
therapeutic architecture

housing for people with dementia

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An environment strongly influences the behavior of individuals with dementia. A well designed physical environment can maintain and enhance the ability to function and improve quality of life. My thesis uses a residential environment for people suffering from dementia as the basis for therapeutic intervention. Understanding the physical and psychological effects of architecture on a person with dementia is an important tool in slowing the progression and effects of the disease. The competence of an individual can effect how he or she experiences a space and can make them respond more intensively to the immediate environment. Building orientation, color, lighting, and access to nature can affect the psyche of a resident and can help stabilize and reduce the effects of the disease.

abstract

Dementia is a brain dysfunction that leads to gradual memory loss and restrictions of daily activities. The most common form of dementia is Alzheimer's disease. As our population ages, the number of dementia cases increase, and the need for long term care settings rises. The response to the growing need of housing has primarily been a suburban complex that is remotely located. For most urban residents the transition to a residential care setting takes them away from their family and community. I wanted to create a building in an urban environment that gives people options for choosing care.

The following thesis presents a design for urban housing that focuses on care for people with dementia. My goal was to design spaces that take greater responsibility for the health of this mentally and physically frail older population in a residential setting rather than an institutional environment. Being both an architectural designer and once a caregiver to a loved one with dementia has given me a combination of knowledge and experience that has helped me to understand and take into consideration the importance of a space in which a person with dementia spends his or her final time. People suffering from dementia often experience disorientation, memory lapses, confusion, agitation, and frustration. The environment has a large

impact on this behavior. The competence of an individual can also effect how he or she experiences a space. A dementia patient's visual response to light and their perception of space changes as the disease progresses. It becomes more difficult to focus when moving between light levels. Bright light exposure can reduce agitated behavior in some Alzheimer's patients. Institutional environments can be stressful, and stress can increase the effects of dementia as well as cause changes in immunity that makes them more susceptible to infection and viruses. These environments can be stressful not only to residents but also nurses, employees, and visitors. Building orientation can reduce confusion and facilitate wayfinding which reduces stress and can improve the quality of life of a resident. The environment should stabilize and build the competency of individual residents and help maintain their independence. Some design intentions that helped guide the form of the project include:

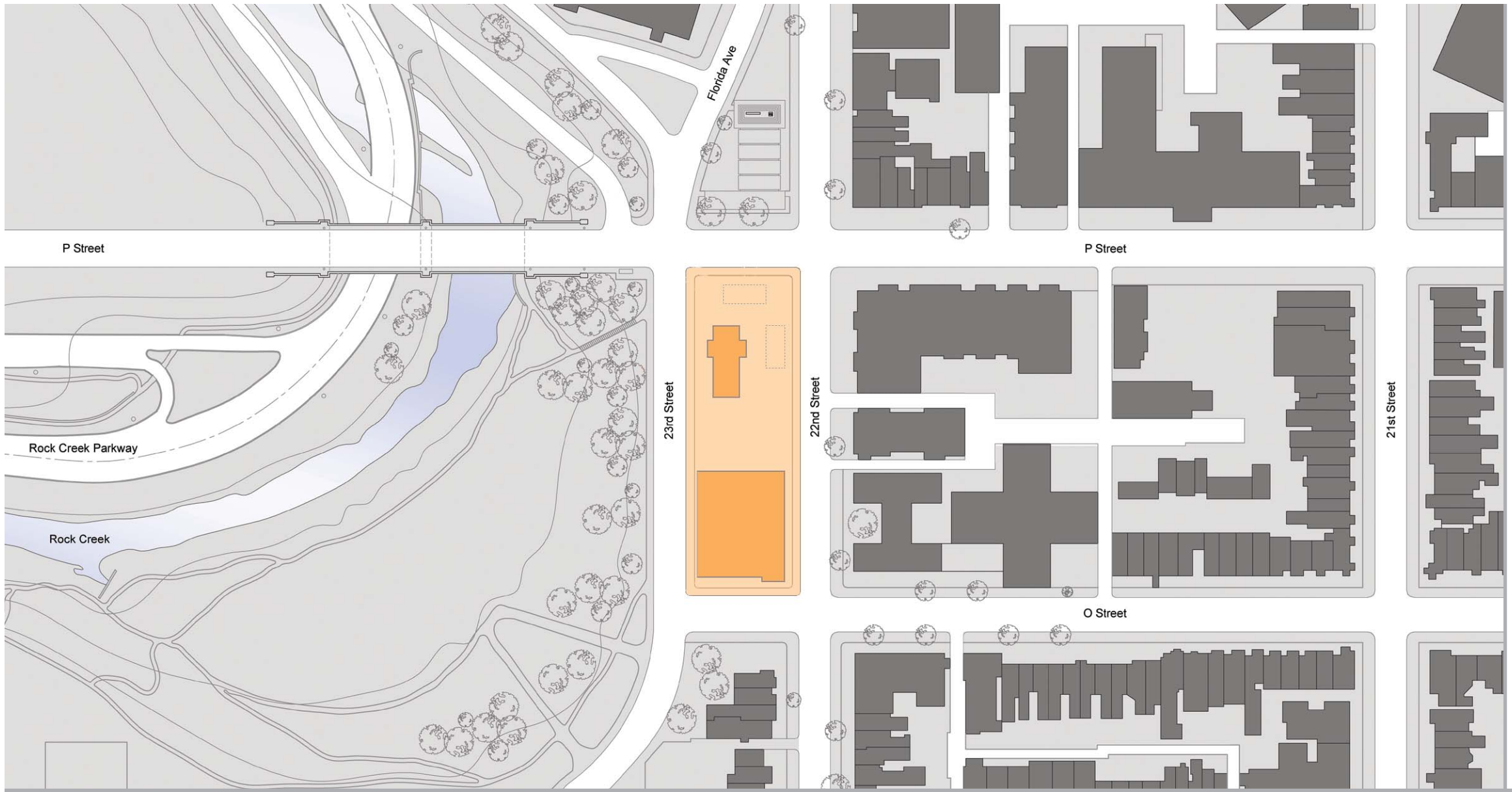
- clear wayfinding
- increase awareness and orientation
- provide mental and physical stimulation
- allow options for private and social interaction
- create a safe environment
- respect independence and privacy
- be able to adapt to changing needs
- provide access to nature
- maximize daylight, minimize glare

approach & idea



The site is located at 23rd and P Streets in Northwest Washington, D.C. Blocks to the north, east, and south follow the urban fabric of the City. North of the site is a small park. To the west is where Rock Creek Park cuts the grid of the city. The park winds along the creek and under a series of arched bridges. The parkway has long served as both a recreation area for local residents and an attractive commuter route linking downtown Washington with its northwest suburbs.

context / site
aerial



The current site is home to a gas station and an old office building that is being renovated into private residences. The site encompasses a whole block which allows it to receive abundant light. The quality of light and access to nature makes this site ideal for trying to create a therapeutic environment within the city.



context / site
plan



context / site
photographs

WEST

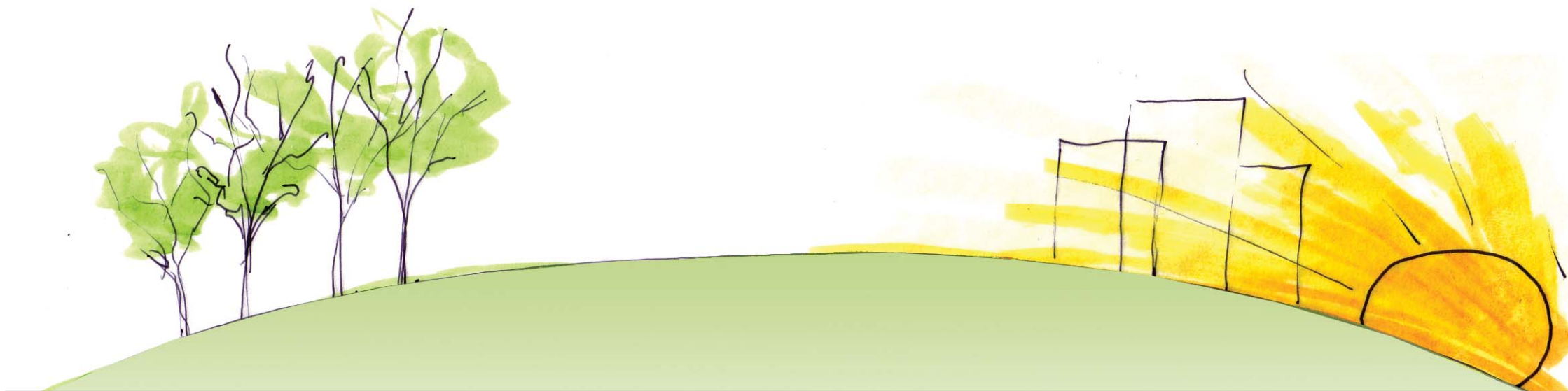
views of nature
evening sun

residents rooms
offices
meeting rooms
physical therapy rooms
adult day care
child day care
roof gardens

EAST

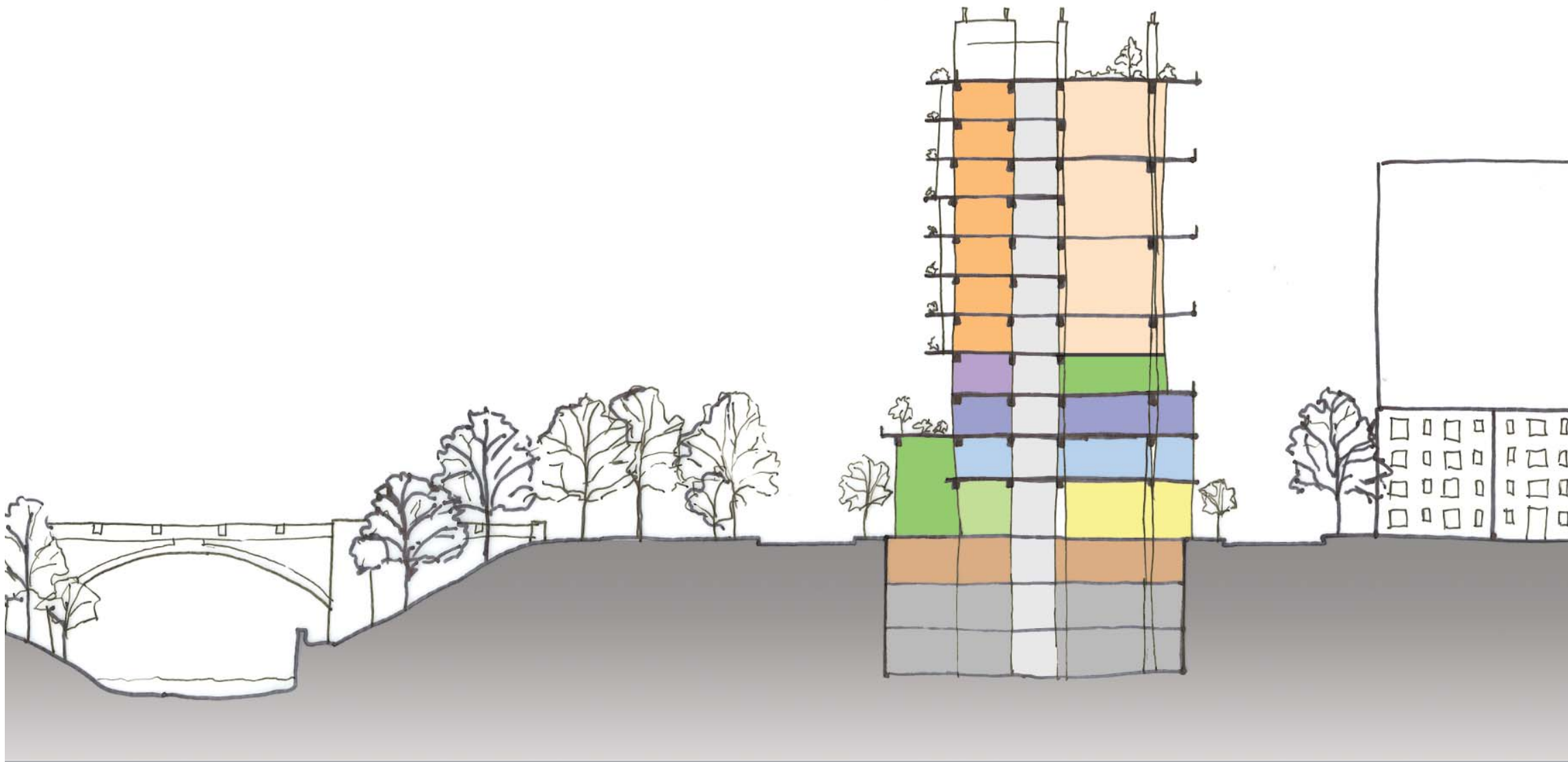
views of city
morning sun













resident's living spaces
bathing rooms
nurse stations
resident floors outdoor space
retail spaces
aquatic therapy room
adult day care
child day care
roof gardens



The site is long and narrow. It runs north to south which makes the majority of the exterior walls face either west or east. This east / west divide helped to guide the design and program for the building. I researched the routines of residents of similar care centers to understand which spaces they occupied at different times of day. Morning light can be one of the most beneficial qualities in trying to create a therapeutic space. I found that bathing rooms and dining rooms received the most use in the morning. So these functions were placed on the east side of the building to receive the maximum morning light. The private rooms were designed to face west to give each resident views of Rock Creek Park. This access to nature can make a significant difference in the quality of life of a resident.

program



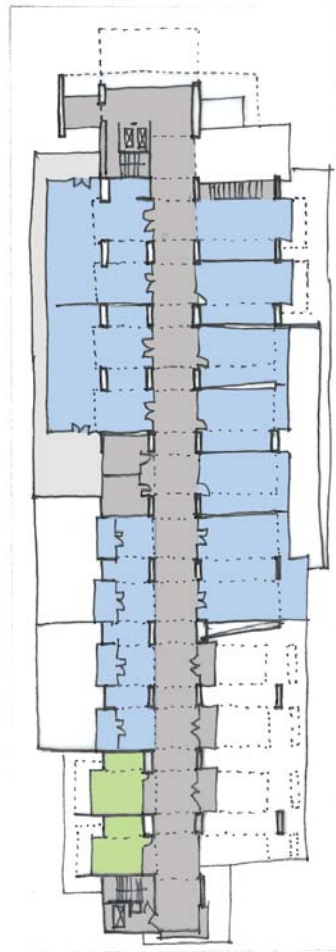
- | | |
|--|---|
|  retail |  adult day care |
|  offices |  residents rooms |
|  multipurpose rooms |  living spaces |
|  staff / nurse area |  parking |
|  recreation / therapy |  circulation |
|  child day care |  kitchen / laundry |

Throughout the design process the program and organizations of the building did not change significantly. Once I determined the site I developed the program for the building. The main focus of this building is a therapeutic residential environment for people with dementia or Alzheimer's disease. The residence floors take up the upper 7 floors of the building. The other floors service the residents and the community as well. The first floor has retail spaces for shops, restaurants, coffee shops, and similar functions. These spaces provide places for residents and family members to get away to, but remain close at the same time. The first floor also has offices, meeting / activity rooms and the aquatic therapy pool.

program
p street



first floor












second floor



third floor

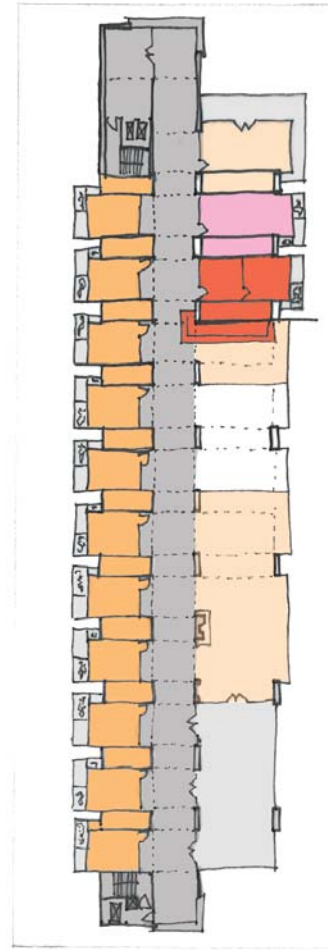


fourth floor

- | | | | |
|---|----------------------|---|----------------|
|  | retail |  | adult day care |
|  | offices |  | circulation |
|  | multipurpose rooms |  | outdoor spaces |
|  | staff / nurse area | | |
|  | recreation / therapy | | |
|  | child day care | | |

The building also offers child care and adult day care. Having inter-generational care can have a positive effect on both age groups. It is also a good way to bring life into the building. The child day care is for age groups ranging from infants to after school care. Children can participate in activities and share spaces with residents and the adult day care group. The adult day care is offered as an option that will encourage families to keep their loved ones at home. It provides meals, adult education classes, health screening, and activities for the elderly or disabled.

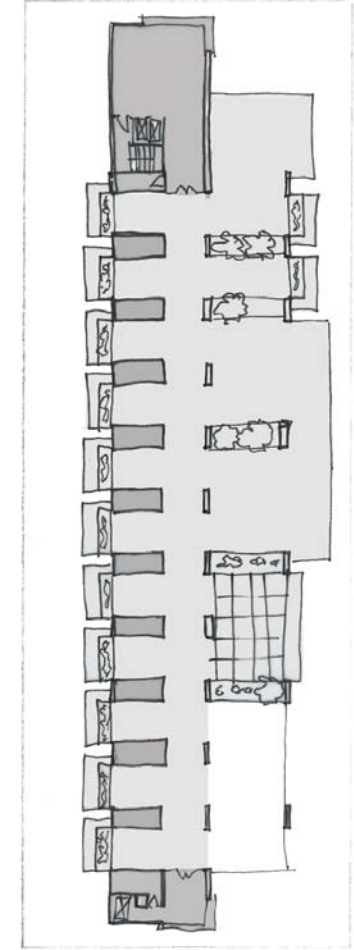
program



5th, 7th, 9th, 11th floor



6th, 8th, 10th floor

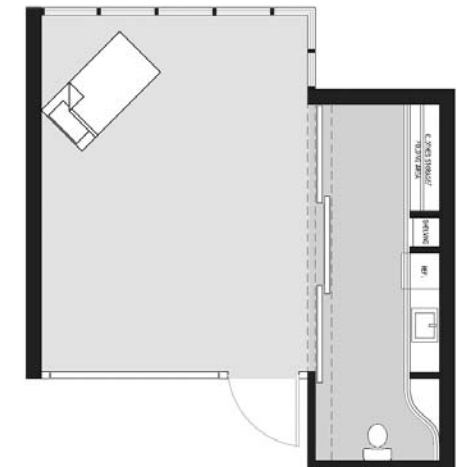
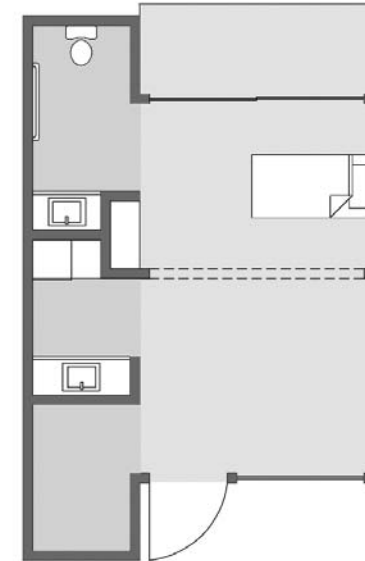
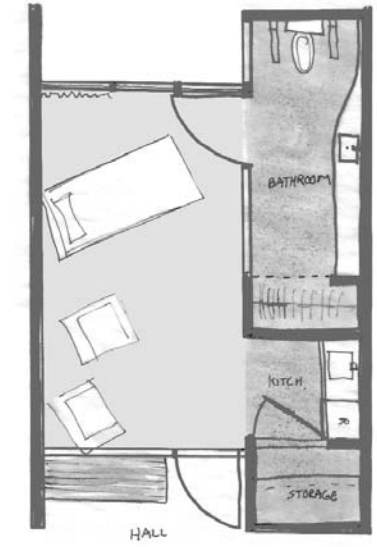
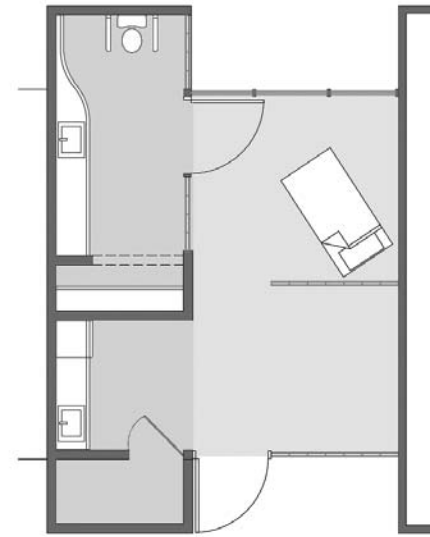
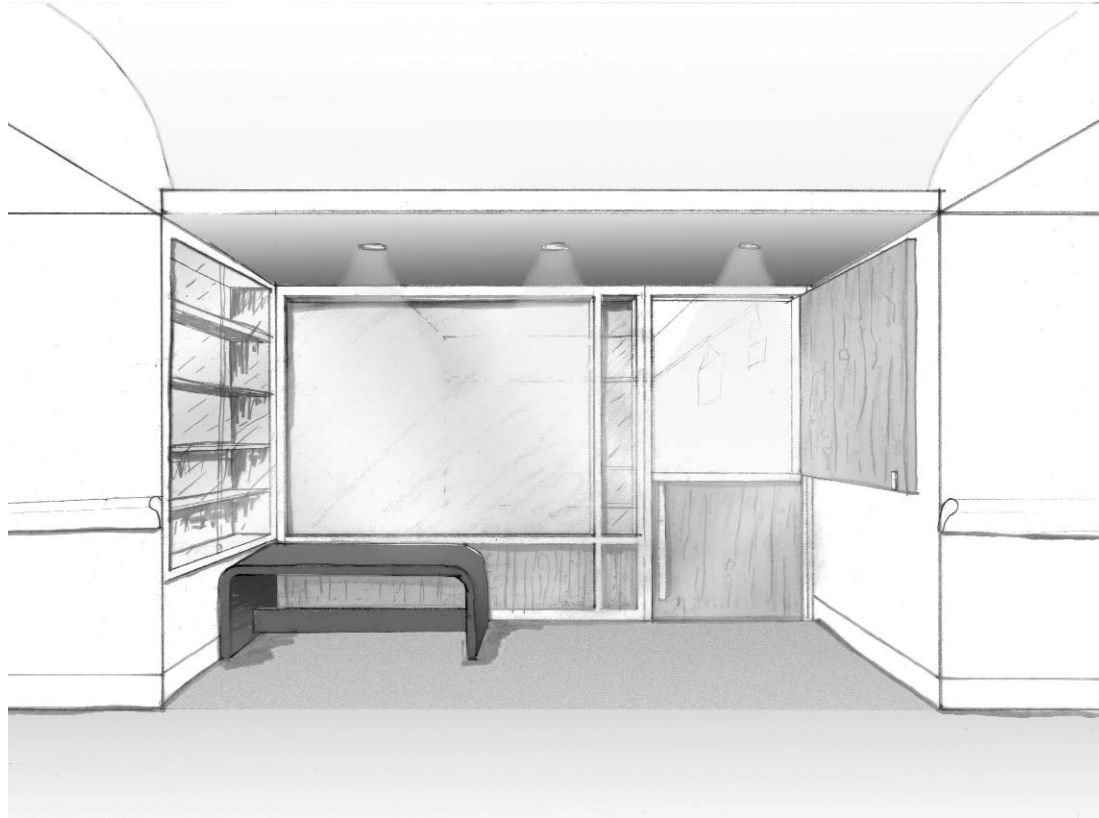


roof garden

- staff / nurse area
- bathing room
- residents rooms
- living spaces
- circulation
- outdoor spaces

The residence floors occupy most of the building. There are single and double rooms for elderly residents. Spaces can accommodate residents from independent living, to those in severe stages of dementia and Alzheimer's disease. Each resident floor groups 11-15 residents. The nursing staff can be shifted as the needs of each living cluster change.

program



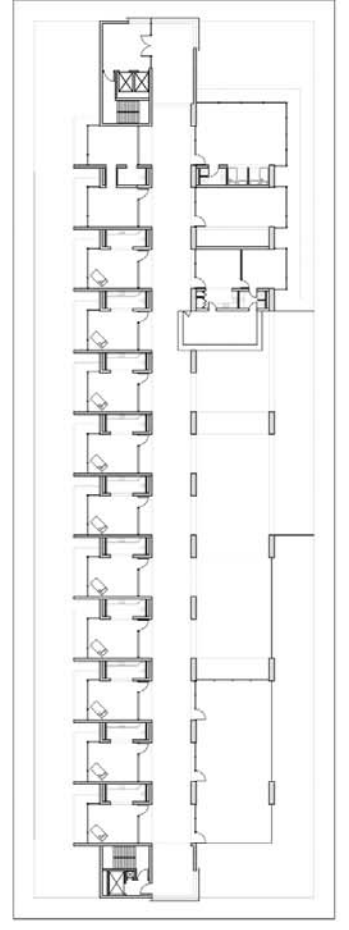
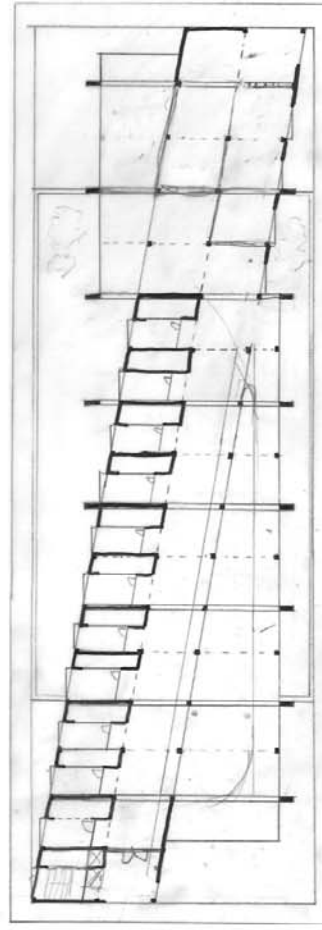
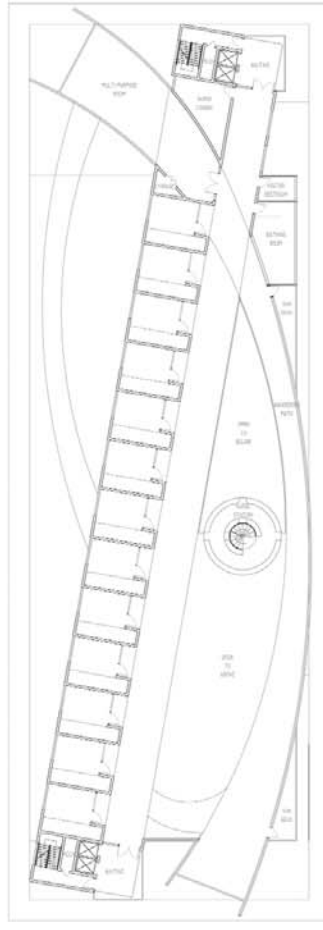
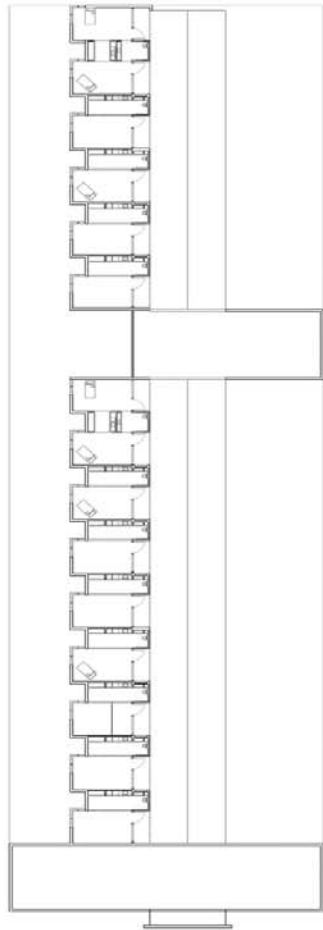
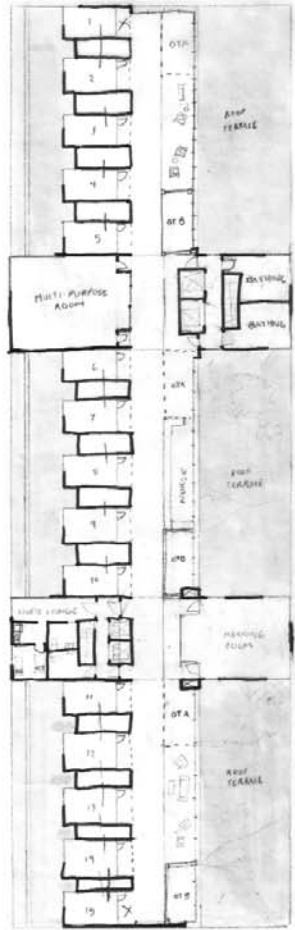
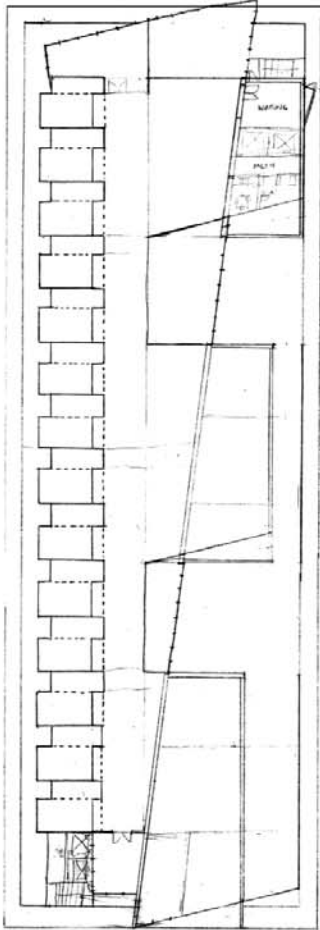
The design process began with the individual room. This is the place where a resident spends most of his or her time. I wanted to create a therapeutic environment that is designed specifically for a person with dementia or Alzheimer's disease. Throughout my thesis the room has evolved significantly but still maintained some of my earlier design intentions. The front porch idea was something that I wanted to include when I began to research this topic. The ability to control the natural light and still maintain the view of nature was also an important aspect to the room design.

process
single room

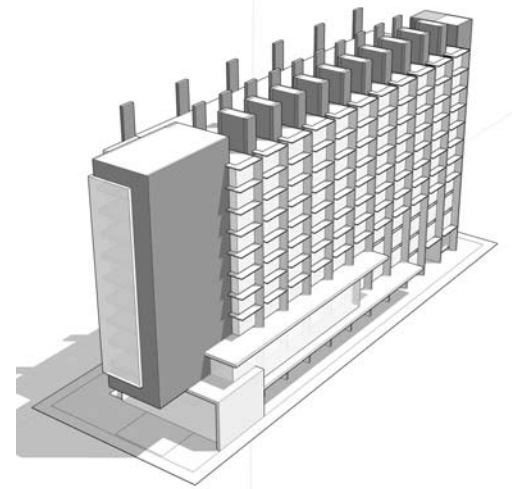
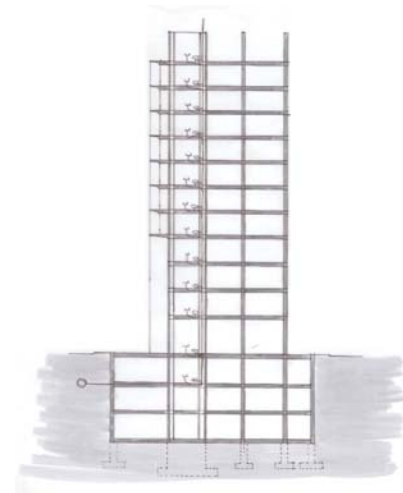
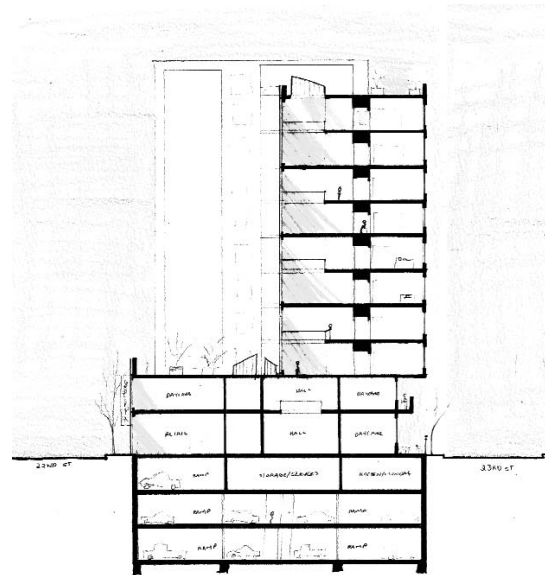
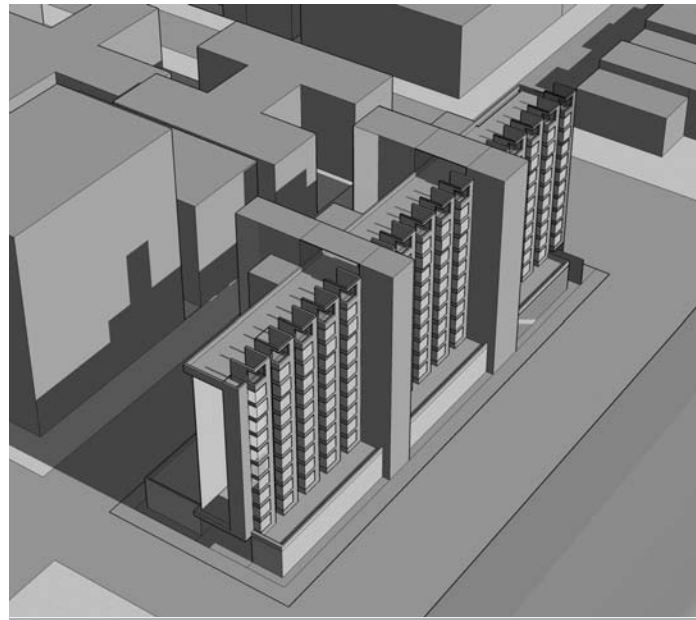
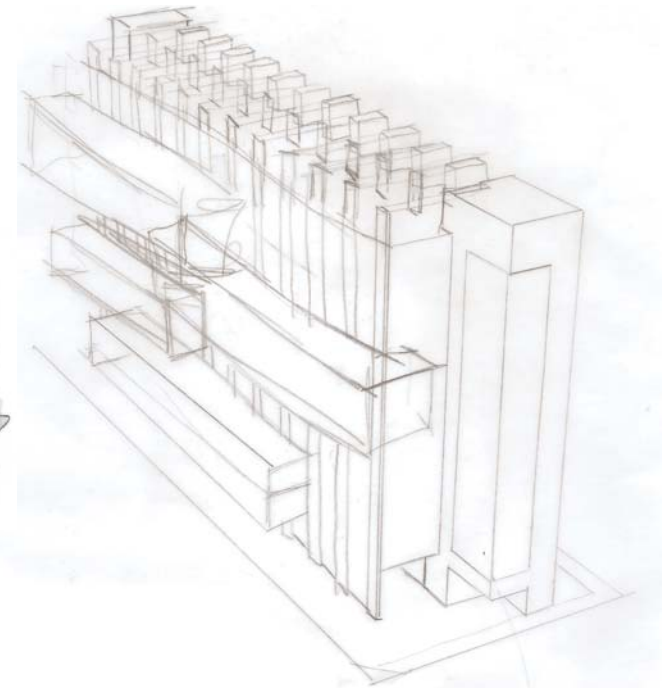
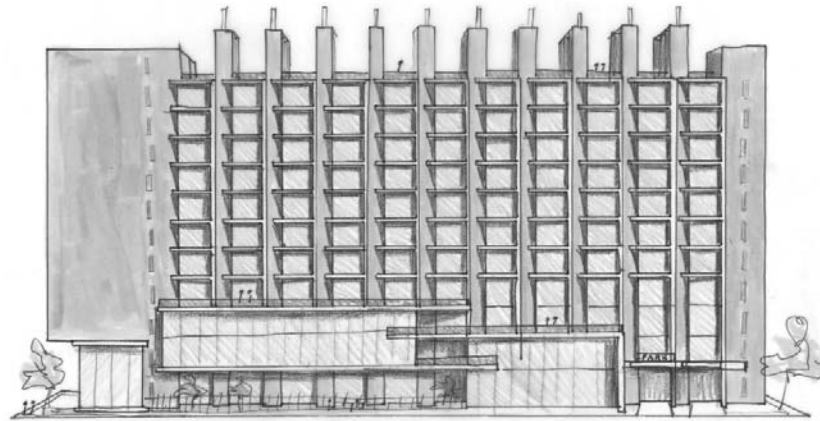
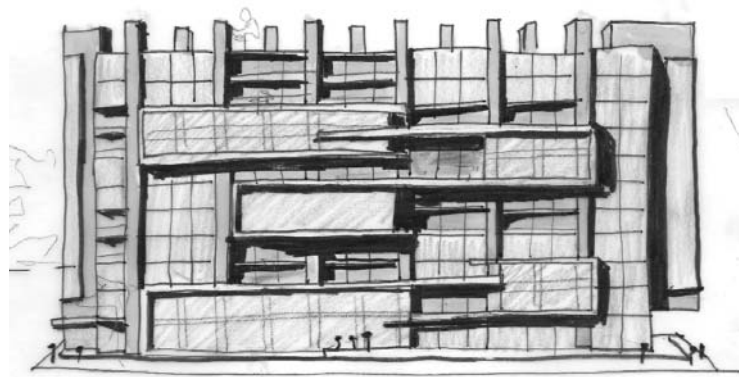


The early program and room design are evident in most of the schemes for the building design. I tried to accomplish all my original desires to have the rooms face west, the living areas face east. I wanted the circulation to run along the center of the building but to still allow it to have access to natural light and to create an open feel.

process
residence floors

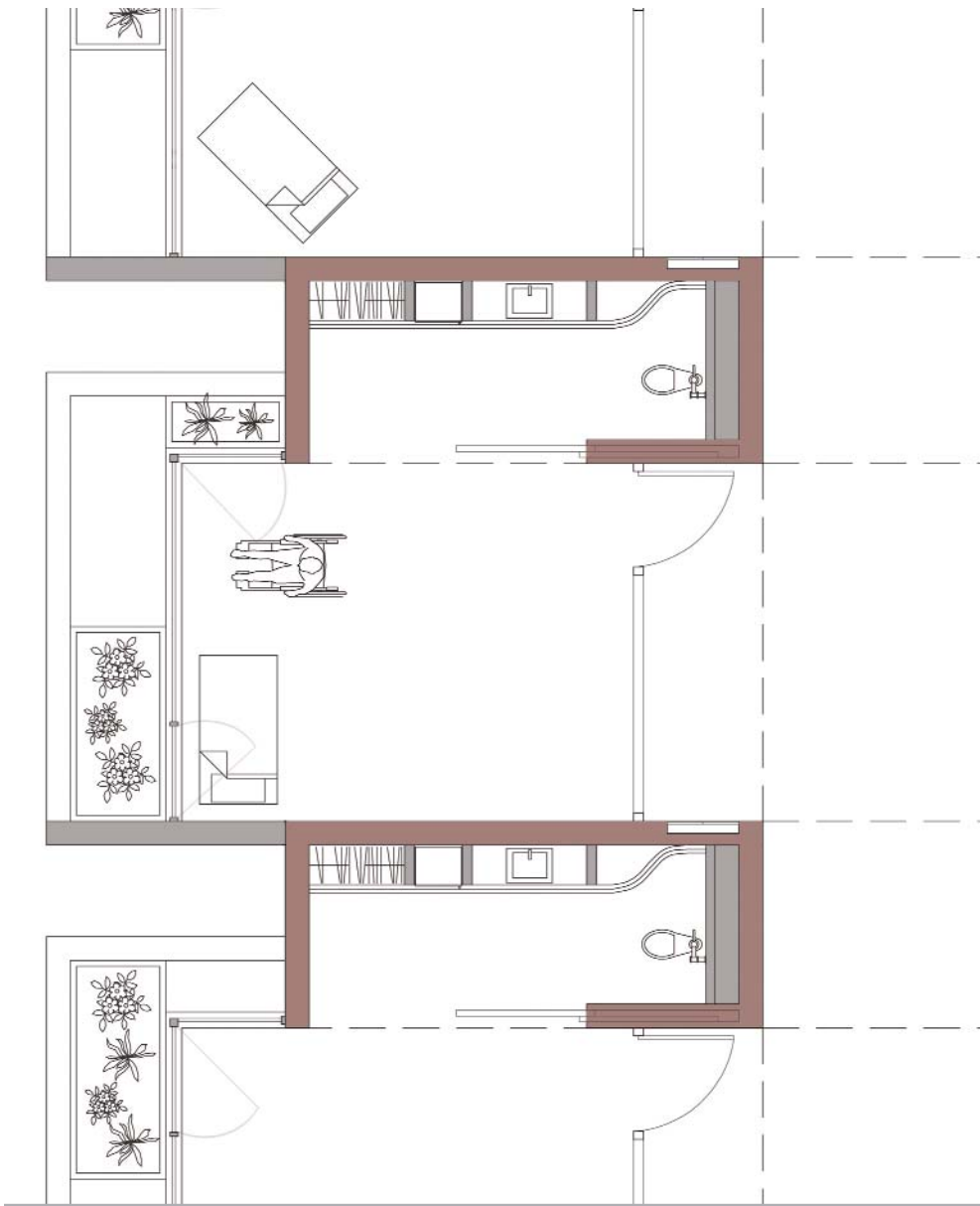


process
residence floors



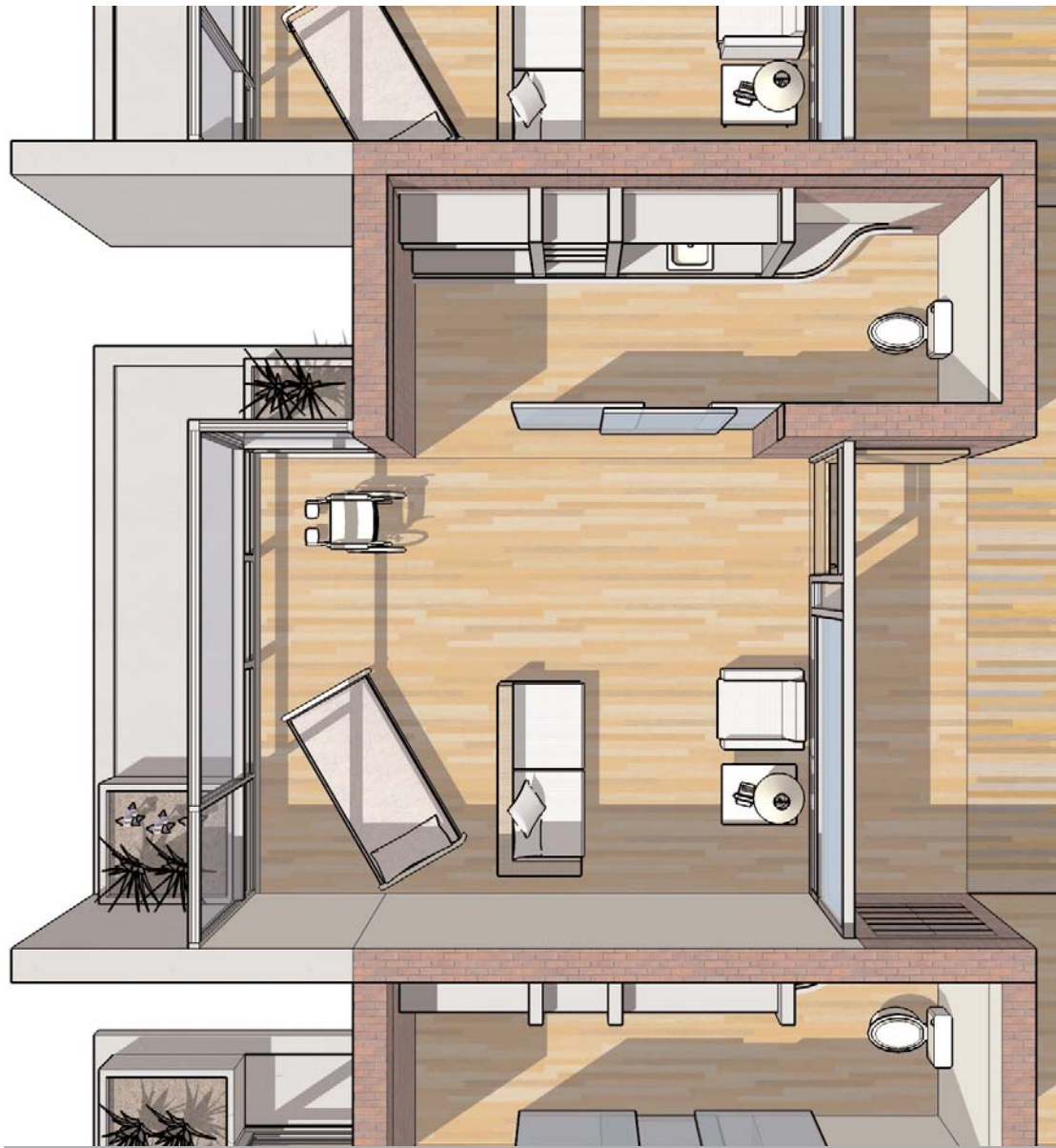
development

process



The residence room is designed to be an environment that can accommodate a resident at any stage of dementia. The main living space is an open flexible studio that allows furniture placement to change with each resident. The bathroom / changing area is sperate by sliding panels that can be closed completely or pushed away so that all the functions of the space are visible to the resident. This can be very important to a person with dementia. They may not remember or realize that there is something behind the closed doors. So having the toilet and sink be visible it can help prevent incontinence and promote self care.

single room
plan

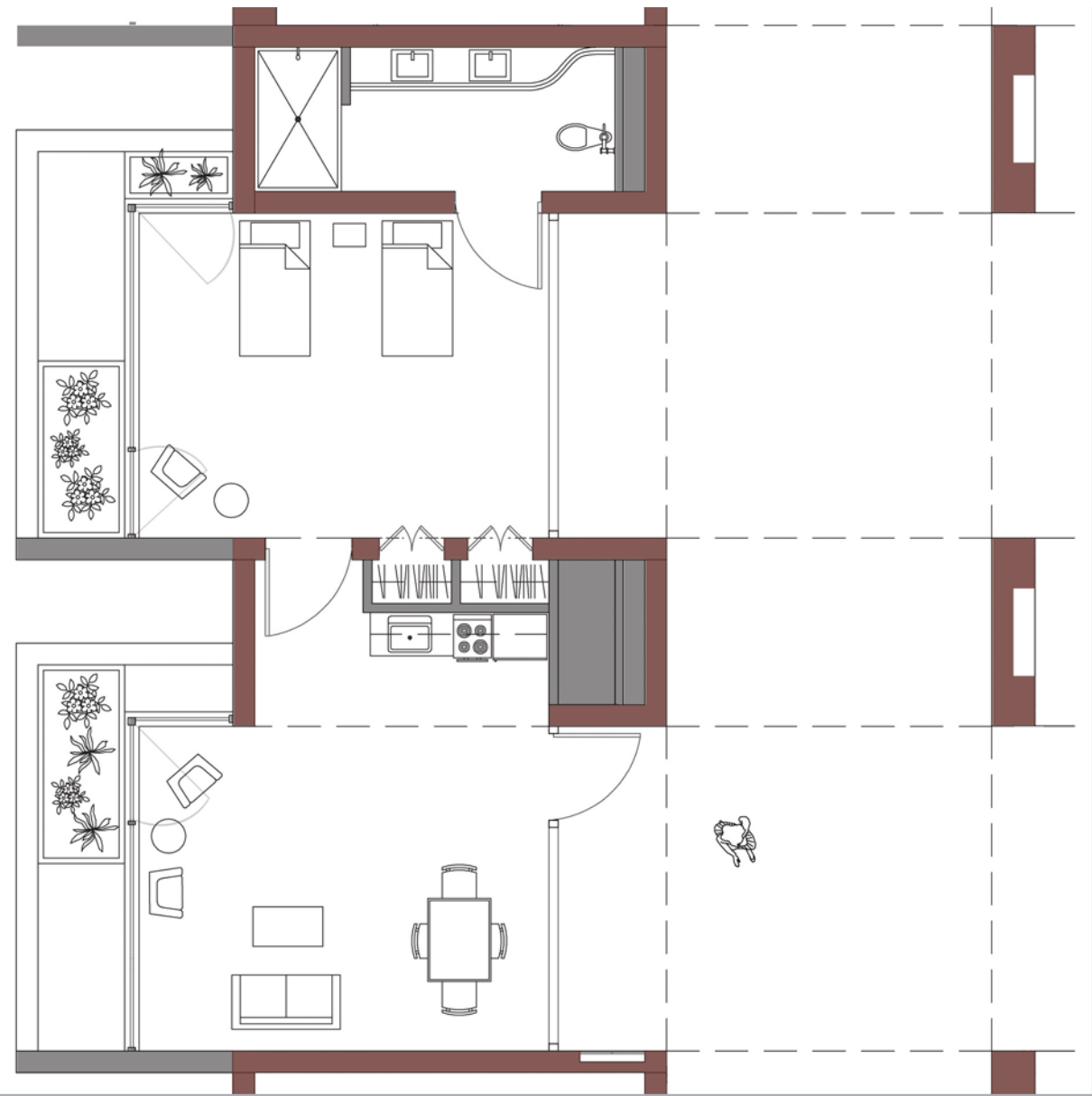


Residents in the later stages of dementia and Alzheimer's disease will begin to spend more time in their beds as their mobility decreases. I wanted to do something more to the ceiling than just suspended tiles and florescent lighting. There are a series of floating panels that are stretched canvas, acrylic, and painted drywall. They give depth to the ceiling plane as well as diffusing the artificial lighting to prevent unwanted glare. As we age our sensitivity to glare changes and it makes it more difficult to focus in changing light levels.

single room
reflected ceiling plan

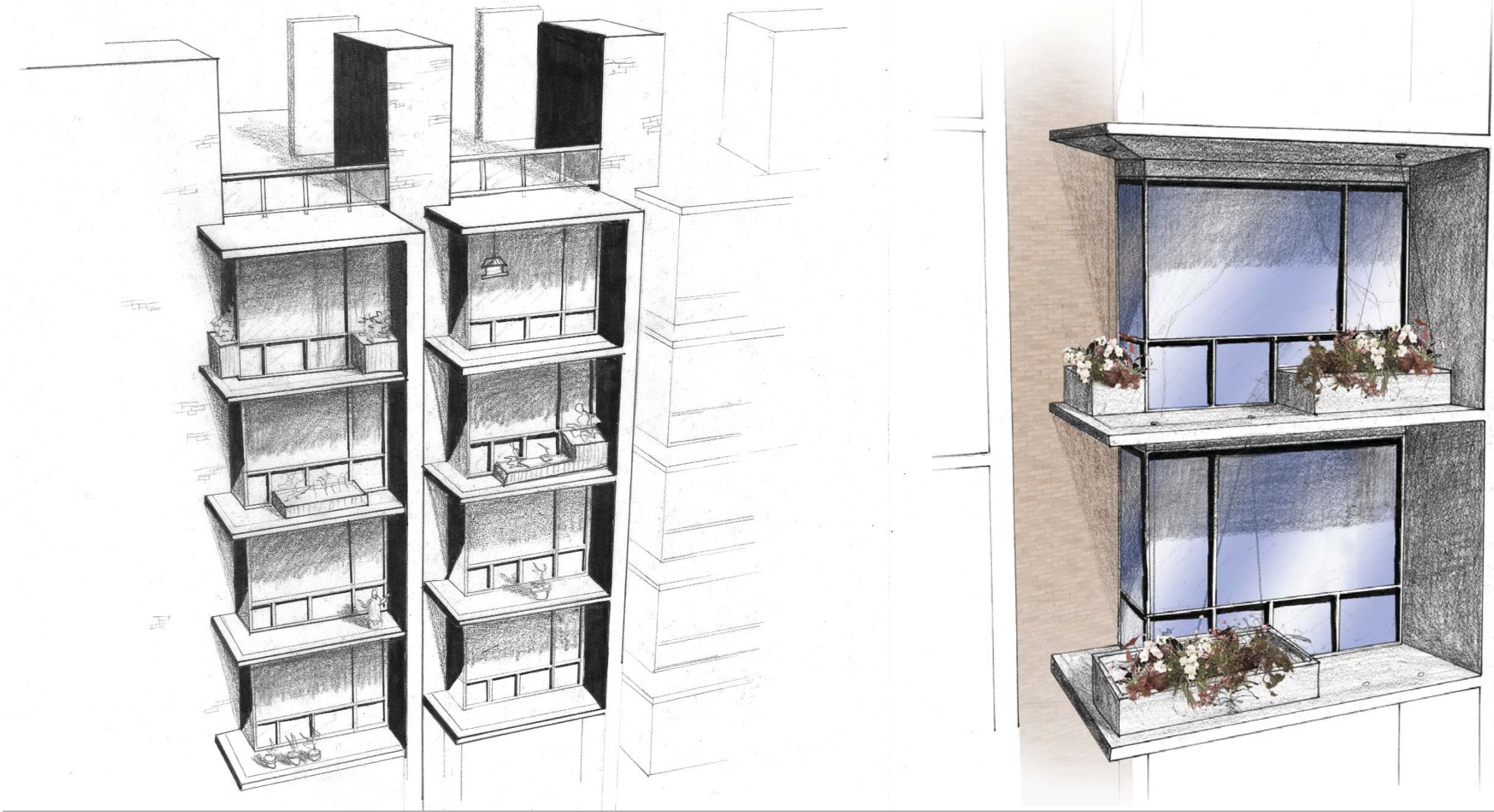


single room
section



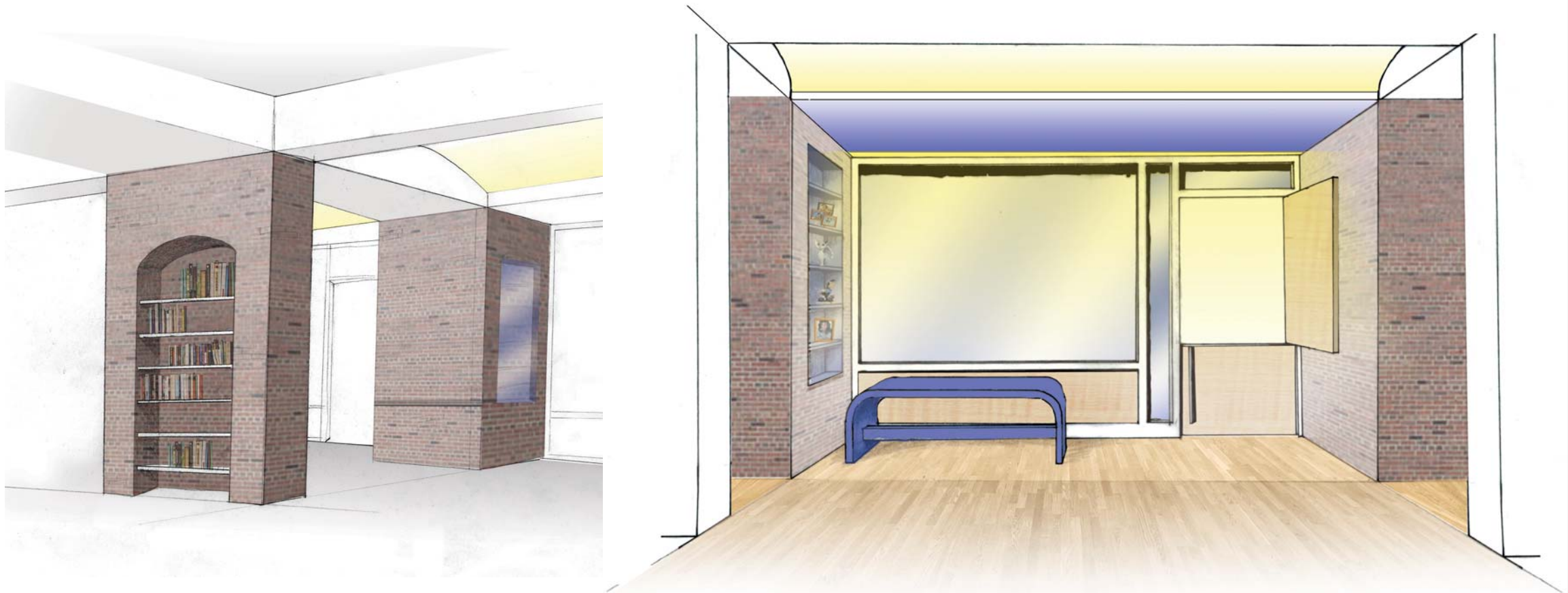
Each floor has a double room or suite that can be used for a person in early stages of dementia or for related patients who want to share a room. The space is similar the single room but provides a little more privacy to the residents. It is similar to an apartment that has its own kitchen and full bathroom and private bedroom. It is a good transition space for a resident who may need assistance from a nurse but is still very independent.

double room / suite
plan



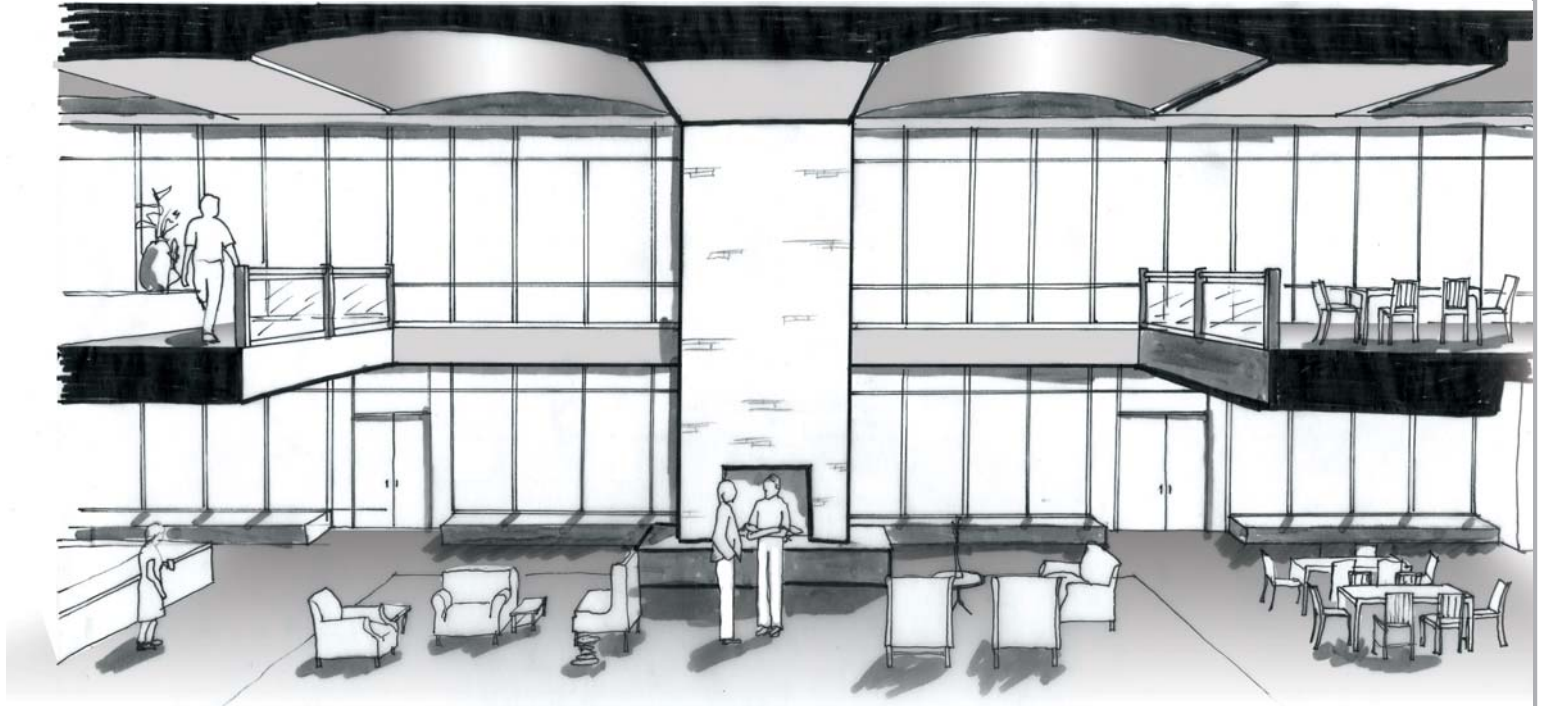
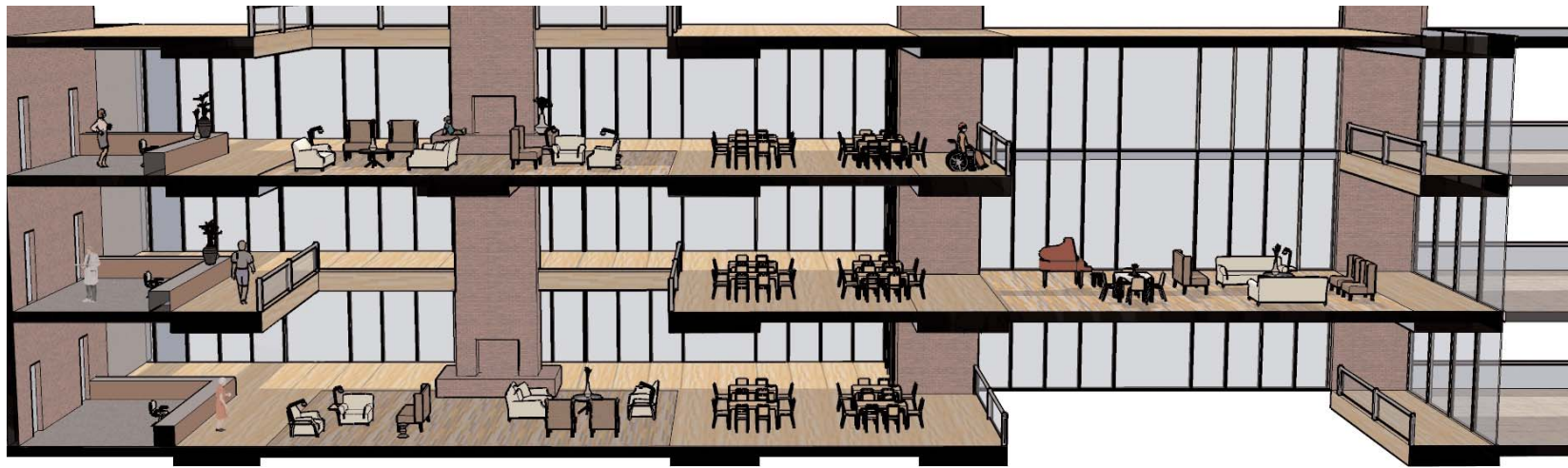
Each residence floor has one large open outdoor space off of the main living area for residents to use. The outdoor area is easily observed by the nursing staff. I wanted to have some kind of outdoor connection with each private room as well. But the private rooms need to be a place where the resident can be alone and be safe at the same time. An accessible balcony was not an option for the private rooms. Instead a planting area was provided to allow the residents and family a place to garden. The planters are accessible from two swinging windows that open to allow a person to reach the planters standing as well as sitting. It allows each resident and visitors to personalize each space. The concrete planting area also functions as a shading device for the floor below. It controls the light but still allows full views of the park below.

window detail



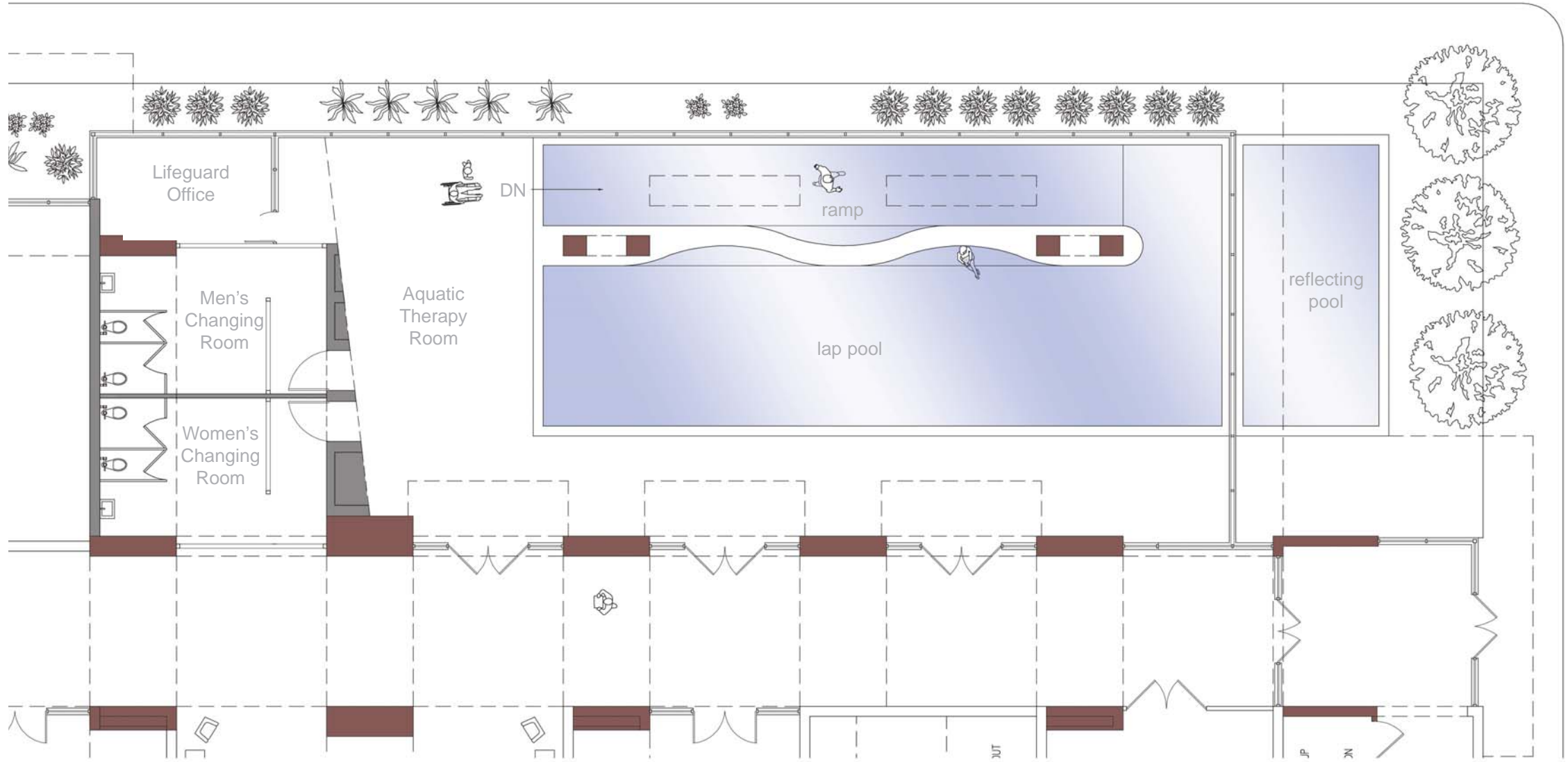
Double loaded corridors can be disorienting to a person with dementia. Clear wayfinding is an important way to reduce stress among residents. The main hall in the residence floor has private rooms lining one side while the other is open to the living space. Corridors are designed to simulate a street. Each room has a small seating area that acts as a front porch for the residents. There is a display case to emphasize each person's separate space and individuality. This area acts as a transition space which allows residents to gradually enter social situations in the main living areas. A "dutch"-door is used to allow the staff to constantly supervise without hovering. It also allows the resident a sense of privacy and to keep unwanted residents from wandering into their room.

residence hallway



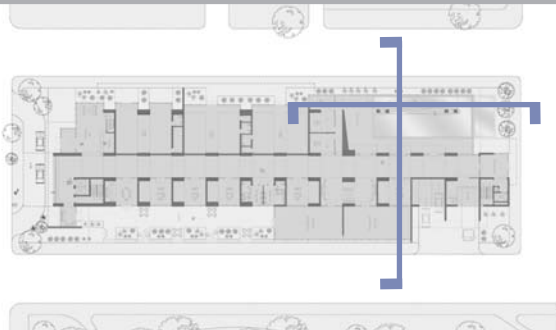
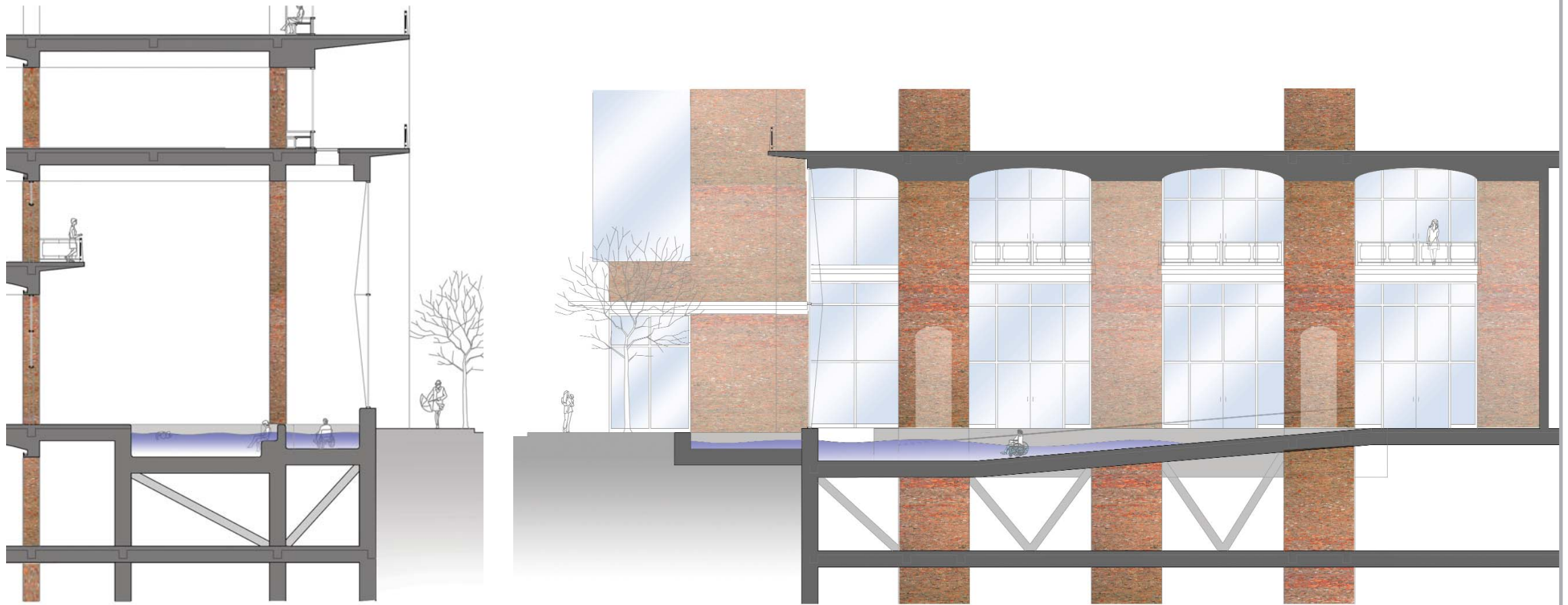
Each residence floor has an open living and dining space off of the main corridor. These spaces face east to get maximum morning light. There are double height spaces that alternate up through the building to allow the interaction between the floor above and below. Open spaces alternate locations every floor so that there is not one large open space the entire height of the building. A large open area can be overwhelming to a person with dementia.

living area
perspectives



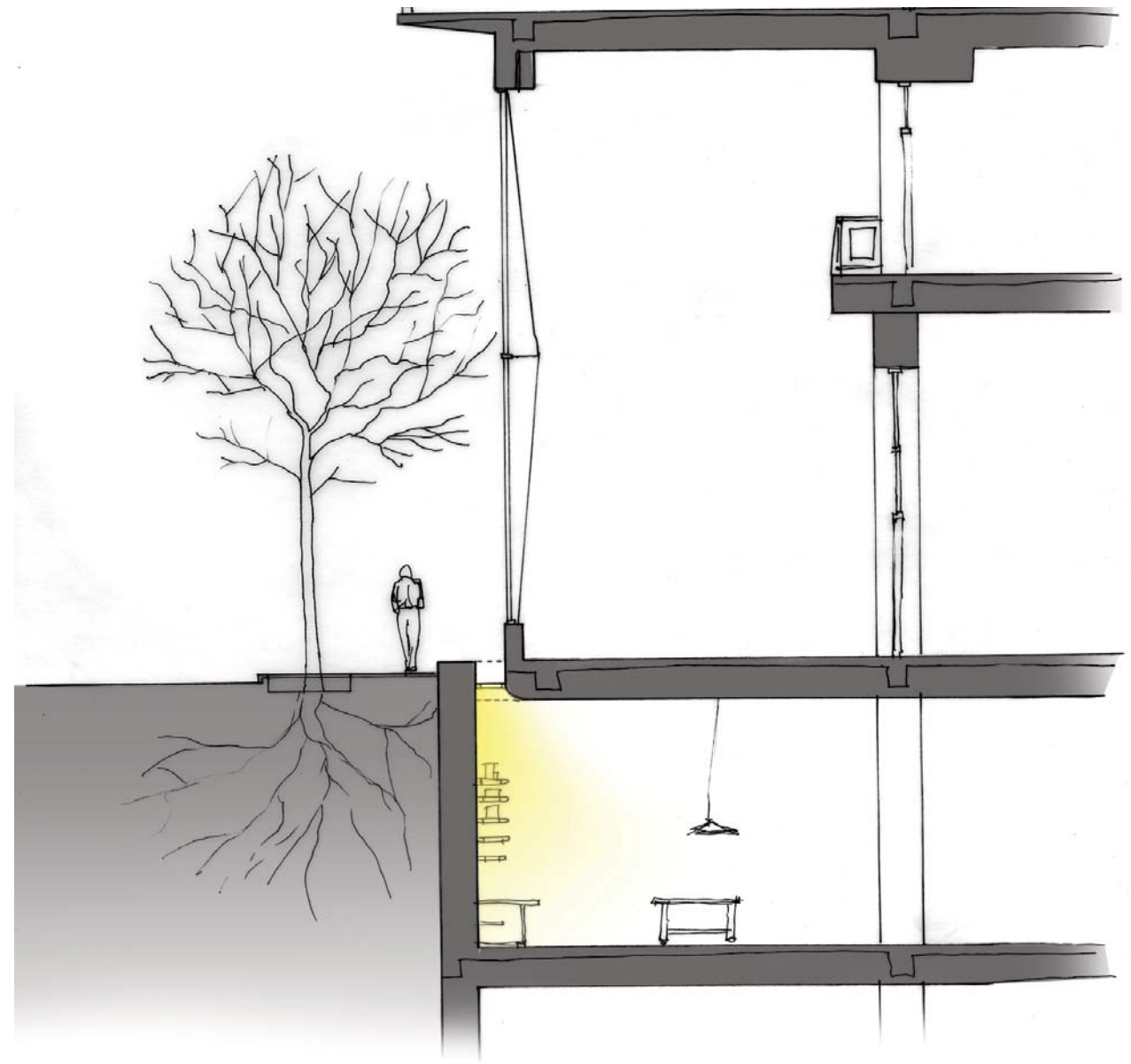
There is a pool on the first floor for aquatic therapy as well as recreation. It is handicapped-accessible to accommodate all residents and their varying mobility difficulties. The ramp provides easy access for children, older people, and wheelchair users. The scissor wall that divides the ramp from the lap area is low and curves to create a safe transition between the two areas of the pool. The wall provides seating niches for occupants to rest during physical therapy sessions and while entering and exiting the pool.

aquatic therapy
first floor plan



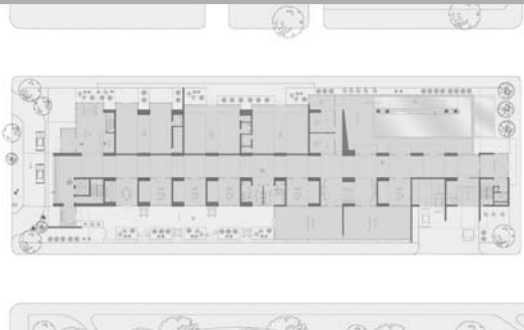
The pool area is a two-story space that has two exterior glazed walls to provide abundant light. Landscaping surrounds the exterior walls to provide privacy and diffuse some of the light. The second floor overlooks the space with three balconies to provide interaction between the different functions of the building. The ceiling has curved vaults to help with the acoustics. The scissor wall acts as a transition between the brick columns that run through the entire building and the pool. There are openings in those columns at ground level to open up the view through out the pool area.

aquatic therapy sections



In the kitchen and laundry areas on the lower level there are light wells that run along the exterior of the building. They wash natural light down the interior wall creating a soft indirect light.

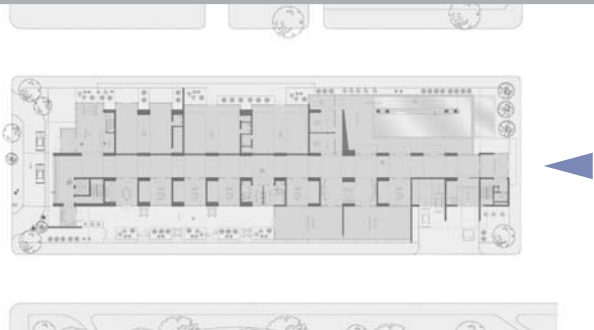
light well
kitchen / laundry rooms



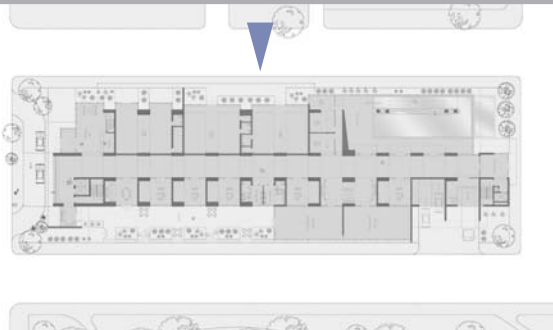
view from p street



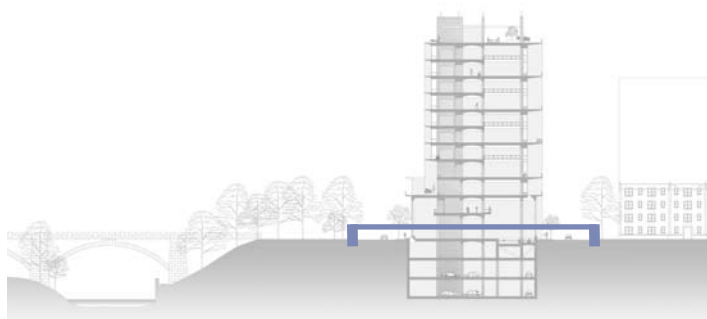
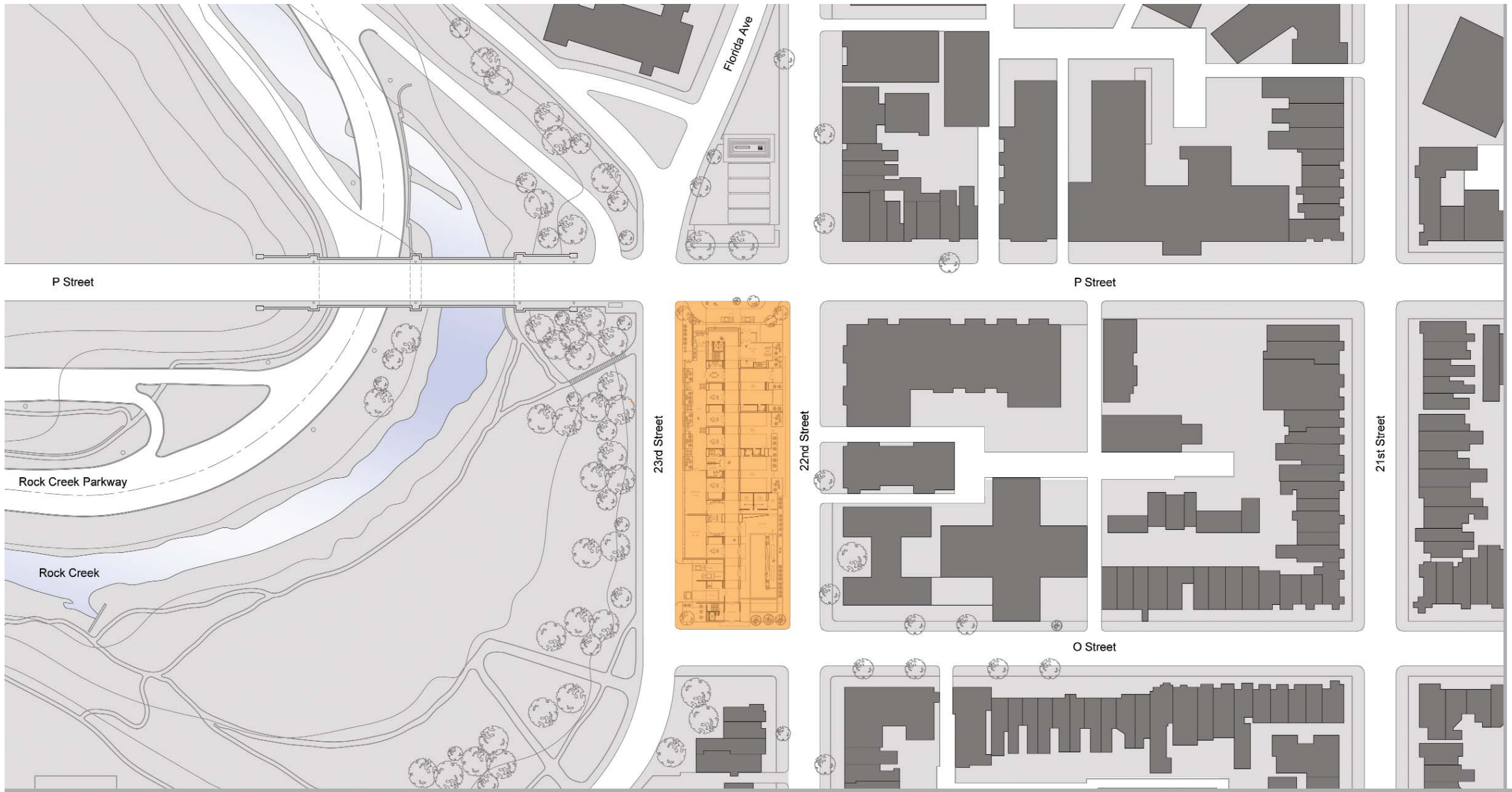
view from 23rd street



view from o street

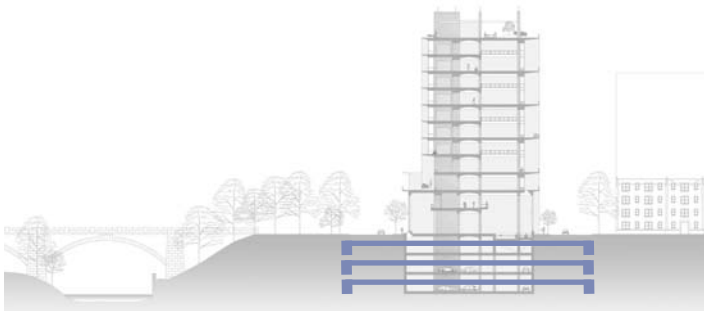
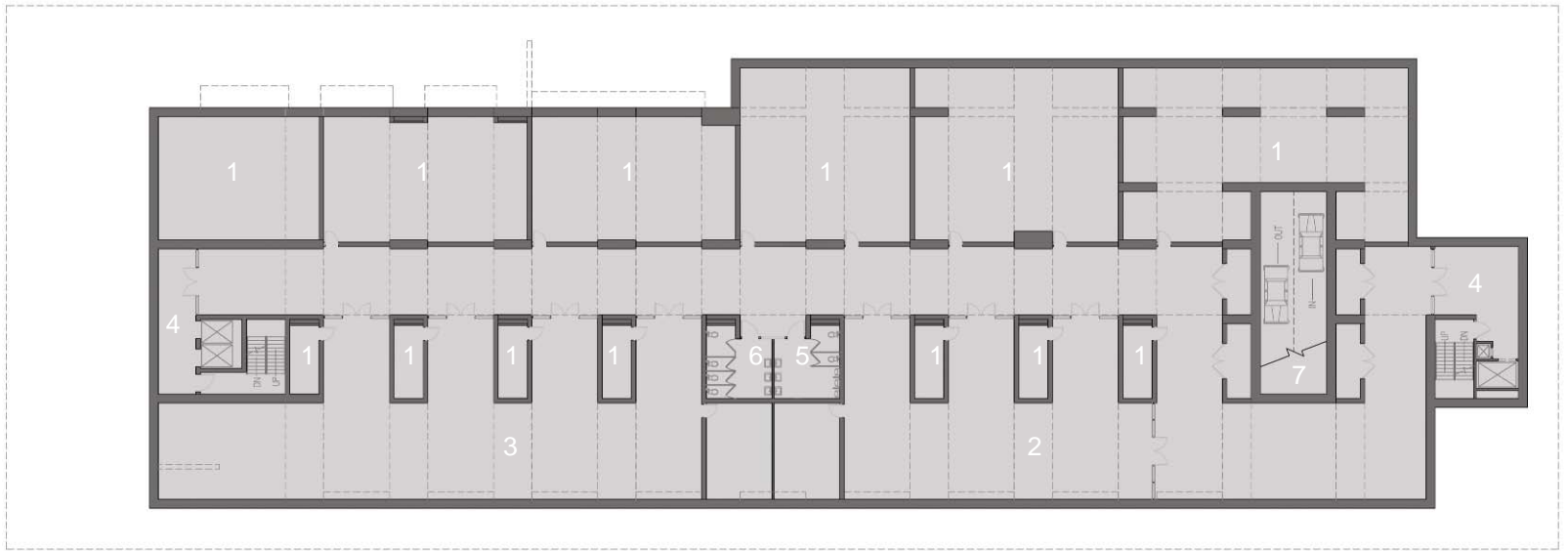


view from 22nd street



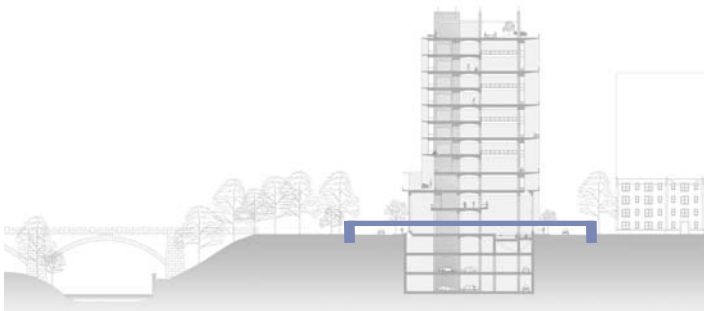
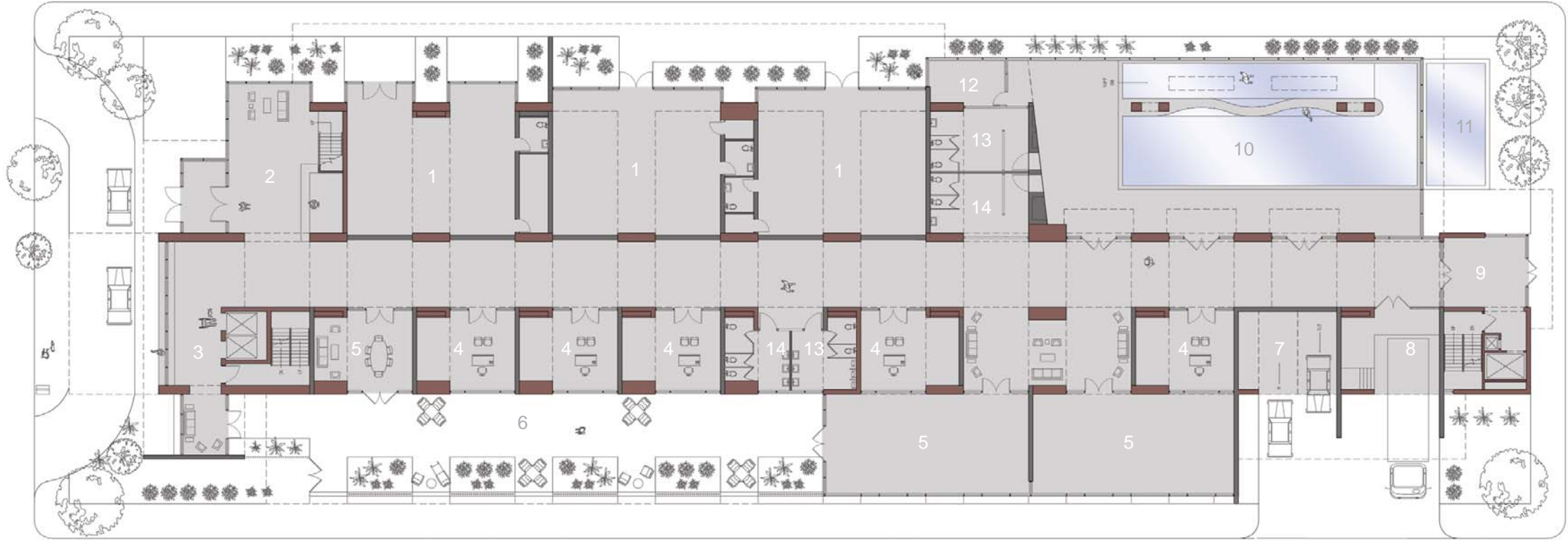
site plan

final design



- legend:
- 1 - Mechanical / Storage
 - 2 - Kitchen
 - 3 - Laundry
 - 4 - Elevator Lobby
 - 5 - Men's Restroom
 - 6 - Women's Restroom
 - 7 - Parking Ramp

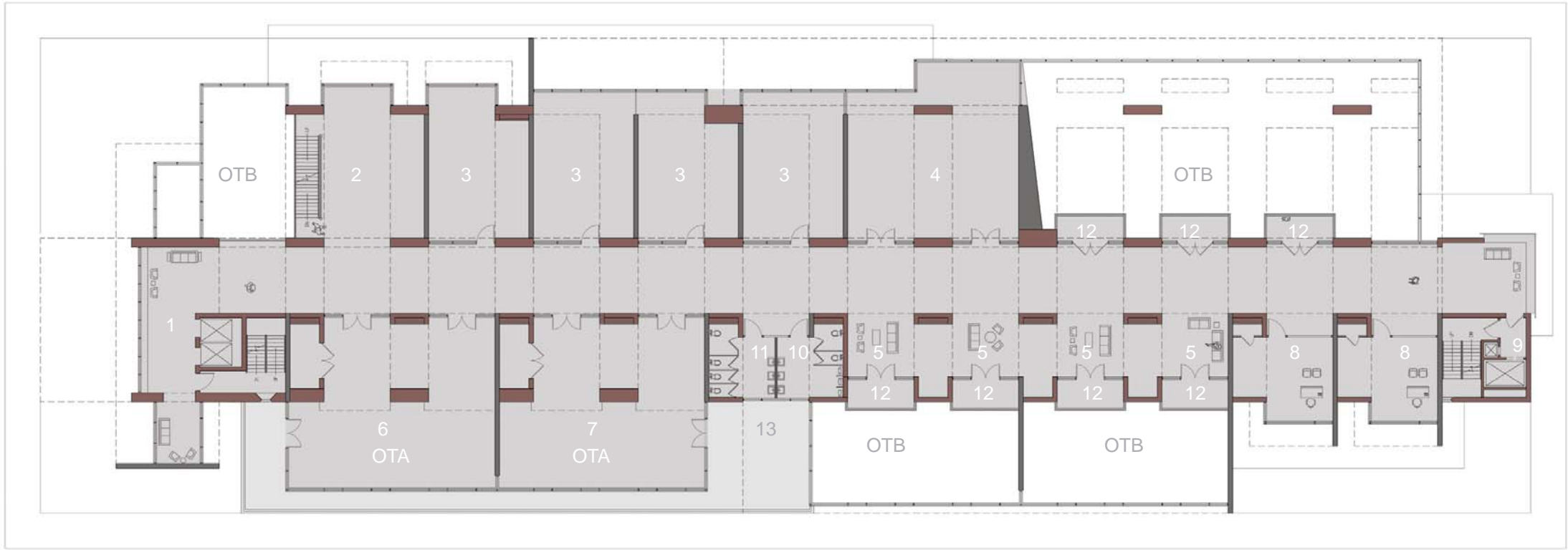
lower level 1
lower level 2 & 3



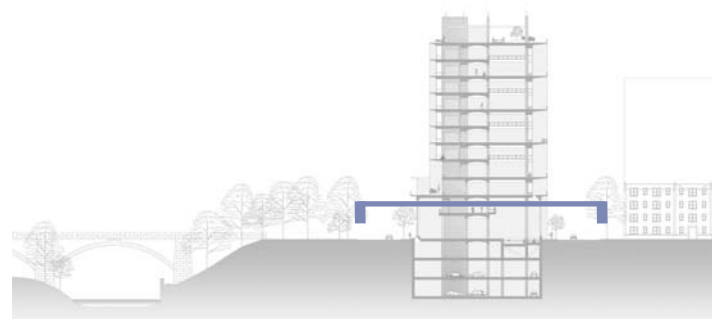
legend:

- 1 - Retail / Commercial
- 2 - Lobby
- 3 - Elevator Lobby
- 4 - Office
- 5 - Meeting Room / Activity Room
- 6 - Garden
- 7 - Parking Access
- 8 - Loading Dock
- 9 - Staff Circulation
- 10 - Aquatic Therapy
- 11 - Reflection Pool
- 12 - Lifeguard Office
- 13 - Men's Restroom
- 14 - Women's Restroom

first floor

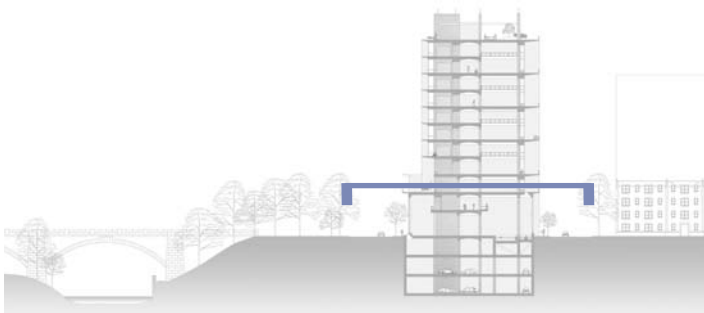
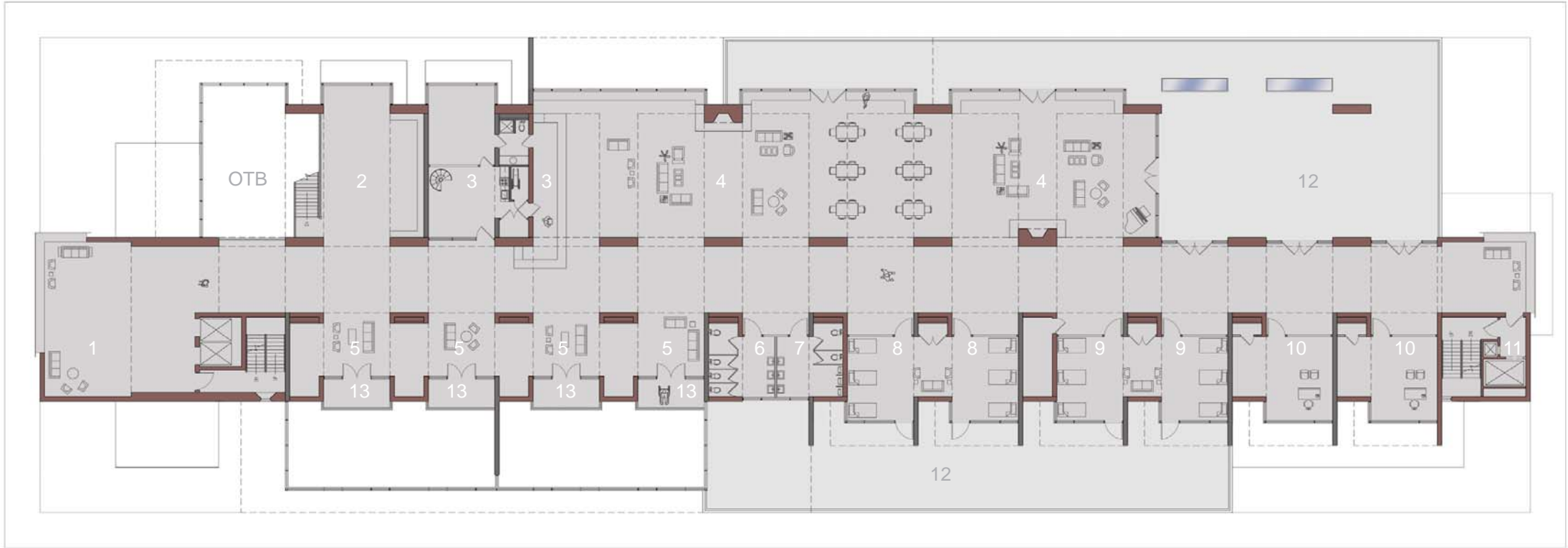


second floor



legend:

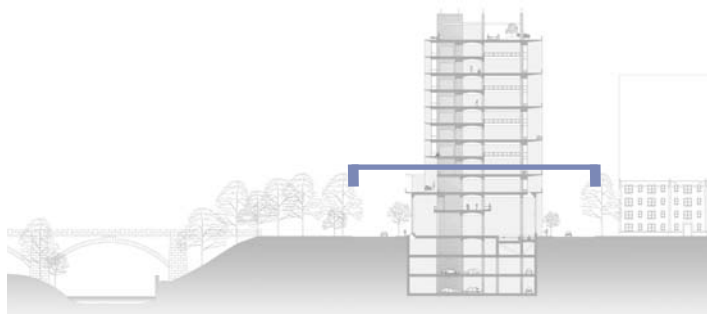
- 1 - Elevator Lobby
- 2 - Library
- 3 - Classroom
- 4 - After-school Room
- 5 - Study Room
- 6 - Art / Music Room
- 7 - Computer Room
- 8 - Office
- 9 - Staff Circulation
- 10 - Boy's Restroom
- 11 - Girls's Restroom
- 12 - Balcony
- 13 - Outdoor Space
- OTB - Open to Below
- OTA - Open to Above



legend:

- 1 - Elevator Lobby
- 2 - Library
- 3 - Nurse / Staff Area
- 4 - Living / Dining Area
- 5 - Lounge
- 6 - Women's Restroom
- 7 - Men's Restroom
- 8 - Women's Resting Area
- 9 - Men's Resting Area
- 10 - Office
- 11 - Staff Circulation
- 12 - Outdoor Space
- 13 - Balcony
- OTB - Open to Below

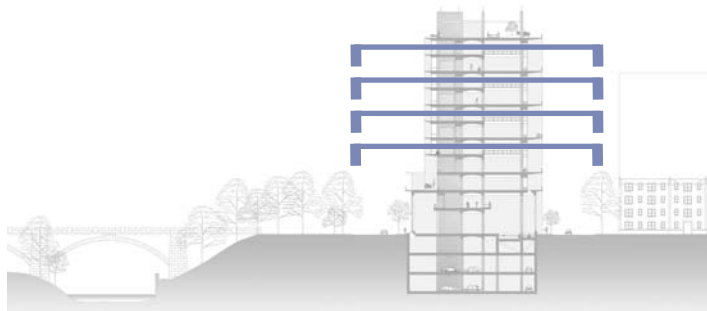
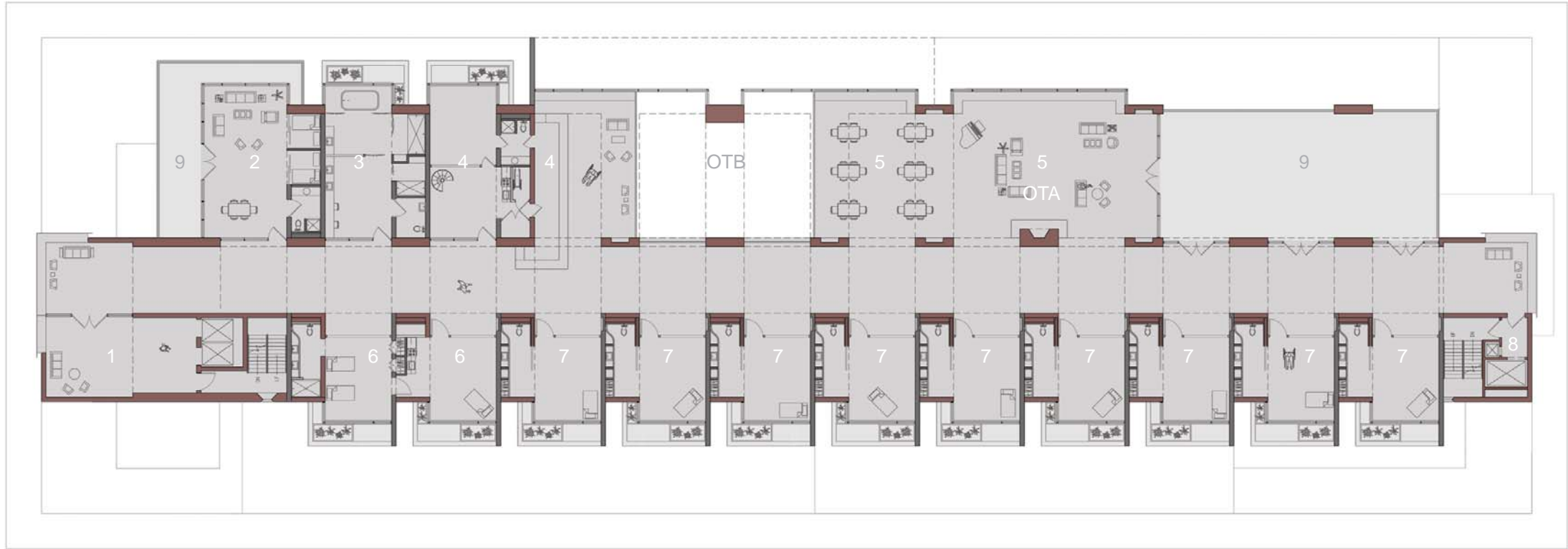
third floor



legend:

- 1 - Elevator Lobby
- 2 - Activity Room
- 3 - Office
- 4 - Lounge
- 5 - Women's Restroom
- 6 - Men's Restroom
- 7 - Physical Therapy Room
- 8 - Staff Circulation
- 9 - Outdoor Space

fourth floor

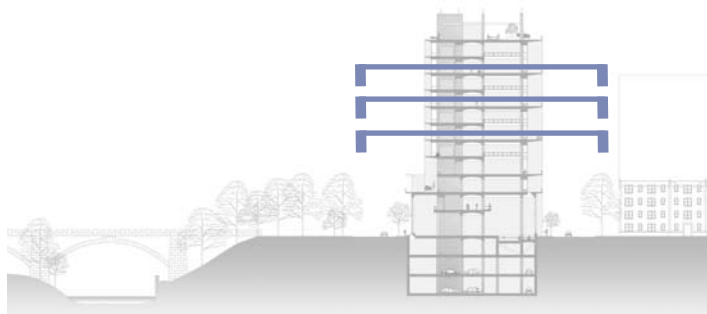


legend:

- 1 - Elevator Lobby
- 2 - Family Room
- 3 - Bathing Room
- 4 - Nurse / Staff Area
- 5 - Dining / Living Area

- 6 - Double Room
- 7 - Single Room
- 8 - Staff Circulation
- 9 - Outdoor Space

5th, 7th, 9th, 11th floor

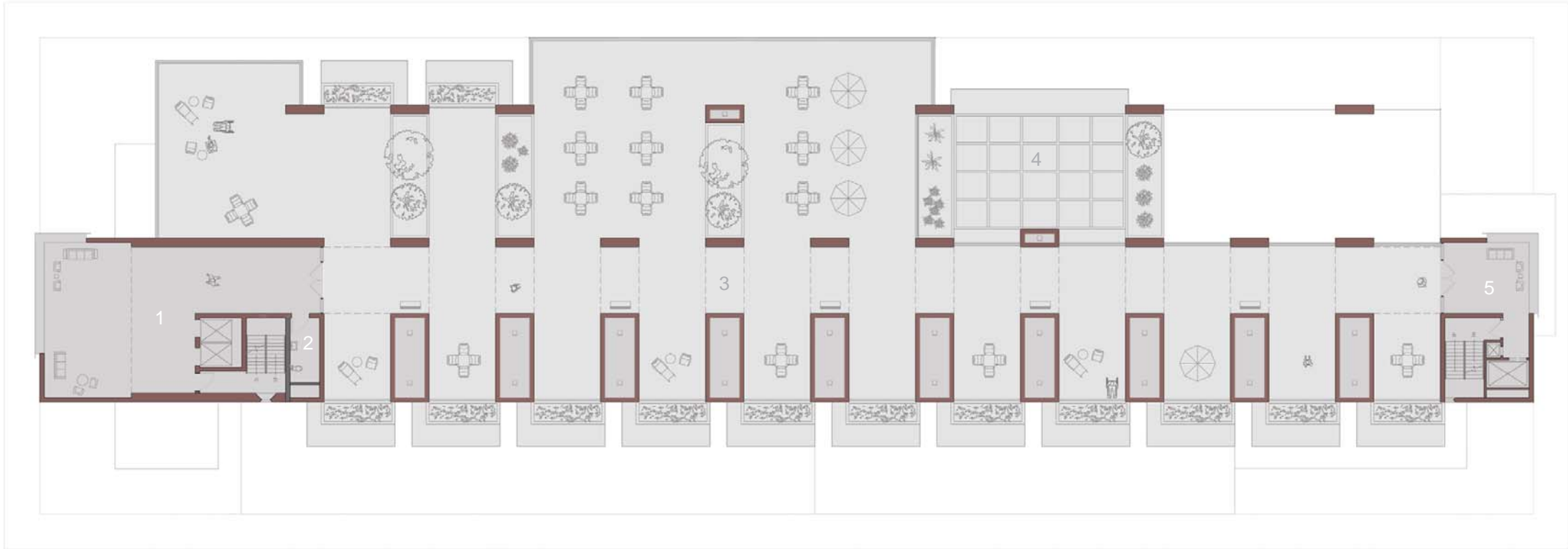


legend:

- 1 - Elevator Lobby
- 2 - Family Room
- 3 - Bathing Room
- 4 - Nurse / Staff Area
- 5 - Dining / Living Area

- 6 - Double Room
- 7 - Single Room
- 8 - Staff Circulation
- 9 - Outdoor Space

6th, 8th, 10th floor

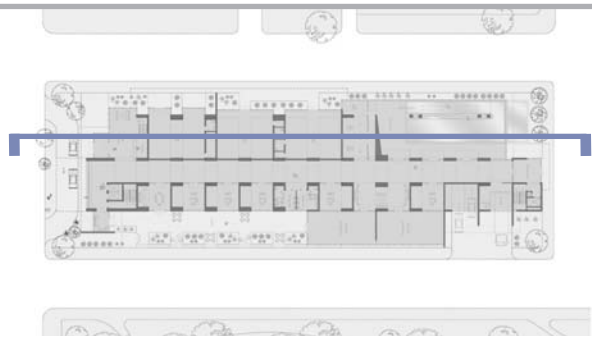


- legend:
- 1 - Elevator Lobby
 - 2 - Restroom
 - 3 - Outdoor Roof Garden
 - 4 - Skylight
 - 5 - Staff Circulation

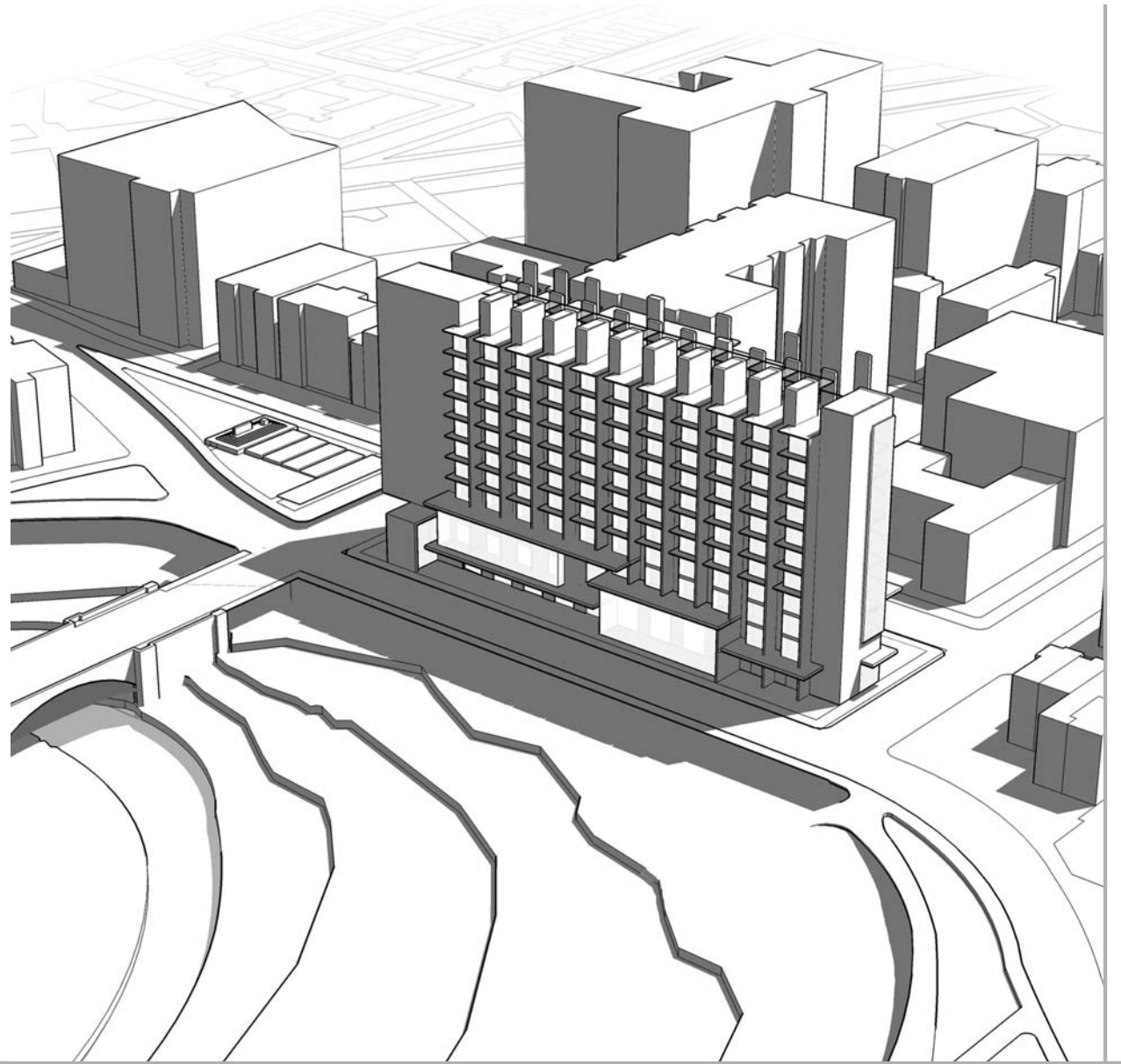
roof plan



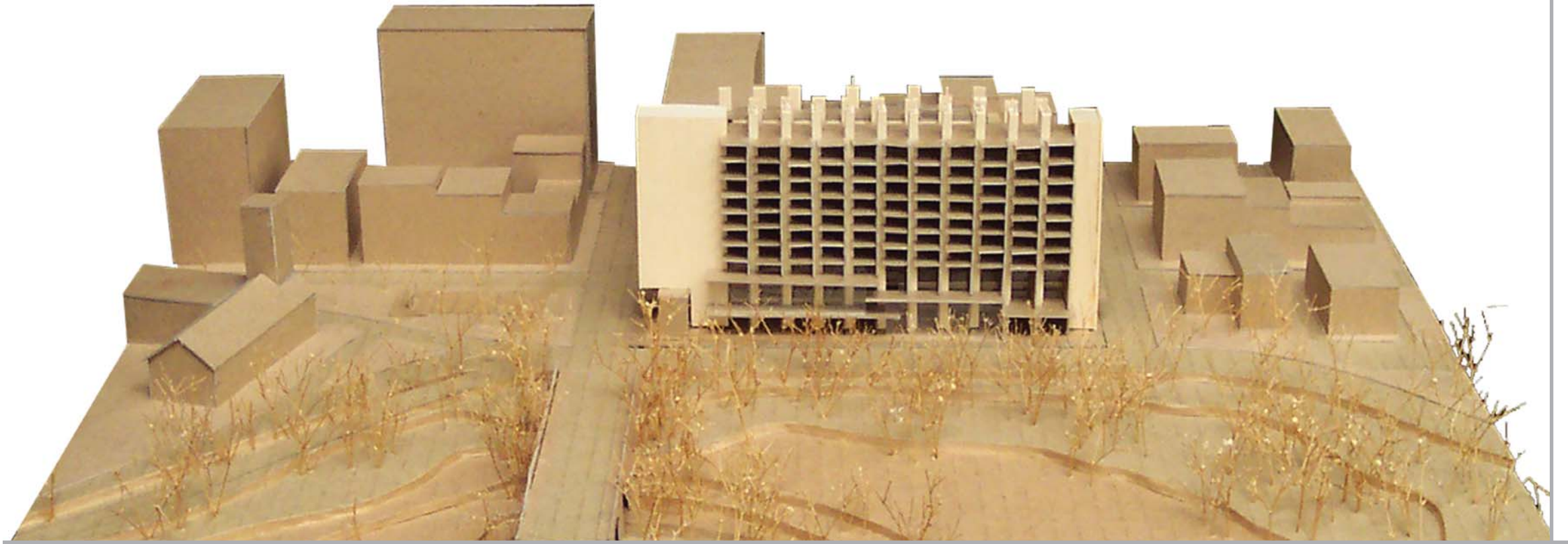
section



section



exterior views



view looking east



view looking south



view looking east



defense

Note:

all text and images are by author unless otherwise noted

Case Studies:

Drake Center
151 West Galbraith Road
Cincinnati, Ohio 45216

Meadowbrook Care Center
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Cincinnati, Ohio 45242

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