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I'm really glad you two are having a great time of grandmother and granddaughter bonding but couldn't you have just baked cookies?
Occidental Park Place will offer residents a new type of environment for family living—one that adapts with changing lifestyles as families grow and change. This mixed-use intergenerational living community will be a beacon of light for its the families who live there, the community they create within the building and extending into the neighborhood of Pioneer Square, and all of Seattle as a place to escape the drab cloudiness of everyday life and bask in the healing warmth of color and light.
INTRODUCTION

INTERGERATIONAL LIVING

Changing Demographics

In the US, more and more people are getting older. By that, I mean that the number of people who are age 50 or older is almost 30% of the entire US population. Compare that to 100 years ago, when that number was only 13%. Baby boomers, as the generation of people who are 50+ years of age are called, have reached or will be approaching retirement age within the next two decades, and new studies have shown that they will have a life expectancy of another 20 years after retiring at age 65. Many will live even longer, and will be living active, full lives. This trend will continue, and by the year 2060 the number of people in the US who will be 65 years old or older will be 92 million.

Baby boomers in the US are typically defined as any person born between 1946 and 1964, which is a large enough span of time that two different personality types developed. Those people born in the late 1940s and early 1950s were in college during such events as the Vietnam War draft; civil rights, environmental, and women’s movements; and social, sexual, and drug experimentation. Maturing through such turbulent times caused this group to be especially concerned with social well-being, counterculture, and civil rights. These older boomers tend to be more experimental, individual, and free-spirited. The younger boomers, born in the late 1950s and early 1960s, tend to be less optimistic than their earlier counterparts. They entered their formative college years in the late...
1970s and early 1980s and experienced both the Vietnam and Cold Wars, Watergate, oil embargo, and required draft registration. These events caused the younger boomers to have more of a distrust for government and be generally more cynical than older boomers.

A New Urban Residence

Many families in the United States have been living “intergenerationally” for years, but the design of residences has been slow to accommodate this change to the typical “American dream” lifestyle. Even non-related groups of people are choosing to pool resources and live together. There can be many reasons for this shift: financial reasons [especially in economic hard times], to be closer to friends/families, and to maintain independence while still having access to care/aid services.

Families—traditional or even not-so-traditional—can live together, sharing living space while still able to retreat to their own private space. That space may be a bedroom, an office, or a reading nook on a window seat, but it is still a private haven within close proximity to support. Their home community will provide them with care services, entertainment, nutrition, and the ability to age in place. In all these amenities, public and private, is the option of choice for the residents.
Design Guidelines I
Intergenerational Living

- daylight from two sides
- universal design
- user has maximum control over space/options
- adaptable/flexible units within building
- circular path within unit & on each floor
- ‘lingering realms’ in the circulation spaces
- social spaces ‘at the center’
- create ‘third places’
- activity spaces
- group entrance doors
- community at all levels of scale
- layer spaces to create buffer zones
- bring the world into building

Occidental Park Place will be a new kind of residential environment in which people—young and old—will be actively involved in the community within and outside of the building. This participation will be encouraged by the design of the building through the use of the design guidelines and by the willingness of the type of client who will be interested in this new way of living.
ABSTRACT

Color and light have long been studied for their effects on people's physical and mental health. It is especially important that the environments in which people live and work contribute to their health and well-being. A sustainable living environment that supports and enhances inter-generational community living would benefit from the positive health benefits of appropriate usage of color and light.

Research has shown that people who live or work in dark, colorless environments are at increased risk of depression (Tonello, 2001). Studies have been made as to which specific colors have the capacity to heal (Huang, 2009) and which colors most people—regardless of age, gender, or race—tend to prefer (Whitfield & Wiltshire, 1990). Research also indicates the positive health effects of daylight and certain wavelengths of artificial light (Rosch, 2009). These effects have been evaluated among elderly people—specifically studying whether light can improve aged people’s mobility (Aarts & Westerlaken, 2005). The positive effects of color and light on wayfinding and people’s ability to perceive the indoor (built) environment has been studied (Hidayetoglu, Yildirim, & Akalin, 2011).

Through literature review, the proposed project will examine the ways in which color and light might contribute to sustaining a high quality of life, with a focus on the aging population and their ability to age in place. The purpose of this research is to understand how color and light can contribute to a healthy and safe inter-generational living environment.
IMPORTANCE

Research Findings

- People who live or work in dark, colorless environments are at increased risk of depression1
- Colored light has the capacity to physically heal [photobiology]2
- Daylight, when used appropriately, has many health benefits, including the healing of physical ailments3
- Correct amounts and applications of light, both natural & artificial, can improve aged people’s mobility4
- Wayfinding can be significantly improved with the correct use of color5

As the day or year goes by, both the color and temperature of light changes. Proper sleep habits can be attained by allowing people access to the changing light of day, leading to a healthier state of being, both mental and physical.

Seasonal affective disorder [SAD] is a major contributor to depression rates, and in the overcast climate of Seattle those rates are among the highest in the nation6. Appropriate application of daylight can help to combat the effects of SAD, and Occidental Park Place will strive to be that healing beacon of light for Seattle.

Ocular changes as we age cause our retinas to need more and more light in order to have the same visual input. A 60-year-old person will need 3-5 times the amount of light as a 20-year-old. This dramatic increase in brightness raises issues of glare. One way to prevent glare is by use of a light shelf.

By combining a light shelf with windows in multiple facades, or even the ceiling, a large amount of light will be distributed evenly, thereby improving the daylight conditions within a space which can help compensate for declining visual performance.

High or low windows are as effective as large expanses of glass when privacy is an issue. Windows along the floor can help to increase mobility as potential trip hazards will be illuminated. Continued mobility helps promote healthy living for all ages.

Double-height spaces capitalize on expansive windows while still providing protection from glare. Communal double-height spaces allow everyone to find their own comfortable spot while still a part of the community, promoting inter-generational living while also combating SAD.
By combining all of these daylighting strategies, both individual and communal spaces can capitalize on the amount of daylight available, even on the most overcast of days. The circulation paths become sunny communal spaces, inviting residents to take advantage of the extra light and be open to the rest of the community. Then when they want to retreat into their private units, the connection to the community means they don’t have to sacrifice access to daylight.
narrow floor plan brings light from two sides and allows for natural ventilation; glazed conservatories bring outside space in & increase daylight exposure
Rachofsky House
Richard Meier

light from above, below, all sides, through rooms; transparency from outside to inside and back to outside allows for full penetration of daylight

LIGHT FROM ALL SIDES, ABOVE, & BELOW

SECTIONAL TRANSPARENCY
ceiling plane shapes flow of light and space; natural and artificial light sources are located at same spot for continuous quality of light.
Casa Gilardi
Luis Barragán

colored surfaces reflecting light can change the atmosphere of a space; source of light is hidden for mysterious quality

HIDDEN LIGHT SOURCE
hidden source of colored light adds mystery, sacredness to space
IMPACT ON DESIGN

Design Guidelines | Color & Light

- narrow plan
  - increases daylight access within interior spaces
  - increases effectiveness of natural ventilation
  - floor plate: 40% clg ht; ventilation: 5x clg ht
- daylight from two sides
  - narrow floor plate
  - multiple "buildings"
  - multiple courtyards and/or light wells
- light from above and/or below
  - units may be stepped
  - courtyard for one unit provides skylight below
  - as seen in "Daylighting Design in Pacific NW"
- transparency
  - visual connection through and out from building
  - double-height spaces
  - penetrated floor plates
- light shelf
  - interior or exterior
  - keeps human scale in large expanse of glazing
  - place to hide artificial light source
- light washing a wall
  - slot windows; wall or clg, horizontal or vertical
  - draws the eye, aids in wayfinding
  - changes color of surface, passage of time
- floor-to-ceiling windows
  - double-height spaces
  - capitalize on views
- exterior operable shading
  - solar gain only needs limited June-August
  - allows for maximum user control
- amount of glazing dependent on orientation
  - east & west similar but unique
  - north very open, minimal operable shading
  - south very open, full operable shading
Sunny Days
63% of year = overcast sky
13% of year = partly cloudy
20% of year = clear

Rainfall

37" = yearly average
[compare: 50" in NYC & 33" in Manhattan, KS]

Wind

Temperature
37° = average winter low
75° = average summer high

Comfort Index
72/100 — higher = better
[compare: 45 NYC & 28 Manhattan]
Responses

Sunny Days
amount of glazing on each facade is uniquely impacted by the orientation of sunlight
- north facade: 90% glazing
- east facade: 75% glazing, fixed & operable shading
- west facade: 75% glazing, fixed & operable shading
- south facade: 50% glazing, fixed & operable shading

Rainfall
moderate light rain = good conditions for green roof and/or multiple green spaces
- soil will not wash away
- little/no irrigation is needed

Wind
allow natural ventilation for passive heating & cooling through the entire site by staggering building masses
- warm south wind in winter
- cool north wind in summer
The Seattle area is a beautiful and stimulating place, alive with growth, energy and ideas. A lot is going on in the region, in technology, the arts, commerce, medicine, politics, outdoor life and pop culture. Surrounded by magnificent mountain ranges, the Seattle metropolitan area is considered one of the most desirable places in the country in which to live and work.7

Known for being progressive and left-leaning, Seattle is a "politically active city that frequently takes to the street in protest. While it prides itself on its tolerance, that tolerance doesn't extend to social conservatives who disagree. Libertarians, however, get a pass. Seattle is enthusiastic about same-sex marriage and legalized marijuana, was the first major U.S. city to elect a woman as mayor, and went heavily for Obama in 2008 with 84% of the vote."8

People in Seattle tend to be very environmentally conscious, but there are also laws requiring certain environmental actions, like recycling. Residents are forbidden from throwing "significant amounts of recyclables" (more than ten percent) in the garbage.8

These factors, along with the economic recession plaguing the country, make Seattle the perfect place in which to experiment with this new way of living.

Tenants can choose a traditional space plan, or take advantage of the flexible floor plates to design an environment that supports alternative work styles. A compact core, floor-to-ceiling windows (for plenty of daylighting), few columns and above-standard ceiling heights help make any plan possible.
Pioneer Square marks Seattle’s original downtown, dating back to 1852. When white settlers came ashore at the southwest shore of Elliott Bay in 1851, they called their little community New York Bye and Bye. The next year, they decided to move across the bay to the current site of Pioneer Square, because of its superior anchorage. Much of the neighborhood is on landfill.

Rebuilt after the devastating “Great Fire” of 1889, the district is characterized by late nineteenth century brick and stone buildings and one of the nation’s best surviving collections of Romanesque Revival style urban architecture. Established as both a National historic district and a local preservation district in 1970, Pioneer Square is protected by an ordinance and design guidelines focused on preserving its unique historic and architectural character, assuring the sensitive rehabilitation of buildings, promoting development of residential uses for all income levels, and enhancing the district’s economic climate for residents, employers, workers, and visitors.

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Occidental Park Place is sited on an existing paved parking lot that has been the subject of at least two previously proposed projects. West of Occidental Park at South Main St and Occidental Ave South, it is bordered on the north and south by two lightly-trafficked automobile streets and on the east by a shared access alley. It is only separated from the park by a tree-lined pedestrian street that connects both the site and the park to the Occidental Mall directly across the street to the south. This mall houses cafés, galleries, and retail stores on the street level, with offices and residential units above.

The site has access to another existing parking lot directly to the north, a large pit adjacent to the northeast corner of the site that serves as an access point to the Seattle Underground, and is faced by the back wall of a waterfall park at the southeast corner. This park commemorates the site of the first UPS headquarters and is open daily during from 8-5:30.

**History**

Back in the 1850s, when logs began streaming down Skid Road to Henry Yesler’s sawmill, this area was part of the heart of a young and rowdy Seattle. It was also the birthplace of the Salvation Army in 1887, and later the site of the Savoy Hotel, which was torn down and replaced with a parking lot in 1965. The present park was built over this half-acre of asphalt in 1971, during the general renovation of the Pioneer Square area.11

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CONTEXT

SITE
RETAIL
GALLERY
BAR/RESTAURANT
OFFICE
PARK/MUSEUM

SITE

112' 0"
109' 6"
108' 6"
106' 0"
76' 8"
66' 0"
75' 6"
60' 0"
118' 0"

127' 0"
122' 0"
140' 0"
240' 0"

139' 0"
VIEWS AROUND SITE

VIEW FROM SOUTH-WEST CORNER

VIEW FROM WEST

VIEW FROM NORTH
JUNE 21

SITE SHADOW STUDIES

10 AM

NORTHEAST

3 PM

SOUTHWEST

10 AM

3 PM
DECEMBER 21

10 AM

3 PM
Pioneer Square is a historical district and the Preservation Board has a set of guidelines on top of the City of Seattle's zoning laws that place restrictions on the design of Occidental Park Place. While the preservation guidelines recognize that “new projects need not attempt to duplicate original façades, the design process ought to involve serious consideration of the typical historic building character and detail within the District.”

Included in the guidelines are a list of typical architectural elements found throughout the District:

A. strong street edge definition
B. horizontal divisions creating distinctive base and cap levels
C. vertical pilasters or piers form repetitive window bays
D. heavy terminal cornices & parapets
E. ornamental storefronts & entrance bays
F. materiality: brick masonry & cut or rusticated sandstone (synthetic stucco is prohibited)
G. wooden window sashes
H. ornamental sheet metal, carved stone, & wooden or cast iron storefronts (may be painted)
J. varied tones of red brick or gray sandstone
K. building base of ~18-24 inches of concrete, sandstone, or granite with adjacent material/color considered
L. upper level setbacks are discouraged

The Sandwich Generation: Stuck in the Middle
An infographic by Mark Morant

42% of Generation Xers have a parent 65 or older and a financially dependent child

15% of adults age 40-59 provide financial support to a parent age 65 or older as well as either raising a minor child or supporting a grown child

47% chance that at some point in life, you will be responsible for caring for an aging parent or another elderly family member

Source: Pew Research
INTERGENERATIONAL LIVING IN SEATTLE

The Sandwich Generation

The trend of people living longer has given rise to the baby boomers being given another nickname: the sandwich generation. They become caretakers for both their children and their parents at the same time, either in the same house or visiting their parents almost daily to give extra assistance.

Occidental Park Place will specifically target those families whose primary caregiver(s) belong in the “sandwich generation.” Just over 1 of every 8 Americans aged 40 to 60 is both raising a child and caring for a parent, in addition to between 7 to 10 million adults caring for their aging parents from a long distance. Even 20-somethings are moving back in with their parents, due to the economic recession and lack of available jobs.

The ideal situation would be that all three generations could live together in a shared residence while still being able to keep some independence and boundaries. The grandparent(s) would benefit from socializing with their family and be able to provide extra help with chores or looking after the grandchildren. The “sandwiched” parents would save time and worry by having their parents close by, and their children would get more time with their grandparents, who have a different perspective on life than the “sandwiched” parents and would be able to pass on life lessons.

Impact on Design

This ideal situation would be a win-win-win for all parties involved. But let’s face it; most families have problems. Major or minor, sometimes people just need a break from their families no matter how much they love them. This is where Occidental Park Place seeks to provide the answer to these problems. This new intergenerational community will target three specific client groups: the sandwich generation and their families, baby boomer couples, and young families with children.

Occidental Park Place will have units designed with the traditional family in mind. This will hopefully ensure that the atmosphere of intergenerational living, while new and experimental for most, will be able to accommodate the widest range of families possible. Theoretically, if the units can support a traditional, biological family, they will be able to support a less traditional family group as well.

The goal of Occidental Park Place is to provide both living units and community spaces designed to accommodate the different needs of the elderly, the middle-aged, the working youth, teenagers, and children in a supportive, healthy environment. Because some families may already be living in a “sandwich” situation but others may be planning for the possibility in the future, the spaces in the building will need to be multi-functional and easily adaptable.

The types of people who will want to live in an inter-generational living environment will most likely be forward-thinking individuals whose family relationships are healthy, mature, and evenly balanced.

The first target group, the sandwich generation and their family, could be made up of any number of people, from 3 to upwards of 12. One family could be a single parent with a child and one parent to support [3 people]. Another family could comprise two “sandwiched” parents, each with both of their parents to support as well as any number of children they themselves have. While these are both extremes, it is the intention of Occidental Park Place to be able to accommodate the full spectrum of people who are willing to step up and help change the way Americans think about the typical “family living” situation. For these families to be willing, they will have needed to have given the decision a lot of thought and to have made a conscious commitment to a new lifestyle. They most likely will have worked through any lingering issues from when the sandwiched parents were children and will have come to terms with who is responsible for such things as money, chores, and caretaking.

The second target group, the baby boomer couples, may have a variety of reasons for wanting to move to OP Place. They might want to be close to the amenities found in the city now that they have retired and can actually enjoy those amenities. They might be planning for the future; they want to find a home and community
that will sustain their way of life and their social network as they age, or they may be thinking of having their children move in with them at a later date and want a place that can accommodate that change on their terms and time frame.

The third target group is made up of young families and their children. As with the previous client group, these families will most likely be planning for the future. They might be looking for a home in which to age-in-place, even after their children move out, or for a space that can accommodate their parents when or if there comes a time when they will need extra assistance.
Family Spaces

» for the use of the individual family groups

The dwelling areas in OP Place will not be the typical urban “apartment.” Instead, they will further contribute to the sense of community by providing places of shared living, both within the unit and between other units, while also allowing individuals the opportunity to find refuge.

Community Spaces

» for the residents of the building

Occidental Park Place is intended to be a community of people who are intentionally choosing to live and share together with the other residents of the building. This sense of community needs to be facilitated by the spaces and amenities provided throughout the building. All members of the OP Place community are expected to take advantage of these spaces and add to the social health of the community.

Neighborhood Spaces

» for the residents and the general public

The neighborhood spaces will be specifically designed to draw people in from the surrounding areas, even from outside the Pioneer Square district. These spaces will be easily accessible, both physically and visually, from the street (although not necessarily located on the street level). They will be available for use even after the typical “office hours” so they will need to be located in such a way that the resident will feel secure while still being accessible by both the OP Place community and non-residents.
PROGRAM SIZES

- **FAMILY**
  - 63,420 SF
- **COMMUNITY**
  - 4820 SF
- **NEIGHBORHOOD**
  - 12,000 SF
- **CIRCULATION**
  - 10%
- **GREEN SPACE**
  - 20%
Family

63,420 SF

Sandwich Family Units

1 Bedroom [12 units] ......................... 700 SF
2 Bedroom [8 units] .......................... 850 SF
3 Bedroom [6 units] .......................... 1000 SF

Baby Boomer Units

1 Bedroom [18 units] ......................... 700 SF

Young Family Units

2 Bedroom [8 units] .......................... 850 SF
3 Bedroom [6 units] .......................... 1000 SF

Community

12,620 SF

Dementia Care Unit ......................... 3000 SF

Social Lounges

Large Lounge [2] ........................... 825 SF
Small Lounge [2] ........................... 625 SF

Live/Work Studios

Large Studio [6] ........................... 800 SF
Small Studio [4] ........................... 480 SF

Neighborhood

14,700 SF

Solarium ...................................... 1000 SF
Health Spa .................................. 3500 SF
Cafe ........................................... 1500 SF
Medical Office ............................... 1500 SF
Day Care ..................................... 3000 SF
Child Care ................................... 3600 SF
Adult Care ................................... 3600 SF
This apartment will have a bedroom with easy access to a bathroom that will also be used for visitors. Both these rooms will have a northern or eastern orientation. Since this apartment will be attached to larger family apartment, an eat-in kitchenette with south/southwestern orientation will suffice. A living space with an office niche will face west for the best light. There will also be an entry area with enough storage for coats, shoes, and perhaps a wheelchair. Access to the larger family apartment will be located in such a way that if access between the apartments is not wanted, it will be unobtrusive and can be closed off or used for storage.

This apartment will have a master bedroom with easy access to a bathroom and another bedroom near a hall bath. These rooms will have a northern or eastern orientation. Since this apartment will be attached to smaller "support" apartment, a full kitchen with south/southwestern orientation will be necessary. The kitchen will be adjacent to a dining space with southeastern or northwestern orientation. An office niche may be provided in the dining or living area, which will face west for the best light. There will also be an entry area with enough storage for coats, shoes, and perhaps a wheelchair. Access to the larger family apartment will be located in such a way that if access between the apartments is not wanted, it will be unobtrusive and can be closed off or used for storage.
This apartment will have a master bedroom with easy access to a bathroom and two more bedrooms near a hall bath. These rooms will have a northern or eastern orientation. A full kitchen with south/southwestern orientation will be adjacent to a dining space with southeastern or northwestern orientation. An office niche may be provided in the dining or living area, which will face west for the best light. There will also be an entry area with enough storage for coats, shoes, and perhaps a wheelchair.

This apartment will have a bedroom with easy access to a bathroom that will also be used for visitors. Both these rooms will have a northern or eastern orientation. A full kitchen with south/southwestern orientation will be adjacent to a dining space with southeastern or northwestern orientation. An office niche may be provided in the dining or living area, which will face west for the best light. There will also be an entry area with enough storage for coats, shoes, and perhaps a wheelchair.

**Three Bedroom**

*Sandwich Family* 8 units
*Young Family* 8 units
1000 SF

**One Bedroom**

*Baby Boomer* 18 units
700 SF
The small lounges will be areas where residents can congregate for parties, reunions, large family dinners, movie nights...the sky is the limit. There will be a small kitchenette and a unisex bathroom provided.

The large lounges will also be spaces where residents can congregate but will also be available for anyone, including non-residents, to rent out for private gatherings. Included will be a more intimate lounging space, a dance floor area, and access to a rooftop terrace. There will also be a small kitchenette and a unisex bathroom provided.

The small live/work studios will be accessed by the street as well as by a connecting unit, most probably a young family unit. There will be a small office space, a small conference room, a unisex bath, a storage room, and a small reception area with a kitchenette.

The large live/work studios will be accessed by the street as well as by a connecting unit, most probably a young family unit. There will be two small offices, a small conference room, a unisex bath, a storage room, and a small reception area with a kitchenette.
This special care unit will have easy access to the medical office but will not be easily accessed from the street or by other residents. It will have 14 double-patient rooms with north/eastern orientation, a day room with south or west orientation, an occupational therapy space where residents can practice everyday skills, like cooking, with a southern orientation. Three staff offices with southeastern or northwestern orientation and 6 support rooms with northern exposure will also be included. The spaces will be laid out in such a way that a continuous, secure circulation path is achieved for the well-being of the residents.

Rooftop terraces and private courtyards will be provided wherever possible for the use of the residents of Occidental Park Place.

### Dementia Care Unit

**3000 SF**

### Green Spaces

as needed
This space will be the main attraction at Occidental Park Place. In the overcast climate of Seattle, people will travel to experience the physical and social healing in this brightly, but environmentally-conscious, space. It will be highly accessible to Occidental Park and possibly even visually accessible from the stadiums or downtown. There will be open spaces as well as alcoves so that people will be able to choose the scale of their sociability. Colored glass will be a great way to incorporate color and its aspects of healing. Artificial light will need to be thought about carefully as this space could possibly be accessible early in the day and/or late in the evening.

Adjacent to the solarium, the health spa will be a combination of gym and spa. There will be spaces for workout and cardio machines as well as for class sessions for yoga, pilates, etc. There should also be transition spaces between the solarium and the spa for relaxation. These spaces will act as a buffer zone between the workout space and the social space and will probably have a much different atmosphere in terms of light and color. Programmatic elements could include massage, sauna, physical therapy, etc. The health spa will be easily accessible from the street.

Also adjacent to the solarium, the cafe will augment the social atmosphere of the neighborhood spaces. It will have a counter and register area for 2 register stations, a generous area for display of pastries and other baked goods, and a prep area with work surface for coffee and espresso machines. There will also be a small kitchen for preparing deli-style sandwiches and soups.
A medical office will be available at Occidental Park Place for both residents and non-residents. It will have a waiting room, reception area, a unisex bathroom, four exam rooms, a treatment room, two offices, and a break room with access to a private powder room.

A children’s day care will be provided, as Pioneer Square is short on educational facilities. This will provide both childcare and early education services for the residents of the building and the community. There will be one room each for: infants, younger toddlers, and older toddlers. A preschool classroom with a restroom and an after school classroom with a restroom will also be provided. This will be easily but securely accessible from the street and have access to a playground that, while secure, may also be used by resident and non-resident children.

The adult day care will provide the building and Pioneer Square with a place where older adults can come who may need some assistance during the day while their family members are at work. There will be two rooms for relaxed activities and two rooms for more active recreation. This will also be easily yet securely accessed from the street and will have access to the playground adjacent to child care.

The day cares, while separate, will share support spaces for both economical and social reasons. Both children and adults will benefit greatly from the intergenerational interaction that will be available in the outdoor spaces. There will be separate staff for each day care, but they will share office space and will be able to plan joint activities between the adults and children. These spaces will be able to oversee all the semi-public spaces, including the entrances and play areas.

### Medical Office
1500 SF

### Child Day Care
3600 SF

### Adult Day Care
3600 SF

### Day Care Support
3000 SF
SUSTAINABLE URBAN LIVING

CLUSTER SCHEME

FINGER SCHEME
BUILDING ORGANIZATION

HORIZONTAL
VERTICAL
UNIT ORGANIZATION

UPPER LEVEL | BEFORE CHANGES

UPPER LEVEL | AFTER CHANGES

MAIN LEVEL | BEFORE CHANGES

MAIN LEVEL | AFTER CHANGES

COMPONENTS

PUBLIC

SEMI-PRIVATE

PRIVATE

SHARED

GREEN SPACE

OPEN TO BELOW

UNIT BELOW

UNIT

shared green space

open to below

unit below
CONSTRUCTION METHODS

THE BUILDING BLOCKS

The panels, made of three or five layers, are up to 6 inches thick and 30 feet long. But thicker and larger panels can be made.

IN CASE OF FIRE

When massive solid-wood panels burn, their surface becomes charred. Charring can slow the fire and protect the inner core from heating, keeping it structurally sound. Panels with more layers of wood are less likely to burn through. Typically walls and ceilings are covered with a plasterboard to further reduce risk of the fire.

STRUCTURE OF WOOD

Long tubular cells of the tree trunk make wood strongest and most stable in the direction of the grain, and wear and tear prone to expansion and shrinkage due to moisture in the cross-grain direction.

MAKING THE PANELS

Layers of spruce boards are glued together. To provide maximum strength and stability, each layer’s grain is laid perpendicular to the previous one.

KLM cross - laminated solid timber

- Side cuts
- Knots
- Core
- Wood stock
- Comparison: normal glued laminated timber

Creating the panels:

- Tree trunk
- Plywood
- Wood bands
- Cross-laminated core
- Cross-laminated solid timber

Walls are finished with spray foam.

Floor and walls can be fitted in place with a mobile crane. Metal brackets and screws are used to join panels together.

ELFIOTOR SUIT

For fire and soundproofing, the elevator shafts and stairwells have double walls with an insulating layer between.

STRUCTURALLY SOUND CORE

In areas of high stress where walls press into the floor, additional screws or nails can be driven into the floor to distribute the surface load deeper into the panes.

OCCIDENTAL PARK PLACE
Cross Laminated Timber [CLT]

Cross-laminated timber (CLT) is an advanced product, developed in Switzerland in the early 1990s, designed for increased dimensional stability and strength in framing systems. CLT is made of multiple layers of wood, with each layer oriented crosswise to the next. Used for long spans in floors, walls or roofs, CLT can be prefinished, which reduces labour onsite, and is equally suited to new construction and additions to existing buildings.

Green building practices have helped CLT’s popularity, with its combination of environmental performance, sustainability, design flexibility, cost-competitiveness and structural integrity. As CLT is all wood (except the adhesive that binds it together), it offers carbon-storage advantages over non-wood structural alternatives.\(^{14}\) It has also been shown to resist seismic forces better than traditional wood-frame construction.

CROSS LAMINATED TIMBER
[WHITEWASH FINISH]

SANDSTONE
WARM COLORED GLASS
[YELLOW]

WARM COLORED GLASS
[RED]
SUSTAINABLE URBAN LIVING

PROGRAMMING

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