WANDERLAND

A LONG-TERM MEMORY CARE DESIGN

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CONTENT

INTRO

This is Parisa Sadeghi, M.ARCH '18 student from Texas A&M University. I was born and raised in Iran and started to love design and art from the time I cannot even remember. I am endlessly in love with music and painting, and movies. There are no boundaries about them, but they bound us together.

I believe, my life is all about my choices. I appreciate what I get, and I get what I choose. Simple as that. And I also believe that living the present, is what I and most of you have probably difficulty with. But, I just TRY to live the moment and bring the best into my life.
Architecture, is what I found myself in it. I fell in love it since I was able to shape the space freely and provide a better environment.
This book is about my final project of Master degree which is about senior living. About a year ago, I thought if I want to promote my quality of life, why not looking to seniors? The elderly, who are not as strong to change their lives anymore. So, here's my book!
I am so thankful of all the people who helped me during this project.

Parisa Sadeghi '18

STORY

The purpose of this work is to analyze the existing data on aging, environmental psychology, and dementia-related disease and apply to the architectural design of indoor and outdoor spaces for people with Alzheimer disease. Designing an innovative environment for these people develop care facilities. The intention is to supply long-term care providers and architects with an architectural solution for Alzheimer's care units based on a social type of care.

Alzheimer's Disease (A.D.) is the most common irreversible dementia in late life. Research indicates that almost 10% of those above the age of 65 are afflicted with the disease. (alz.org) The Alzheimer is characterized by a deficit in attention, learning, memory and language skills. In advanced stages, the patient will also face language and movement impairment. (Reisberg 1998) In addition to physical limitations which accompany aging, the incidence of dementia also increases with age. (Ferri et al. 2005) Other research sponsored by the National Institute of Aging suggests that almost 50% of those over the age of 85 probably have A.D. (Kart 1990). This shows a major healthcare issue in providing services for this population of impaired elderly.

The aim of this project is providing a specialized environment with the possibility to accommodate the needs of many users including the impaired resident, caregivers, staff and family members. So, it can maintain and even enhance the functional capacity, self-respect, and dignity of persons in the intermediate stages of A.D. (Namazi 1991) During progression of the disabilities and mental issues, patient will exhibit problematic behaviors including incontinence, violence, mood swings and aimless wandering, which is challenging for family members to take care. (Lawton 1984) Hence, due to the mentioned ratio of this disease and the permanent long-term care, an alternative care environment is a necessity.

The main idea in this project is providing a variety of experiences for the seniors with A.D. to promote and maintain a higher quality of life for all concerned. The attitude toward long-term care completely ignores the fact that the main goal of the nursing home is not to cure the patient but to provide an environment and care program for assisting the resident. (Coons 1992) The dwelling is all the activities related to cherishing, protecting, nurturing and cultivating one's environment. (Heidegger 1977) And assisted living facilities should bring these factors.

OVERVIEW

Aging Demography

There are 30 million people age 65 and above currently residing in the United States, representing almost 13% of the total U.S. population (Kart 1990). The elderly population has grown consistently since the turn of the century, with an average increase of 35%

Chronic illness is long-lasting, generally irreversible and decreases one's ability to carry out usual activities of normal life. As a result, the number of days in which activities are restricted, as well as the need for functional assistance, increases. 23% of older

0-9%   10-19%   20-24%   25-29%
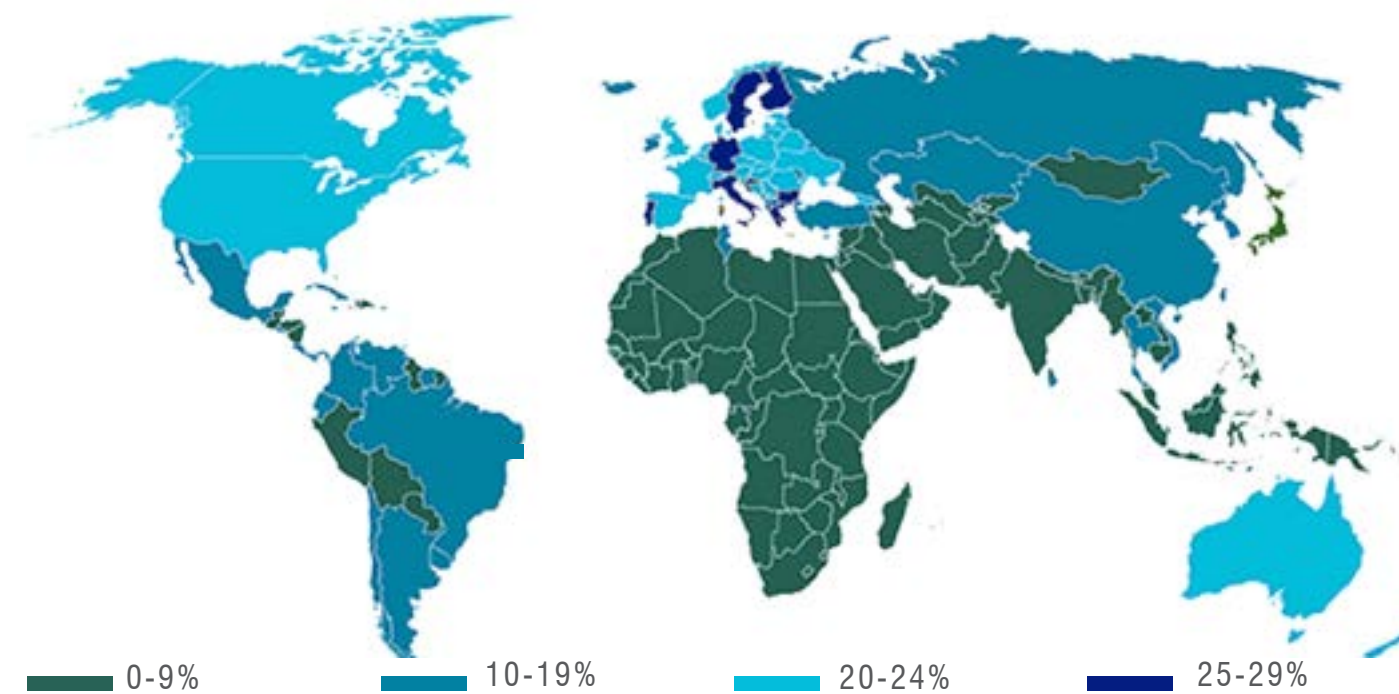
Proportion of population aged 60-plus in 2014

per decade, since 1950 (Kart 1990). In general, the prevalence of chronic health conditions is higher among the elderly than among younger persons.

Americans need assistance with personal care activities such as dressing, bathing, toileting, transfer, shopping, doing housework and managing money. (Koff 1988)

A Need for design Senior living

According to statistics, by 2030 almost 70 million people in the U.S. will be over 65. More people are living longer, and as a result, meeting the housing and care needs of this rapidly growing segment of the population has become a major challenge. The increasing numbers of older people, combined with a higher expectation of a higher quality of life, is creating the need for new care and housing options. Thus, new ideas about senior care and housing is looking at these environments as a senior's homes instead of a simply healthcare facility.

Noticeably, the rate of deterioration with age is continual across people, yet research suggests that death is being delayed since people are reaching in better health condition. (Vaupel 2010) As a matter of fact, the main reason for this percent gains in life expectancy is the sharp decline in rates of death at younger ages.

Due to the increasing aged population, development of safe housing and compassionate care for seniors is becoming a priority domestic issue. There are various kinds of the senior housing such as independent living (IL), assisted living (AL), memory care (MC), and nursing home (NH). The fastest growing type is A.L., which is absorbing residents with a perceived combination of security, personal care, services, less restrictive

homelike environment, and emphasis on independence, privacy, and personal dignity. (Spitzer 2008) These requirements are directly correlated with surroundings. Therefore, in order to address them, there should be a correlated architectural approach. (Baker, Prince 2008)
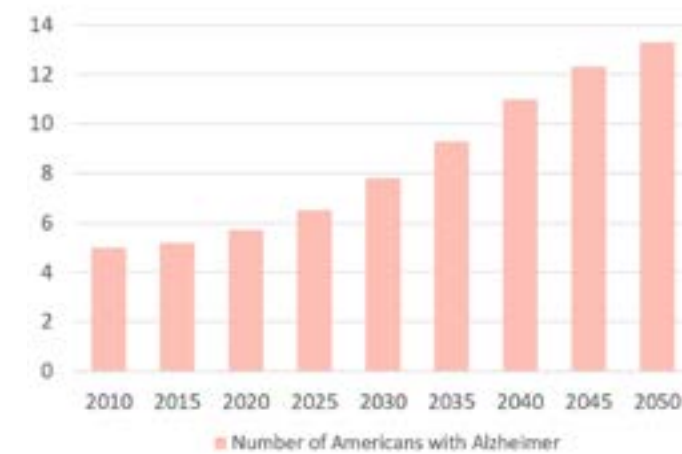

Given all the seniors changing characteristic, the design for them follows a new set of standards such as temperature, the amount of natural light, color palette, furniture compatibility, walking distances, the absence of stair, etc. These elements will affect the design and planning very much, which are inevitable. Aging is part of everyone's life and needs to be respected.

Dementia and Aging

In addition to the physical limitation which accompany aging, the incident of dementia also increases with age. There are almost 2 million Americans who have severe dementia, and an additional 1 to 5 million Americans experiencing mild or moderate symptoms of dementia (Congress of the United States, Office of Technology Assessment 1990). Although, less than 1% of people under the age of 65 has the rate of dementing illnesses, it increases to 1% for those ages 65 to 74, 7% for those ages 75 to 84, and as high as 25% of those over the age of 85. Statistics indicates that these numbers are increasing dramatically in the future. Congress of the United States, Office of Technology Assessment 1987)

Dementia is defined as an organic mental syndrome that impairs short-term and long-term memory. Impairment in judgement and abstract thinking abilities and personality change are essential characteristics in diagnosis of dementia-related illnesses. There is also the rate of Alzheimer's disease as a subcategory in dementia category with a noticeable predominance. (Figure 1) The next chart indicates this disease is current among seniors above 65 years old. (Figure 2) This project is going to target sesniors who are specifically diagnosed as Alzheimer's

disease. The population is growing older besides the fact that older population is growing itself. Statistics show that the number of Alzheimer patients is predicted to double per 20 years. (Ferri et al. 2005). And, among them, one of the common behavioral problems is getting lost. Even 40% of patients, who is assisted by a caregiver at his/her home get lost outside of their houses. (McShane et al, 1998). There are different symptoms that indicate patient's mental status at this level. Disorientation and confusion in terms of time, location, personalization, and social status are very common between them. (Cohen & Weisman, 1991)

■ 85+ Years	38%	■ Alzheimer's Disease	62%
■ 75-84 Years	44%	■ Vascular Dementia	17%
■ 65-74 Years	15%	■ Mixed Dementia	10%
■ <65 years	4%	■ Lowy Body Dementia	4%
		■ Others	3%
		■ Frontotemporal Dementia	2%
		■ Parkinson's Disease	2%

activity dementia bored need concept disability memory thinking awareness elderly psychology tirrdness medicine memory patient problem cost home assisted nursing injury ideas loss peaple forget awareness healthcare dealing mental dealing medical problem hope living Therapist treatment urge senior fall thinking aging medical confusion remember life wisdom memory depression illness assisted health human hopeless loss women men worried Family lonliness losing aging distraught wayfinding aging neurology chores care body memory neurolgy injury Therapist women care love sensitiveness sensing neurology design

OVERVIEW

Alzheimer's Disease
Wayfinding is one of the main issues amongst Alzheimer patients with the wandering habits. This highlights the importance of strategic design for eliminating a

Number of Americans with Alzheimer

number of patients getting lost or confused. Evidence-based design with new guidelines and methods assist patients in daily traveling. In fact, during traveling in a large environment, patient face with many problems in order to pick one path and find his location, and he needs to make a decision to finally solve the puzzle. (Arthur and Passini, 1992)
Alzheimer's disease comes in three stages, and this project will provide services for all three ones.
Stage One Alzheimer's – Mild Alzheimer's Disease This stage is characterized by some memory loss, especially memory of more

recent events. A person in the early stages of Alzheimer's will likely be able to carry out the daily activities of living, but may start forgetting familiar words and names when speaking. Judgment and attention span will become impaired. Other behavioral symptoms and resulting outcomes include: Impaired logic and sequencing, as when telling a story or joke:

- Words are used incorrectly or made up
- Inappropriate and broad mood swings
- Decreased motivation and attention
- May begin to display loss of initiative
- Dresses inappropriately, may put on a winter coat in the middle of summer
- Conversation becomes difficult and disjointed, may have trouble finishing a sentence or respond inappropriately to questions
- Gets lost, even in familiar places
- Physical abilities, balance, strength, etc., begin to diminish
- Repeats questions or statements
- May begin to misplace, lose, or hide things
- Forgetting becomes more pronounced as the stage advances

Stage Two Alzheimer's – Moderate Alzheimer's Disease There is an increase in the severity of the symptoms of the first stage. Professional and social functioning continue to deteriorate because of increasing problems with memory, logic, speech, and initiative.

Loss of memory

language Problem

Difficulty in doing simple tasks

disorientation in time an space

Loss of reasoning capacity

Difficulty in havving elaborate thoughts

Loss of objects

Mood challenge

Behavioural changes

Loss of initiative

OVERVIEW

Sequencing and logic become further impaired
- Increasing difficulty finding the right words, often make up words
- Mood swings and personality changes become more pronounced
- Inappropriate judgment becomes a bigger problem
- Hygiene neglected, likely because of forgetfulness and inability to initiate the behavior necessary
- Physical abilities further diminish
- Psychotic behavior, paranoia, hallucinations, and delusions are not unusual as this stage progresses
- Inappropriate social behavior
- Sleep disorders, including disruptions in the sleep/wake cycle and sundowning

- May lose the ability to read and write
- Incontinence

Stage Three Alzheimer's – Severe Alzheimer's Disease This is characterized by almost total memory loss. The person usually needs help with all of the basic activities of daily living. The body eventually forgets how to carry out the normal biological functions necessary to sustain life.
- The ability to communicate is lost almost completely
- Needs help with all activities of daily living
- Physical abilities further diminish
- The brain begins to lose the ability even to control the basic biological functions, like swallowing

Months before/After Diagnosis
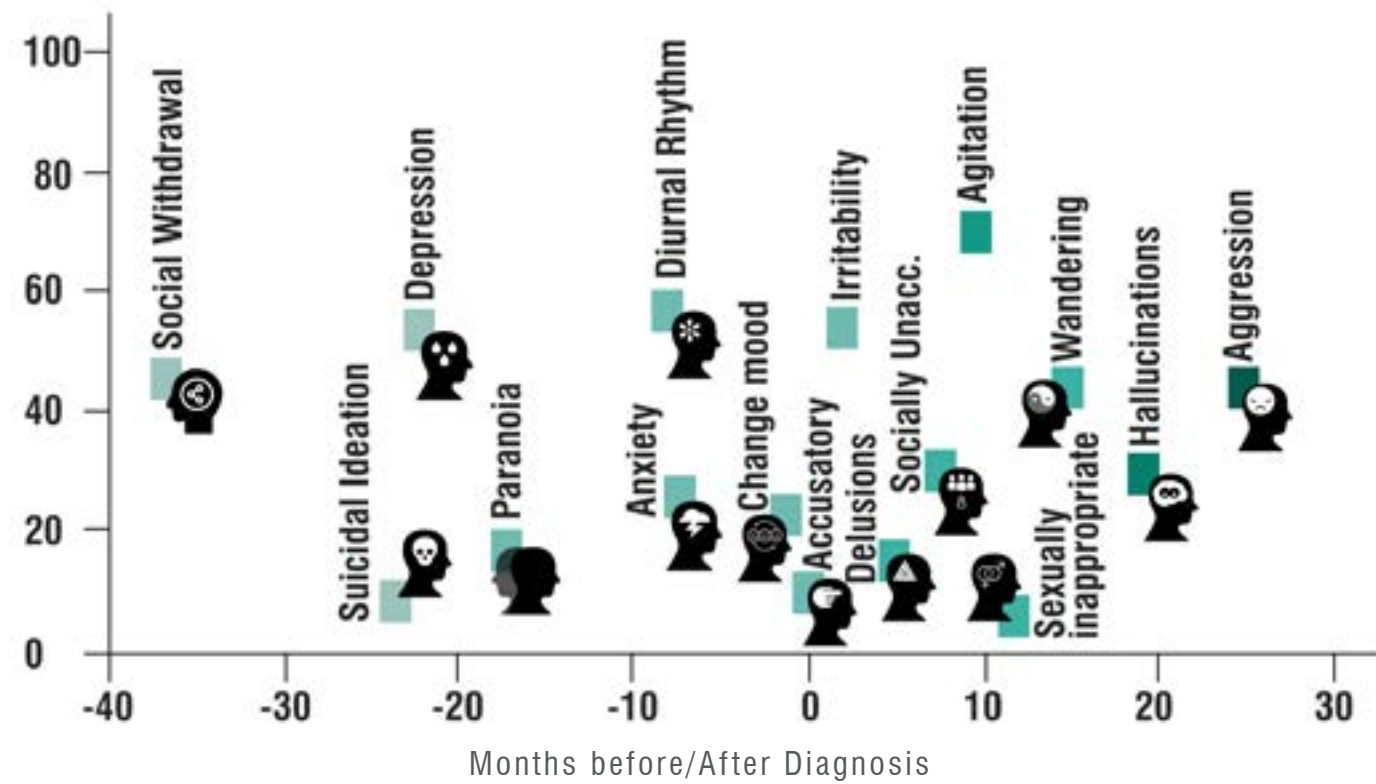
The research portion of this project is composed of three parts and was performed over the summer and fall of the 2017 academic year.

1.   *An extensive literature search*
and review of the following topics resulting in the development of the final project
   A. A.D. and related disorders, disease, symptoms, available treatmentB.Cognitive impairment and impaired functional capacity
   C.Behavioral problems
   D.Prosthetic environmental interventions
   E.Case studies of existing special care units
      -Good Shepherd Cottage, California
      -The Village at Waveny Care Center,Connecticut
      -Brookdale Senior Living and Memory Care, Arizona

2.   *A travel program*
which enabled the author to visit and observe Alzheimer care centers
   A.The Waterford at College Station
   B.Fortress Nursing and Rehabilitation
   C.St. Joseph Manor Assisted Living, Bryan, TX

D.Walnut Place, Assisted Living Facility, Dallas, TX
Observation were made of residents, staff and family interacting within the specialized environment.

3.   *Influential Interviews*
   A.Douglas Pancake, AIA, President of Douglas Pancake Architects, Inc.
   B.Anthony Ughetti, St. Joseph Manor AL manager
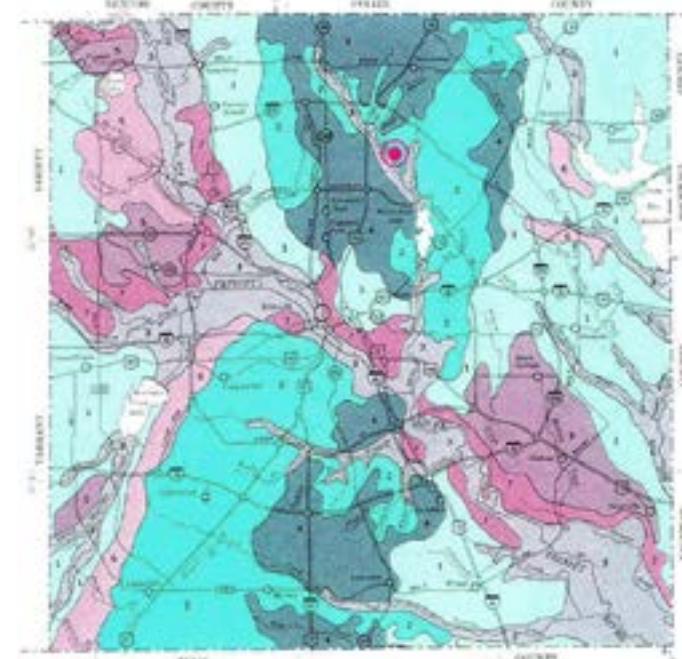   C.Sara Dale, Advisor of Walnut Place

4.   *Volunteer Work*
One-month volunteer work for 2 days per week in "Fortress Nursing and Rehabilitation" for having a better understanding of the seniors and their living quality

SITE ANALYSIS

Geology
Dallas county is in northern part of the Texas Coastal Plain. It is part of a north-trending physiographic province, which is characterized by little relief and dark, thick plastic clay soils. About 100 million years ago, the survey area was covered by a shallow Cretaceous sea. The sediment that was deposited in the sea consists of sand, silt, and clay. This sediment formed layers that incline eastward toward the embayment at an average rate of 45 feet per mile. Because of excessive pumping of water from aquifers, the water table is low and wells are dry mostly. The bedrock in Dallas is mostly resistant to weathering in the central part.

Topography
Dallas and its surrounding area are mostly flat; the city itself lies at elevations ranging from 450 to 550 feet. The western edge rises 230 feet and runs roughly north-south through Dallas County. Dallas was founded along a river and it is flanked on both sides by 50 feet tall earthen leaves to protect the city from frequent floods.

Climate
Dallas has a humid subtropical climate that is characteristic of the Southern Plains of the United States. It is also continental, characterized by a relatively wide annual temperature range. Located at the lower end of Tornado Alley, it is often prone to extreme weather, tornadoes and hailstorms. Summers in Dallas are very hot and humid. July and August are typically the

Dallas soil map

- Deep, nearly level to strongly sloping, clayey soil
- Very Shallow, Shallow, and moderately deep
- Deep, nearly level, clayey soils; on flood plains
- Moderately deep, deep, nearly level; on uplands
- Deep, nearly level to gently sloping, loamy soils
- Deep, gently sloping to strongly sloping, clayey soils
- Deep, nearly level to sloping, loamy and sandy soil

Dallas Climate Graph

hottest months. Winters in Dallas are mild to cool. January is typically the coldest month with sharp swings in temperature as strong cold fronts known as "Blue Northers" pass through the Dallas region. The precipitation chart indicated that Dallas has high rate of raining in all seasons and there needs to be strategical plan for that.

Sun
The sun analysis shows sun path in winter and summer. Due to daily temperature in Dallas sun pattern has a critical impact on overhangs and shading strategies.


Sun Path Analysis

Month of year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
	01	02	03	04	05	06	07	08	09	10	11	12	1-12
Dominant wind direction	↟	↟	↟	↟	↟	↟	↟	↟	↟	↟	↟	↟	↟
Wind probability >= 4 Beaufort (%)	34	40	49	50	44	41	29	23	25	36	39	35	37
Average Wind speed (kts)	10	10	11	11	11	10	9	8	8	9	10	9	9
Average air temp. (°C)	9	11	16	20	24	29	31	31	27	21	15	10	20

Dallas wind chart

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SITE ANALYSIS

Demography

The population in Dallas is 1,197,816 with the same percentage of women and men. According to charts and statistics 3.6% of the men are above the age 65, which is 21,816 male individuals. And, 10.1% of the women are above the age 65, which is 59,794 female individuals. These numbers, 81,610 in total, show that a good number of people are susceptible to Alzheimer's disease in Dallas. Based on the rate of the Alzheimer' disease patients above the age of 65, about 11,000 people in Dallas has this issue and the numbers are growing fast.

Wind

According to chart, the dominant wind is from south side of Dallas. The average speed of this wind is 10 k/h and due to its temperature it cools down the weather in the region. This shows that wind is not a serious issue and a critical strategy to overcome this natural element is not needed. In fact, the wind in Dallas can bring benefit to the project.
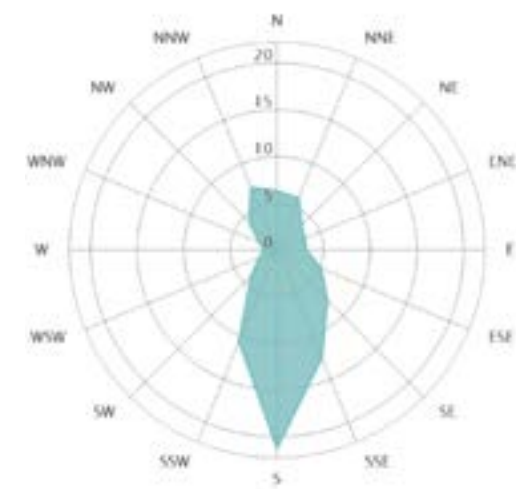
Dallas rose wind chart

Population Of Homes With People 60 Year Olds And Over

Hispanic or Latino Households in Dallas Containing People Over 60

Total Population:	134,955
Population of homes with one or more people 60 years and over:	19,346
1-person household:	3,547
2-or-more-person household:	15,799
Family households:	15,034
Nonfamily households:	765
Population of homes with no people 60 years and over:	115,609
1-person household:	17,311
2-or-more-person household:	98,298
Family homes:	90,205
Nonfamily homes:	8,093

Demographic Table 1

Demographic Household Type

Number of Occupied Homes in Dallas

Total:	458,057
Family led homes:	265,538
Husband-wife family:	165,500
Other family:	100,038
Population of male led with no wife present:	26,634
Population female led with no husband present:	73,404
Population of Nonfamily homes:	192,519
Population living alone:	155,159
Population not living alone:	37,360

Demographic Table 2
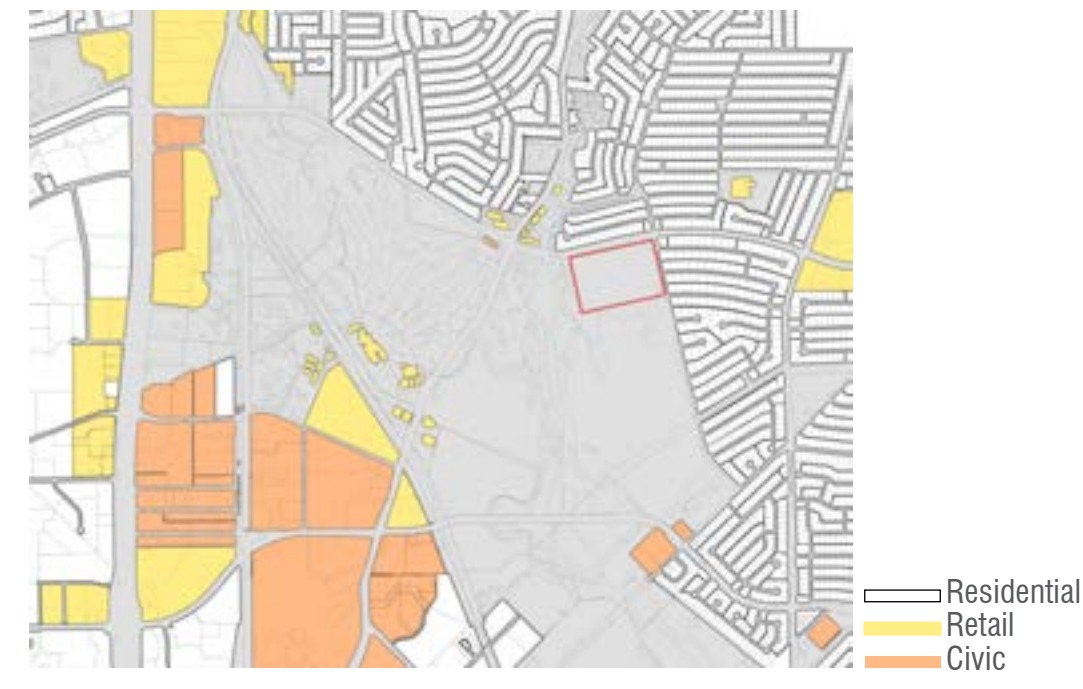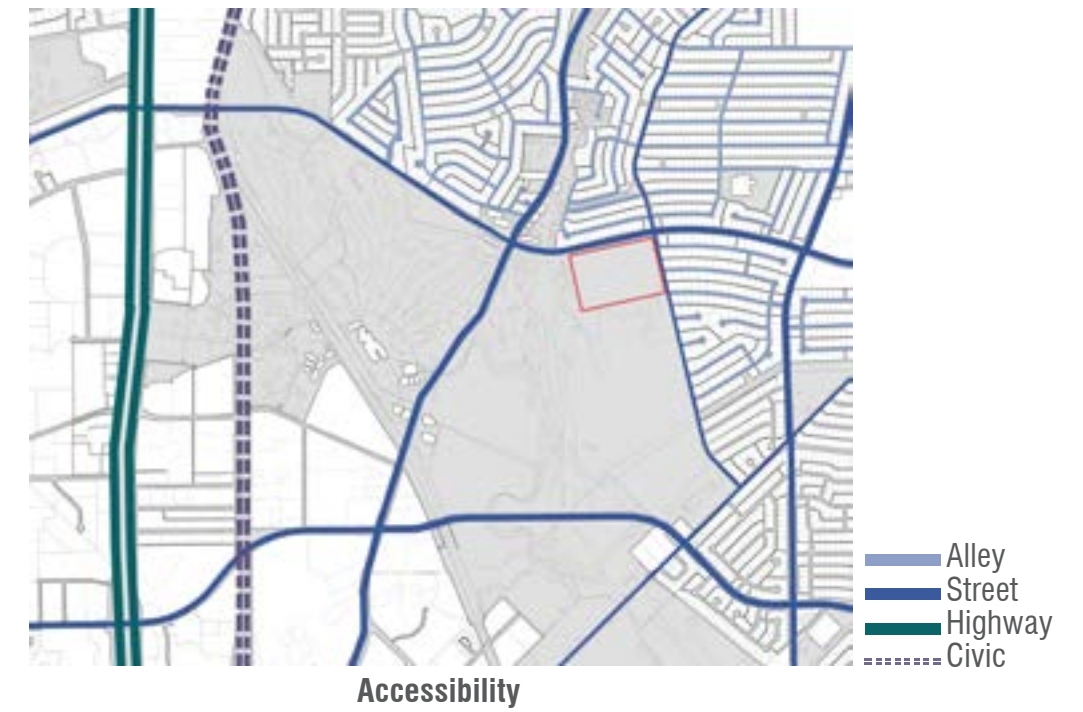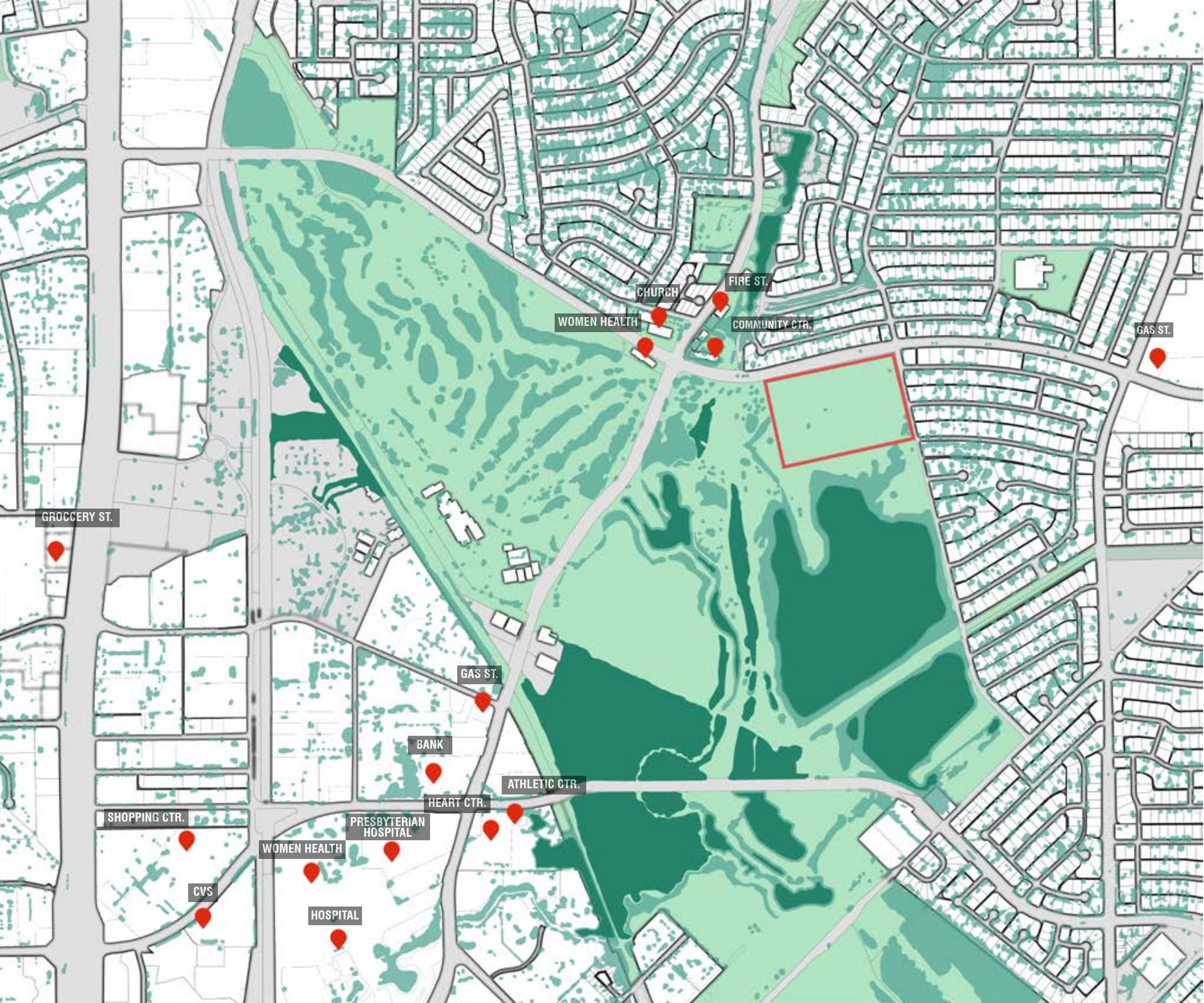

Continent of America

State of Texas

City of Dallas

Location

The site is located in Dallas, TX in the United States. It is in the northeastern part of Dallas with a residential texture and a great view of downtown. The site is embraced by up-to-three-story apartments from North and East, and It is connected to a natural park with dense trees. There is also a creek in this park.

This project is accessible with personal vehicle, bus, and metro.

The project area is about 20.47 acres with a slow slope of 5%, and it is a local lawn in the Park. The site is placed in the corner of the park which makes it accessible from two streets.

The considered spot has several hospitals with different focus, grocery, shopping mall, bank, and etc. in nearby.

CHURCH
FIRE ST.
WOMEN HEALTH
COMMUNITY CTR.
GAS ST.

GROCCERY ST.

GAS ST.

BANK
ATHLETIC CTR.
HEART CTR.
SHOPPING CTR.
PRESBYTERIAN HOSPITAL
WOMEN HEALTH
CVS
HOSPITAL

Alley
Street
Highway
Civic

Accessibility

Residential
Retail
Civic

PROGRAM

GOALS

- Bring satisfaction and comfort for seniors and their families for longterm residency
- safey, comfort, security, assistancy, and health development
- Seniors receive physical and psychological assist. They feel like "home" and find new friends. They should feel alive, energetic, and satisfied. They experience a normal assisted life in this project. They will not feel like a patient.
- All units are ADA with private bathrooom
- Patient in progressed stage experience calm environment with full assistance
- Nurses will work 12 hours per day, so they can allocate their full energy to their job. The make a close bond with seniors and serve them with dignity.
- The executive Director manage to plan a schedule
- Suppliers provide food ingredients and their other needs based on their favorite diet and indovidual necessities.
- Chef and meal providers control various nutritient factors
- Family and Friends can visit their loved outdoor/indoor and private/public spaces
- Outdoor visitors performance
-Physian and hairstyler
- Janitor and security
- Staff clean and organize public and private areas on a daily schedule. They try to make units with descipline so residents can easily live there with comfort.
- They need to put their cart and equipment in the storage.
- They also take a break and clean their tools after using it in each single space."

FUNCTION: PEOPLE

FACTS

- Alzheimer's disease is the 6th leading cause of death in the United States
- More than 5 million American are living with Alzheimer's by 2050, which can increase to 16 million
- Every 66 seconds someone in the United States develops the disease
- 35% of caregivers for people with Alzheimer's report that their health has gotten worse due to care responsibilities, compared to 19% of caregivers for older people without dimentia
- It kills more than breast cancer or prostate cancer combined
- 6772 people died from Alzheimer in Texas, 2014
- It is estimated that almost 14% of individuals older than 71 years have dementia
-Seniors with the age of 65 and older, showing Alzheimer signs in 3 satges of Basic, Developed, and Progressed live permanently at this center.
- Skilled nurses provide services for assisting/caring patients.
- Administrators manage, direct, and supervise the whole system based on the schedule and patients' requirement
- The project have furure residents that keep coming everyday.
- Patients need hope for continuing their lives
- Patients health status should be monitored on a regular schedule
- Patient apperance should be considered
- project need a protector for everybody's safety
- Staff clean and organize public and private areas to prevent infection spread

CONCEPTS

- Mild seperation between patient with different level of need
- Seniors should belive themselves as residents by living in a home-like environment rather than a clinical/medical environment.
- Units and public areas are separated to provide various quality for residents
- Nurses consider seniors as residents. They make a close relation with seniors and try to communicate with their own language.
- Nurses will dress informal but with a distinguishable element, so senior can easily recognize them or ask for assistance.
- Administrators are easy to access for guest.
- They can have separate break , joining break, or socialize with residents as well.
- The try to be goodlooking, fresh, and friendly.
- A welcoming Lobby with semi private room for visitors to make sure they are comfortable and focused
- Entertainment include guest performers or even one of the patients who likes to entertain others. So, There can be some schedule during the week that keep seniors busy and active. These programs can include vaious schedules such as, music, art, and other show and players can be both seniors or some musicians/showmen.
- Having seniors involved with the program turns it more powerful and an deffective, in terms of positive energy.
- Staff make communication with seniors around them and respect them. They Staff cleaners need to put their cart and equipment in the storage. They also need to take a break and clean their tools.

NEEDS

- Residential Units with private Bathroom - 90 residents for assisted living and 30 residents for nursing home (Capacity: 120 individuals in Total)
1. Units with Living, two Bedroom and Kitchen
2. Units with Living, one Bedroom and Kitchen
3. Studio Units in NH and no kitchen
- Lounge area/Dinning area and Kitchen
- Offices
- Executive Director office
- Communication Advisor
- HR office
- Confrenece room
- Storage for records and office supplies
- Services
- Locker/changing room
- Loading Location
- Kitchen
- Service for staff
- Cold Storage
- Private living room
- Kitchennette
- Lobby
- Registery/ Check-in
- Drop-off Loacation at entrance
- Performance room/Show room
- Lounge Are/ Waiting room
- Checking room
- Beauty Salon
- Washing area/ Service
- Janitor's unit
- Security/monitoring room
- Break room for Staff
- Storage: for cleaning equipment and Supply
- Clean Linen room
- Laundry

GOALS

- Seniors will have individual/ group activities indoor and outdoor.
- They keep/develop their physical health status
- They keep/develop their mental health status
- Seniors need more help, treatment, and support when they are in pain.
- Seniors might suffer from sowing-up disabilities base on their level of Alzheimer.
- Nurses have efficient breaktime to have energy.|||||

FUNCTION:ACTIVITY

- Bringing outdoor indoor and make a close realtionship and nature-loving space in residential units
- Neighbor-friendly Corridors help seniors to make communication with each other.
- Services:
- Some public bathroom will be in the project to keep the level of comfort.
- Clean sterilized storage

FUNCTION:RELATION

- The site is located in green area to provide nature-friendly place. This potential make various motivation and enregy flow

- Seniors will not get lost in the area (not for this section)

FORM:SITE/ENVIRONMENT

FACTS

- Seniors have activities to prevent them from depression, lonliness, and muscle weakness. They need a regualer schedule as ersidents.
- There could be some times that seniors get sick, or might be taken to hospital for any possible reason. Seniors are weak and they can easily get contageous disease. They also may lose control and something dangerous happens.
- Travel distance (Ref.)
- Enough nurses is considered for allocating 3.2 hours per day to each patient. There is 12 to 15 patients per nurse for a 12-hour shift.

- Window and outdoor view
- Outdoor area
- Socialization for hope and motivation
- Frequent usage of bathroom
- Fresh and healthy ingredients
- A soiled utility room (or sluice room) is a necessity for every licensed elderly care facility and hospital.

- Residents may need professional treatment in case of emergency
- Residents need window in their bedroom

- Patients might get lost in the corridors, wander for a long time, confuse with their units, and stop

CONCEPTS

- They play games, watch movies or shows, join group work, cook, go outdoor hiking, swim and take massages, and workout in group activities. In addition, they read book, make crafts, and grow plants individually.
- Seniors participate in social event
- Seniors have outdoor activities
- A split room can be more effective as a recovery.
- Decentralization helps nurses to monitor easier
- A break station for nurses

- a functional terrace and big windows help residents to enjoy the fresh air and great scenery.
- A functional gap between outdoor and indoor can make a great impact on the space.
- Making scenery view available in public spaces
- There are regular Break-and-Talk areas in the project to help residents refresh, take a break, and socialize.

- Individual spaces and public areas has outdoor view to bring outdoor feel like inside the building

- The project has a simple and user friendly Geometry
- Patients have some iconic items of their past and their picture at the front door to recognize their room

NEEDS

- Game room/craft room
- TV room
- Dinning room|cooking room
- Patient-friendly landscape
- Spa
- Fitness & Workout and Yoga
- Libray/Quiet room
- Living room
- Chapel
- Atrium
- Garden/private Patio
- Camp Area
- Rehab/Recovery room
- MED space
- 4 to 10 station for nurses (Including Strorage, Preparation area, medication, toilet handwashing area)
- Nurse lounge

- Terrace in units
- Semi-outdoor-indoor space
- Outdoor café Seating
- Seating Gaps on the corridors
- Storage: locked areas for medications
- Storage: wheelchairs, walkers, beds, and mattresses
- Public restroom
- The soiled Utility
- clean linens and towels
-Lawn and maintenance equipment"

- Bring outdoor and indoor together in the spaces. (with shading)
- Semioutdoor areas
- Light color

- Simple Signs and distinguishable colors; hence easy to remember
- Iconic element

PRECEDENTS
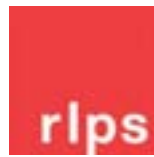
THE VILLAGE AT WAVENY CARE CENTER
New Canaan, Connecticut
by RLSP Architects

The Village of Waveny care center is located in New Canaan, CN and is designed by RLSP. This place started to serve people with dementia in the assisted living level of care, 2001. It has the capacity for 52 residents and daycare for 60 individuals with dementia. This center incorporates design strategies to private and semi-private courtyards with implementing distinctive qualities. Corridor gaps are another semi-private spots for residents to grow intimacy and short-term memory. Each resident has a great outdoor view; in addition, they can join their family in a semiprivate room with natural light. Lighting is controlled by sensitive sensors to degenerative elderly eyes. On the other hand, each room is located in a cluster to minimize ambient noise. Each spot includes visual cue in a décor for the patient to recognize their location and apartments. One of the interior design element is using color contrast with sharp colors. The

Interior Main Street

Overall First Floor Plan

color pattern on finnishes brings a nostalgic-looking quality into spaces. Flexibility in decoration provides residents at this location with the option of bringing their own furniture. The main public area in this center follows design strategy from one of the popular village of the town, called "Main Street"; hence, providing an outdoor-looking and temperature-controlled public environment. In addition, there is a different art-looking material used in living rooms to add variety in the environment. (Jeffrey W. Anderzhon, 2007)

Multi-used Room

Dinning Area

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PRECEDENTS

BROOKDALE VENTANA CANYON MEMORY CARE
Tuscon, Arizona
by Douglas Pancake Architects

This project is located in Arizona and has a functional outdoor area. The interior parts on the other han has wide range of color pattern to make it distinguishable. Moreover, there is a specific personal decor at the entrance of each unit that helps resident to remember their own unit. the material used in this memory care made it home-like environment.

On the contrary to the other memory cares, this location has a gap in its corridors with separate it from the public areas. This helps residents to feel it more like a home.

Outdoor Courtyard

Corridor

Site Plan

Living Room

2nd Floor Plan

Interior of the Unit

1st Floor Plan

STRATEGY

Zoning Strategy

This design can be considered as healthcare and multi-family project. Although, patients are planned to be in this place for a long time, it is going to be their homes. The program requires a thorough understanding of perceptual, psychological and accessibility problems that impaired individuals experience in the environment. In fact, the healthcare centers are decentralized to provide a healthy home for residents and easier serving for caregivers. The main public area for gathering and interactions is considered in the heart of the project for more accessibility.

Given the fact that this project has a noticeable square footage, decentralization was the strategy to make everything available in a short distance. Besides, the main public area is connected to all the spaces in the project.

Diagram 2: Functional Accessibility

Landscape and green areas embraces different spaces in each zone; therefore, a high rate of connectivity is obvious in the project.
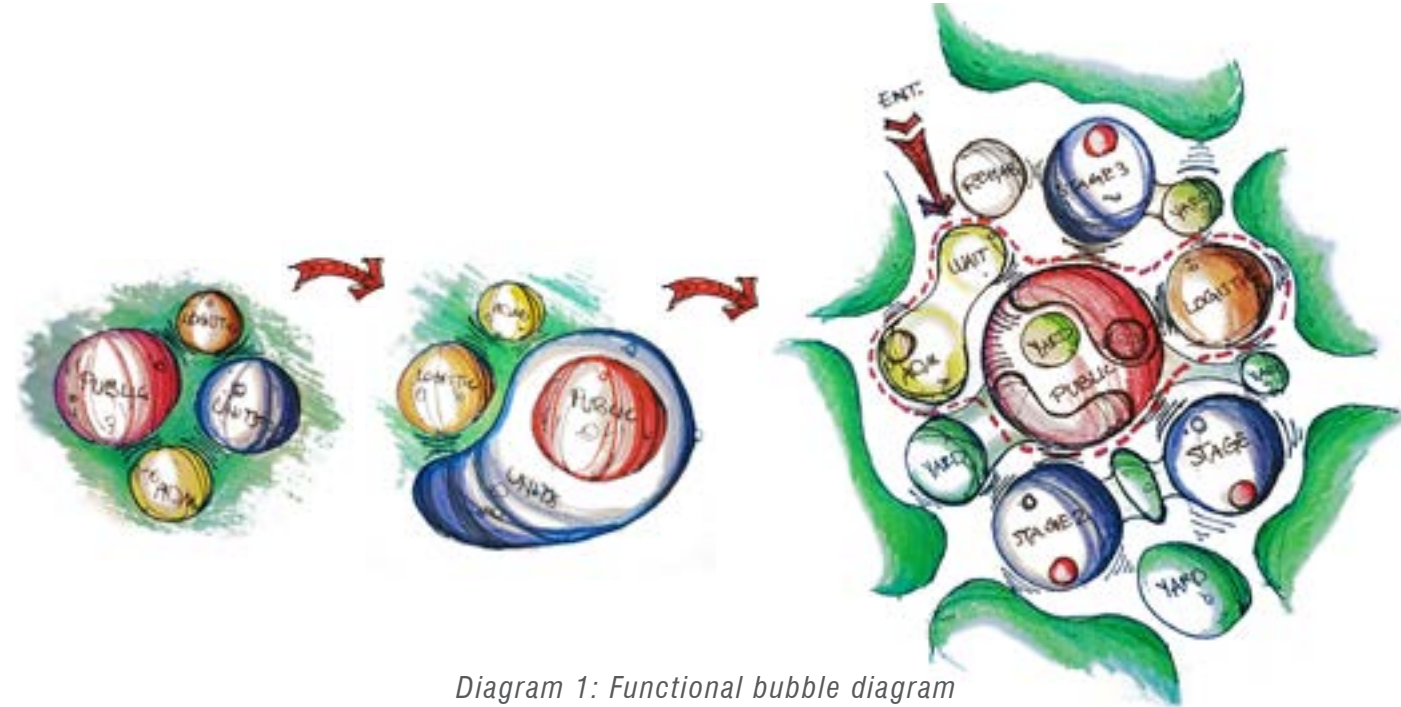

Diagram 1: Functional bubble diagram

Design Strategy

The design follows architectural and psychological issues to provide a user-friendly long-term facility for its residents. According to the mentioned program and the related precedents, the square footage was measured.
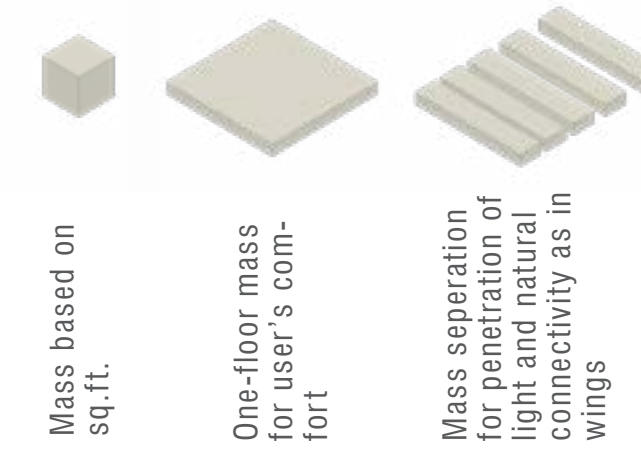

Mass based on sq.ft.

One-floor mass for user's comfort

Mass seperation for penetration of light and natural connectivity as in wings

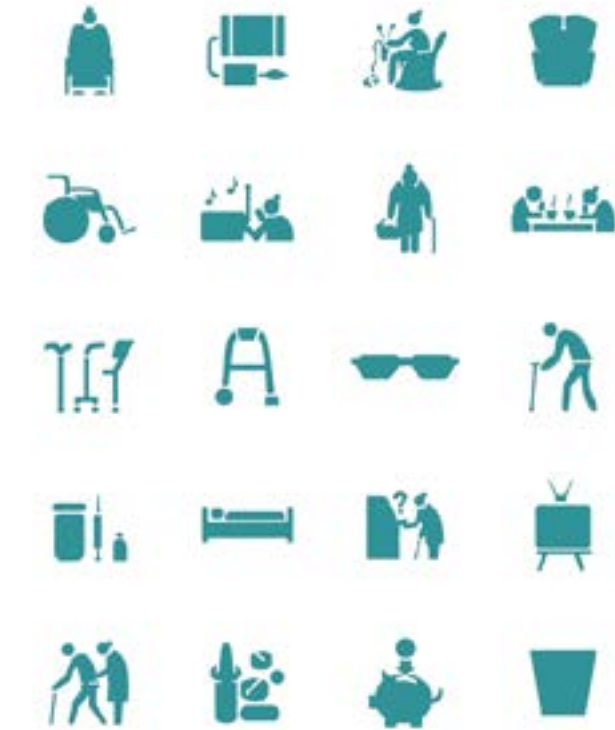*Diagram 3: Mass Process*

Diagram 4: Senior living style

Design Strategy -Geometry:

According to Lawton, between autonomy and support, people require some of both all the time. Frustration develops when only one of these are satisfied at the expense of the other. The solution is "the simultaneous gratification of both needs through the partitioning of the context in which such needs are satisfied – which is called environmental multiplexity." (Lawton 1985) In order to enhance these needs, a simple geometry was developed in the project so people can easily find their way from each location.
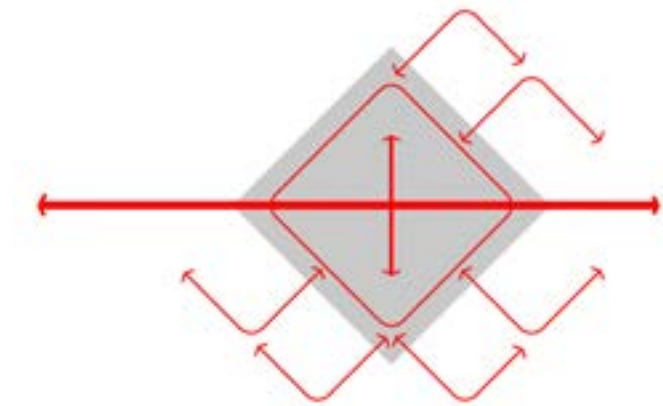

Diagram 5: Simple Circulation/Geometry

STRATEGY

Design Strategy -Wayfinding:
Confusion and disorientation to person, time and place are inherent characteristic of A.D. The environment as well as therapeutic program can assist individuals. Temporal landmark and distinctive space quality provide predictability and the ability to locate themselves.

Design Strategy -Nature:
A healthier environment for residents can be enhanced by an outdoor-indoor connectivity. Nature and all of its features can be an asset to prevent patients from becoming aggitated during the day.

Design Strategy -Units arrangements:
To bring natural light and view into residential units, one of the most efficient unit arrangement is rectangular cluster with the units in long side and divided by a corridor. This type of cluster is called wing, which can be 120 meters in maximum, according to Assisted Living Codes and Regulations for an optimized assistant. Based on an estimated size of each unit and the required number of caregivers, each wing can cover 10 patients which means 12 wings for 120 patients in this project.
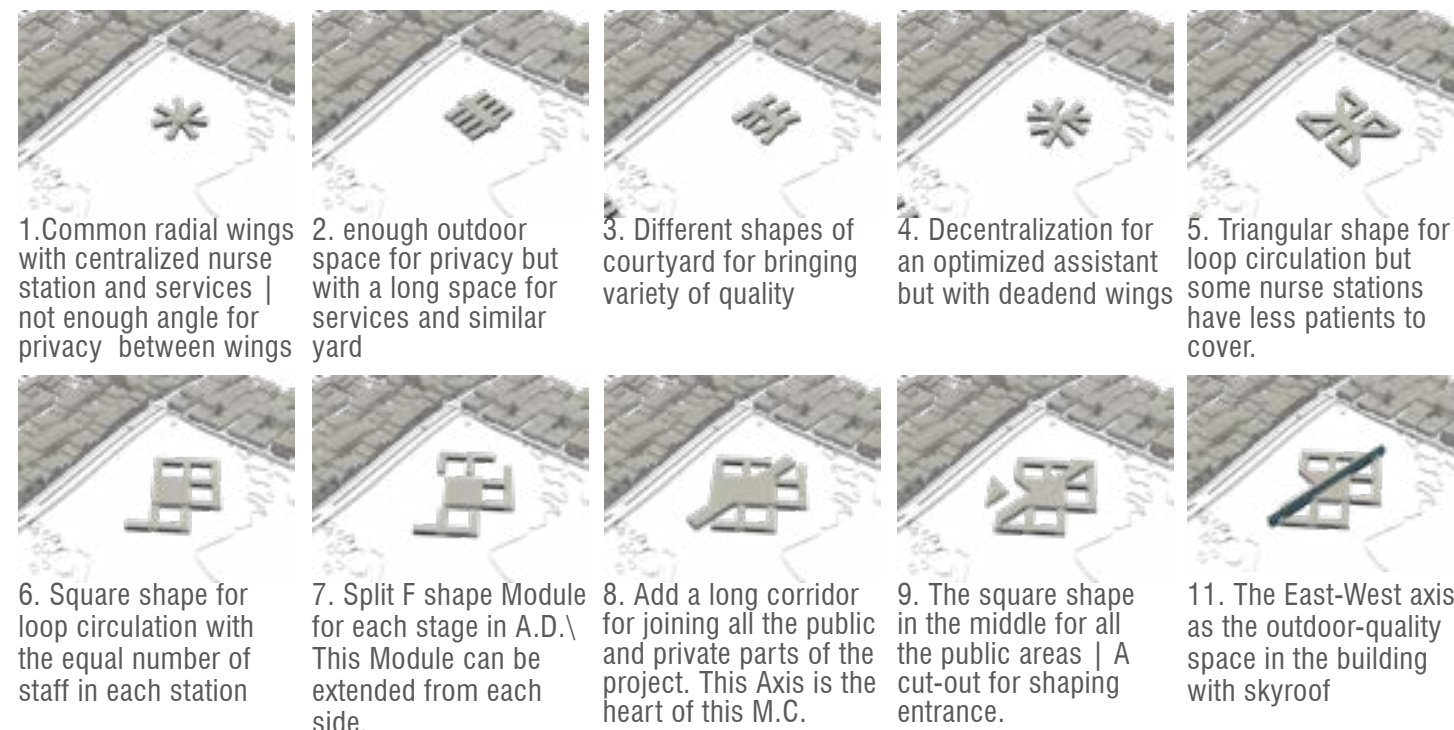
1.Common radial wings with centralized nurse station and services | not enough angle for privacy between wings

2. enough outdoor space for privacy but with a long space for services and similar yard

3. Different shapes of courtyard for bringing variety of quality

4. Decentralization for an optimized assistant but with deadend wings

5. Triangular shape for loop circulation but some nurse stations have less patients to cover.

6. Square shape for loop circulation with the equal number of staff in each station

7. Split F shape Module for each stage in A.D.\ This Module can be extended from each side.

8. Add a long corridor for joining all the public and private parts of the project. This Axis is the heart of this M.C.

9. The square shape in the middle for all the public areas | A cut-out for shaping entrance.

11. The East-West axis as the outdoor-quality space in the building with skyroof

Diagram 6: Process of Design

DESIGN

Design Idea:
Due to the level of understanding in the victims of A.D., outdoor space in the alternative space is limited to an enclosed courtyard for a limited time of the day, which can instigate negative behavioral. However, allowing access to outdoor spaces will provide cognitively impaired residents with a unique and diverse environmental experiences. Following the main idea, an architectural program was initiated based on sociality rather that medical care. The concept was to bring a preserved outdoor quality that will be interpreted as neighborhood among residents.

Alzheimer's Disease   Aging

Diagram 7: Simultaneous impairment

During the design process, a long-preserved path was developed as the main street including theater, news kiosk, squares, barbershop, and etc. These elements may bring a downtown atmosphere to the projects rather than their functions. Moreover, to provide a diverse schedule, protected outdoor spaces are developed in the design with therapeutic activities such as gardening, yoga, and walking therapy.
Wayfinding is one of the main issues

amongst Alzheimer patients with the wandering habits. This highlights the importance of strategic tdesign for eliminating a number of patients getting lost or confused. (Cohen & Weisman, 1991) There are different types of elements that affect the patient's perception of the environment. These elements are categorized as ambient, presenting the smell, temperature and the sounds of the environment, or design, counteracting with color, plan, material, and furniture. (Baker, 1986) Wayfinding is spending short time for reaching a specific spot without any fear or stress. (Peponis, Zimring, and Cho, 1990) Landmark and different experiences assist residents with finding the right path for this project. (Passini, Pigot, Rainville, & Tetreault, 2000) One of the Architectural approaches for addressing this issue is outdoor view in corridors, which opens to a variety of landscape de-
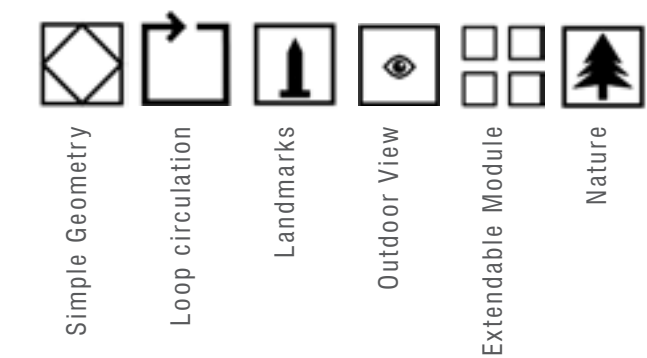
Simple Geometry   Loop circulation   Landmarks   Outdoor View   Extendable Module   Nature

Diagram 8: Design Strategy

DESIGN

Design Idea:

The West part of the site is considered for the memory care and the main access is from North side. However, based on the rate of Alzheimer's disease growth in the U.S.the Phase II of the project is planned to be at East side. The design looked for a modular pattern to have a steady standard strategy. After going through the process of design, The final mass was an F-shape. Each Nurse Station serves two wings with 10 patients, 20 patients in total. Basically, the module is L shape and can be expanded in different orientations. In order to cover the required number of patients, each two L-shape make an F-shape for a residents with the same stage of Alzheimer. Besides, this attachment

Diagram 9: Selected location in the site

Diagram 9: Extendable Module

between L-shapes provides a loop circulation and prevents dead-end corridors, which is a necessity for patients of A.D.
Allowing access to outdoor spaces will provide cognitively impaired residevnts with a unique diverse environmental experience. This opportunity can maintain/increase the

This opportunity can maintain/increase the individual's autonomy. A therapeutic garden is an important component in the village concept. This theory contributes to the variety of experiences for residents with interactions. This project provides settings for group activities and small private places for retreat and contemplation. The concept of having a diverse types of design in different courtyards was the ability to accommodate a variety of activities including active sports, such as shuffle board and croquet, or passive activities, such as bird watching and one-and-one conversations. (Coons, 1992)

Public reading Park

Game Courtyard

Nature Park

Private Courtyard

Sport Park

Walking Therapy

Picnic Park

Walking Therapy

Diagram 9: Different types of courtyard

DESIGN FLOOR PLAN

Public Area
20. Staff Equipment
21. Exam Room
22. PhysioTherapy
23. Exam Room
24. Isolated Check-in
25. Newspaper Kiosk
26. Restaurant
27. Stage
28. Cooking Area
29. Restroom
30. Changing room
31. Massage room
32. Spa
33. Patio
34. Fitness
35. Staff Breakroom
36. Multi-used room
    Craft/Game room
37. Chapel
38. Public interior Courtyard
39. Cafe/Library
40. HAir Salon
41. Shower
42. Theater
43. Performance Area

Administration
1. Human Resources
2. Office
3. Management
4. Storage
6. Lockers
7. Kitchen/ Dinning/ Lounge
8. Executive Director
9. advisor
10. Conference
11. Lobby/Check-in
12. Restroom
Logistic
13. Kitchen
14. Laundry
15. Linen
15. Supply
16. IT Equipment
17. Medical Storage
18. Mechanical room
19. Janior

Residential Area
Units
A. Units including Bedroom,
bathroom, sitting area, kitchen-
ette, and terrace
B. Units including two Bed-
room, bathroom, sitting area,
kitchenette, and terrace
C. Units including Bedroom,
bathroom, and terrace
Nurse Station
45. Lounge
46. Soil room
47. Clean room
48. Medical storage
49. Family sitting room

Acces

EXIT

Parking

Entrance

Unload Dock

2nd Ent.

Site Plan

50'   100'   200'   400'
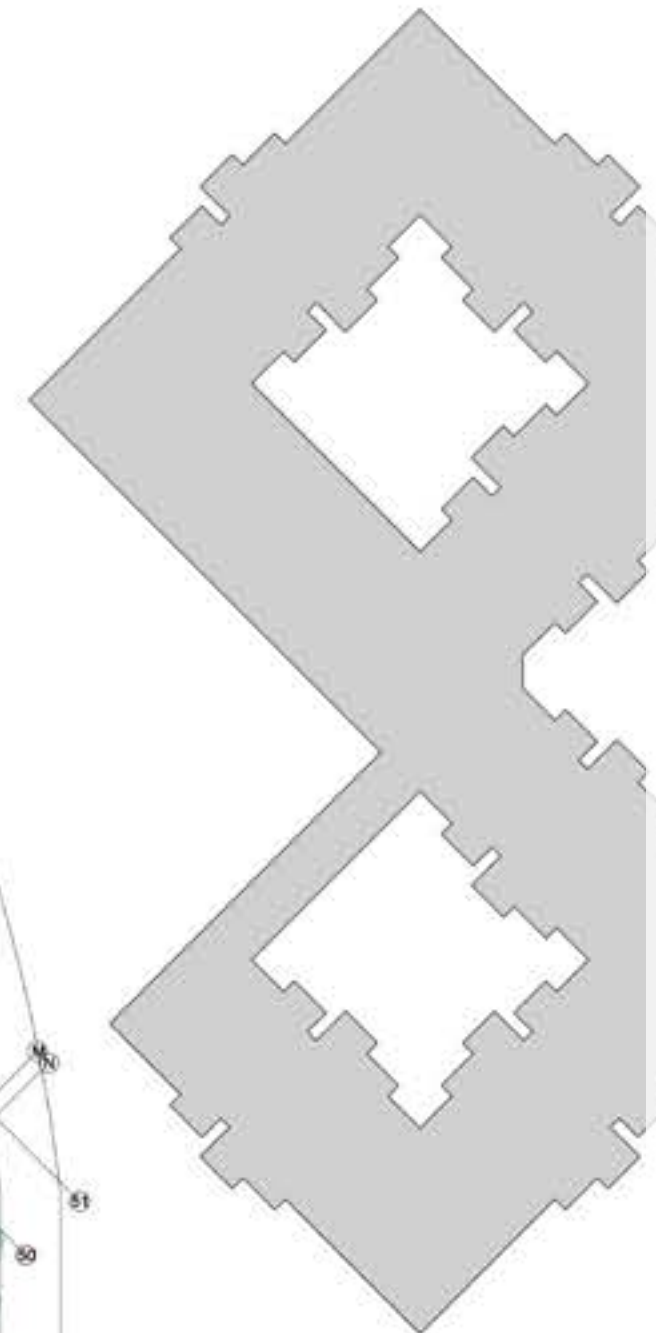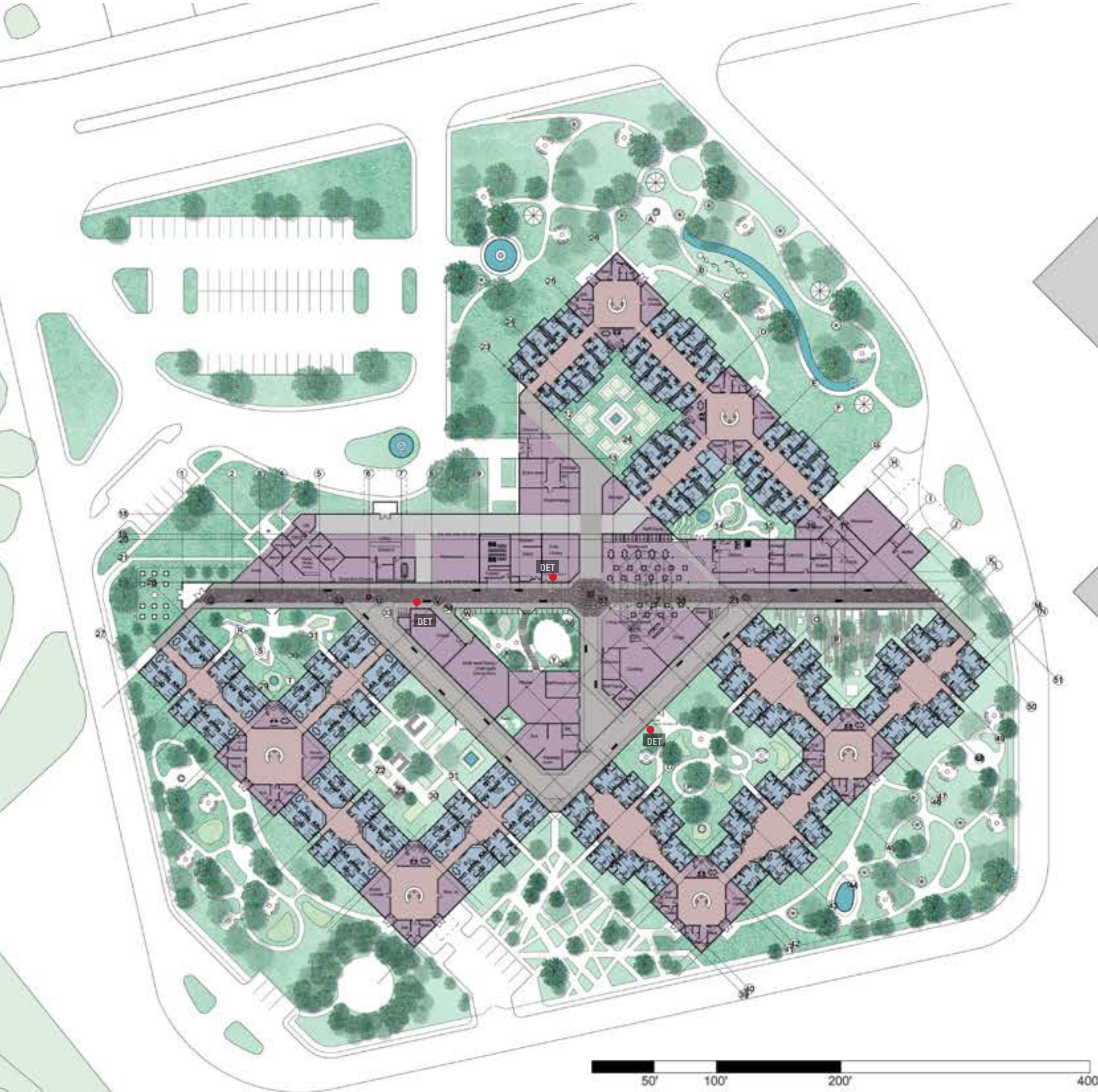
Figure(25): Plano Oak Gunstock 3/4 in. Solid Hardwood Flooring for home-like space

Figure(25): Wall pattern for a warmer environment

DINNING/GATHERING SPACE, on the "Main Street" opportunities for intersections and interactions with natural light from the skylight. There is a wide range of furniture used in this sitting room to make all the residents satisfied with a number of options.

MAIN STREET INTERSECTION WITH RESTAU-
RANT aesthetically and physically pleasing
place for patients, nurses, and staf| The
stage in the restaurant provides a capability
for patients to thrive their talents and ehxi-
bit it on the stage. Even performers from
outside can have an event in this gathering
area

The skyroof has the sky view with the natural
light. Artificial street light also makes this axis
even more similar to outdoor local street which
is very important for resident who cannot go
out most often.

CROSS SECTION IN THE MAIN STREET
This part of the street has a very open view to
outside, with using glass in the skyroof and
courtyard separator. It has an integrated con-
nection woth nature. In this Courtyart which is
in the heart of this project and the only public
courtyard, residents can do yoga therapy.

In order for patients to have their privacy while
doing yoga movements the louver on the cur-
tain wall is used.

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Figure(25): Trick brick | aged red loft for interior/exterior wall designer

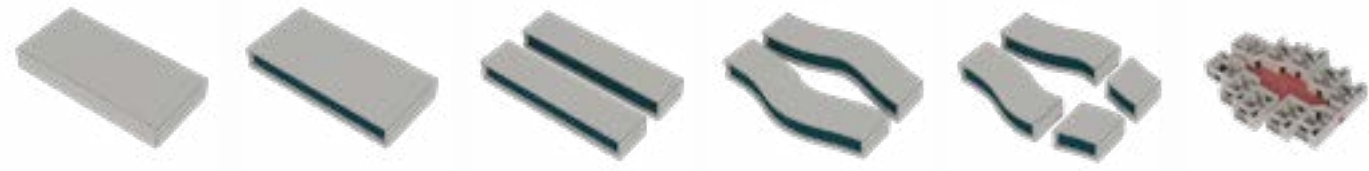*Figure(25): Porcelain Stone tile for a street-like space*

Figure(25): Natural stone floor covering

THE "MAIN STREET"
Indoor Main Corridoor with the outdoor quality, having natural light and skylight, with store fronts, theater, Kiosks and Street-kind material

DESIGN

Simple Wing with a long corridor in one side and all the uints on the other side

Outdoor View and light petration into residential units from both side

Corridor between units so all the units can have natural light equally

Considering a waiting point in the long corridor to make it more like staying rather than passing

Braking the corridor woth a bridge to outside view so residents can easily locate themselves

Neighborhood feel-like in the corridor for territorization

STRUCTURE

Figrure(23): Pre-engineered Skyroof (Eastern Guilford High School, by SFL+A Architects

Figrure(24): Custom Skyroof (Greenhouses At Bramshall Staffordshire England Woodpecker 15ft X100ft

Pre-Engineered Skyroofs
This systems span up to more than 20' offering the ultimate in energy-efficient, diffuse daylighting. This roof is covered the dinning area to withstand hurricane force winds and high snow loads, all are OSHA fall-through compliant.

Figrure(24): Sloped roof Structure (Wilson Hospice House by Perkins+Will, Inc)

Wood Pitched Roof Construction
Wood framed rafter and joist with steel construction with Cellulose fiberglass insulation and coated. This is a common structure in Dallas.

Kalwall Skyroofs
For bespoke top lighting applications, our custom skyroofs offer designers even greater flexibility by combining Kalwall panels with sub-structures designed and installed by others.

Clearspan Systems
Take daylighting to another level by combining lightweight, aluminum sub-structures with Kalwall panels to form large clearspan skyroofs or complete building frames by Structures Unlimited.
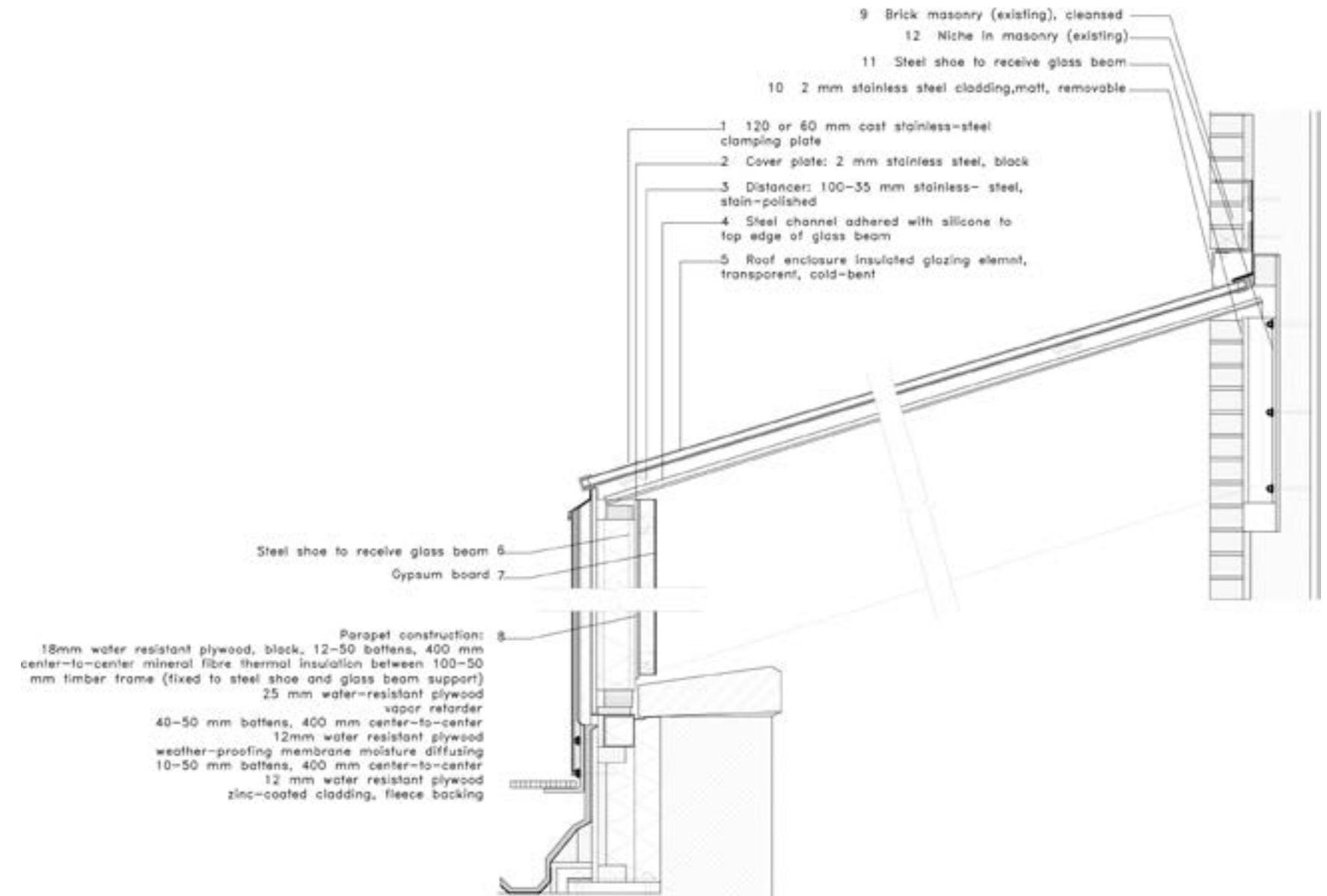
Specialty Applications
Windborne debris resistance, blast resistant assemblies, removable roofs, motorized/operable roofs, and factory mutual rated roof assemblies are available.
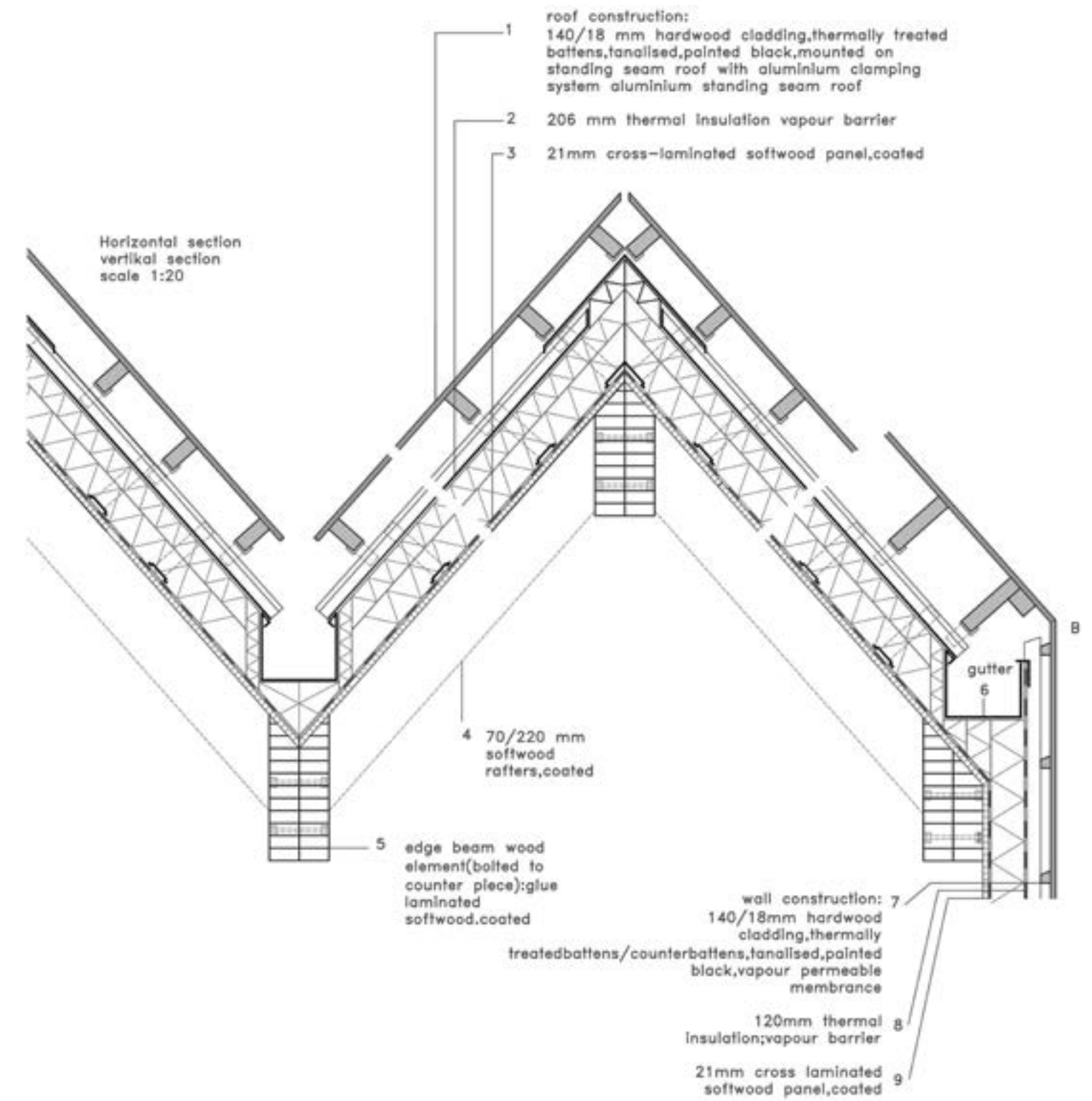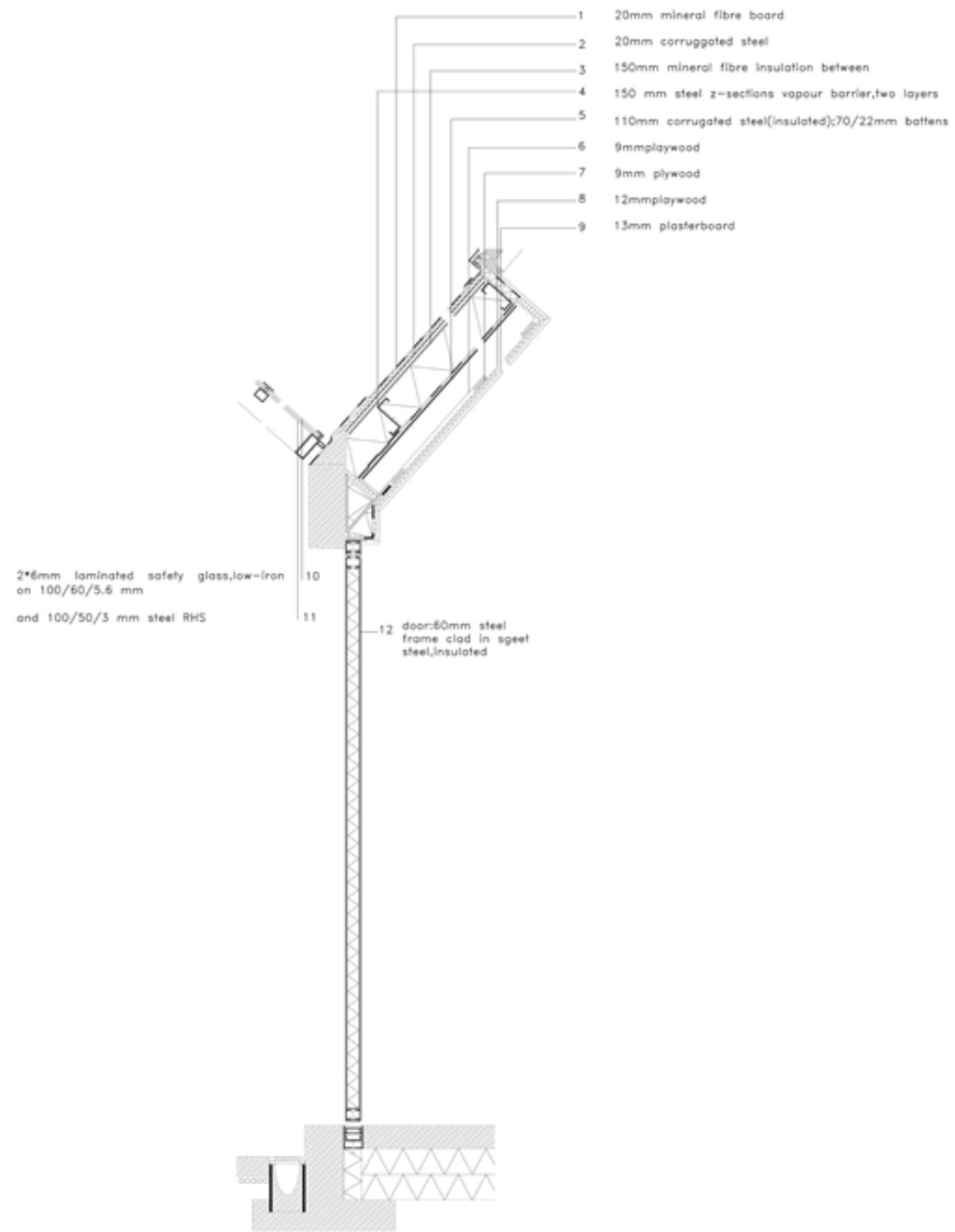

9   Brick masonry (existing), cleansed
12 Niche in masonry (existing)
11 Steel shoe to receive glass beam
10 2 mm stainless steel cladding,matt, removable

1   120 or 60 mm cast stainless-steel clamping plate
2   Cover plate: 2 mm stainless steel, black
3   Distancer: 100-35 mm stainless- steel, stain-polished
4   Steel channel adhered with silicone to top edge of glass beam
5   Roof enclosure insulated glazing elemnt, transparent, cold-bent

Steel shoe to receive glass beam 6
Gypsum board 7

Parapet construction: 8
18mm water resistant plywood, black, 12-50 battens, 400 mm center-to-center mineral fibre thermal insulation between 100-50 mm timber frame (fixed to steel shoe and glass beam support)
25 mm water-resistant plywood vapor retarder
40-50 mm battens, 400 mm center-to-center
12mm water resistant plywood
weather-proofing membrane moisture diffusing
10-50 mm battens, 400 mm center-to-center
12 mm water resistant plywood
zinc-coated cladding, fleece backing

1 20mm mineral fibre board
2 20mm corrugated steel
3 150mm mineral fibre insulation between
4 150 mm steel z-sections vapour barrier,two layers
5 110mm corrugated steel(insulated);70/22mm battens
6 9mmplaywood
7 9mm plywood
8 12mmplaywood
9 13mm plasterboard

2*6mm laminated safety glass,low-iron | 10
on 100/60/5.6 mm
and 100/50/3 mm steel RHS | 11

12 door:60mm steel
frame clad in sgeet
steel,insulated

roof construction:
1 140/18 mm hardwood cladding,thermally treated
battens,tanalised,painted black,mounted on
standing seam roof with aluminium clamping
system aluminium standing seam roof
2 206 mm thermal insulation vapour barrier
3 21mm cross-laminated softwood panel,coated

Horizontal section
vertikal section
scale 1:20

4 70/220 mm
softwood
rafters,coated

5 edge beam wood
element(bolted to
counter piece):glue
laminated
softwood.coated

gutter
6

wall construction: 7
140/18mm hardwood
cladding,thermally
treatedbattens/counterbattens,tanalised,painted
black,vapour permeable
membrance

120mm thermal 8
insulation;vapour barrier

21mm cross laminated 9
softwood panel,coated

B

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SECTION DETAILED

EXPLORE MORE!

This project started with different analysis and data collection. Healthcare has so many codes and regulations and designing with these sorts of constraints is very challenging. The most achievement during this process was dealing with all the limitations and still being initiative. Although the results might be kind of similar in this field of healthcare, especially senior living, each project has its own focus and criteria.

According to all the issues related this project, the outcome indicates how architecture can follow rules with public spaces and still stay home-like environment. This project was a training curve about a giant one-story building. Besides, having some diverse courtyards which was sounded busy at first, makes a great impression on the residents and the outcome was wonderful. Moreover, the strong axis in the middle of the building exhibit its focus and concept to its users in the first glance.

According to codes and regulations regarding assisted living and nursing home facilities a one-floor is the best option for residents. However, with the required capacity in this project, one-floor was far goal to achieve, in terms of distances and form. Exploring different solutions for having more floors was always a curiosity in this project.

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FINAL PROJECT BOOK