interventions have the ability to improve walking and involvement in the short and long term. (WHO, 2017)

**Mobility and Frailty:** Walking frames, wheelchairs, and powered mobility scooters are examples of aids to help in lessen reduced mobility while still encouraging continued use.

The material choice and design of building components, such as joinery, should be carefully considered to help address risk of falling. (RLC ,2018)



(WHO, 2017)

**Physical activity:** Opportunities for physical activity should be considered and should be easily accessible.

**Benefits of Physical Activity for the Elderly:**

- cardiovascular health improvement
- May improve cognitive performance
- It alleviates anxiety and depression.
- It aids in flexibility, and Increases strength.
- Enhances bone density
- Helps with weight loss
- Forms a good habit, and Maintains social relationships
- Enhances sleep
- boosts confidence, lengthens life nad It's entertaining!.

(Key, 2016)





Right Image Available at: <https://www.thecareworkerscharity.org.uk/blog/benefits-of-exercise-for-the-elderly/>

**Ageing:** Residents must not feel pressure to make concessions as they get older. Those design elements include, as examples:

- Having restrooms close to communal areas reduces the anxiety associated with arriving too late, promoting continued use of those areas.
- Apartments with enough room for caregivers to help a resident.
- The design must take into account physical restrictions like
- bending, stretching, or climbing.(RLC ,2018)

Image Available at: <https://www.seniorlivingfarmington.com/amenities/>



## •External environments

A dynamic and changing outdoor environment stimulates all residents' senses and supports the resident group's needs.

### 1-Social relevance :

- Consider the possibilities of events that involve the larger community including schools and community organizations through events like education programs, garden clubs, etc.
- multigenerational play areas that residents, their families, and guests can use to mix play and fitness for individuals of all ages.
- providing areas for recreation and exercise for groups and individuals.
- the building of landscapes and external constructed settings that cater to the leisure demands of the locals through (RLC, 2018)

### 2-Outdoor experience:

- Designing the landscape and buildings to accommodate a variety of activities and levels of interaction.
- Visual/sensory stimulation: evaluate the environment's visual and sensory qualities
- Take in consideration all the different ways that Planting and gardening can happen as they are exclusively outdoor activities.
- Consider how pets interact with the landscape and build pet-friendly locations where inhabitants may have pets, both shared and communal. (RLC, 2018)

### 3-Place making:

Place making is a principle to the planning, design, and administration of outdoor and mostly common areas that is centered on the needs of the people. It is a response to the wants and needs of the people who will reside there and use it for work, recreation, and entertainment. (RLC, 2018)



#### 4-Security:

Violence in hospitals is at an all-time high in 2022. When confronted with these figures, healthcare leaders must prioritize security when launching new or updated hospital and seniors communities projects.

By enlisting security consultants early in the design process, healthcare organizations may ensure that buildings are designed with a security program in place to keep facilities visitors/residents secure, as well as being adaptable for future expansion and improvements.

Many factors of a healthcare facility security must be considered during the planning stages, including the local environment, hospital traffic flow, and future adaptability.

Utilizing the principles of Crime Prevention Through Environmental Design (CPTED), it can help to answer questions such as "Will customers be able to enter this restaurant from the street and the hospital?" "Can pedestrians use this Emergency Department entrance?" ; or "Are the main entrance illumination levels brighter so that users are naturally drawn to the correct entry point?" .

Using crime statistics, CPTED principles, and electronic security measures as a framework for creating security budgets, lowering known risk, and assisting the design team with physical layouts. (TEECOM Editorial Team 2022)

Potential Exterior Security Features:



Lighting levels



Cameras



Definition of boundary lines

Illustration Available at: <https://teecom.com/>

### •Flexible environments

Flexibility in the design of a building and its components with the purpose of managing its end-of-life more efficiently.

It refers to a structure's or area's ability to be reasonably updated, and capability of future adjustments being made in a more permanent capacity.

letting a building to evolve over time as user needs change to accommodate market fluctuations and extend the project's life.

Architecture that is unable to adapt to change risks becoming stagnant.

In addition to providing characteristics that are naturally flexible, such as movable/adjustable dividers, in addition to naturally flexible features like multi-use spaces, open-plan offices, enormous floor-to-ceiling heights, and high-capacity service voids. This may entail considering relatively simple design alternatives. For instance, it can be fairly easy to add or remove a bay to make a linear building larger or smaller, while it might be quite difficult to make changes to a circular building without compromising the design's integrity.

There are occasions when simply upgrading systems to meet contemporary building rules and standards is enough to convert existing structures for new functions. Aside from being financially wise, doing so protects the past and is intrinsically sustainable as part of whole-building and lifespan planning. Families and family units, for example, are more diverse than ever before, therefore one user's desire for a conventional living room could be another user's wish for a quiet office for their business.

Because to flexible design, everyone has access to suitable and usable locations in both public and private contexts.

(Nasir, Chinurkar, 2022)

**The following should be taken into account:**

#### **1-Day-to-day flexibility:**

- To improve access and mobility, use loose furniture rather than joinery in locations where extra room may be needed.
- Componentry that may be moved, such as adjustable-height workstations or benches.
- Sliding partitions that, depending on the configuration, allow rooms to be used as either public or private zones.

## Possibility of manipulable walls that fold vertically



Image source: <https://www.archdaily.com/>

In response to this rapidly changing world, flexibility has become one of the top priorities of modern interior design. This explains, for example, the growing demand for spacious multifunctional spaces versus rigid, closed floor plans, as is the case with the open kitchen trend. This changing need for space suggests that designing for the present and the future is about creating spaces that are easily adaptable to many uses. Another day may require a smaller, more private setting. Materials, products and other furnishing elements should therefore be adapted accordingly, integrating technology and innovation to create flexible and functional spaces. (Montjoy, 2022)

## **2-Evolution:**

The design should accommodate the changing demands of inhabitants and families. Where future needs are anticipated, To assist adaption, allowances may be granted.

- allowing for more space to increase access and mobility when that space is initially used for something else.
- Including support points in finished walls to provide for secure future fixing of grab- or handrails;
- Making sure that communications and IT back-of-house facilities have the proper amount of space.
- ensuring a sufficient power supply to refuel electric vehicles, mobility aids, and sensory equipment.
- Restrooms built with persons who have mobility issues, use mobility aids, or need help in mind. (RLC ,2018)

## **3-Storage:**

Storage spaces should be acceptable for the demands and activities of elderly living independently as well as for any potential future physical limitation. For instance, there can be a strong preference for under-bench drawers in kitchens over cupboards since residents can access the contents more easily and without having to bend as much. Any overhead cabinets should also be functionally accessible and at an adequate height for reach.

The size of wardrobe in master bedrooms should be adequate for couples. Wherever possible, additional storage areas and joinery should be maximized. (RLC ,2018)

## Social/Demographic Situation

According to the country's latest geographical survey, **The Central Bureau of Statistics-Syria** estimated the number of people who were present on Syrian territory in mid-2018 at about 15.3 million people, divided between genders at 51% males and 49% females, and 104 males per 100 females. The population growth rate in the country was estimated at 2.45% compared to 2017, when the population reached 24.422 million.

The total fertility rate was 2.85 live births per woman in the age group 15-49 years, and the average life expectancy was 74.01 years (72.54 for males, 75.57 for females).

The age structure of the population according to gender as shown in Table 1 shows that 33.2% of the total population is in the age group less than 15 years, while the proportion of individuals in the workforce 15-64 years accounted for about 61.5%.

(The Central Bureau of Statistics-Syria, 2018)

Chart 1

Total		Female		Male		Age Categories
%	count	%	count	%	count	
1.8	274223	1.5	121634	2.1	152589	< one year
8.0	1221913	7.6	603649	8.3	618265	1-4
11.5	1762810	10.6	836996	12.5	925814	5-9
11.9	1820558	11.1	878089	12.7	942470	10-14
10.7	1645983	10.7	847950	10.7	798034	15-19
7.9	1215830	8.4	669246	7.4	546584	20-24
6.3	969828	7.0	556366	5.6	413462	25-29
6.5	990367	7.1	566408	5.7	423959	30-34
6.5	1000328	7.3	578807	5.7	421521	35-39
6.2	959411	6.6	519570	5.9	439841	40-44
5.2	796704	4.9	386033	5.5	410671	45-49
5.6	856154	5.8	460894	5.3	395260	50-54
3.8	577397	3.6	284850	3.9	292547	55-59
3.0	454028	2.8	218135	3.2	235893	60-64
5.3	806990	5.0	399469	5.5	407521	+65
100	15352524	100	7928096	100	7424429	Total

Charts 1: Multipurpose Integrated Social Demographic Survey 2017-2018 Central Bureau of Statistics -Syria  
Available at: <http://cbssyr.sy/index.htm>

Seniors between 55-64 years old are 6.8%  
 Seniors +65 years old are 5.3%.  
 And thus according to the Demographic Survey 2017-2018 done by Central Bureau of Statistics -Syria, there are around 1.5 millions seniors between age 55-64 and +65  
 (The Central Bureau of Statistics-Syria, 2018)

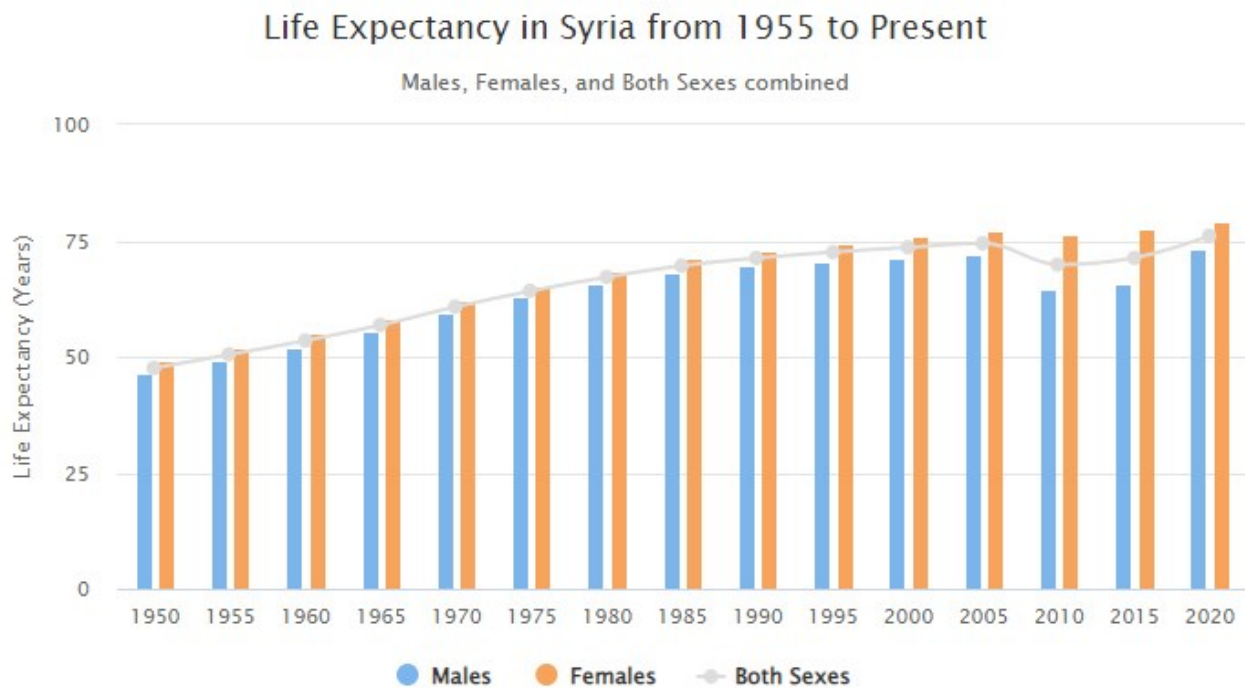
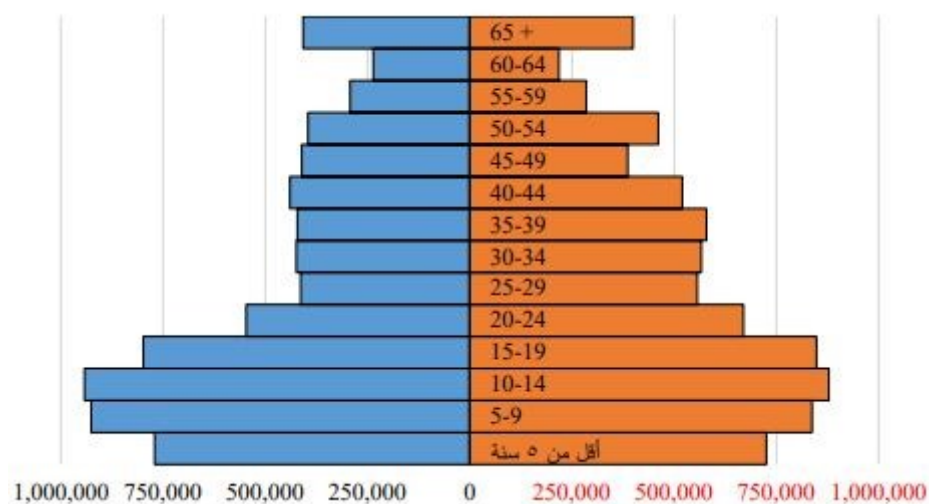


Chart 2 Available at: <https://www.worldometers.info/>



Multipurpose Integrated Social Demographic Survey 2017-2018 Central Bureau of Statistics -Syria  
 Available at: <http://cbssyr.sy/index.htm>



## Damascus Seniors

Syrian government doesn't provide any welfare for elderly, and the pension system is weak and limited to a small salary provided after retirement. (it's worth to note that in Syria there are public hospitals and care centres but the quality provided is negligible in all aspects)

According to an interview done on SANA (Syrian Arab News Agency) with the Director of Social Services at the Syrian Ministry of Social Affairs and Labour and The head of the Syrian Commission for Family and Population Affairs held by Inas Alsvan on 2018-10-01:

In Damascus one governmental senior house and 24 NGOs. This is what left for the elderly after seven years of the terrorist war on Syria, with promises that a home for the homeless elderly will soon open, day-care centres and activity clubs. Observers of the seniors situation see that the elderly in Syria need a friendly environment for them in terms of urban planning, health care, places of social activities and others.

She made a statement: "The elderly are not a large group in terms of population in Syria, but due to the conditions of the terrorist war, their needs have doubled as a result of the migration of young people, the absence of economic supporter and the displacement of families."

Maidani added that a large number of elderly care centres were destroyed and out of service due to terrorist attacks.

Today, "there is only one governmental senior house for the elderly, which is the Dignity House (Dar Al-Karama) in Damascus, which has just 87 elderly people, in addition to 24 civil associations (NGOs) specialized in caring for them and providing services for them." (SANA, 2018)



Image: Elderly woman living in the governmental senior house  
Available at: <https://npasyria.com/113827/>

The Syrian Ministry of Social Affairs and Labour, in cooperation with the Syrian Commission for Family and Population Affairs, developed a strategy for elderly care that began last year (2017) by translating it through a national plan in a number of areas, including creating training programs to help the elderly through training volunteers in NGOs or those wishing to work through courses at the Ministry's Career Guidance Centre In addition to seeking to activate the health insurance file for the elderly retired.

Maidani revealed that the ministry, in cooperation with the High Commission for Refugees, has prepared a section of the home for beggars and homeless people in the Kiswa area in Damascus countryside, with the aim of allocating it to the residence of the elderly, to be opened during the current month.

As for the ministry's future plan, Maidani pointed out that it includes the creation of care homes and clubs for the elderly and

the infirm, the rehabilitation of staff specialized in elderly care, the establishment of recreational and social activities for elderly, and day-care centres.

The Ministry works through civil associations to insure mobility aids and medicines for the elderly registered with the associations or the ministry through free grants provided by international non-governmental organizations, noting that the economic sanctions on Syria directly affected the provision of these supplies.

In turn, The head of the Syrian Commission for Family and Population Affairs, Dr. Akram Al-Qash, said in a statement that studies estimate the proportion of elderly people over the age of 60 at more than 6 percent of the population in Syria, and this percentage is expected to rise to 10 percent in 2025. (SANA, 2018)



image: an Elderly lady appeared in an interview on Alhadath news channel in an interview in 2017.  
Available at:[https://www.youtube.com/watch?v=pLjtYUG\\_UUo](https://www.youtube.com/watch?v=pLjtYUG_UUo)

result of the war conditions and with the aim of identifying the needs to be included in the national plan for the care of the elderly and the executive programs in cooperation with the Ministry of Social Affairs and Labor and various other concerned parties. Al-Qash pointed to the need to develop legislation and laws related to the elderly in order to meet their needs in a broader manner and in line with the current reality, while working to establish a friendly environment for the elderly in terms of urban planning, as well as paying attention to the health reality for them by allocating a hospital for the care of the elderly, indicating that previous studies done by the authority before the terrorist war on Syria (2011-2012) meant to determine the needs of the elderly have confirmed that psychological care and communication with society and the family are among the most important needs of this group.

As explained by Al-Qash, the authority seeks to establish a project that includes providing services to all family members under the name of the family home, among its objectives is caring for the elderly. (SANA, 2018)

Inas Alsvan

Damascus 01/10/2018



Image Available at: <https://www.sana.sy/?p=822775>

According to an interview done on SANA (Syrian Arab News Agency) with the Director of Dar Al-Karama and Head of the Seniors and Adult Program, Dr. Rola Asaad held by Muhannad Suleiman and Rama Rashidi on 2022-10-01:

With one governmental senior house for the elderly in Damascus, Dar Al-Karama, it was able to provide appropriate services, according to its director, George Saada, explaining to SANA reporter that the residents of the home are provided with integrated health, social and psychological care, in coordination with specialized medical cadres, in addition to various recreational and social activities. Presented in cooperation with a number of NGOs and initiatives.

According to Saada, about 110 elderly people from different governorates are reside in the house and are provided with all services free of charge, as the focus is on supporting their skills, and engaging them in artistic and cultural activities, to express their skills and entertain their free time, and their work is presented in art exhibitions and various social activities, including conversational sessions.

The Ministry of Health, through the Directorate of Health Care, and through hospitals and health centers, is keen to provide health care, preventive and curative services for the elderly, in addition to spreading awareness about the needs of this segment and ways to help them, with the aim of providing and enhancing their status, and securing a supportive social environment for them. (SANA, 2022)

Muhannad Suleiman and Rama Rashidi  
Damascus 01/10/2022



Retirement and  
Nursing Home Wilder  
Kaiser  
SCHEFFAU  
WILDEN KAISER/  
AUSTRIA  
Architects:  
SRAP Sedlak Rissland  
+ Dürschinger  
Architekten



Home and Nursing for  
Dependent Elderly  
Orbec/France  
Architects:  
Dominique Coulon &  
associés



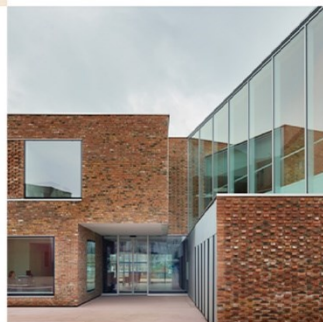
Eltheto Housing and  
Healthcare Complex  
Rijssen/Netherlands  
Architects:  
2by4-architects



Santa Rita Geriatric  
Center  
Menorca/Spain  
Architects:  
Manuel Ocaña



Houses For Eldery  
Alcácer do Sal/  
Portugal  
Architects:  
Aires Mateus



Housing for Elderly  
People  
Huningue/France  
Architects:  
Dominique Coulon &  
associés





# Houses For Elderly people Alcácer do Sal/Portugal

## Architects: Aires Mateus

The project is a kind of micro-society with its own set of rules. It is a program that exists midway between a hotel and a hospital and strives to perceive and reinterpret the combination social/private, responding to the needs of a social life while also providing privacy. Independent unities combine to form a distinct body with an expressive and clear design. Treating the private areas as distinct homes, volumes, or units rather than rooms, they appear to physically join on top of one another, together with their vacant terrace spaces, to create a one-of-a-kind building. The final form or project composition almost literally reacts to the architects' comments on the significance of various spaces.

Every accommodation, or "home," has its own private balcony. This design allows homeowners to enjoy the open air while giving good sun shading from direct southern radiation. The ultimate form is a clear mix of each house's void/built sequence.

The result is a long, swinging, and twisting structure that extends along the southeastern edge of the Santa Casa de la Misericordia site, like a perforated wall that contains and restricts to define the open area, arranging the entire plot.

Because of the limited mobility of persons who will reside in the facility, any displacement should be an emotional and dynamic experience. The length between the independent components is determined and drawn in order to bring the concept of a journey to life and its timeframe into form. (Saieh, 2013)

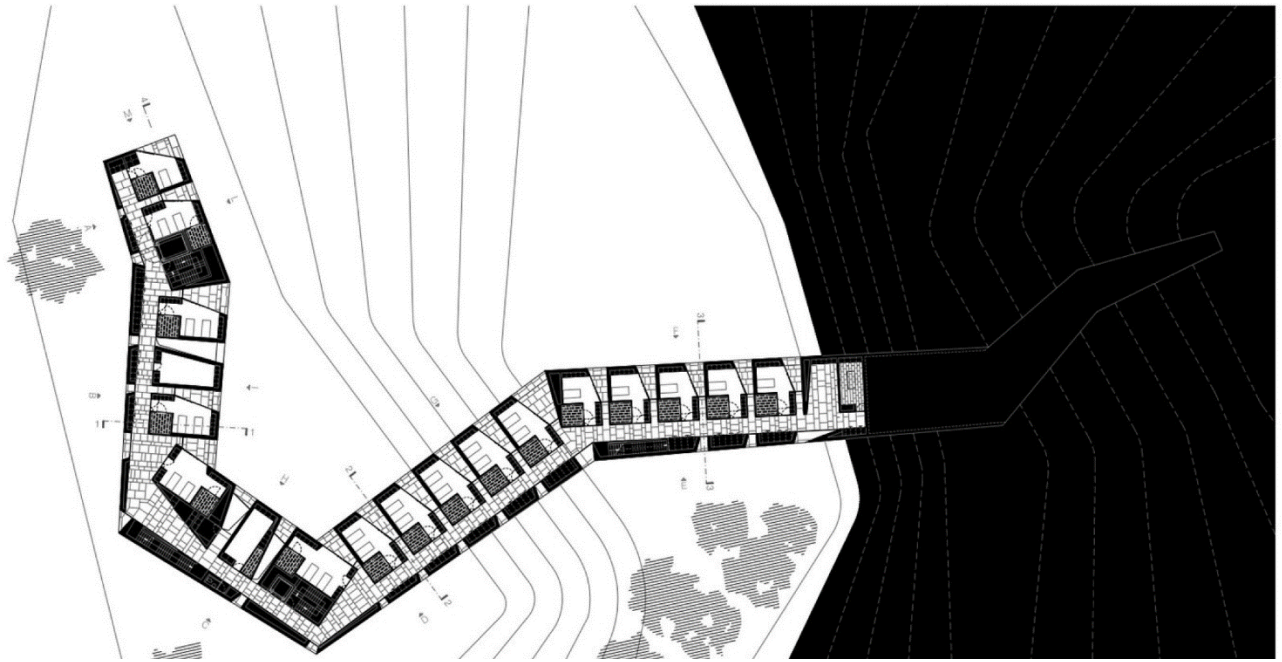


Photographs: Fernando Guerra | FG+SG  
Available at: [www.archdaily.com](http://www.archdaily.com)

The building, which rises three floors at its west-facing head, zigzags its way into the scrubby topography, with the flat roof providing a hillside patio at its tail. The elevations, in contrast to the jaunty plan, are regulated by rigorous right angles. White rendered chambers are stacked unevenly, like balanced sugar cubes (or squared-off salt crystals, evoking the town's age-old salt manufacture, which accounts for the 'sal' in the name). Wedge-shaped recessed balconies between the rooms provide welcome shade. Each balcony reads as a gap in the rhythmic facade, producing a 'grandma's teeth' appearance.

The entire ground floor is dedicated to social areas, including a dining room, a lounge, and an atelier for group activities or meetings. Large, some dramatically large, hinged glass doors swing out through deeply recessed openings onto the shared landscape, adding to the building's interpretation as an inhabited wall. Shadows are expertly handled to create the rectilinear composition, casting grey diagonals across the heights. Sloping soffits at openings and slanted bedroom balcony walls combine to produce a deceptive perspective that adds to the architecture's theatricality. The interior maintains the fun monochromatic palette by introducing light into the layout via pockets of double-height space, pale veined marble flooring, and speckled acoustic ceilings. Upper-level hallways are punctuated by full-height windows that lend a visual cadence to movement, widening at intervals to provide impromptu living rooms. The result slows things down to a leisurely pace, in keeping with the locals' lives. This sluggish pace, combined with the relentless whiteness of everything, reinforces the building's institutional sensibility, which is properly respectable. Rather than attempting to replicate the various ways in which people make and shape their own homes, Aires Mateus has reinterpreted the home as a collaborative effort.

(Dawes, Barac, 2013)



Photographs: Fernando Guerra | FG+SG  
Available with the plan at: [www.archdaily.com](http://www.archdaily.com)

# Housing for Elderly People in uningue/France

## Architects: Dominique Coulon & associés

This housing for elderly is situated beside the Rhine.

The site's outstanding location allowed us to turn the common areas and the hall toward the river so that inhabitants could take in the boat traffic show.

Twenty-five fifty-square-meter residences, a café with three sections, a computer room, a hobby workshop, a vegetable garden, and a petanque court are all included in the program.

Everything is set up to promote goodwill among the locals.

The communal living areas are as spacious as feasible and have lots of natural light.

The spaces are created to promote conversations and interpersonal contact.

The pathways are interspersed with encounter-inviting moments and patterns.

The staircase is in the middle of the structure, making it impossible to avoid. It encourages mobility because of the spacious core area.

The patio upstairs lets southern light into the center of the building.

The white volume inside appears suspended; it breaks down the empty space and gives the whole thing a peculiar quality.

Terracotta, wood, and red concrete combine to create a friendly ambiance. Brick surrounds the structure entirely on the exterior. as unusual, uneven, and occasionally deformed artisan brick. The structure links to the heritage of the Rhine by catching the light and emphasizing its rustic port location. (Castro, 2018)



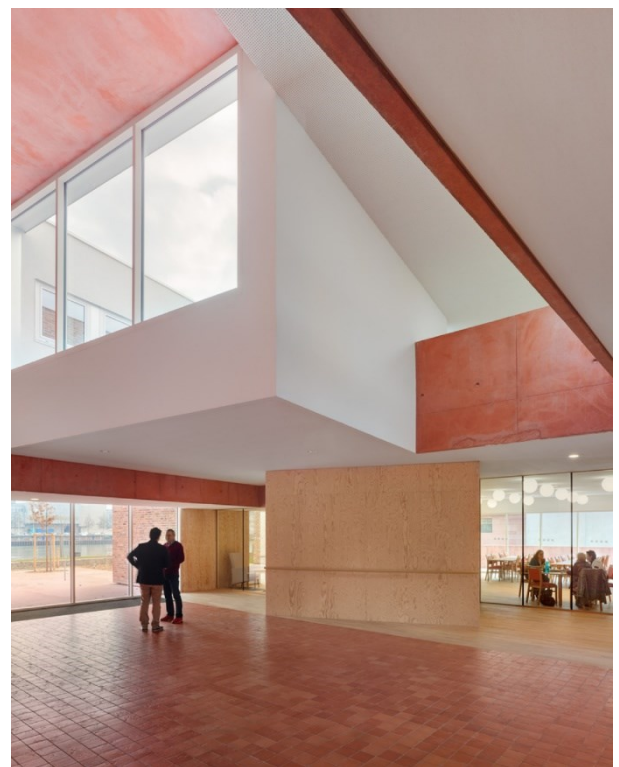


Photographer: Eugeni Pons  
Available at: [www.archdaily.com](http://www.archdaily.com)





hall	0.01
administration and reception	0.02
activity room	0.03
living room	0.04
staff room	0.05
computer room	0.06
multi-activity room	0.07
terrace overlooking the Rhine	0.08



Photographer: Eugeni Pons  
Available at: [www.archdaily.com](http://www.archdaily.com)

# Eltheto Housing and Healthcare complex

## Rijssen/The Netherlands

### Architects: 2by4-architects

Elderly people were previously thought of as a group that operates outside of contemporary society and only requires care.

this idea is still used in the design of modern healthcare facilities and senior housing. This has led to a variety of introverted structures over the centuries, where healthcare is prioritized over actual quality of life.

This idea was reversed for Eltheto by 2by4-architects, who separated the housing from the healthcare program.

The housing program operates similarly to a specific type of suburban housing program, they are public housing complexes with a strong emphasis on preserving social integration and life quality. The housing program is modified for the residents who are less independent in accordance with their needs, but the emphasis on quality of life is still present.

The design of the various housing complexes indicates whether they are designed for elderly people who are more independent, elderly people who value social interaction, or elderly people who require medical attention.

The blocks all clearly belong to the same family, and together with the public space, they create an integrated social place to live for the next generation of elderly people.

The design is based on a lifestyle study that examines the various requirements and traits of the elderly.

According to some research, elderly people's life expectancy will decrease if they have to change their way of life in order to access health care, they lose mobility, become more dependent, and eventually experience social isolation. (Valenzuela, 2015)



Photographs: Courtesy of 2by4-architects  
Available at: [www.archdaily.com](http://www.archdaily.com)





Photographs: Courtesy of 2by4-architects  
 Available at: [www.archdaily.com](http://www.archdaily.com)

Elderly people experience a lot of loneliness, especially if one of the partners has passed away.

By offering the appropriate healthcare and housing that meets their current needs, Eltheto aims to retain the elderly a part of modern life and society.

They have the option of receiving medical care at home if their needs change or moving to another Eltheto building that is equipped to offer more specialized medical care.

In this way, people can remain in their home for a longer period of time and stay in their current neighborhood when they eventually need to relocate.

The four dwelling blocks at the Eltheto complex house:

Seniors and couples who are self-sufficient

Seniors with Alzheimer

Seniors with physical disabilities

Seniors with mental disabilities.

These four residences are grouped around a multitude of public spaces that connect the residences, the centrally located healthcare center, and the neighboring community.

The seniors are encouraged to organize themselves and use the public space for activities like communal gardening, outdoor festivals, and meetings, they can also play games like Pétanque there or relax under a tree and enjoy the sights and sounds of the neighborhood.

Numerous trees and plants that have been carefully chosen based on color, shade, flowering time, and fruit type characteristics provide the public space its green appearance. All of this contributes to the so-called environment for natural healing.

The public health center acts as the complex beating heart and is situated in the middle of the common area. In addition to serving the residents of Eltheto, it also serves the surrounding community.

(Valenzuela, 2015)







The facility offers many other public services in addition to health care, including a restaurant, a library, a store for daily necessities, a meditation center, a daycare, a hair salon, other activities, and office spaces.

The center is easily accessible from the public area, enhancing the interaction between both the indoor and outdoor spaces along with the overall public aspect of this modern healthcare complex.

(Valenzuela, 2015)



Photographs: Courtesy of zdy4-architects  
Available at: [www.archdaily.com](http://www.archdaily.com)

# Retirement and Nursing Home Wilder Kaiser

## SCHEFFAU AM WILDEN KAISER/AUSTRIA

### Architects:SRAP Sedlak Rissland + Dürschinger Architekten

The facility is built on the geographical center of three municipalities, The new facility is situated at the foothills of the "Wilder Kaiser" Mountain Range, directly adjacent to a Former residential and care center that no longer meets the necessary standards.

The mass is made up of two compact volumes that are linked at the central part to form an atrium. The placement of the volumes on the plot results in the creation of three distinct outdoor areas: A public garden, a dementia-specific garden, and a children's playground.

On one hand, the structure's distinctive formation promotes interaction and communication between residents and the surrounding neighborhood. On the other side, there are plenty of opportunities for quiet reflection and solitary seclusion in both the interior and exterior settings. Community, integration, and individual lifestyle Avoid excluding each other.

The new Care Facility has a clean and straightforward design. The building's main entry is distinguished by a crystalline Y-support made of prefabricated concrete.

The public spaces are on the ground floor.

The Main Entrance is surrounded by the Café-Lounge, Event Hall, and Chapel. Administrative offices, service rooms, and a manufacturing kitchen are located at the back of the ground level.

The building's zenithal skylight is provided by the central green atrium, as it allows for visual connection between the dining rooms and common spaces of the various care units that are located on different floors.

These units are split over the two top levels, totaling 54 apartments. (Sagredo, 2018)









Photographs: René Rissland  
Available at: [www.archdaily.com](http://www.archdaily.com)

The flats are well-equipped and stylishly constructed. Transom light strips are used in bathrooms.

At the doorways to the flats, there are nooks with seating benches. Little community spaces are scattered throughout a care group with cantelivering, roofed terraces and balconies that front the mountain range and the Village Center.

The larger dining areas serve as "Cantous," or convenient meeting places for the inhabitants.

The warm substance wood becomes a partner within the new care home. Color-coordinated surfaces provide orientation for residents and visitors around the building.

Untreated larch wood formwork highlights the recessed balconies and ground level facade. A plaster with a broom finish is used to cover the remainder of the exterior surface.

The windows are enhanced by contoured larch board inlays. They are a well-known allusion to regional handicraft customs. However, the conventional cutout and paling system is contextually translated and employed as a screen that offers privacy, shields from the light, and casts delicate shadows on the facade.

Thus, tradition and contemporary come together to create a beautiful whole. (Sagredo, 2018)

# Santa Rita Geriatric Center

## Menorca/Spain

### Architects: Manuel Ocaña

The goal is to establish a distinctive environment in a place where leisure time predominates, and where individuals spend their final years or months of life.

It is feasible to design a seniors facility that does not resemble a hospital, and without architectural barriers or corridors, on a single floor, every single room at Santa Rita Center has a direct access to (and from) a garden that serves as a form of "lobby" and direct access to (and from) the communal spaces.

ACCESSIBILITY is the key component, it facilitates visitor access while ensuring complete accessibility, physical independence, psychological security, and respect for individual privacy, it offers the resident a variety of circulation options, including several options for getting from A to B, and accommodating the many program and circulation purposes simultaneously.

The garden is an open, connected, flowing, unconventional space that develops between the residential area and the facility boundary, supported by slender steel columns, divided into three lobulated regions according to the blooming pattern of the surrounding spaces, and the exterior.

Going around the entire building requires navigating an open space without doors or hallways, this creates paths that don't always lead to a single answer.

It is a "polyatmospheric" circulation environment with a variety of activities that might pique the senses and lessen the spatial boredom and disorientation one could "feel" at a senior facility. While the south and west facades promote warmer environments by employing yellow paint, the north facade intensifies the chilly light by using blue and greenish paints. (Saieh, 2009)









Photographer: Imagen Subliminal  
Available at: <https://archello.com>





multilayered and multicoloured synthetic façade, together with the ceiling's paintings, improve visitors tendency by enhancing the chromatic characteristics of each area's light. Users can experience the many luminic atmospheres when strolling through the structure, such as the orange-colored western light or the blue-colored northern one.

The user can choose "which direction to go" and "where to stay" using the palette of shifting atmospheres, varying light densities, and intensities. (Saieh, 2009)

Photographer: Imagen Subliminal  
Available at: <https://archello.com>



# Home and Nursing for Dependent Elderly People Orbec/France

## Architects: Dominique Coulon & associés

Dividing this massive volume seems best to decrease its visual impact. The building merges with the surroundings and represents the site's rural aspect by employing green exterior.

Lightness comes from the base's white walls and overhang undersides. Each apartment is connected to a south-facing street backed by the hill.

Light punctuates patterns and provides views through the building. The home avoids usual colors of a hospital and use Red to destabilizes and energizes the atmosphere. (Mena, 2016)

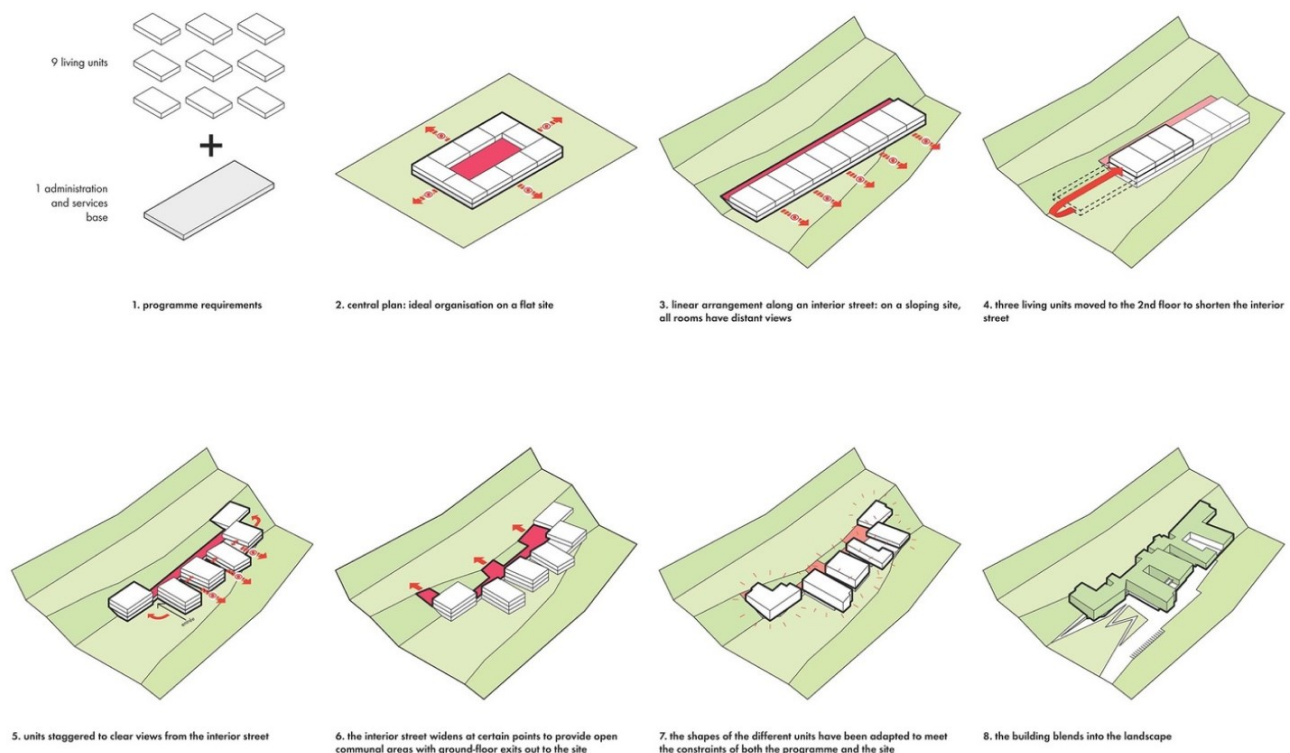
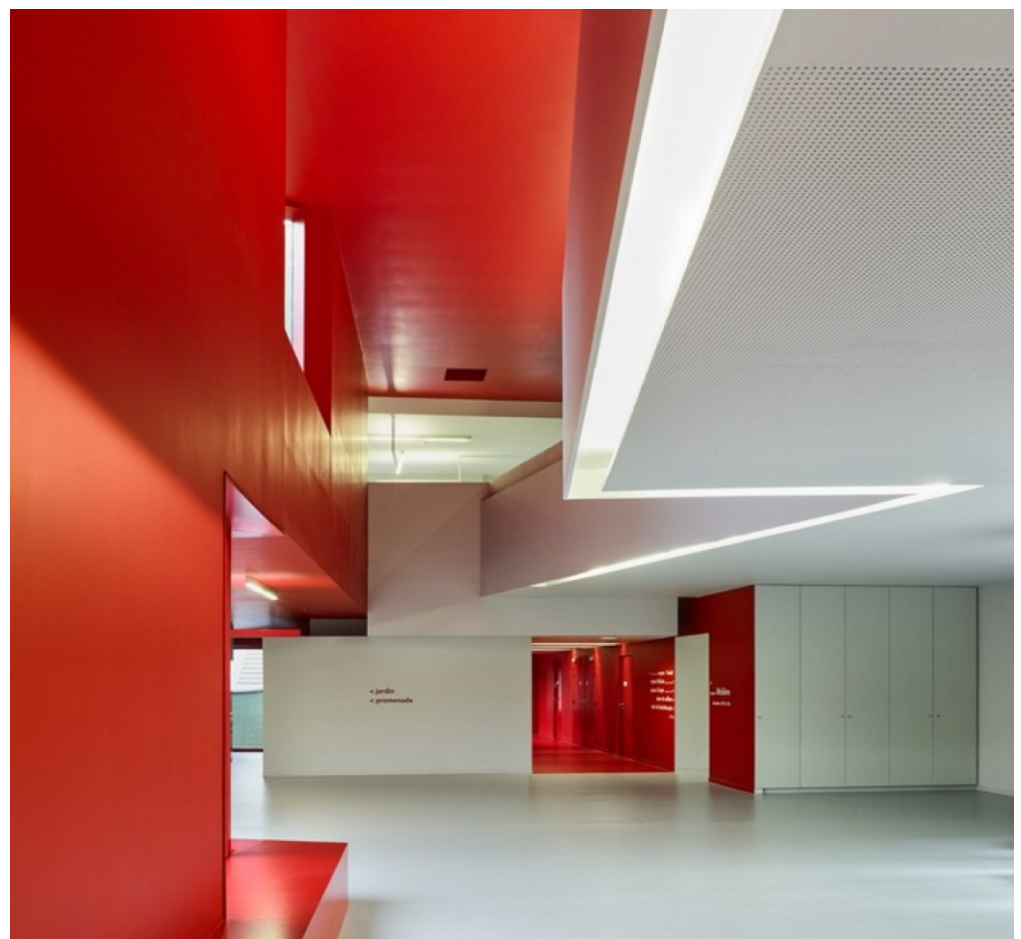


Diagram: Architects







images Photographs: Eugeni PONS  
Plan provided by architects Available at: [www.archdaily.com](http://www.archdaily.com)

The mass is organized in a finger type of building that permits light to flow around and surround the building.

The plan separates in a gentle way the main two functions of the facility (Residents rooms 1st function) and (the rest of the facility functions 2nd function)

The facility provides nursing home units 1.02, alzheimer unit 1.03 physiotherapy 1.04, hairdressing 1.05, relaxing space 1.06, alzheimer unit enclosed garden 1.08, residents promenade 1.09, terrace to enjoy the views 1.10 and a courtyard 1.11

(Mena, 2016)













# Damascus City Appearance and Architectural Features

Syria's capital, Damascus (Arabic: Dimashq), is the oldest capital in the world and, the fourth holiest city in Islam.

Damascus, also known as Al-Sham, is a major cultural center in the Levant and the Arab world.(Birke, 2013)

Damascus is one of the oldest continually inhabited cities in the world.

It has been inhabited since the third millennium BCE and served as the capital of the Umayyad Caliphate from 661 to 750.

Damascus declined in importance during the Abbasid period, only to rise again during the Ayyubid and Mamluk periods.

(Bowker, 2003)

Damascus was built on a plateau 680 meters (2,230 feet) above sea level, 80 kilometers inland from the Mediterranean, sheltered by the Anti-Lebanon mountains, watered by the Barada River, and at the crossroads of two trade routes: the north-south route connecting Egypt with Asia Minor, and the east-west cross-desert route connecting Lebanon with the Euphrates river valley.

It contains the Barada River, which was fed by melting snow from mountain streams, The Ghouta, irrigated farmland surrounding Damascus, has grown vegetables, cereals, and fruits for centuries. The modern city covers 105 km<sup>2</sup> (41 sq mi), of which 77 km<sup>2</sup> (30 sq mi) is urban and the remaining portion is made up of Jabal Qasioun. In 2022, the estimated population of the city was 2,503,000.

(DMA-UPD Discussion Paper, 2009)

## Outstanding Universal Value

Damascus, created in the third millennium B.C., was a cultural and commercial crossroads between Africa and Asia.

According to Tell Ramad excavations, Damascus was inhabited between 8,000 and 10,000 BC. The Aramaeans established it as a significant metropolis.

It was a Medieval craft hub, with neighborhoods specializing in various trades.

The city is well represented by Hellenistic, Roman, Byzantine, and Islamic cultures. The Umayyad caliphate established Damascus as its capital, paving the way for the city's ongoing existence as a living Muslim, Arab city, on which each succeeding dynasty has left its imprint.

Despite Islam's domination, the city retains Roman and Byzantine characteristics. As a result, the city's streets are lined north-south or east-west and follow a Roman design.

The Temple of Jupiter, gates, and a substantial section of the Roman city walls are the earliest physical evidence.

The Great Mosque, erected on top of a Roman temple atop a Christian basilica, is the only remnant of the Umayyad Caliphate capital.

Except for the city walls, Citadel, some mosques, and tombs, the city's built legacy dates from after the Ottoman invasion in the early 16th century.(UNESCO ,2009)



Map: Hogenberg, Frans, approximately 1539-1590

Available at: [https://www.nli.org.il/en/maps/NNL\\_ALEPH003948330/NLI#\\$FL43907047](https://www.nli.org.il/en/maps/NNL_ALEPH003948330/NLI#$FL43907047)

## Modern and Historical Architecture

In the last three decades of the twentieth century, many buildings were built that were inspired by the concepts of local traditional architecture and its decorations, including: the embassies of the Arab Emirates and Qatar, the Palace of Conferences (Umayyad), the Sheraton Hotel, the Assad House for Culture and Arts, and the new Palace of Justice, all in Damascus,



1- Sheraton Hotel and Resorts (Pavol Floch)





2- The embassy of the Arab Emirates (SANA, 2018)

with the emergence of many buildings with innovative contemporary designs. The flourishing of architecture took two directions, the first preserved the traditions of mosque and church architecture, while the second tended towards introducing new concepts in the building plan and decorating methods, such as the Al-Assad Library and the Syrian Real Estate bank. (Al-Kasem, 2011)

1- Sheraton Hotel and Resorts (Pavol Floch)

2- The embassy of the Arab Emirates (SANA, 2018)





Image 3 photographer: unknown Available at: <https://www.reb.sy/>

3- Syrian Real Estate bank design by Ahmad abu hadid one of the most iconic buildings in damascus, Using Muqarnas as an approach for massing and compositioning.

4-Al Assad National library, designed by a polish architect and it was a result of an international competition

Image 4 photographer: unknown Available at: <https://almashhadonline.com/article/603debc41dfcb>

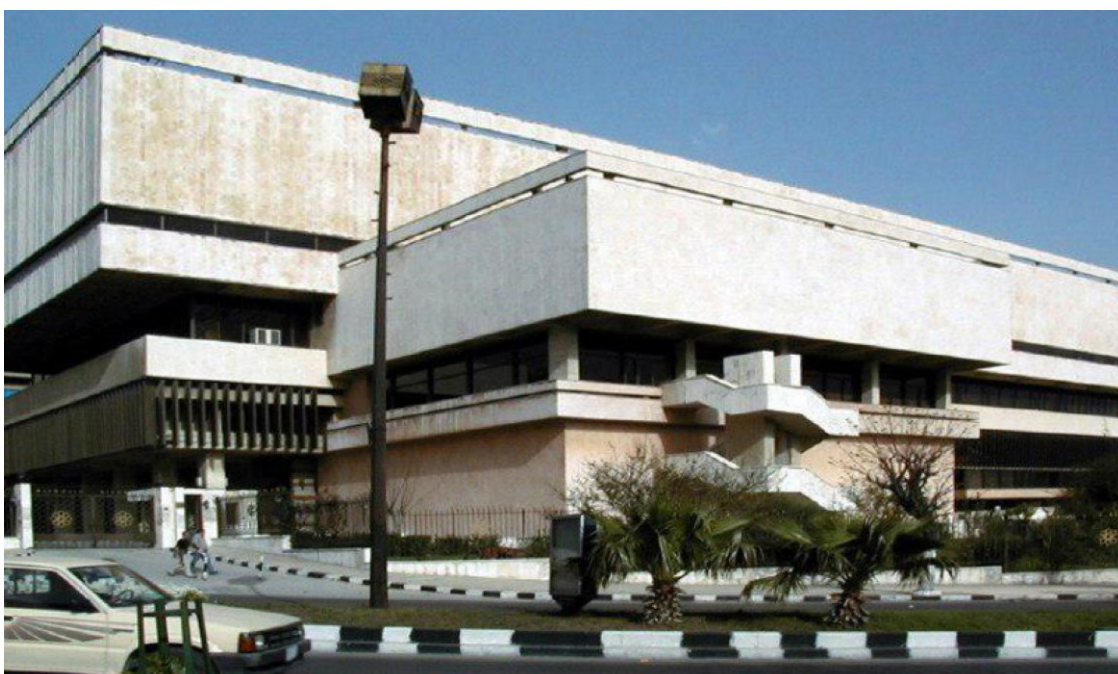






Image 5: photographer: Heretiq Available at: [https://en.wikipedia.org/wiki/Hejaz\\_Railway\\_Station](https://en.wikipedia.org/wiki/Hejaz_Railway_Station)



Image 6: photographer: Bernard Gagnon Available at: <https://en.wikipedia.org/>



5- Hejaz railway station: is a former main railway station in central Damascus, close to the Marjeh Square.

The passenger building, designed by the Spanish architect Fernando De Aranda, was commissioned in 1913.

The building later became a historical monument and a Swiss-made locomotive was exhibited in front of it.(BBC Arabic,2006)

6- The Umayyad Mosque, also known as the Great Mosque of Damascus, is one of the world's largest and oldest mosques.

7- The Temple of Jupiter was built by the Romans, starting during the reign of Augustus and completed during the reign of Constantius II. (Finegan, Jack, 1981)



Image 3: photographer: Ai@ce Available at: <https://www.flickr.com/photos/aiace/2177466137/>



## Location and Context



Left image taken from the vicinity of Al Mouwasat hospital

Photographer: Abood Taha

Taken from Omar bin Abdulaziz street towards the north showing the area that was built without permission.

Photographer: Abood Taha

The land located in a central part of Damascus near umayyad square in a well serviced area, there is a hospital, sports ground, university, national library and the national opera house. Overlook Qasioun mountain one of the remarkable feature of the city, in the front of the land there is Tishreen park (the bigges park in the city)



Image taken from the vicinity of the site towards Qasioun mountain

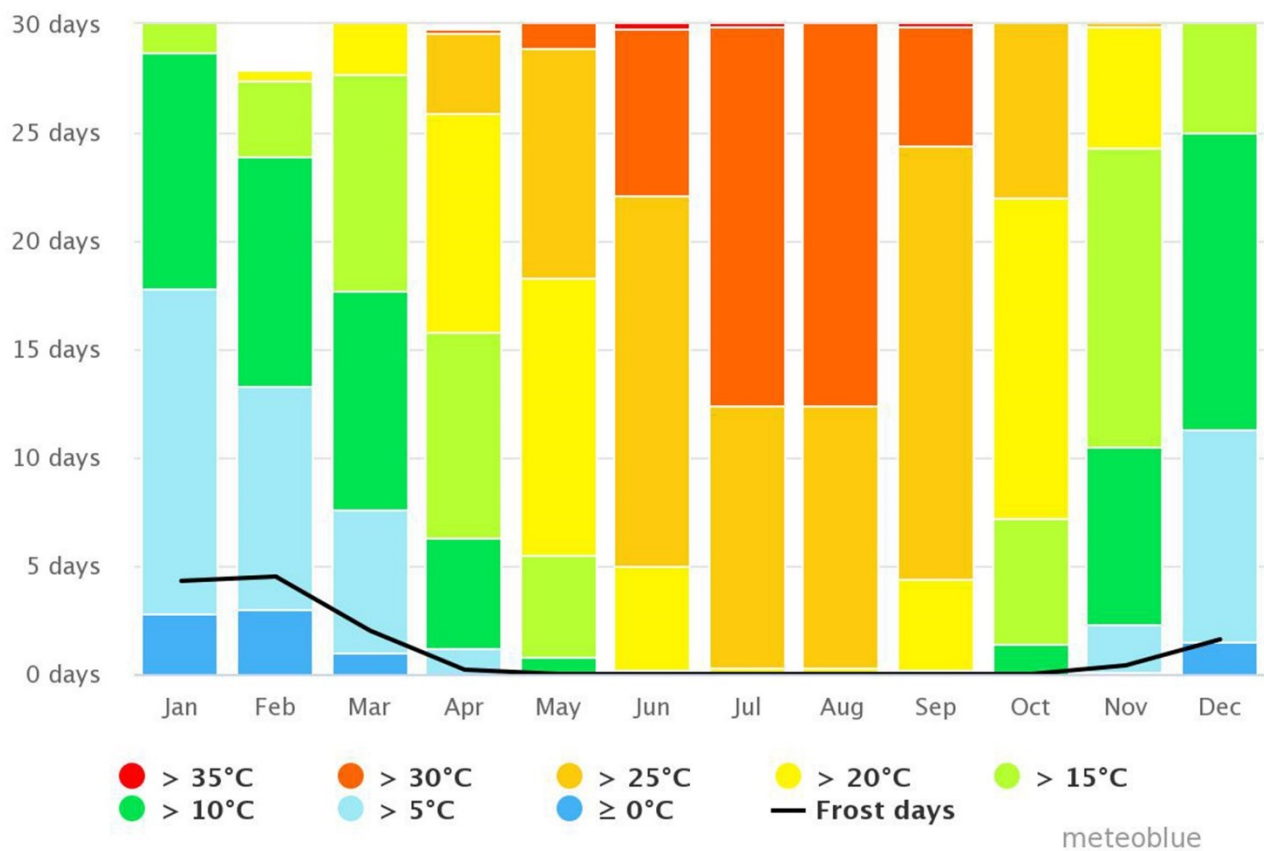
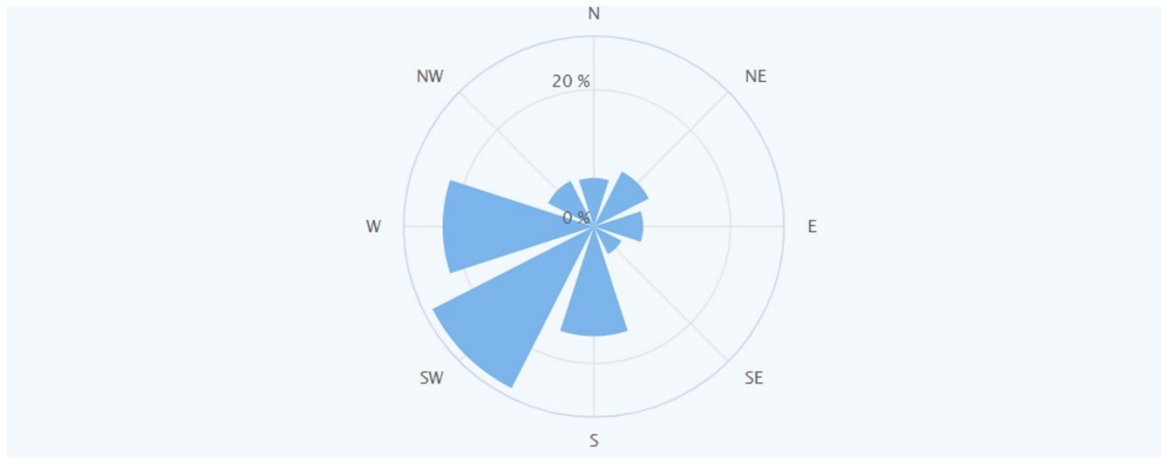
Photographer: Mhd. Malaz ALBAGHDADI- 2009







# Climate/Environmental Data

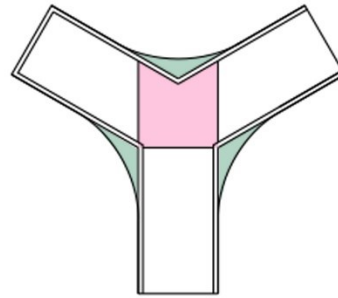


[https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/damascus\\_syria\\_170654](https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/damascus_syria_170654)

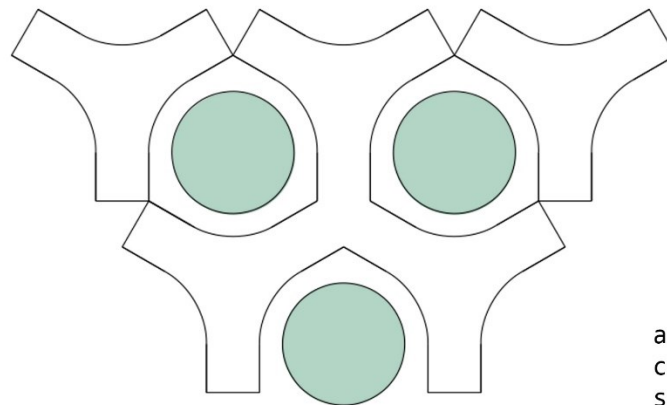
# The Concept



A unit as tripod

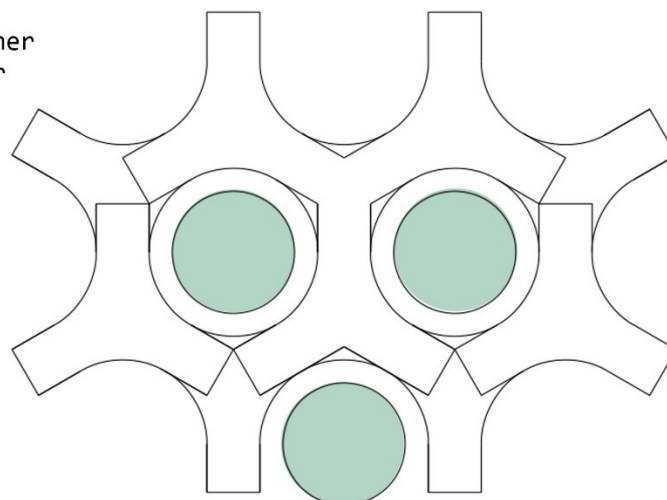


That contains another  
3 smaller units and a  
service core the  
intersections are  
internal gardens

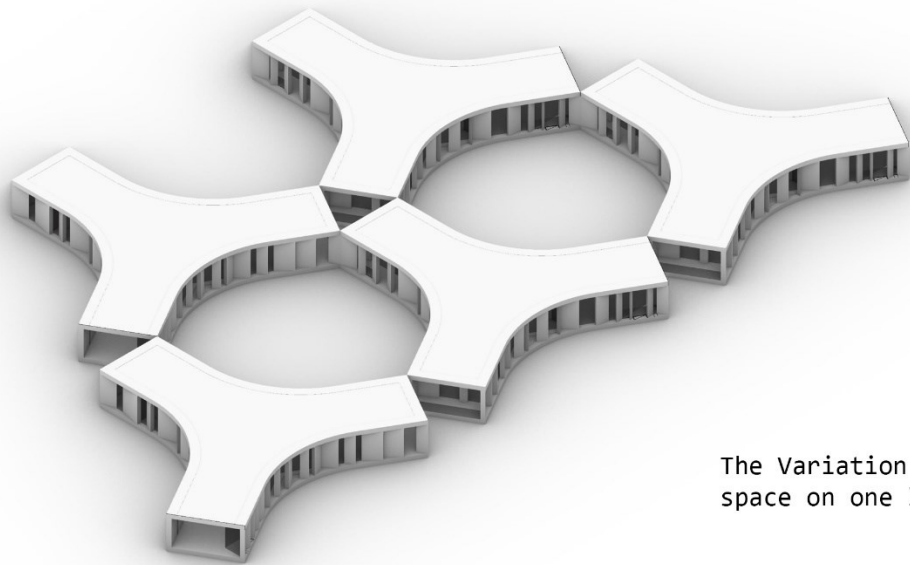


array on 1 level will  
create semi public  
spaces for recreation

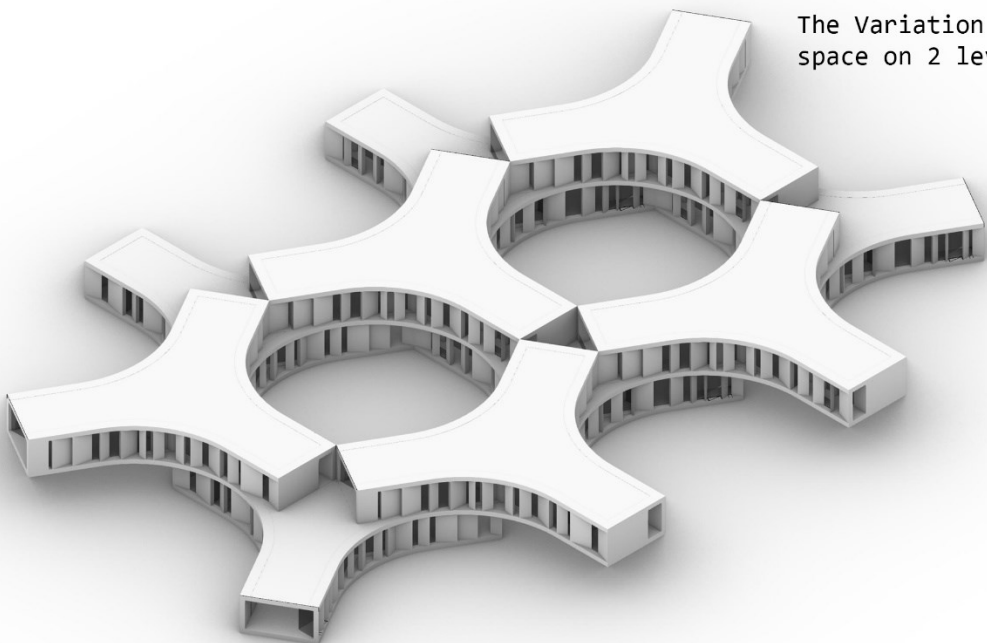
accumulating them  
on top of each other  
(this is a 2 floor  
variation) will  
start to give a  
pattern and will  
create a dynamic  
green spaces in  
between



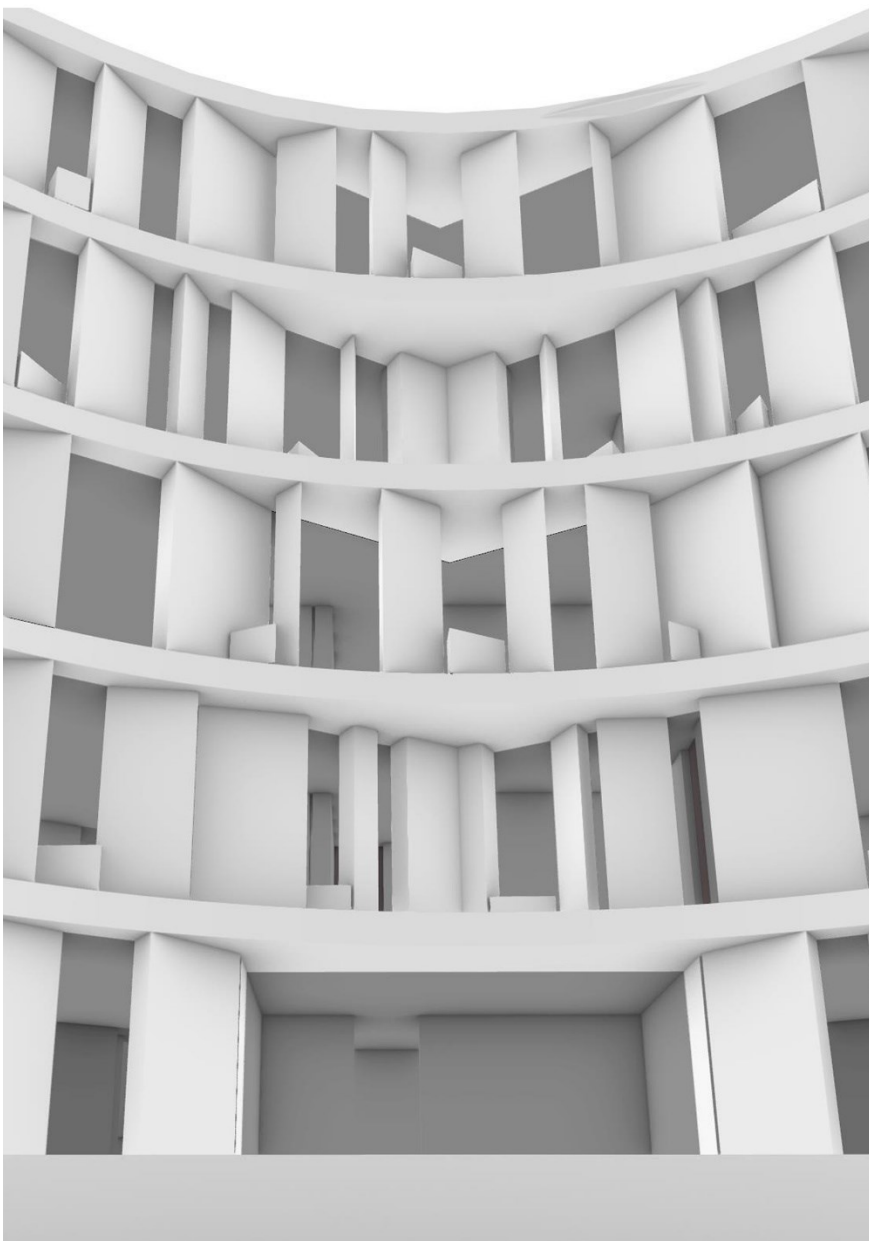
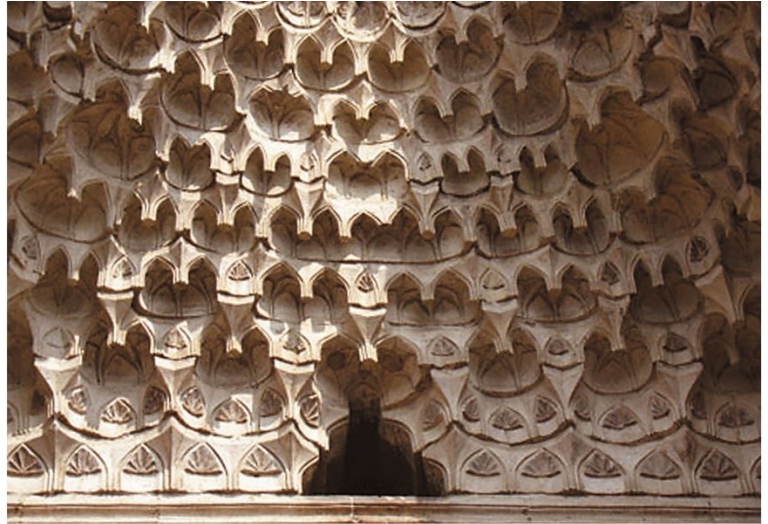




The Variation and the  
space on one level



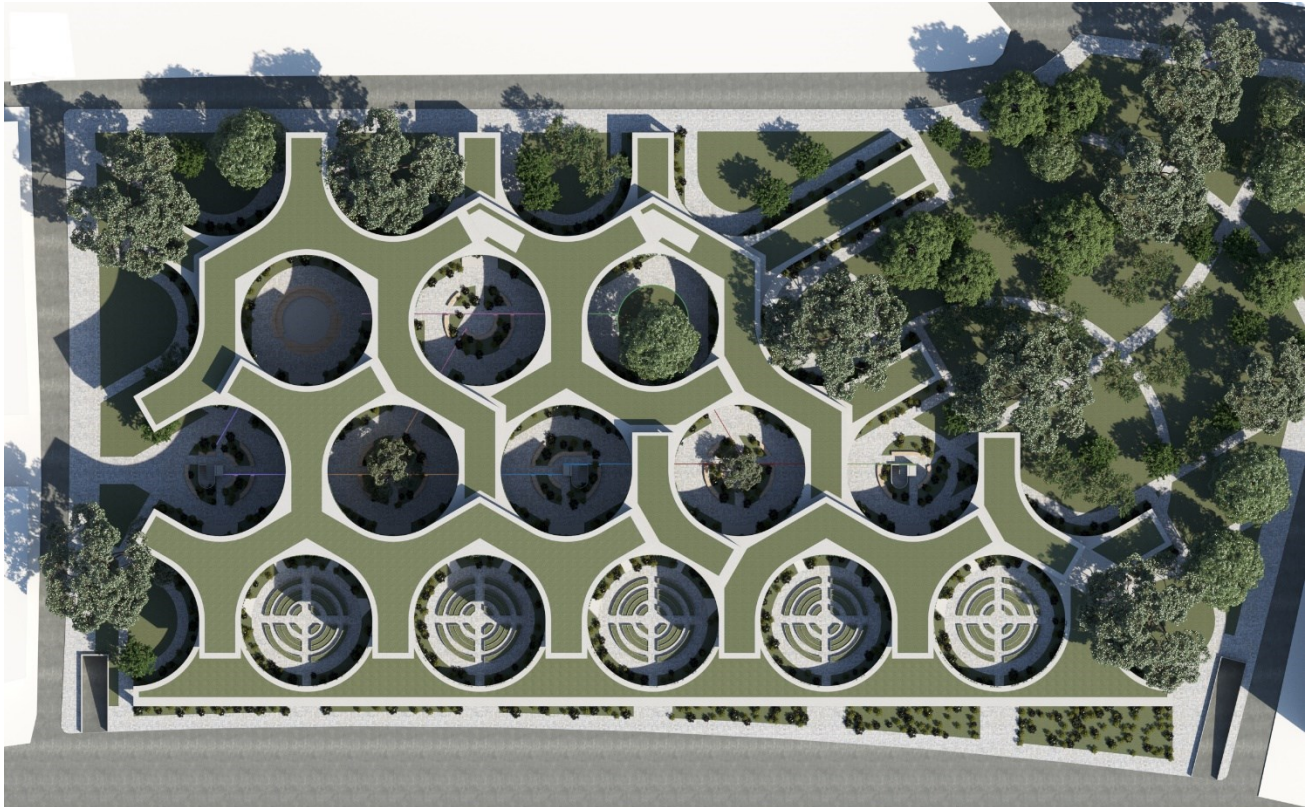
The Variation and the  
space on 2 levels



The concept of the facade prismatic volume inspired by al mukarnas, a popular structural, and aesthetical element in islamic architecture.



# The Development



Site View



Areas on the roof for recreation

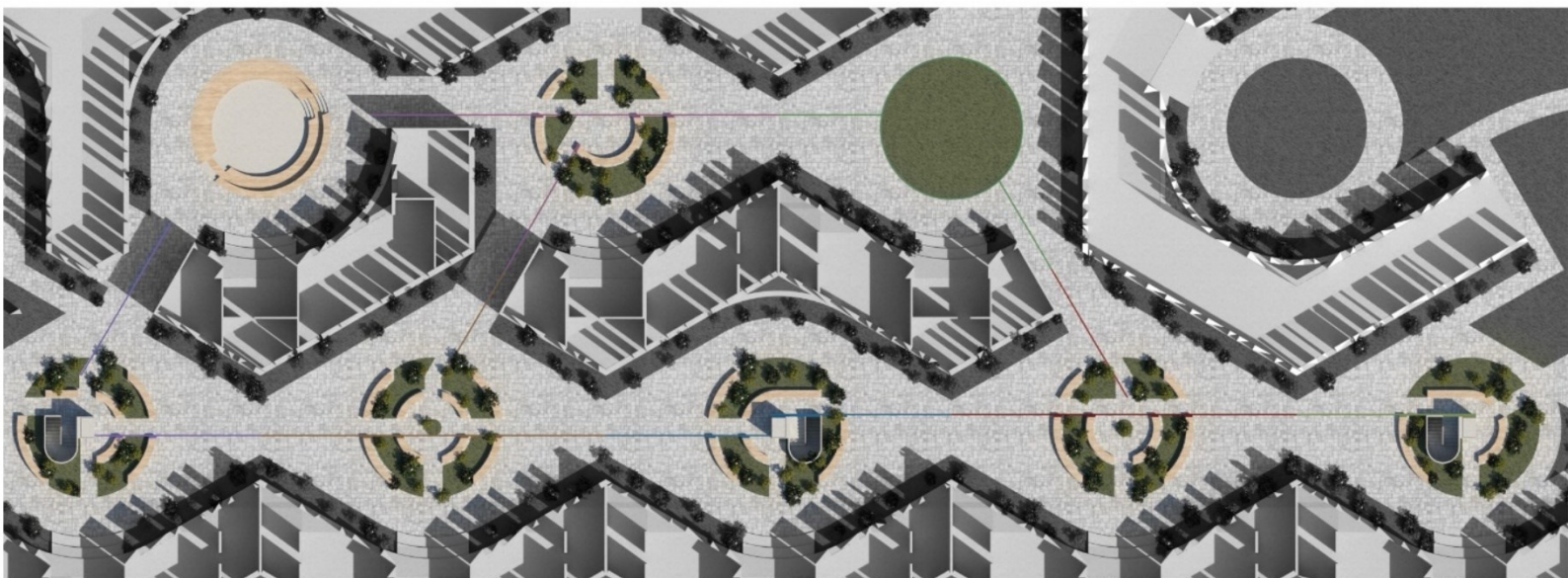


Areas for planting



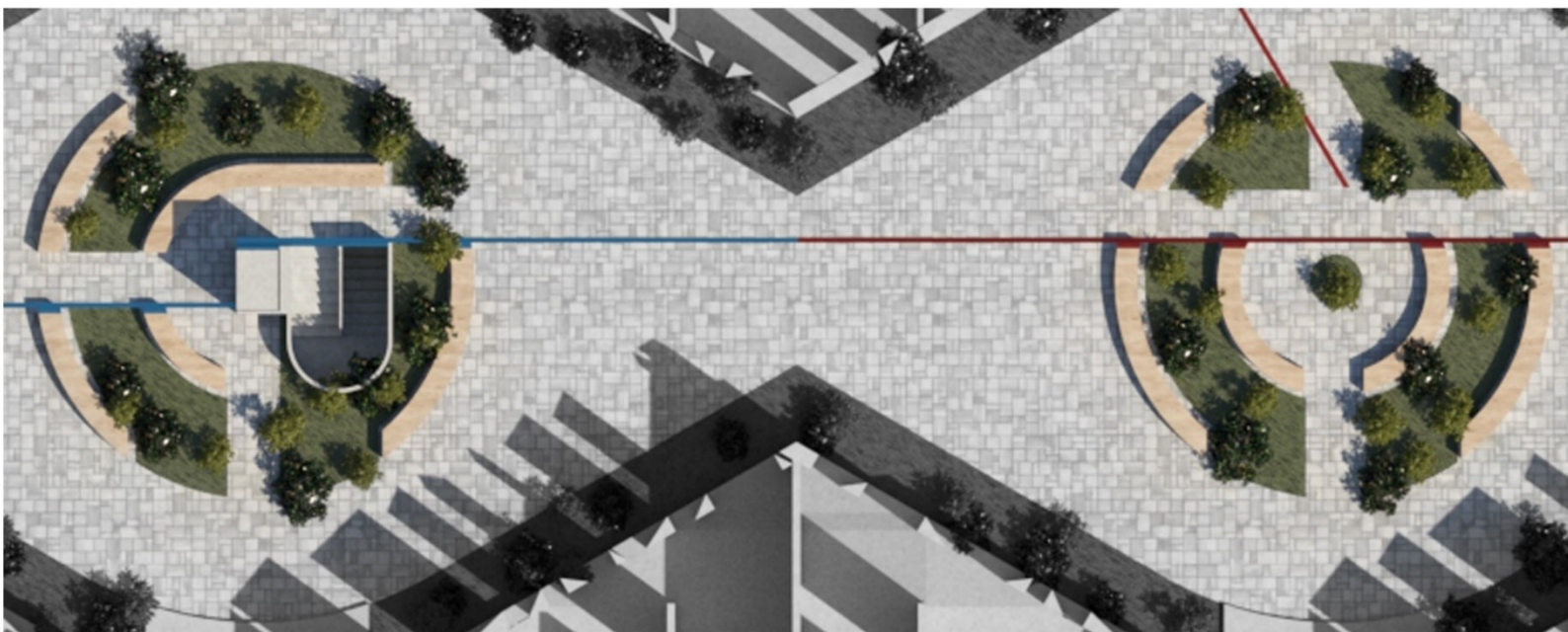
Plazas for recreation  
along with underground parking





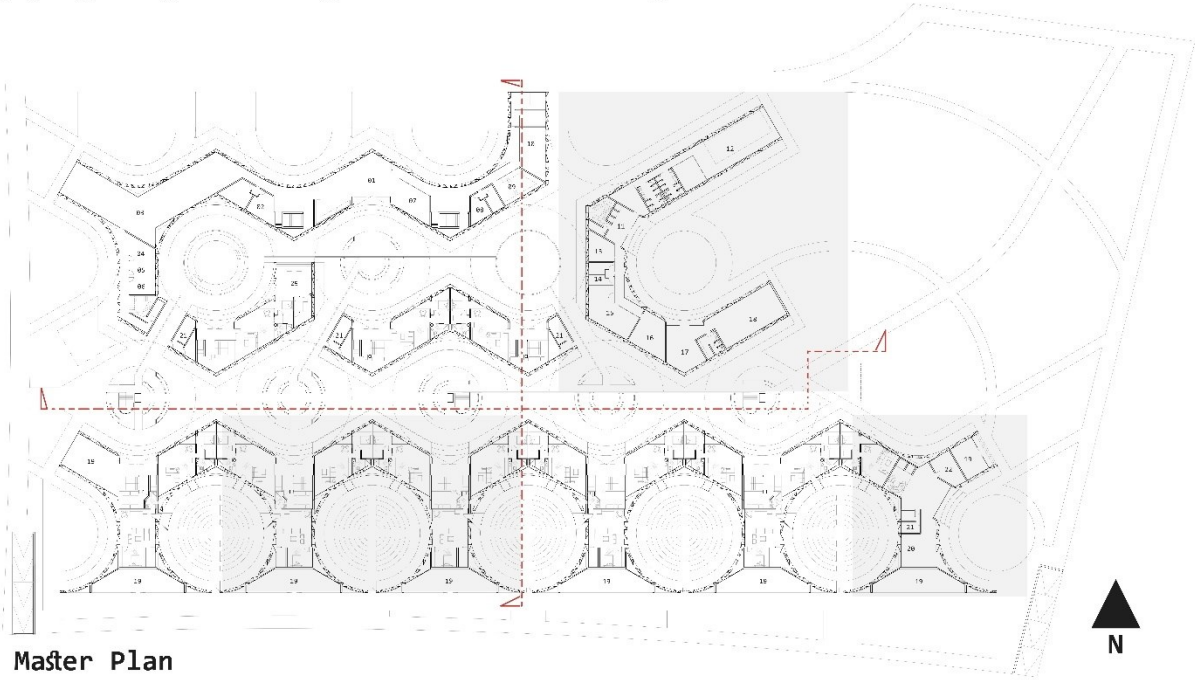
### Connectivity and place finding

Each plaza has its own accent color to make it easier for elderly to navigate the site and the facilities and connect his/her location with his destination without the heavy relay on signage, each plaza can be associated with a different music genre to make it even intuitive to navigate and explore the area.

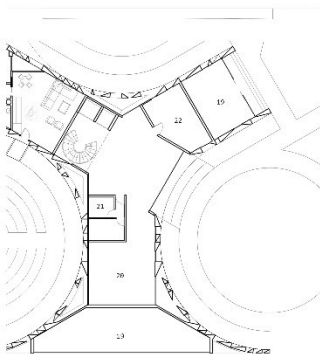
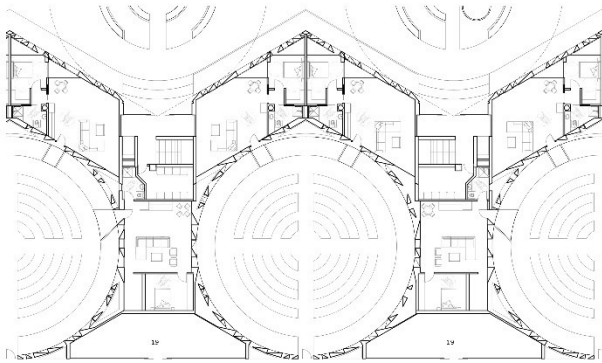


The Red and the blue plaza connecting each other with the color accent of each plaza, the accent color continue on the floor half the way between the two plazas and connect with the other strip.( see 3D renders later)

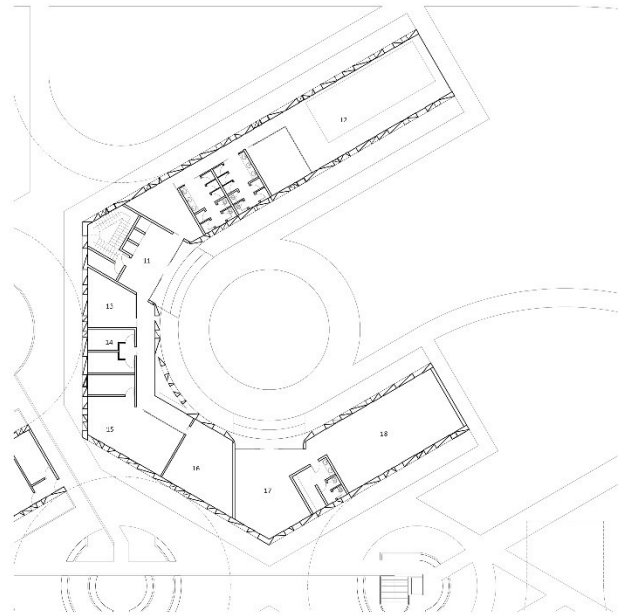
0 5 15 30 60 120



Master Plan

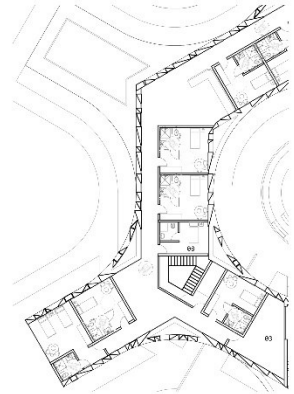
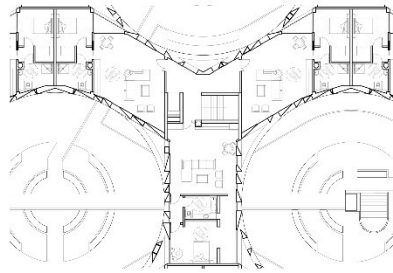
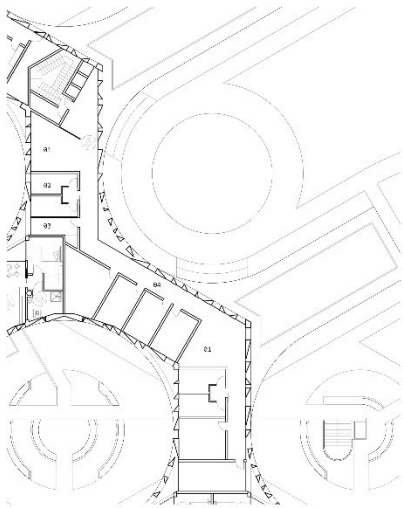
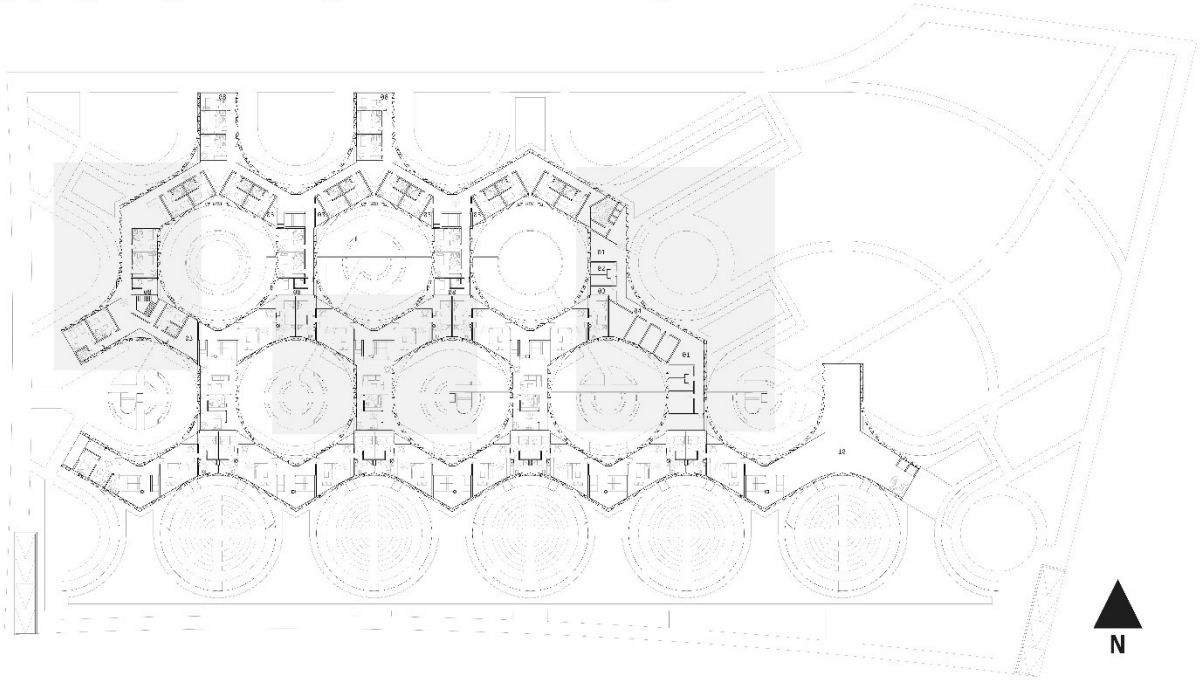


- 01 ENTRANCE OF ASSISTED LIVING
- 02 M.C.
- 03 ASSISTED LIVING RESTAURANT
- 04 KITCHEN
- 05 LAUNDRY
- 06 SHOWER/TOILET
- 07 LIBRARY
- 08 M.C.
- 09 COMPUTER LAB
- 10 ADMINISTRATION
- 11 ENTRANCE
- 12 POOL
- 13 PHARMACY
- 14 M.C.
- 15 BARBERSHOP
- 16 COSMETICS
- 17 ENTRANCE
- 18 PRAYING ROOM
- 19 COMMUNITAL
- 20 CAFE
- 21 M.C.
- 22 KITCHEN
- 23 CAFE



0 5 15 30 60 120

0 5 15 30 60 120

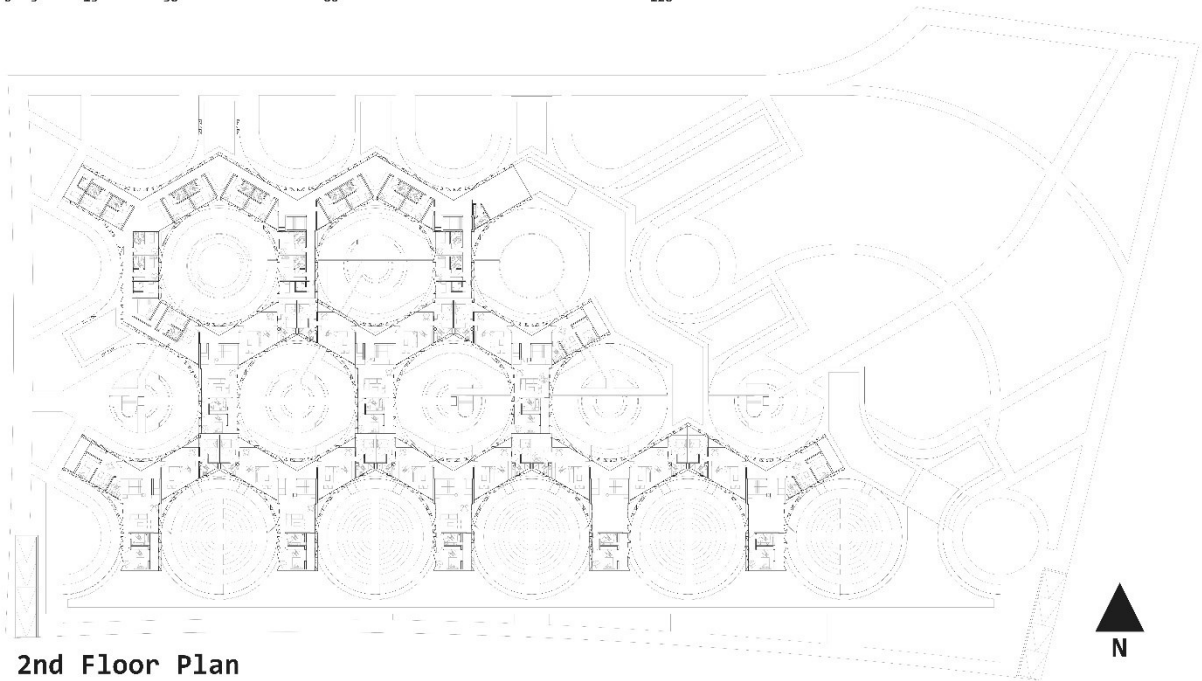


- 01 WAITING AREA
- 02 H.C
- 03 STORAGE
- 04 POLICLINIC
- 05 NURSING
- 06 PILL AND GREEK AREA
- 07 RESTAURANT

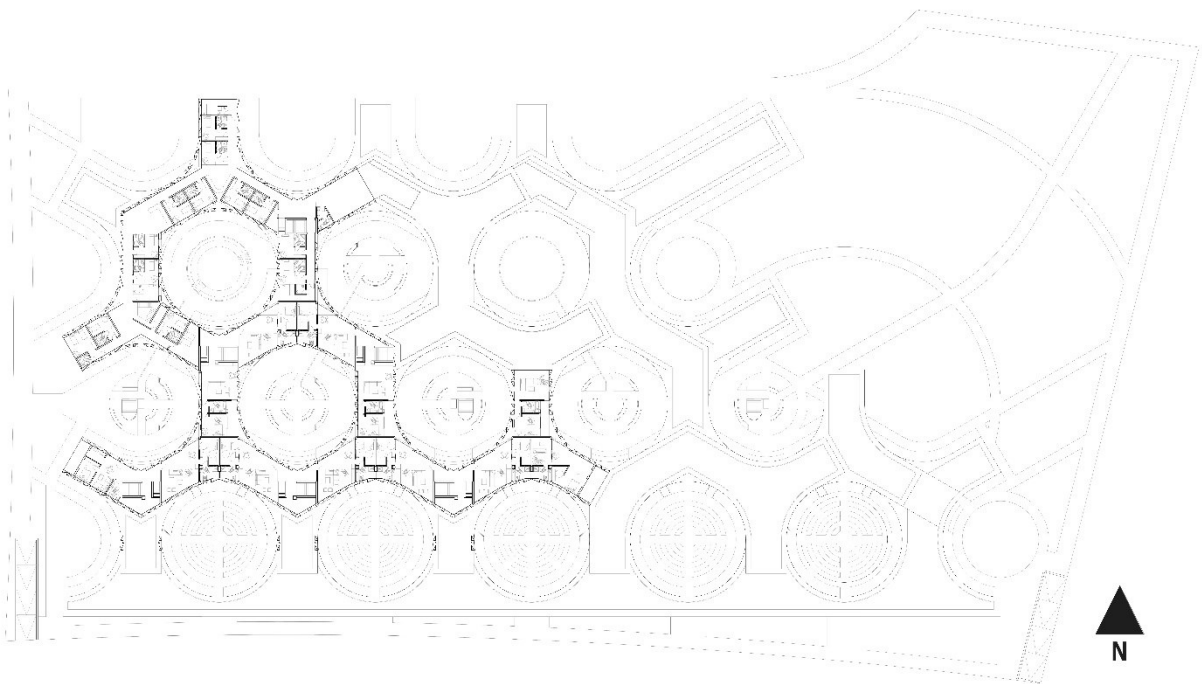
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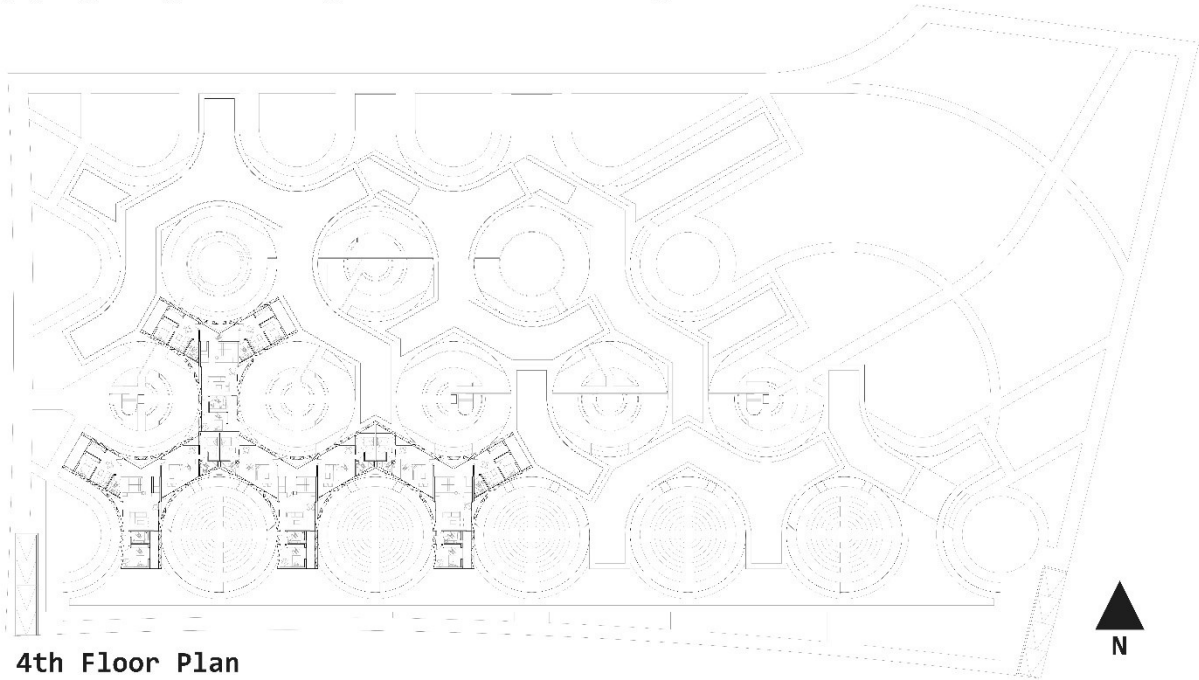


2nd Floor Plan

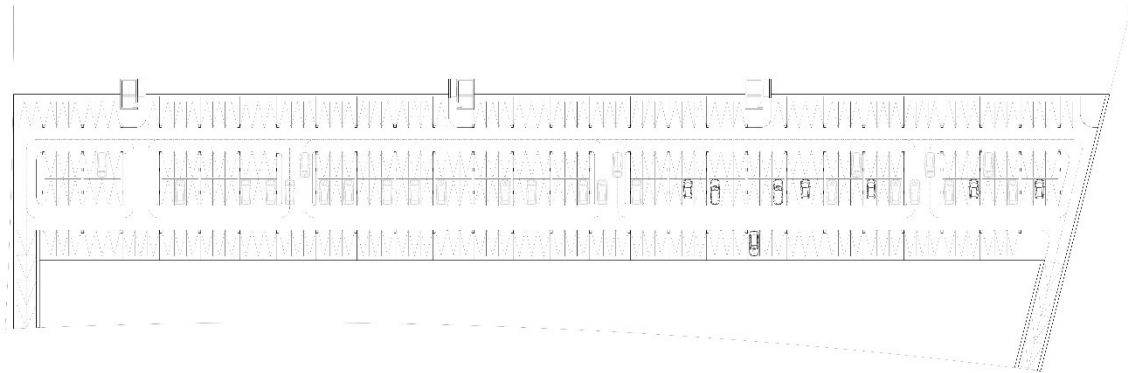


3rd Floor Plan

0 5 15 30 60 120



**4th Floor Plan**



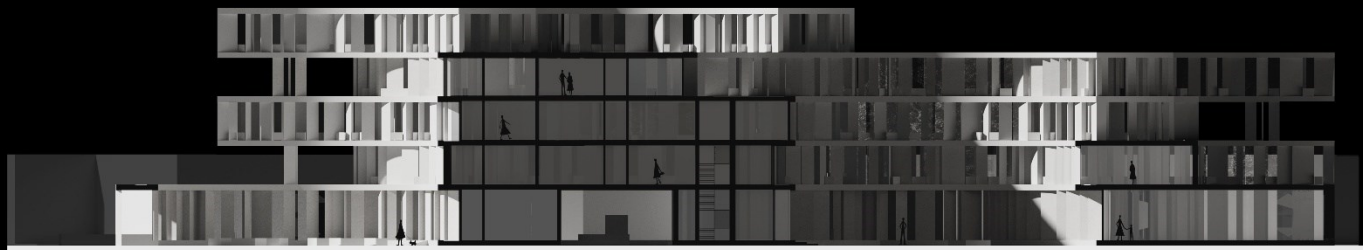
**Underground Parking**



West Facade



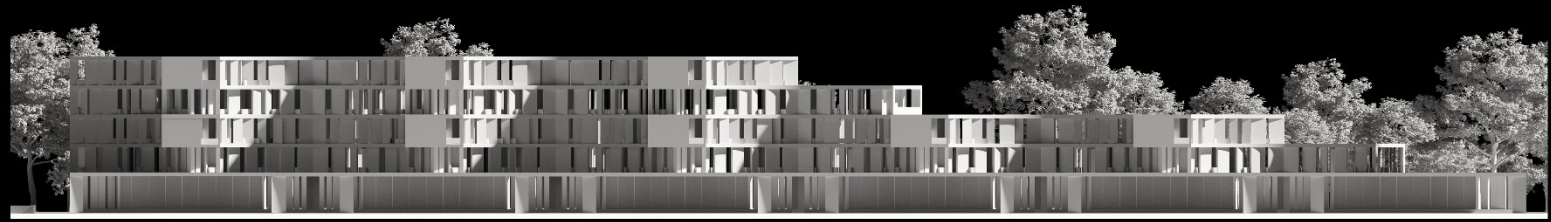
East Facade



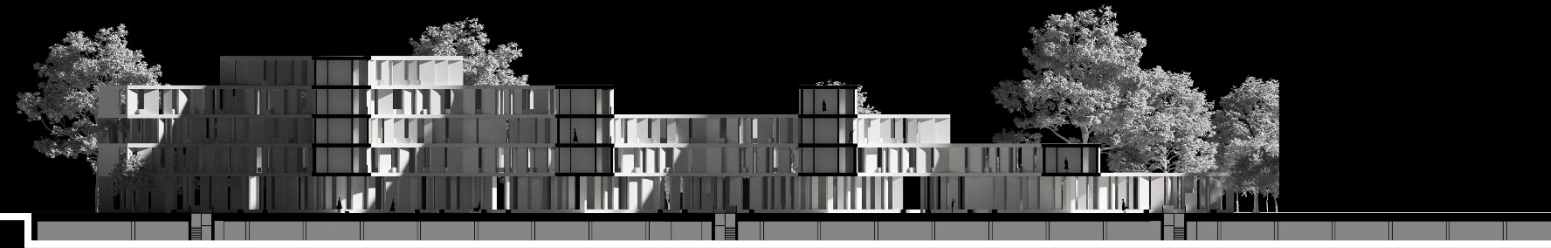
Transversal Section



0 5 15 30 60 120



South Facade



Longitudinal Section





















## Conclusion

The project can be built in stages (as shown in the concept section), and this can reduce the economic burden of such project, and provide a possibility to extend vertically (because the core idea is the tripod unit that is flexible)

The neighbourhood lacks a social hub and activities for its young inhabitant, and the young people that commute everyday to go to the sports ground, university, and creating a needed social center is the key element to break the isolation of the seniors living in the compound, and force the generations gently to meet in the common spaces, shops, sport center, and the restaurant.

Also the slabs and the prismatic facade units along with plants units can use a prefabricated concrete technology, also the sustainable part is an important thing to be well investigated in the future.

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