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Designing Outdoor Spaces to Enhance Urban Inter-Generational Living

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abstract

designing outdoor spaces to enhance urban inter-generational living

The functioning and maturation of the human body, mind, and spirit depend on the quality of people's ongoing experiences of nature. (Kellert, 2005) The incorporation of nature into living spaces can greatly enhance psychosocial relationships in inter-generational living. Healing gardens used in healthcare facilities have proven beneficial to people of all ages; medical and other scientific studies have shown that environmental design can increase a person's physical and mental health. (Ulrich, 1999) Natural environments also prove to be beneficial to children. Play therapy helps children develop self-confidence, a positive self-image, learn to express feelings, and make decisions. (Framingham, 2013) Gardens are important and effective for fostering social contact as well as supporting emotional interactions known to mitigate stress. (Ulrich, 1999) Overall, nature can positively impact a user's quality of life. A thorough review of the literature will help define how to successfully organize and layout outdoor spaces in inter-generational living. Maximizing the usability of outdoor spaces is essential for the users' health. The purpose of this study is to explore how the design of outdoor spaces can be integrated into future inter-generational living projects in order to benefit the well being of all users.

purpose

defining inter-generational living



With demographic conditions shifting, housing as known in the US today will have to change. The population is aging and life expectancy is growing. In order to suit the needs of the aging, primarily the baby boomer generation, people will have to reconsider how they live. The purpose of this project is to propose a design solution that will allow for people of varying ages to live together. It will particularly focus on the children and the elders, because they are the extreme user's of the design. It will accommodate for traditional (families) and non-traditional users. This project will be forward thinking on all possible levels. It will employ appropriate sustainable measures, provide appropriate amenities, respond accordingly to its urban site, and most importantly create a healing atmosphere for all who interact with it. Nature will be the primary factor to create the healing environment. In order for that to happen, there will be a strong connection to outdoor spaces from all units. The outdoor spaces will be designed to help users' psychosocial sustainability, physical activity, and mental well-being. In the end, the design proposal should bring together all generations through the use of outdoor spaces.

vision statement

To create a building that provides opportunities for inter-generational living primarily for the sandwich generation and their families. It will include living solutions that allow users to be independent, yet connected. This environment will be a healing place that allows user's a physical and visual connection to outdoor spaces. It will enhance their social and active lifestyles. It shall include a children's day care as well as an adult daycare. There will also be retail space at the park front. It will be a sustainable design solution through the use of rainwater collection, recycling, natural materials, and passive cooling.

research

nature's healing effects

This building should bring nature in through the use of its outdoor spaces. We know that nature is important for all generations, Robin Moore noted that “gardens are important for children because they live through their senses.” Similarly, Steven Kellert discovered “The

“Nature itself can entrap us involuntarily, occupy our minds, shut out daily cares, and allow us to become refreshed”
-C. Lewis

basic contention is that the functioning and maturation of the human body, mind and spirit depend on the quality of peoples ongoing experiences of nature.” Last but not least, Roger Ulrich has studied the effects of the elderly in a healthcare setting and discovered that “...gardens can be important and effective for fostering social contact, and that the social contacts occurring in healthcare gardens probably include emotionally supportive interactions of the type known to mitigate stress and improve medical outcomes.” Nature has been chosen as the primary healing factor because the site is in an urban location. Many of the users may not receive the daily contact that they should with

nature, especially the elderly. Nature will be used in the design of the outdoor spaces so that the users can physically and visually interact with it throughout their everyday activities.



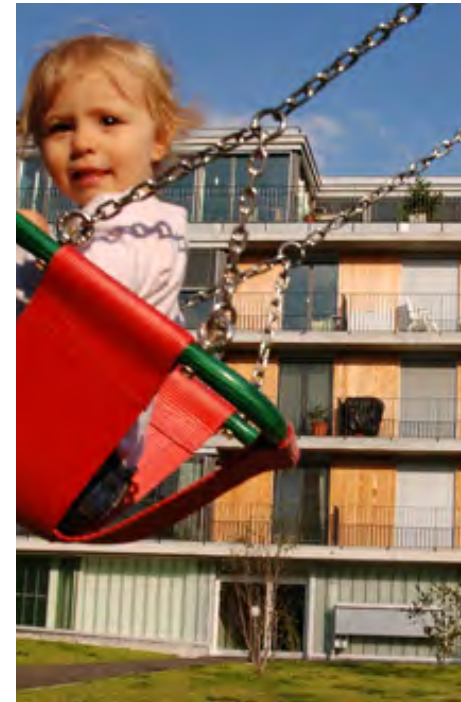
co-housing

Co-housing is a concept that began in Denmark in the 1980's. It is a solution that allows users an in between option that doesn't require living alone or living in a retirement village. It is a place where the user's have a sense of community. The members actively participate in the daily operation of their neighborhoods. It allows for like-minded people to live together, which creates a sense of trust and support. Co-housing is a place where people can age in place and it provides them with several social benefits.
(inter-generational living)

Advantages of Co-Housing:

- Seniors remain integrated into society and are able to contribute in meaningful ways.
- The willingness to co-operate means people choose to live alongside others who share their values of caring, support and respect for others.
- It is a less expensive option.
- Promotes a sense of community.
- Promotes diversity.
- Families can draw on different generations for support.

precedent



steinacker residential complex



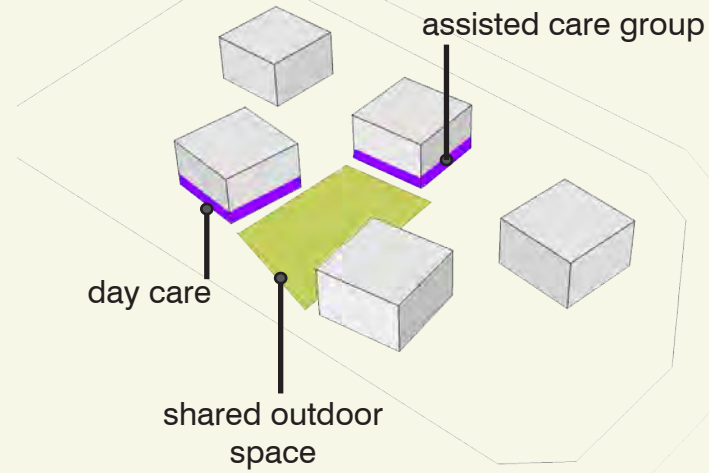
hope house



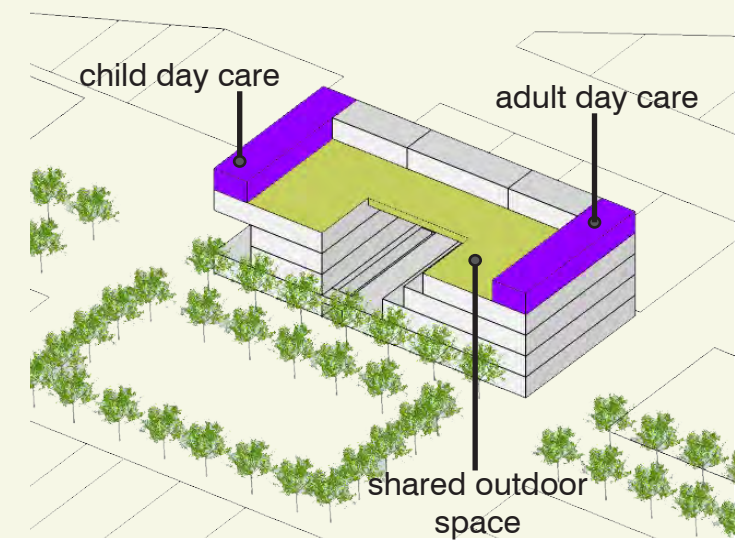
merrill gardens at the university

steinacker residential complex -- zurich, switzerland

This project is successful in supporting inter-generational living because of its adjacent space planning. The amenities it houses are a children's day care and an assisted care group for elderly people. The two amenities are situated in separate buildings, creating an open green space between them, bringing the two groups together.



My building will bring people together through the use of adjacent outdoor green space as well. The primary green space will occupy the roof top as a terrace. It is where the child day care and adult day care come together. Locating it on the roof will create a sense of privacy and security.



hope house at hope meadows -- rantoul illinois

This project is successful in creating social spaces where the young and old come together. There are 33 foster children, nine families, and 46 aging seniors who live here. The aging seniors provide much-needed mentorship to the foster kids in exchange for reduced rent. They are able to gather and host events in the outdoor spaces shown to the right.

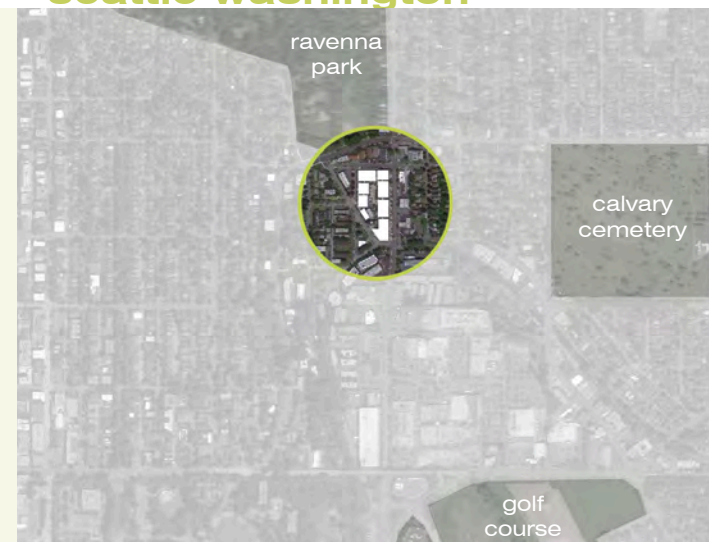


Due to the location of my project, I see it fit to provide an indoor social space for the young and old to host events. It should be directly adjacent to the outdoor space that connects the child day care and the adult day care.

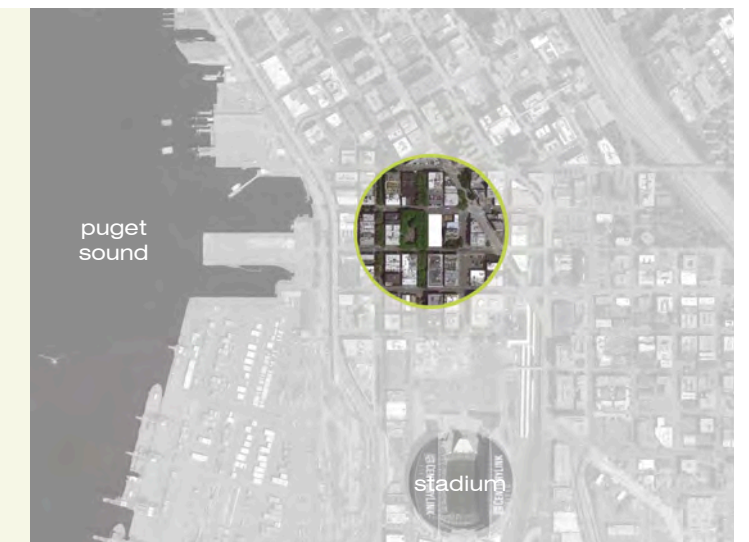


merrill gardens at the university -- seattle washington

This project is located on an urban site in Seattle adjacent to the University of Washington. It is successful in that its massing relates well to its context, maximizing the buildable area on site. It also is successful by promoting walkability. It is a short distance to attend sporting events at the university, shop downtown, relax in parks, and local food venues.



In order to maximize the buildable area and create an urban edge, my building will maximize the site footprint. Parking will be located off site in order to promote walkability. It is located just a short walk from the Seattle Sea Hawks Stadium, the Puget Sound and several parks in the area.



site analysis

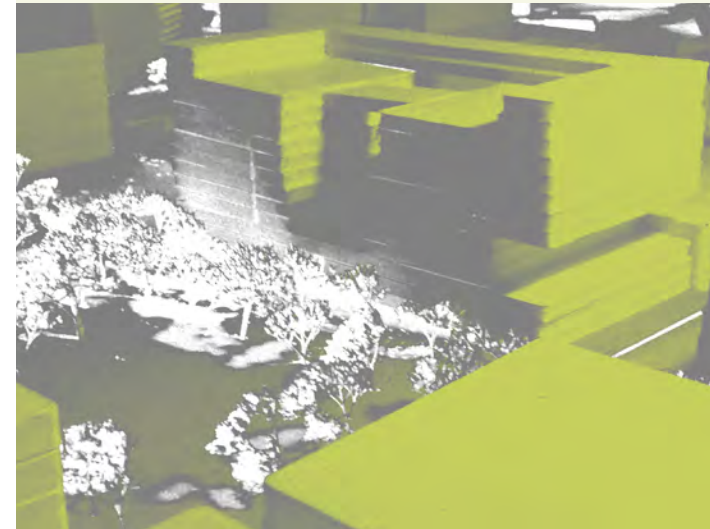


seattle, washington



Seattle is a city located in Washington, part of the Pacific Northwest. The population of the greater surrounding area of King County is approximately 2 million people. It is home of the Pike Place Market, which is the longest continuously operating farmers market in the US. Seattle is a tourist city, particularly know for it's Space Needle, Seattle Public Library, EMP Museum, and the waterfront. The building site is located in the Pioneer Square District which is Seattle's first neighborhood. It is known for its rich history, night life, lunch spots and quirky boutiques.

climate



- The average summer temperature is 75 degrees Fahrenheit.
- The average winter temperature is 37 degrees Fahrenheit.
- The annual precipitation is around 37 inches, which is mostly light rain.
- The shortest day gets 8.5 hours of daylight.
- The longest day gets 16 hours of daylight.

When designing for the Seattle climate, the building should account for the overcast and provide for maximum day lighting year round and heat gain during the winter.

This represents noon time during winter months.

context



The building will max out the buildable site area in order to fit in with its surrounding context. It will engage the street in similar ways to its neighboring buildings. The existing materials of the area are red brick, stone, terra cotta, and cast iron. The neighborhood is built in traditional materials primarily because of the era it was build in. My building will not mimic but compliment the existing material palette.

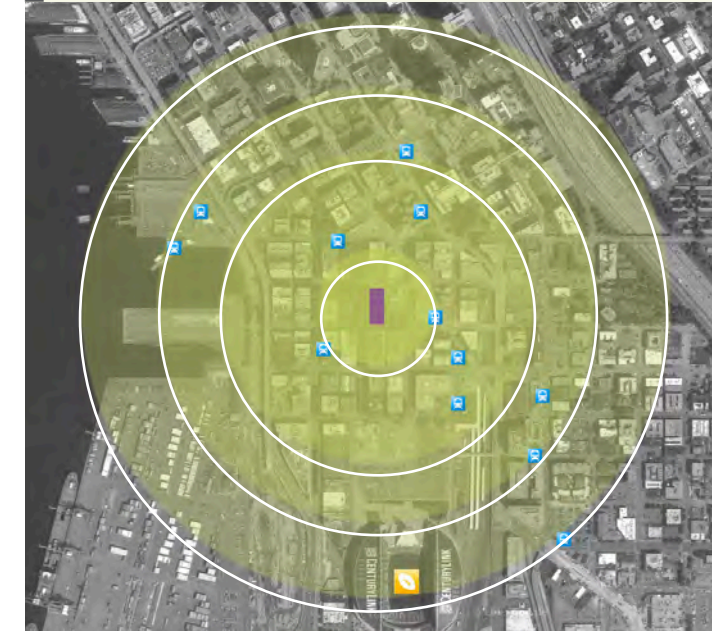
support space

_create retail space along park front



Occidental Avenue stretches the length of four city blocks. It was transformed from an old street into an urban park with an alley of trees along both sides. To enhance the urban feel of the park, retail stores are located along the park front. Because our site is directly next to Occidental Avenue, providing retail along the park front is critical. It would be an ideal place for a cafe, art gallery, or retail store, similar to the other blocks.

walking distance from site



_access to parks



The Pioneer Square District has several green spaces within walking distance. Most importantly, Occidental Park is located directly to the west of the site. Creating a strong connection, both physically and visually will be a primary focus in the project. Occidental Park is an urban park where people come for seasonal Farmer's Markets,

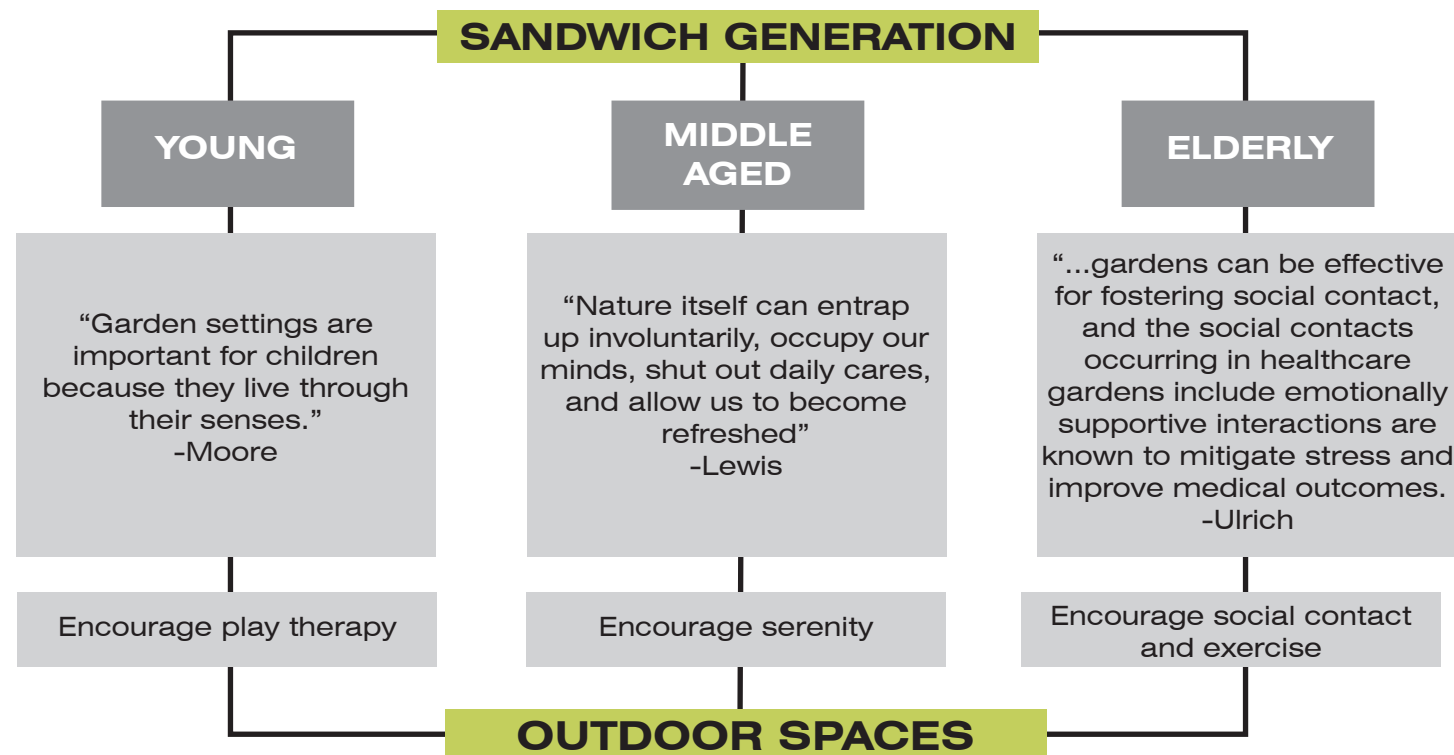
program



defining users

According to the Merriam Webster dictionary, the sandwich generation is a generation of people, typically in their thirties or forties, responsible for bringing up their own children and for the care of their aging parents. This generation is typically “squeezed” between the other two generations who require their constant time and energy. AARP has reported that 67% of the sandwich generation are currently married and 44% have living parents and children under 21 years old. Only 6% of the sandwich generation reported living with an elder parent. This number is projected to grow with the large surge of baby boomers that are just reaching retirement age. By 2017, 10% of the U.S. population will be over 70 years old or over, and the population in this age

range will increase by four million over the next five years. (Rclco) Our country is going to face a significant need for appropriate housing for the aging population. My building will target families who have small children who are not yet in school and an elder parent(s) living with them. It will appeal to the “squeezed” users because of its supporting amenities. It will target the 27% of the sandwich generation whose household income is \$75,000 or more. (AARP) It will focus on providing serenity for the people providing care to both their children and parents. The diagram below reiterates how important nature is at all stages of life. It describes how the building will thrive through the livelihood of it’s outdoor spaces that bring people of all ages together.



amenities

_child day care



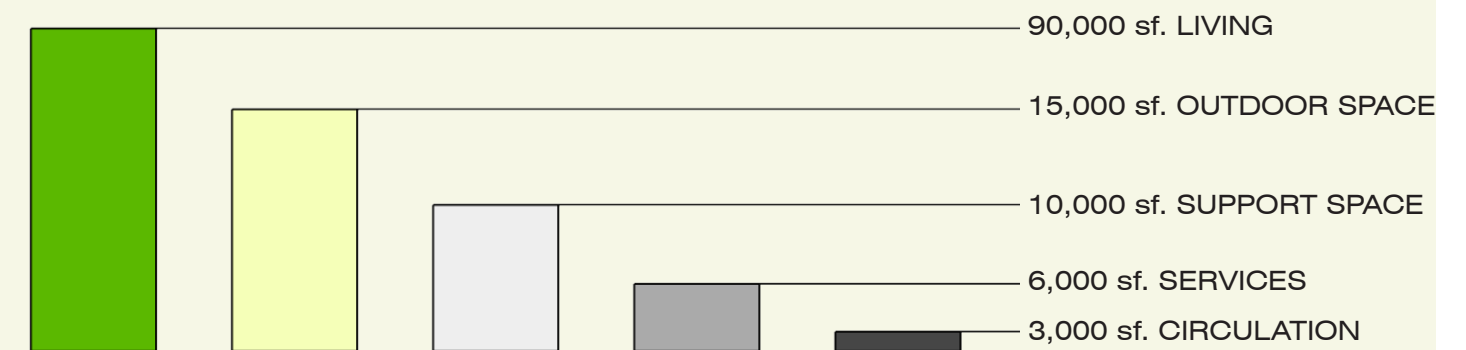
Clare Cooper Marcus has discovered that as many as four out of ten schools nationwide have decided there is no time for recess, therefore doing away with it. Many of the residents of this building would have small children. It is essential to provide a staffed safe play space within the building that doesn't require parent supervision. It would be a place that promotes health through exercise. It should include indoor and outdoor play space where the children can go during working hours or after hours.

_adult day care



It is also essential to provide a safe place to send adults throughout the working day. A place for them to go where they can meet their friends and play games together. It will ease the squeezed members of the sandwich generation, knowing that the elderly they care for are safe and taken care of. It shall also include indoor and outdoor space for leisurely activities.

breakdown



5 floors X (112' X 240') = 134,000 sf maximum buildable space on site

123,000 sf. = sf programmed space in building

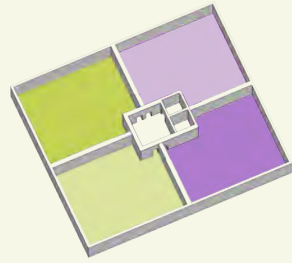
11,000 sf. = unused buildable space

design principles



over arching

_adaptable units within the building



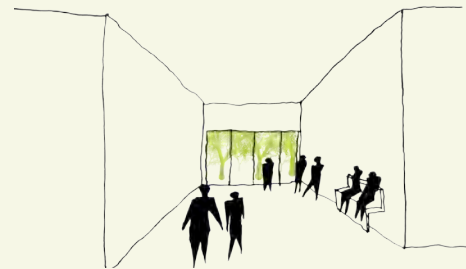
units are situated in a way that allows for the expansion or decrease in size. plan will allow for the option of two, three, or four units per area shown

_layers of social space



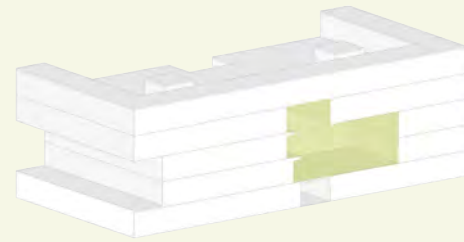
creating each outdoor space to have different degrees of privacy

_social interstitial spaces



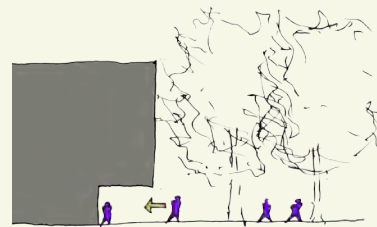
designing required interstitial spaces to encourage social interaction

_central social spaces



locating large communal social spaces in the center of the building to allow easy access for all users

_bringing the world in



providing retail space that brings outside people to the building, easing the access for the elderly who live in the building

_circular paths within units



allowing users the ability to get exercise without leaving their units by creating circular walking routes in the living space

project specific

_framing nature



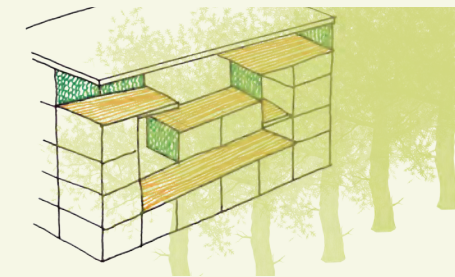
providing focused views that frame nature by only showing the foreground and background

_natural materials



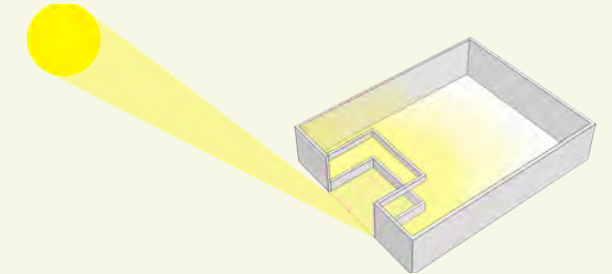
using natural materials such as wood and stone will reinforce nature and sustainability while softening the users living spaces

_extension of the park



allowing users green spaces to become a private expansion of the park

_multi-directional lighting



creating dynamic day lighting by designing spaces to allow daylight in from multiple directions

_visual access



using glazing in appropriate locations will be a key factor to allow a visual connections to nature, making it seem more prominent

_active spaces

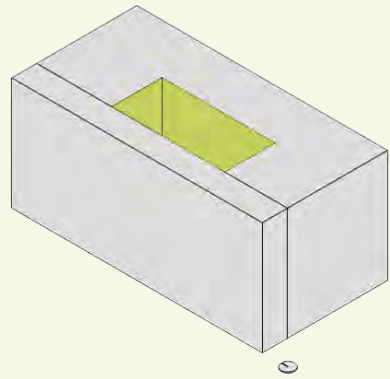


allowing green spaces to be places for physical activity contributing to the healing effects of the building

design exploration

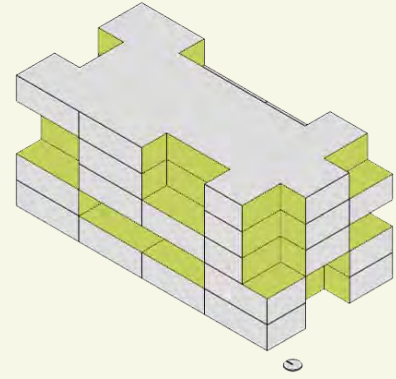


building scale



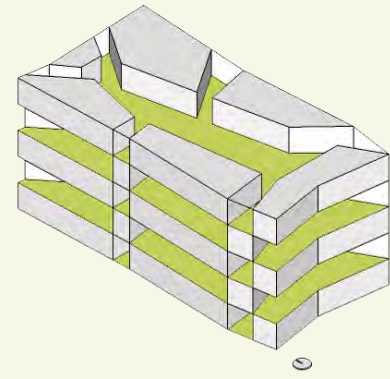
shared central courtyard

This scheme explores one large central courtyard located in the center of the building providing access for all users.



shared vertical courtyards

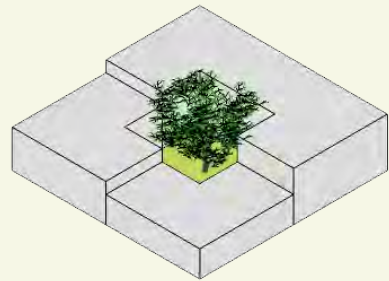
This scheme explores semi-private shared vertical courtyards on the exterior of the building allowing each apartment direct access.



inverted stacked plans

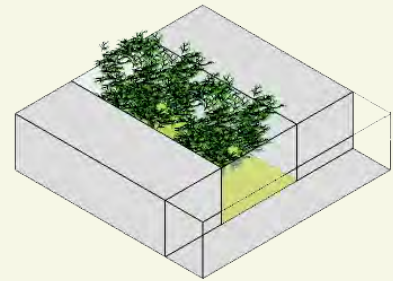
This scheme explores a stacked plan where each layer inverts from units to green space and visa versa allowing users to preference a large central green space or more private green spaces.

unit scale



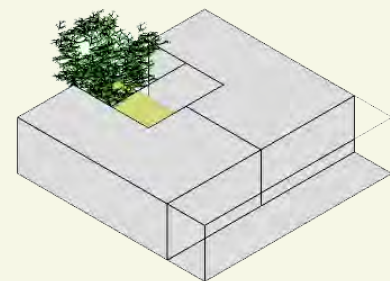
central courtyard layout

This scheme explores a traditional courtyard layout with a central green space between units. The units are flexible in that they may be subdivided into as many as four separate units.



horizontal courtyard layout

This scheme explores a shared horizontal courtyard between two units. The two units are also connected by a buffer space.



rear courtyard layout

This scheme explores a shared courtyard between two units at the rear of the layout. Part of the outdoor space would be covered and it would be connected by a buffer space at the entry.

models



These schemes explored the possibility of connecting large outdoor spaces directly adjacent to the park.



These schemes explored how day lighting would be brought into the building.



This schemes explored the possibility of raised social spaces at the park edge as a direct extension of the park.

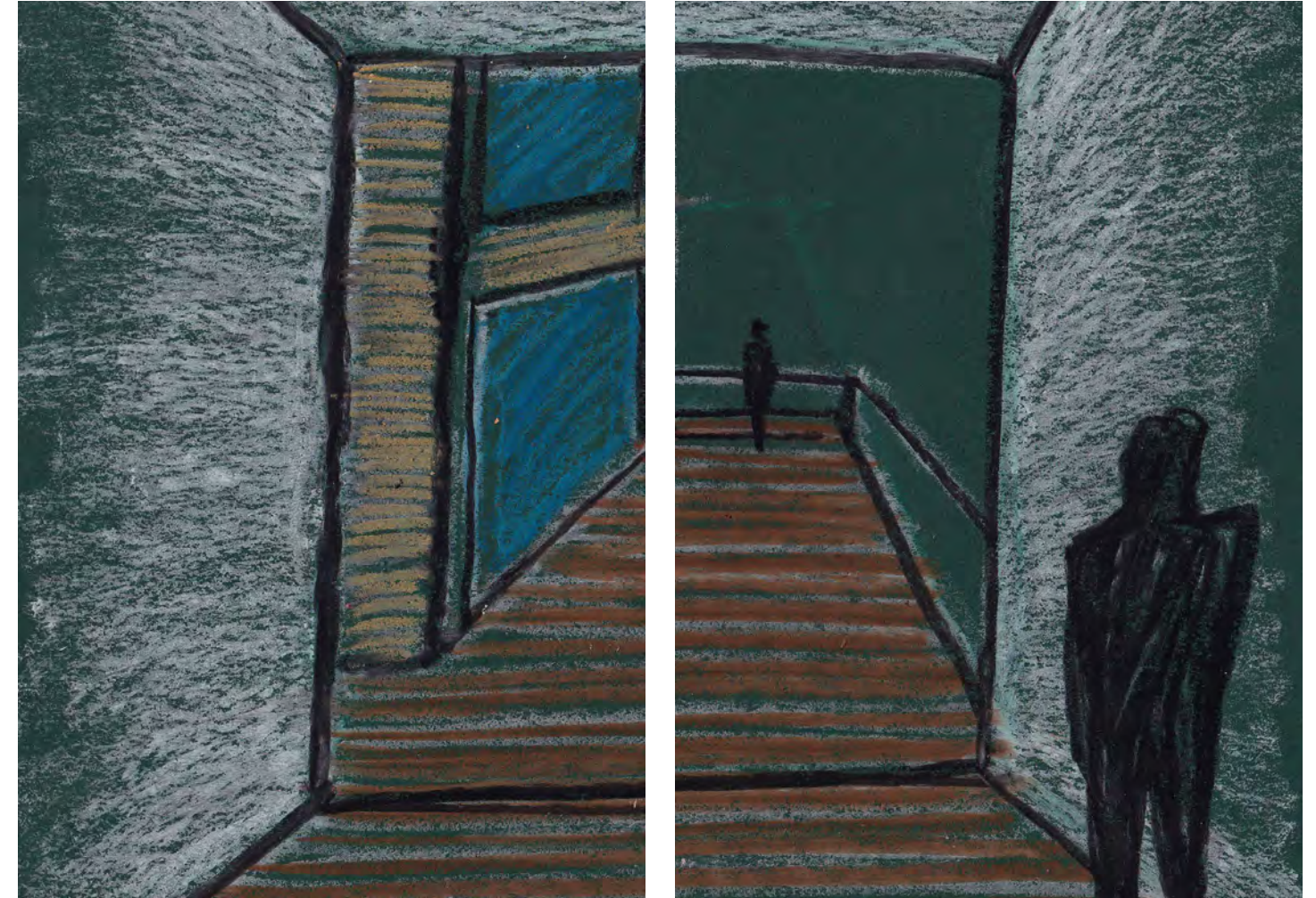
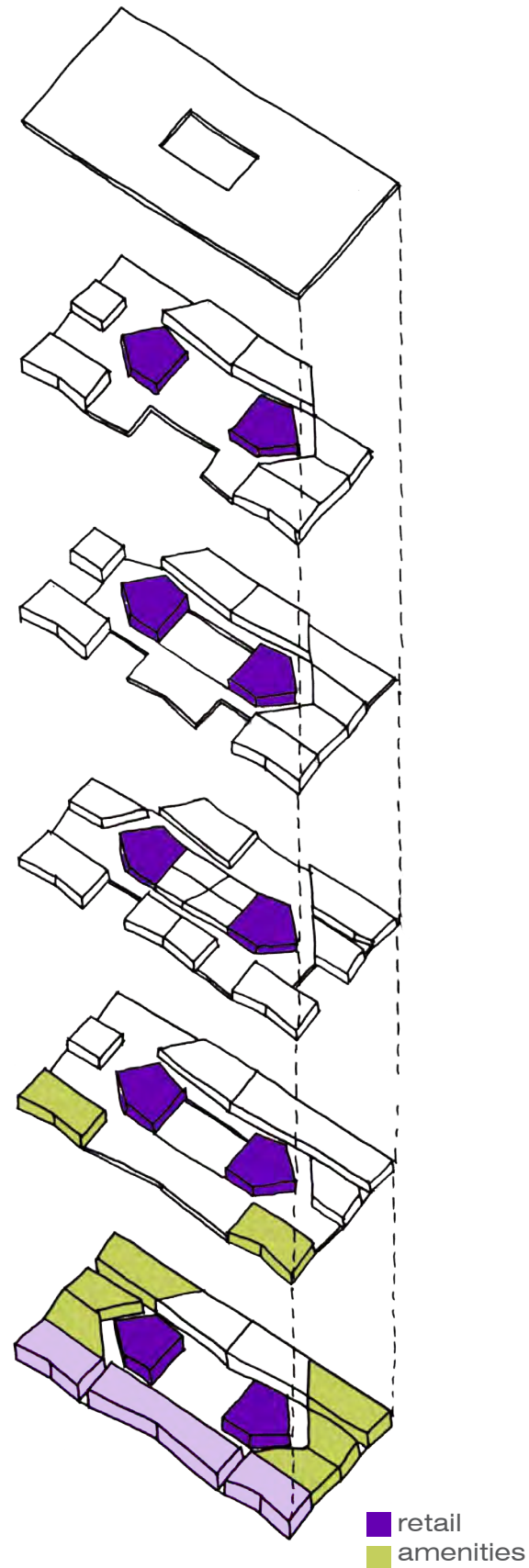
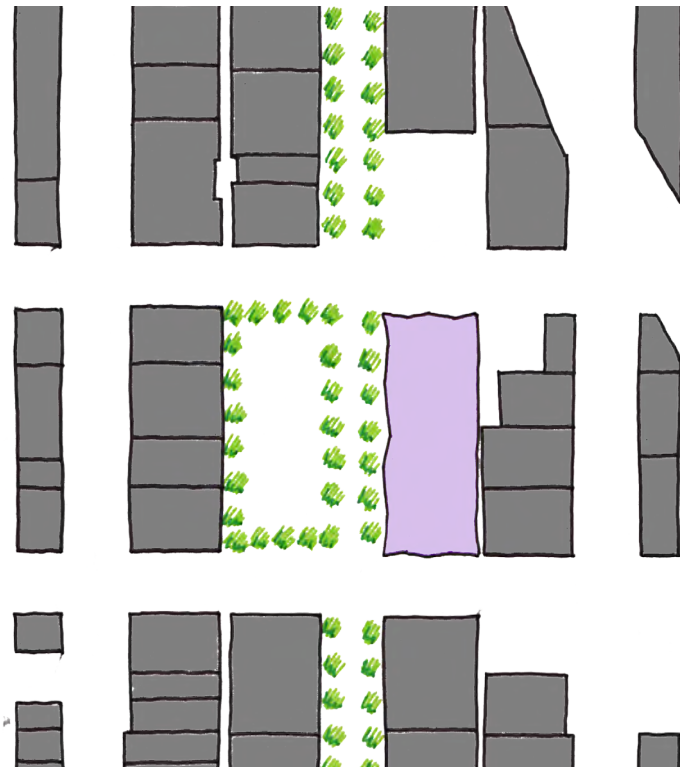


These schemes explore the idea of neighborhoods by using vertical outdoor spaces to connect them.

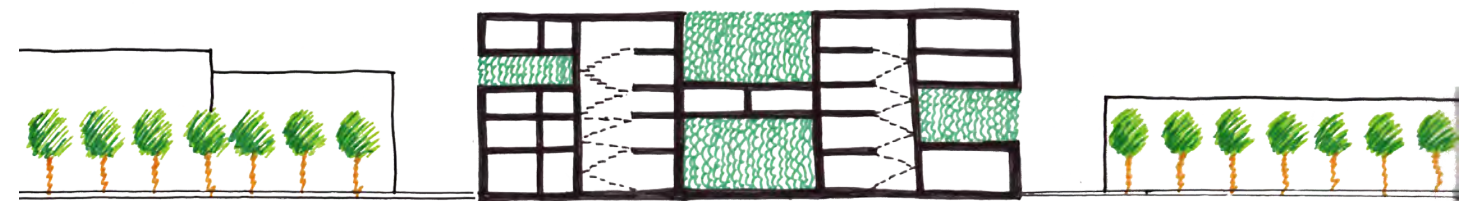


inverted concept

The inverted concept explored stacked floor plans that alternated mass and void spaces. It created multiple exterior spaces adjacent to most of the units. Its main focus was connecting its outdoor spaces as an extension of the park. The inverted plan was unsuccessful in that it did not let a enough daylight into the outdoor spaces. Also it was not very sustainable because it would require the building to have many exterior walls. Overall, a lot was to be learned from this model. It brought about the creation of “neighborhoods” within the building, created amenities that would be adjacent via shared outdoor spaces, and created a very clear vertical circulation path. Its successes are carried over into the architectural proposition.

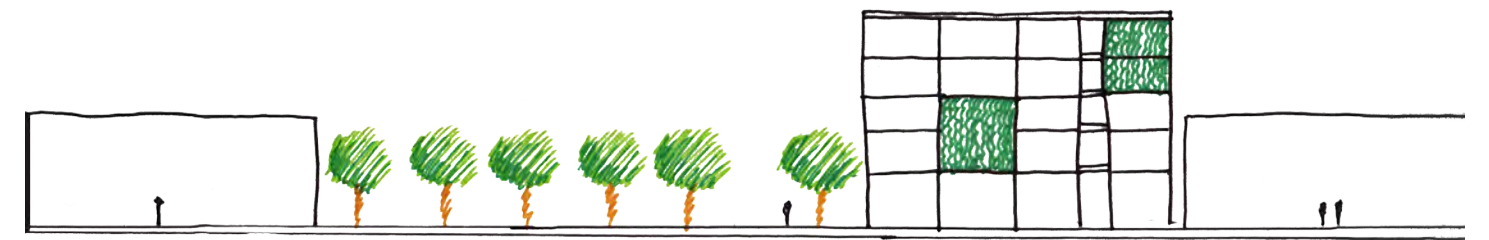
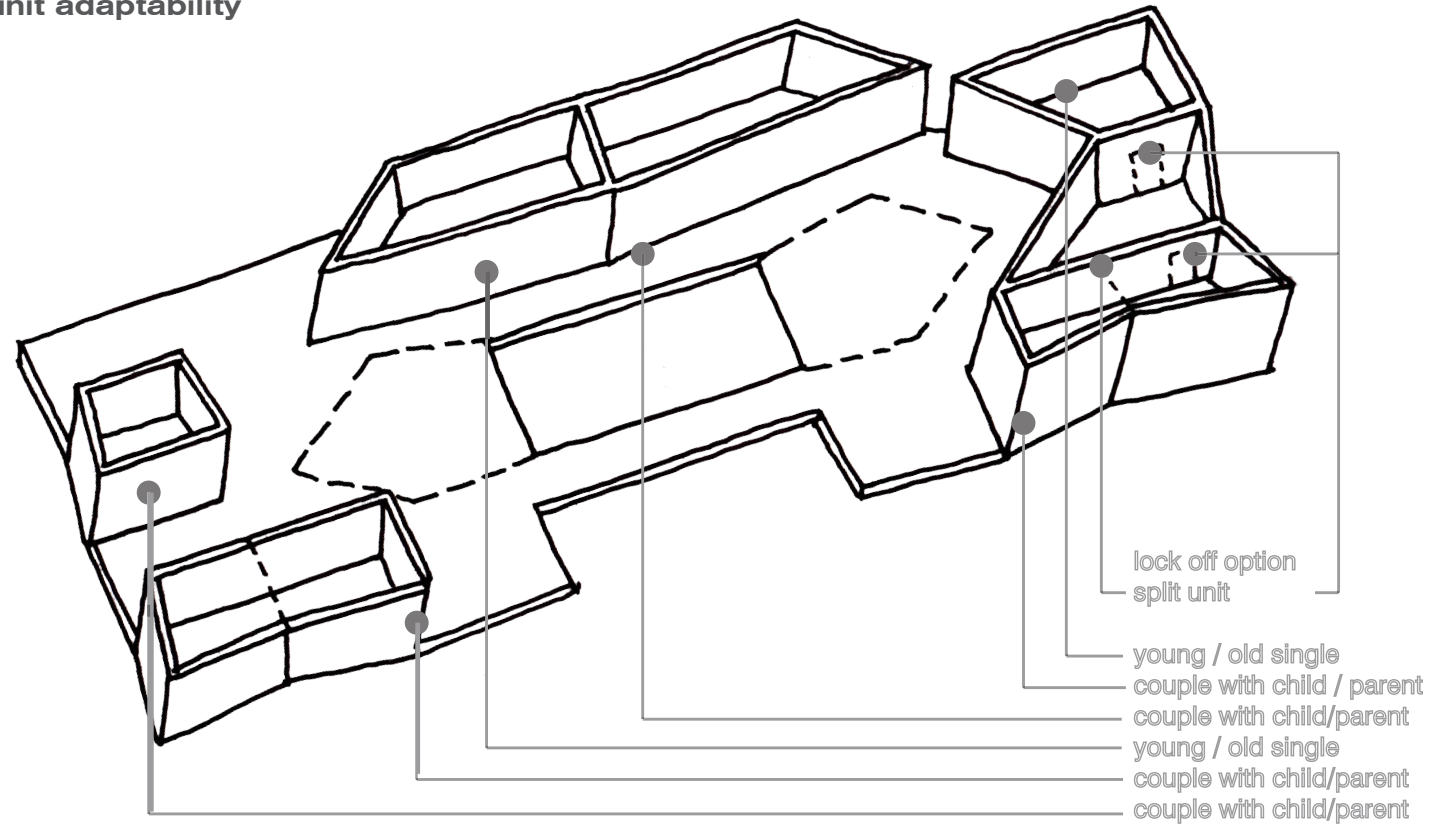


short building section

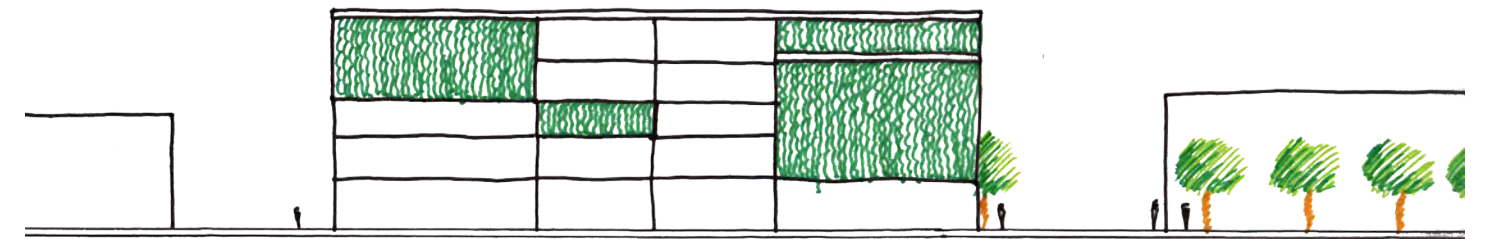


long building section

unit adaptability



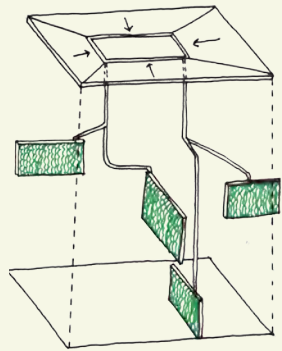
north elevation



east elevation

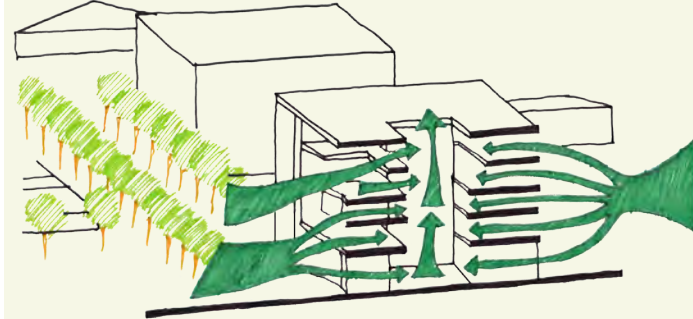
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rainwater collecting system



There was a system that collected rainwater from the roof and redistributed it to living walls that were spread throughout the building. The system was expressed in a very visual manner to make users aware of the sustainable strategy.

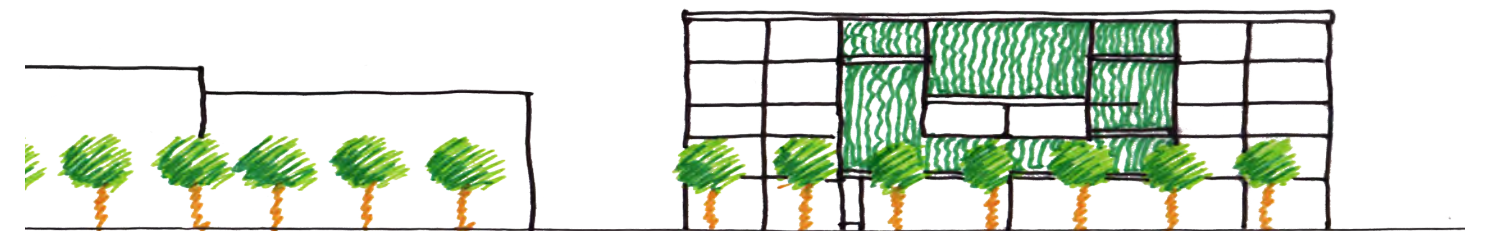
passive strategies



Passive cooling was explored as the primary ventilation method. The wind entered through the units and exited into the outdoor spaces which carried the draft upward out of the building.



south elevation



west elevation

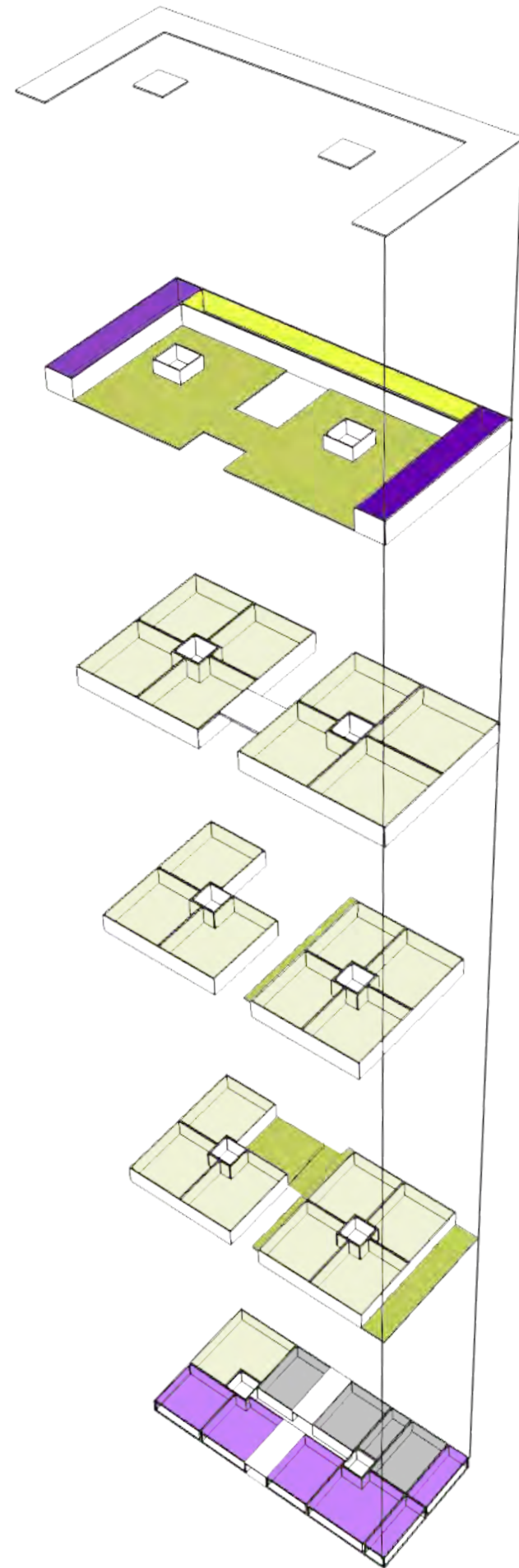
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architectural proposition



axonometric

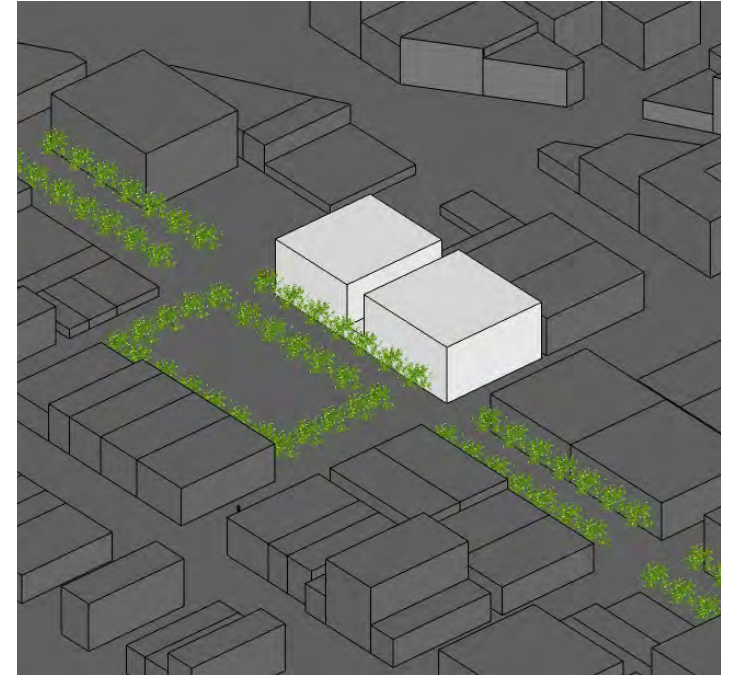
The primary outdoor space is located on the roof of the building to maximize the views outward. Also, it provides safety for the adjacent adult and child day cares. The units comprise 67% of the building and there can be a maximum of 23 units. Retail space is provided on the ground floor along Occidental Avenue, Washington Street and Main Street. Service spaces such as trash and mechanical are located on the ground floor adjacent to the alley.



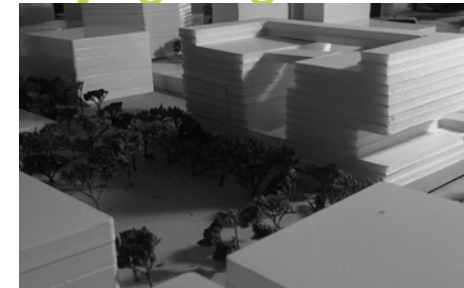
- shared communal space
- outdoor space
- child day care
- adult day care
- units
- retail
- service

parti

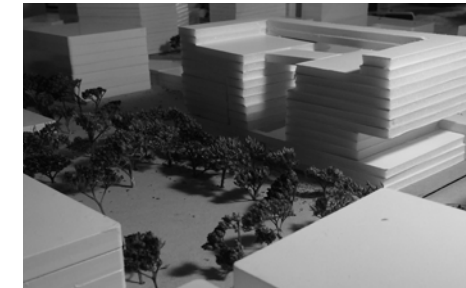
The driving concept behind this design are two masses known as **neighborhoods**. Neighborhoods are a defining characteristic of Co-housing. In an urban setting, the neighborhoods will be vertical and built out to the maximum capacity. The creation of neighborhoods allows for the users to have a more intimate group of neighbors. These neighborhoods are slightly separated from each other, allowing day lighting and outdoor space to occur between. Both of the masses should be places that promote active living and social sustainability.



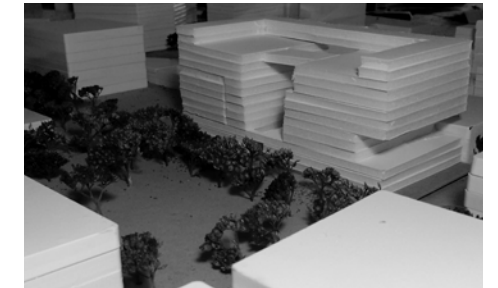
day lighting



morning - winter



noon - winter

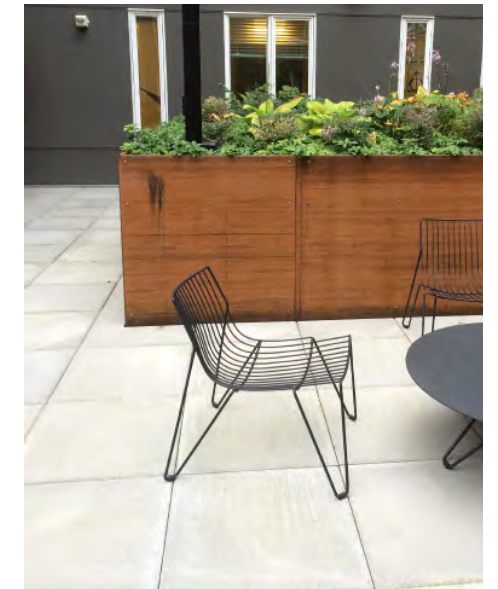


evening - winter

outdoor spaces



The outdoor spaces should reflect elements of the images shown to the left and right. These spaces are successful in their choice of materials and level changes.



unit mix



Unit 1

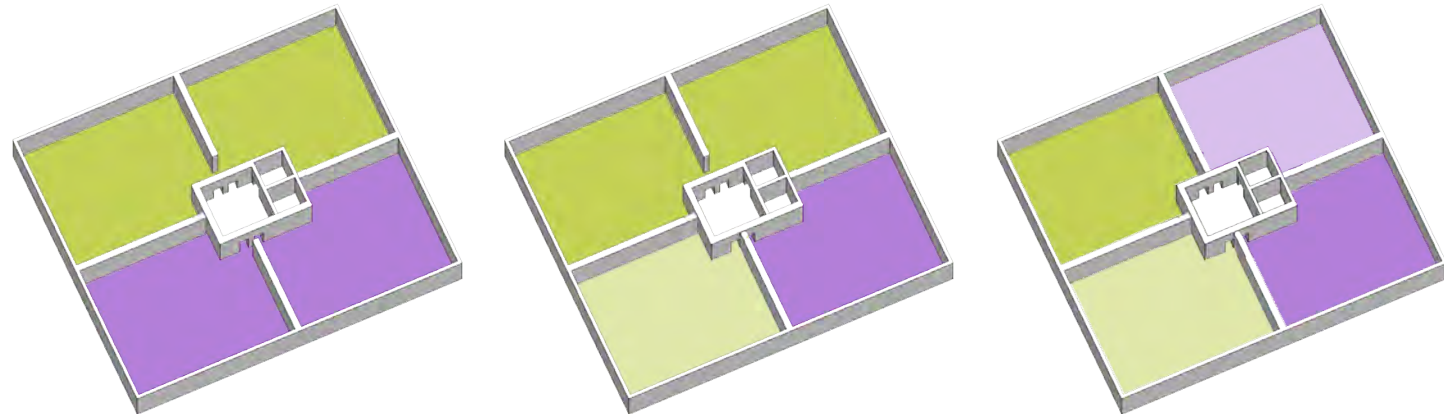
A living scenario where a couple has small children and an elderly parent living with them. The elderly parent would be in a lock off situation to provide a sense of independent living. Over time the unit could be divided back into two units.

Unit 2

This unit demonstrates a living situation for a single adult that is any age or for a young couple.

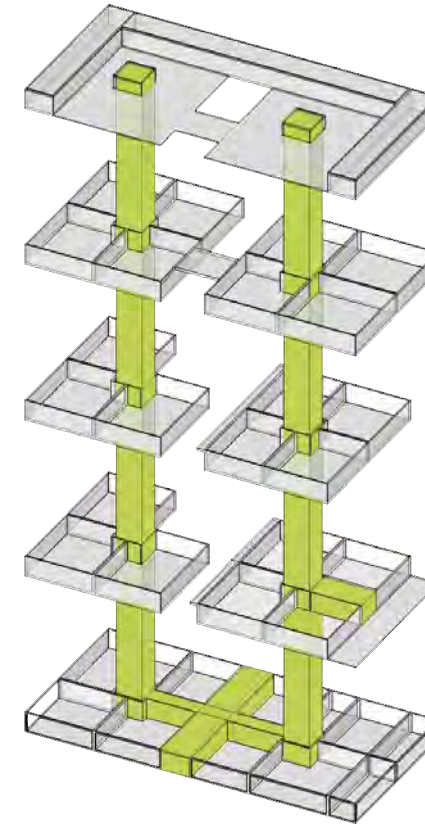
Unit 3

This layout would work for 3 separate scenarios. (1) A couple with young children. (2) A couple with an elderly parent. (3) An elderly person or couple with a live-in care taker.

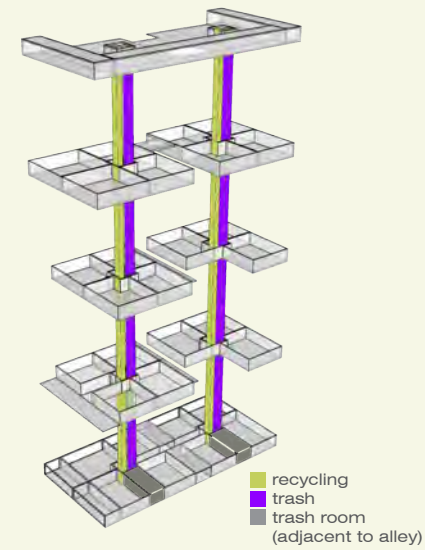


The diagram above demonstrates the flexibility of the floor plan. Units may be partitioned into 2, 3, or 4 units. The layout allows the building to be adapted over time with the needs of its users.

circulation

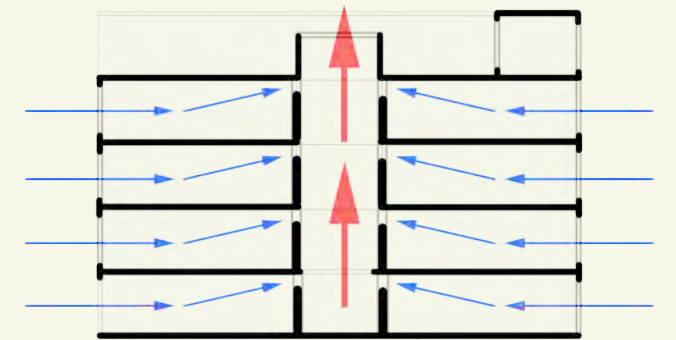


recycling system



Residents will be able to sort their recycling and dump it directly into a chute with the rest of their trash.

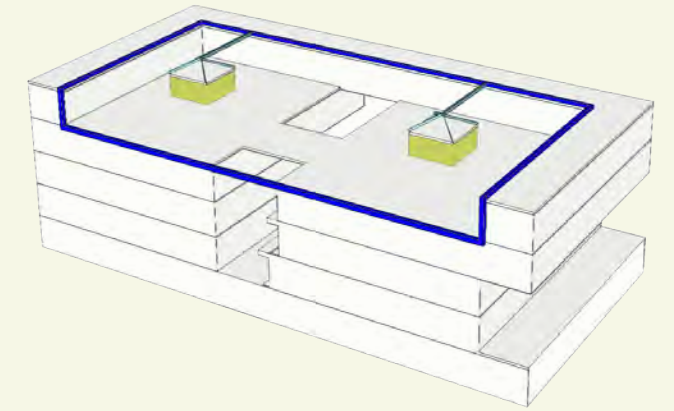
passive strategies



Passive cooling will be used throughout the building. The primary venting will happen through the units and into the stairwells.

sustainability

rainwater collecting system



There will be a system on the roof that collects rainwater and redistributes it to living walls that are spread throughout the building.

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