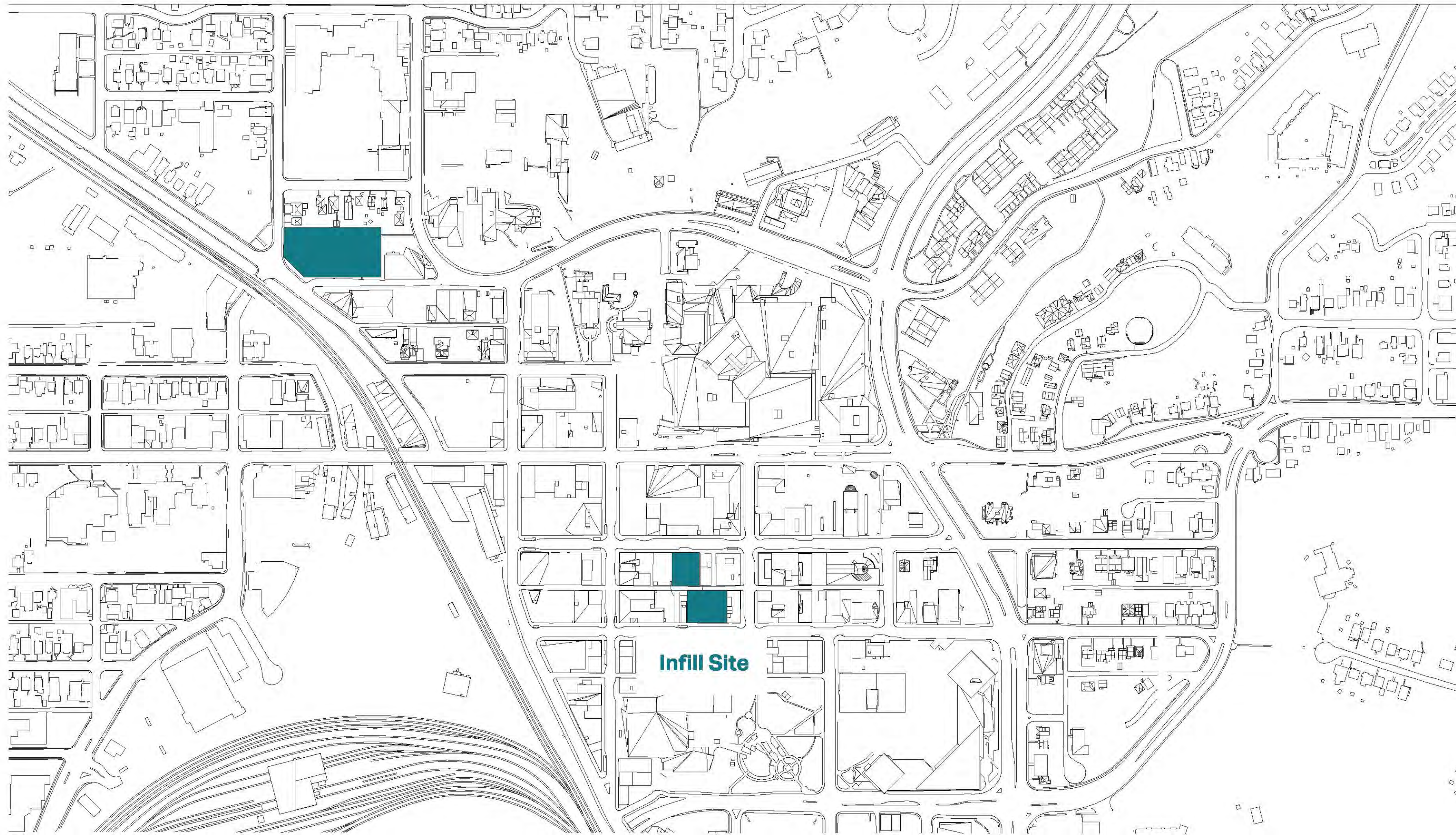


TRANSITIONS

Rebecca McLennan & Brett Walter
ARCH 4505



Site Analysis



Both Proposed Sites

Community Gardens Around the Downtown Area

Area of Study and Site

Family Demographics

Education & Labour

Socio-Economic Status

Housing

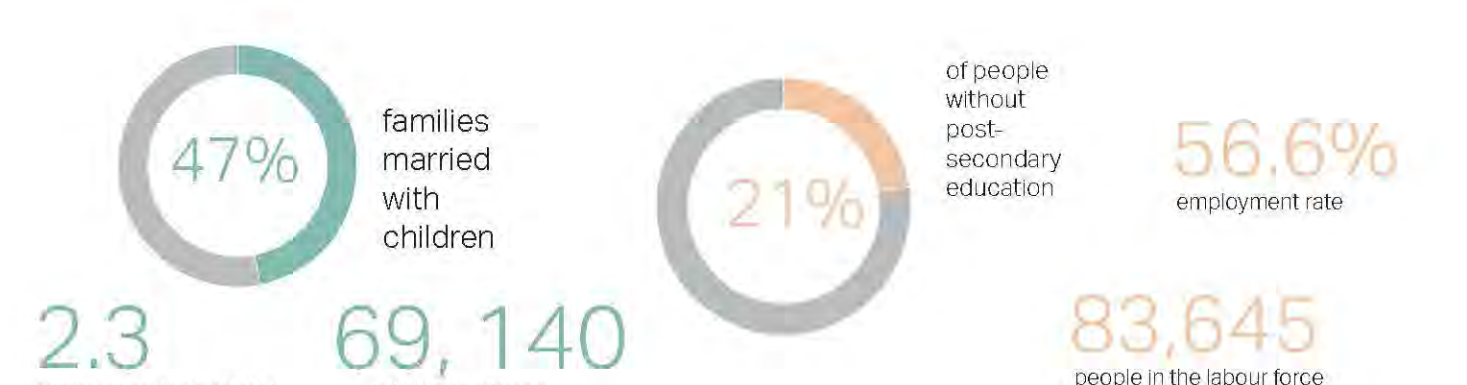
Infill



Greyfield



Greater Sudbury



In 2018, at least 1,954 adults and 224 dependent children in the City of Greater of Sudbury were experiencing varying degrees of homelessness.
 ("Downtown Sudbury: A Plan for the Future; Going Downtown Growing Downtown" (The City of Greater Sudbury, January 2012), 15.)

As of 2018, Sudbury's 3 emergency shelters only had 64 beds available.¹ The resources that Sudbury has available for those struggling with homelessness does not even meet the need and demand to support the homeless population
 Nicole Brunet et al., "Homeless Survival Guide: Surviving the City of Sudbury" (Laurentian University, September 2020), 4-06.)

Interviews

“Shelters, transitional, and affordable housing BELONG downtown. It’s where the services are that are designed to help the most vulnerable.”

Cindi Briscoe, Manager of Housing Services, Greater City of Sudbury

Key Takeaways from Interviews

- Social services operate in Sudbury as a network of various services.
- Communication and geographical barriers are challenging for staff and the homeless population to navigate.
- A one-stop social services hub would be helpful. There is a large cohort of “hidden homeless” in Sudbury (i.e. couch surfing, unstable environment, etc.)
- Lack of informal services hugely overlooked. Camaraderie and social support help people break cycle of homelessness.
- Downtown can be triggering for people struggling with substance abuse, violence, etc.
- Softscape and green implementation becoming part of the model for Sudbury Housing strategy.
- People know they need to distance themselves from friends and family who are also struggling, but find it hard, can lead to codependency.
- “Unit takeover”, when friends come to stay and never leave, ultimately displacing the tenant who the transitional home was rented to.
- Cameras exist in many transitional housing buildings. Harm reduction strategies are critical. Safe consumption site is critical.
- Folks need assessment first, as soon as they enter the system.
- Embedding volunteer services/opportunities is helpful for those who aren’t ready for employment yet.
- People do best in transitional housing when they have privacy from their neighbours if needed, yet complete isolation can be detrimental. Most transitional housing models utilize 4-bedroom suites to balance this.
- Community garden network would welcome another site.
- “Mixed communities” been proven to be most effective, that balances separation and also socialization.
- Rentable spaces for birthday parties, xmas dinner, etc. for people in transitional.
- Hotel room for family and friends who come to town for overnight stay (i.e. for court hearing, appointments, etc.)
- Waived parking requirement for transitional housing.
- Rotating door of practitioners and doctors in the social services hub would work best.
- Avoid corners that are out-of-sight.
- Need transit, retail, and social services nearby.

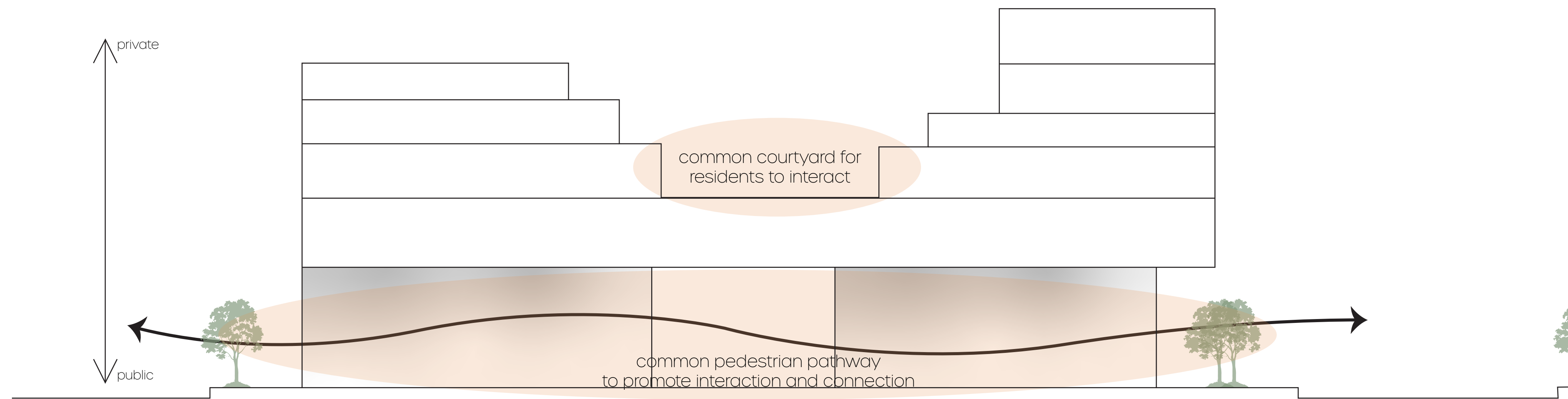
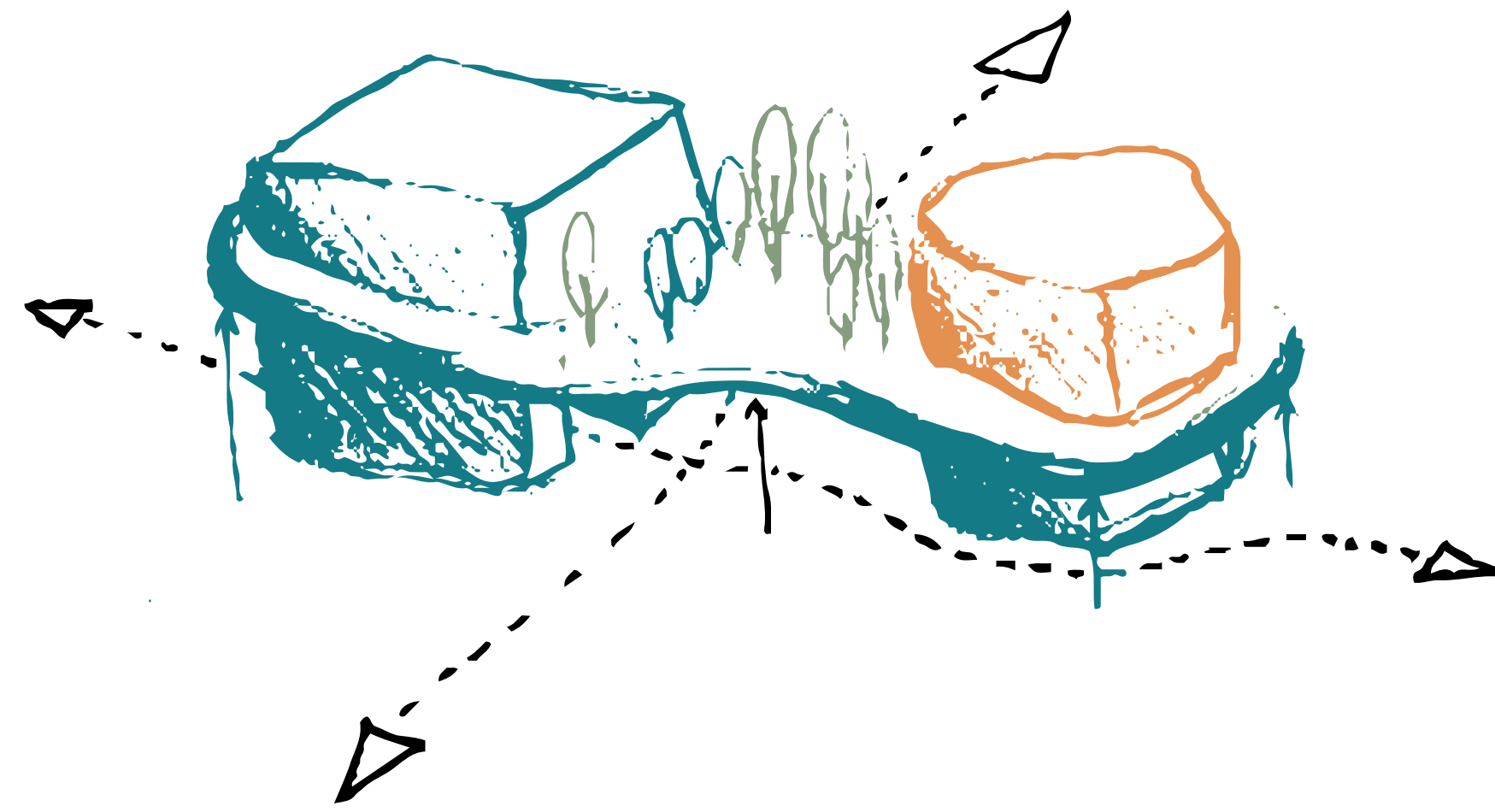
Conducted interviews with:

Karlie Foster and Jeff Hardy, Rent Supplement Program, Sudbury and Manitoulin Mental Health Association, Nov 11, 2020.

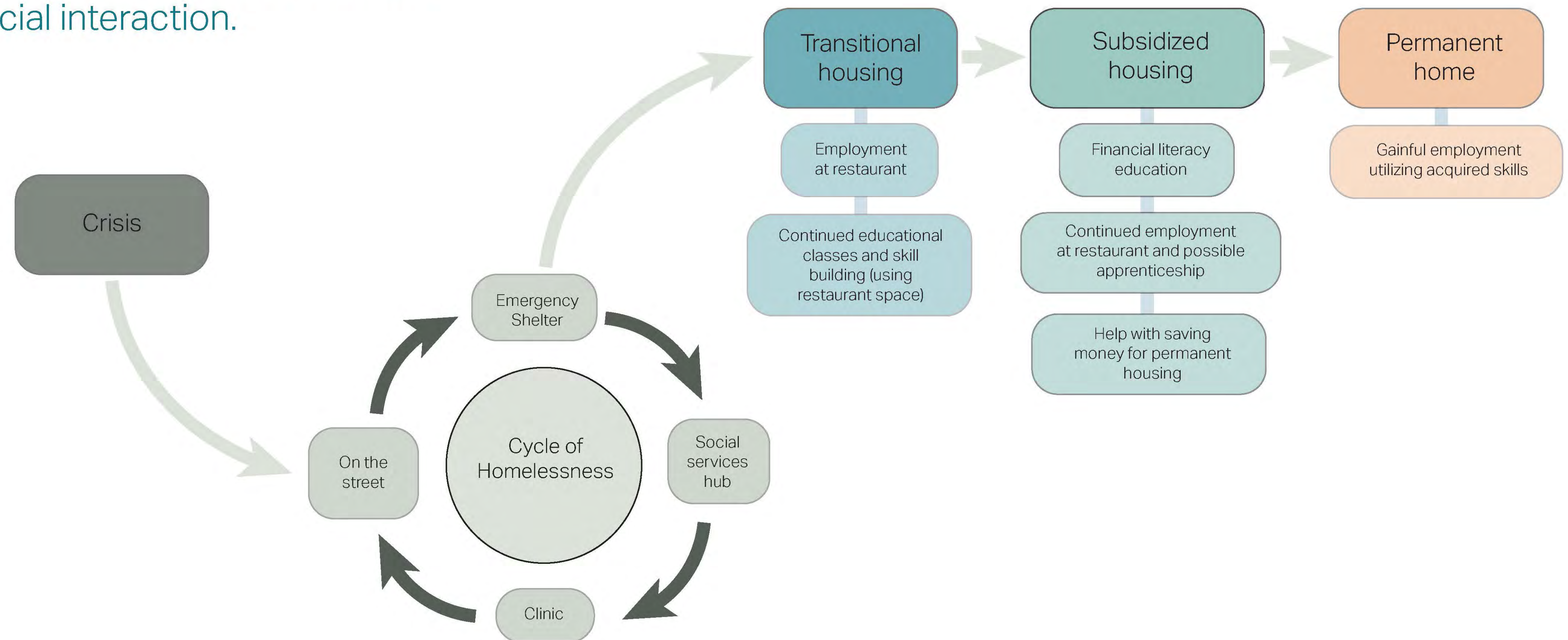
Cindi Briscoe, Manager of Housing Services, Greater City of Sudbury, Nov 20, 2020.

Melissa Riou - Senior Planner - Community and Strategic Planning, Greater City of Sudbury, Nov 27, 2020.

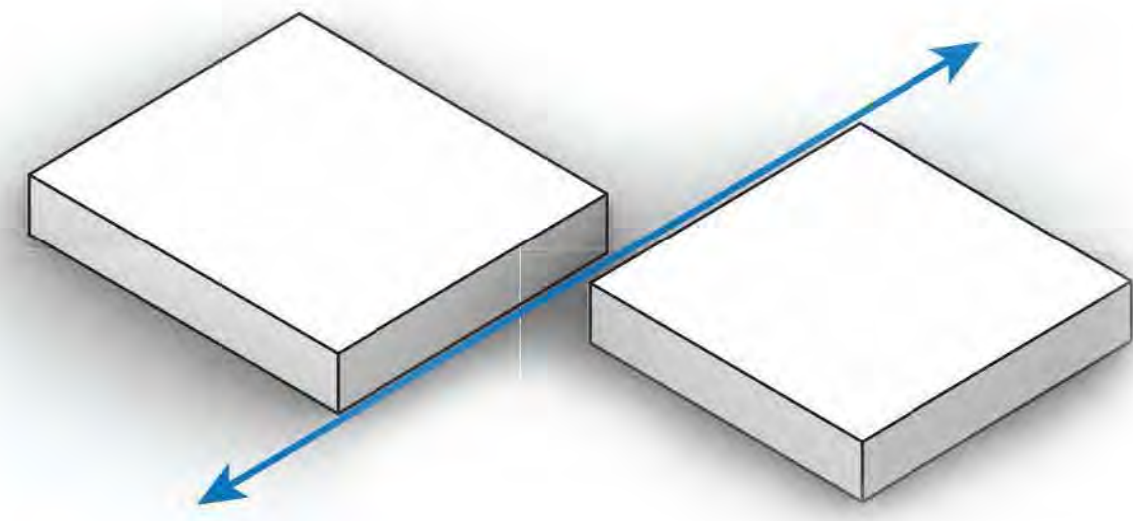
Concept



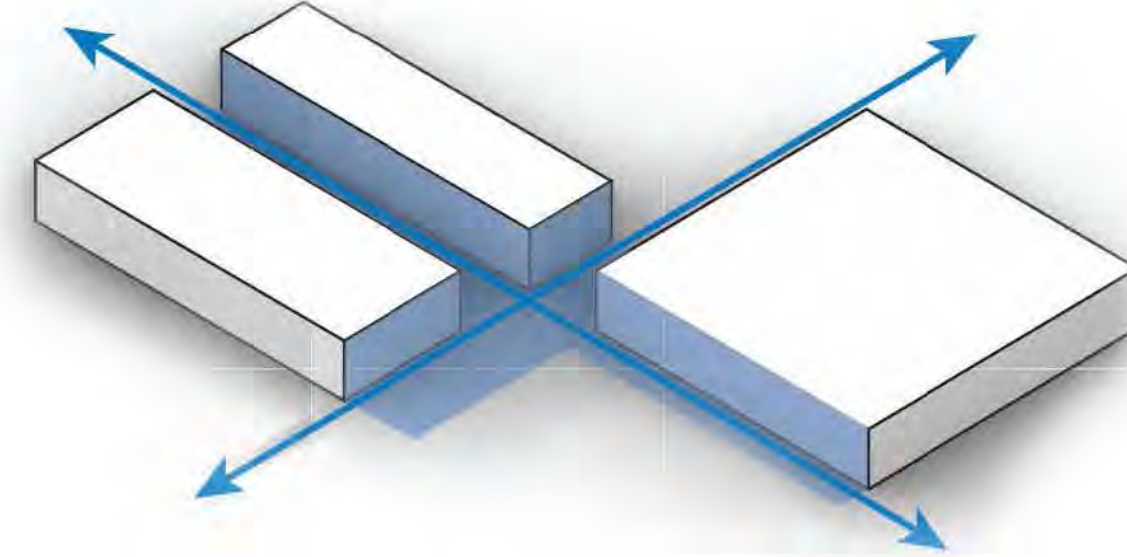
Downtown Sudbury is facing a number of challenges; high rates of food insecurity, homelessness, and drug use have contributed to crisis-level issues for many residents. This presents an opportunity to provide a dynamic housing solution that will help those who are struggling to transition out of their difficult situations into something stable and permanent. By employing an integrated, holistic approach to housing that includes programming for social services, education, employment, and common green spaces, we believe we may both serve our most vulnerable population, and enrich the downtown community simultaneously through social interaction.



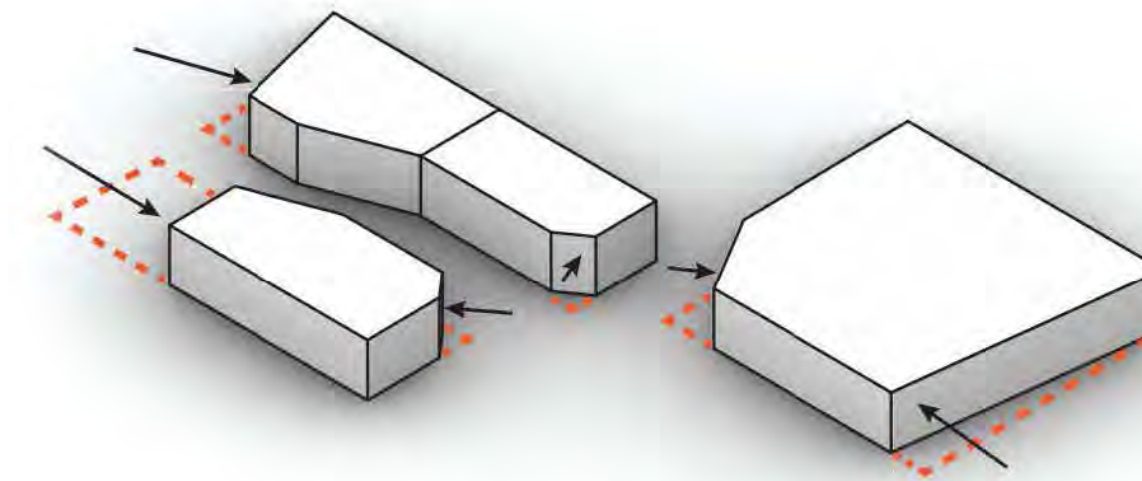
Conceptual Massing



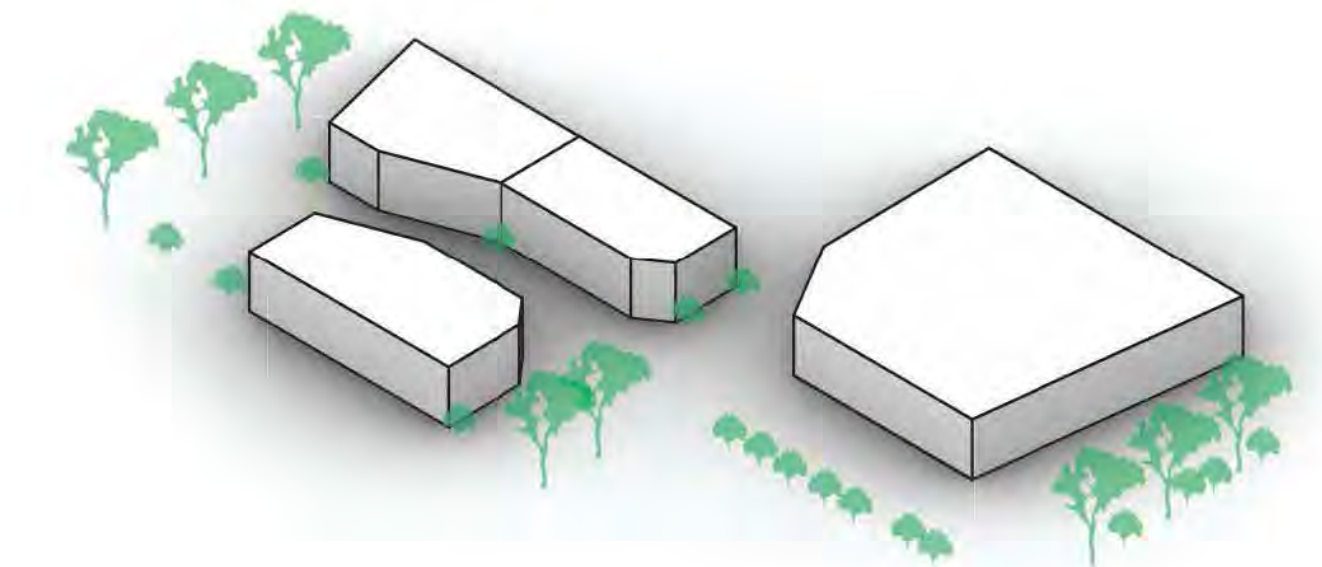
City Hall Lane bisects the property, and shall be maintained as a through-way for pedestrians, but also for garbage pick-up, snow removal, and shipping/receiving.



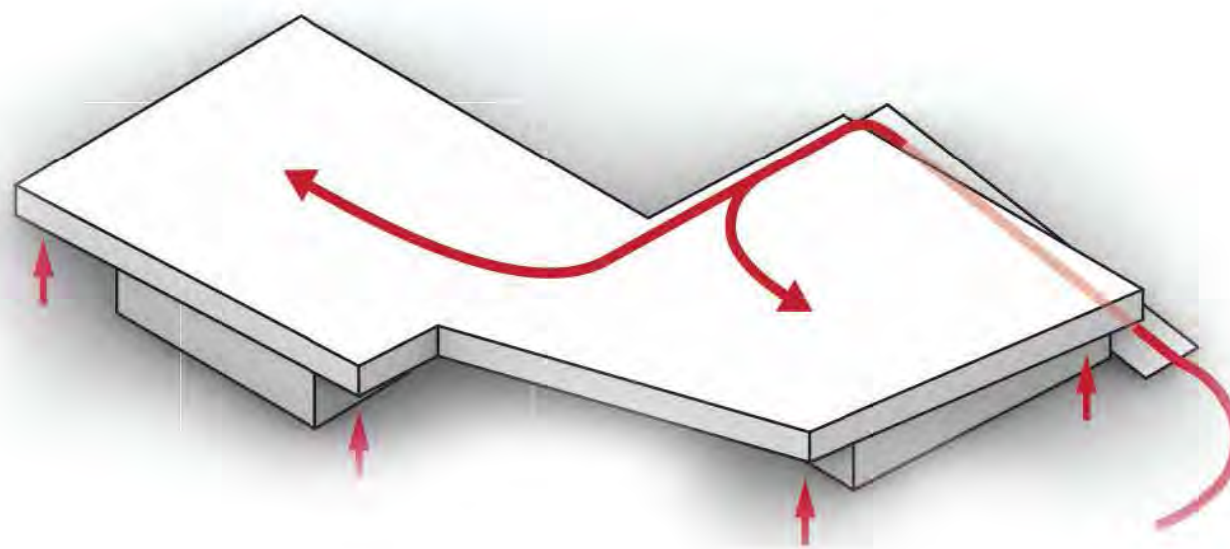
A new - and perpendicular - axis is proposed to function as a Social Corridor, connecting Cedar Street to Larch Street, exclusively for pedestrian access.



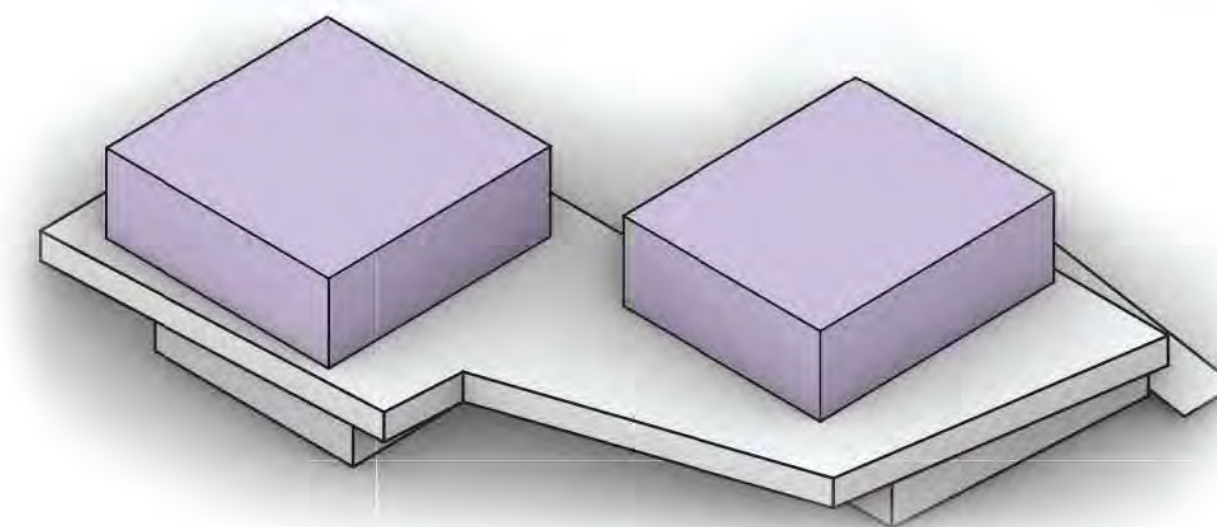
Ground floor masses retreat from the property edge to expand sidewalks on Cedar and Larch. Masses are then chopped and molded to soften corners and gesture to entryways.



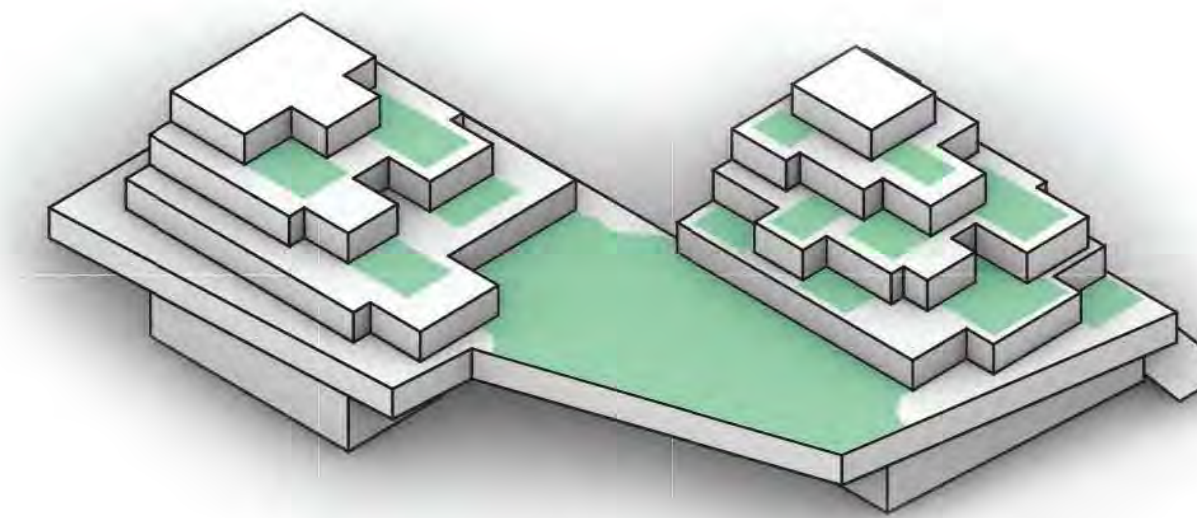
The ground level areas (Social Corridor, Old City Hall Lane, and sidewalks) are beautified for the pedestrian experience by implementation of plant life and seating.



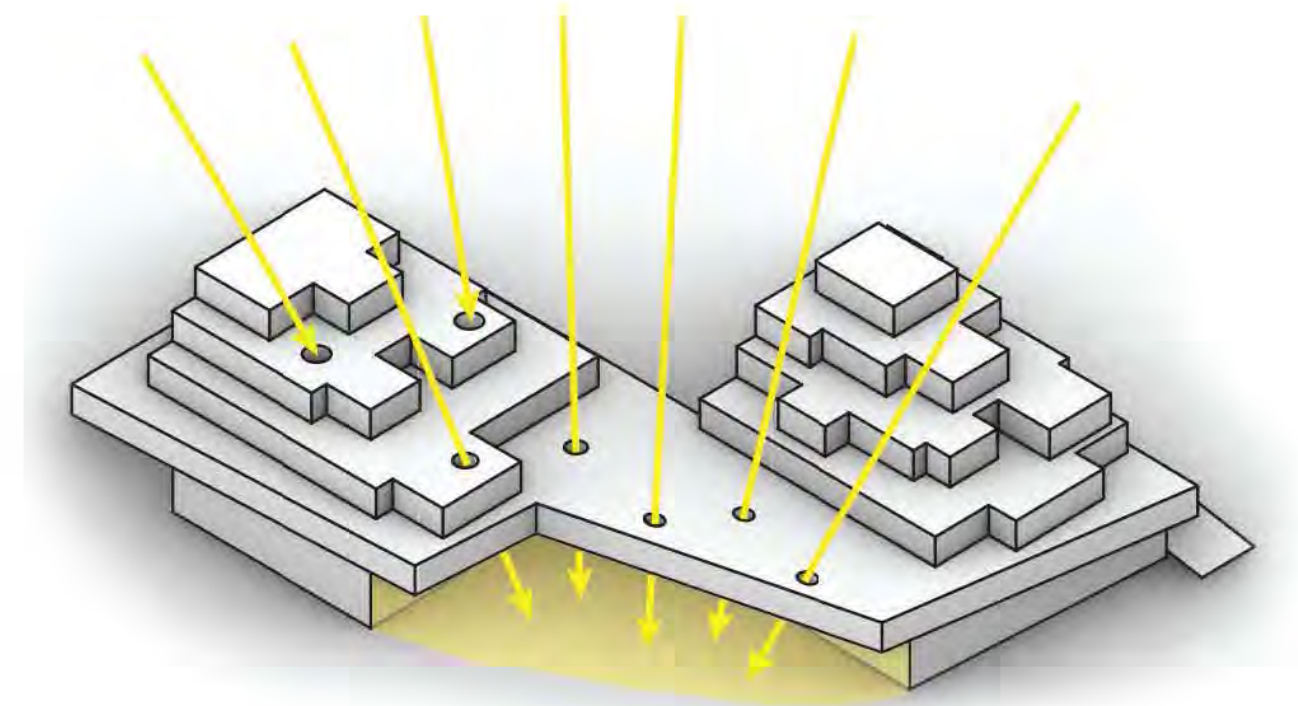
Parking is elevated to the second story, with ramped access off of Larch Street, effectively separating the pedestrian experience from the vehicular. A separate ramp also provides access to additional underground parking.



Residential units lump into two main masses. Transitional and subsidized are together in the Cedar Street tower, with condominium units in the Larch Street tower. Segregation, privacy, and carefully curated opportunities for socialization are the driving factors to ensure each resident's specific needs are met, based on tenure type.

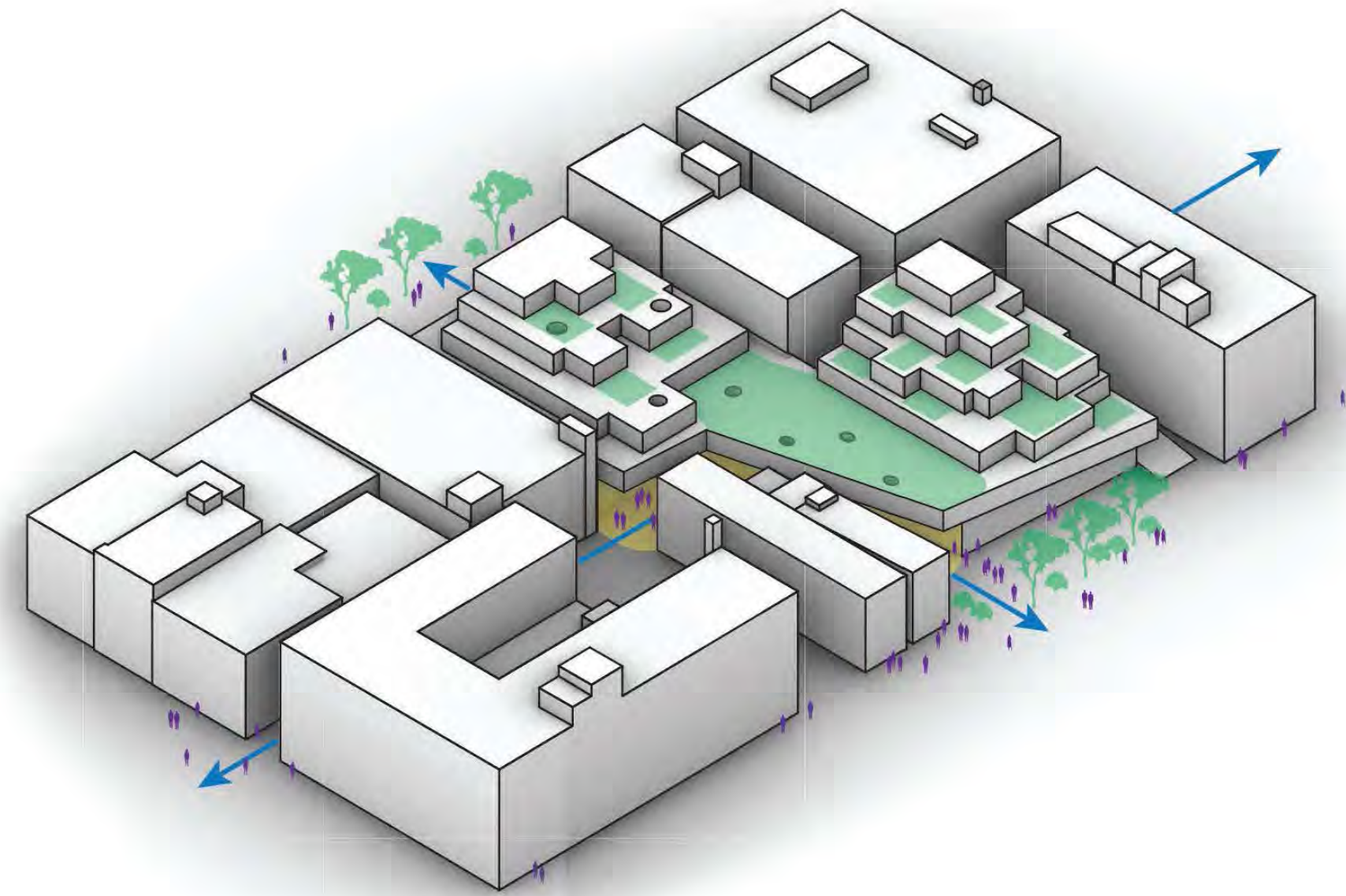


A modular, cubic approach to residential massing provides opportunities for terraces, which can provide garden space for tenants. The space between the residential towers functions as an elevated courtyard, giving residents a shared semi-public greenspace.



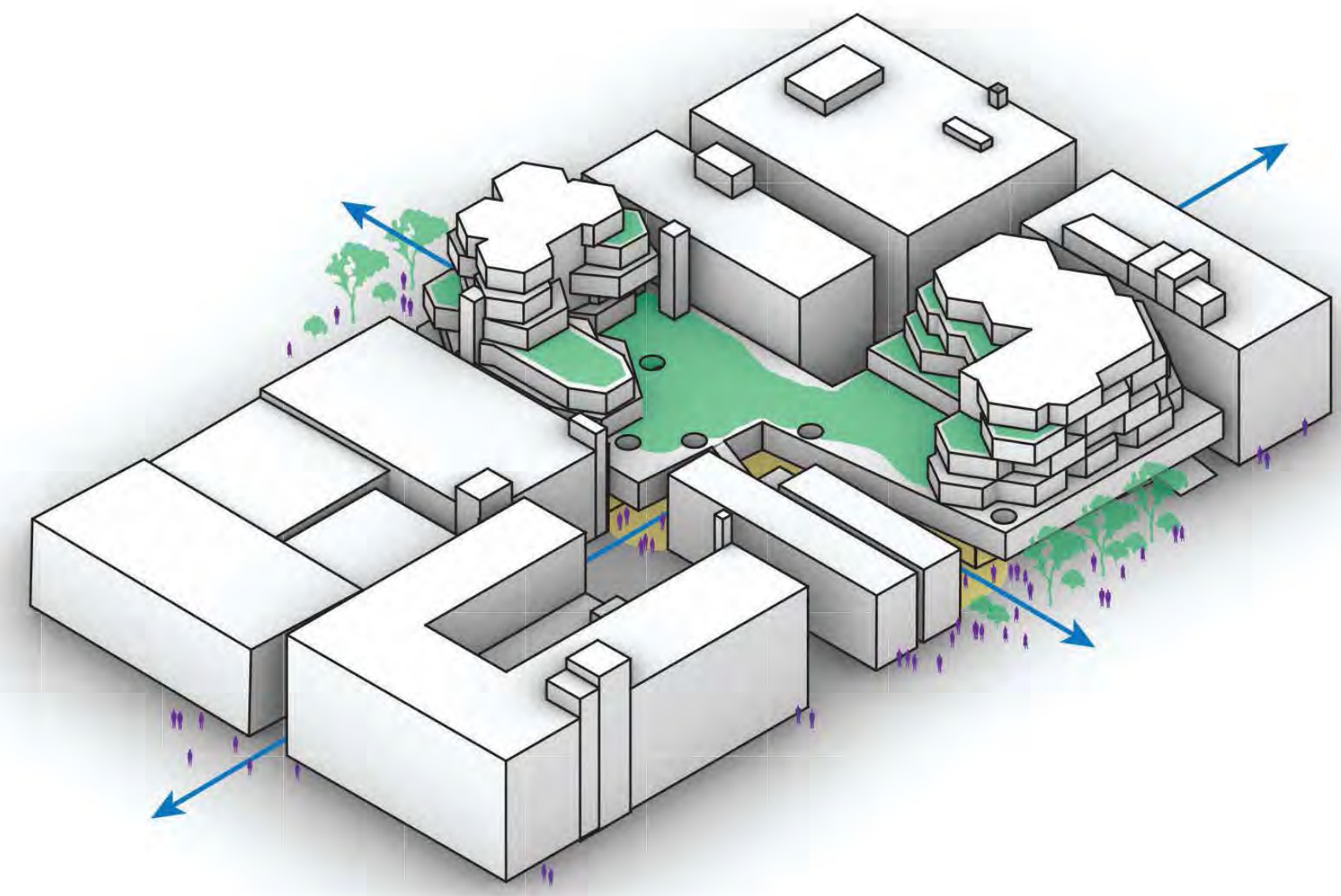
A series of mirrored, reflective lightwells capture light and channel it downward into the covered Social Corridor space, providing natural, diffuse light to the pedestrian-centric public space.

Bringing It Together On The Site



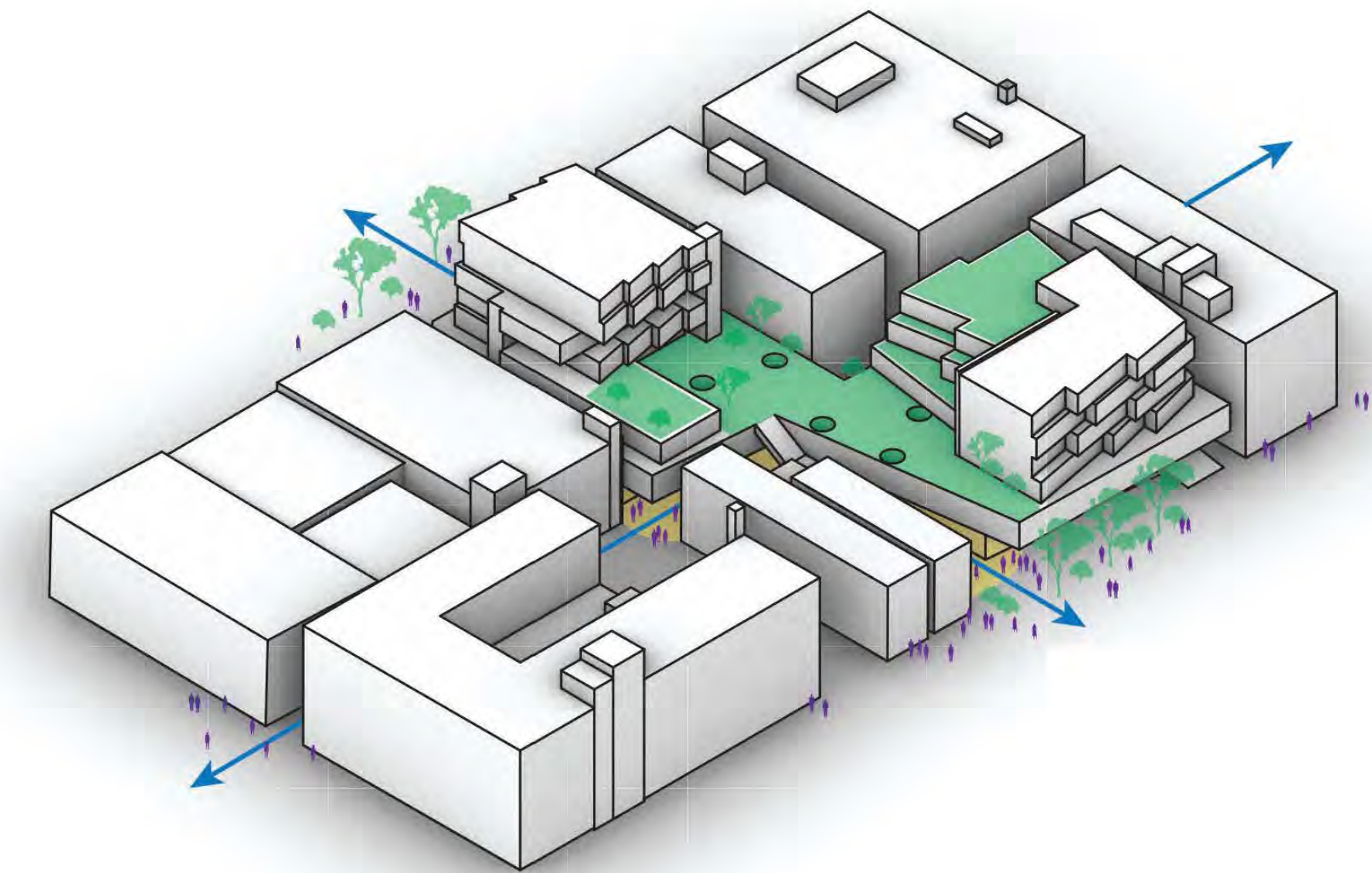
Version 1 (cubic):

Using a rectilinear cubic massing strategy for residential units creates larger terraces. Although right angles provide predictability for plans and vertical circulation strategies, the pyramidal clustering presents a challenge to get light to residential units in the “core of the pyramid”.



Version 2 (hexagonal):

A hexagonal massing strategy creates more sightlines and access to solar gains than the four-walled counterparts. Unexpected and interesting spatial relationships between spaces become apparent. A sizeable challenge is to stick to a sensible and efficient approach to structure, circulation, wall systems, and constructability.



Version 3 (angular):

A staggered, angular facade utilizes strengths of both the cubic and hexagonal masses in that it provides a sensible framework for circulation and plans, while also providing additional access to solar gains and more interesting views. With this strategy, every dwelling unit is in essence a corner unit, and enjoys the benefits of additional natural light, sightlines, and a wrap-around balcony.

Urban Design Precedents

Rooftop Garden that employs the people living in transitional residence and feeds to grocery store and restaurant



Gary Comer Youth Center
("Gary Comer Youth Center,"
Landscape Performance Series, July 16, 2018)

Lightwells that act to bring natural light down to social corridor, but also illuminate at night to bring artificial light

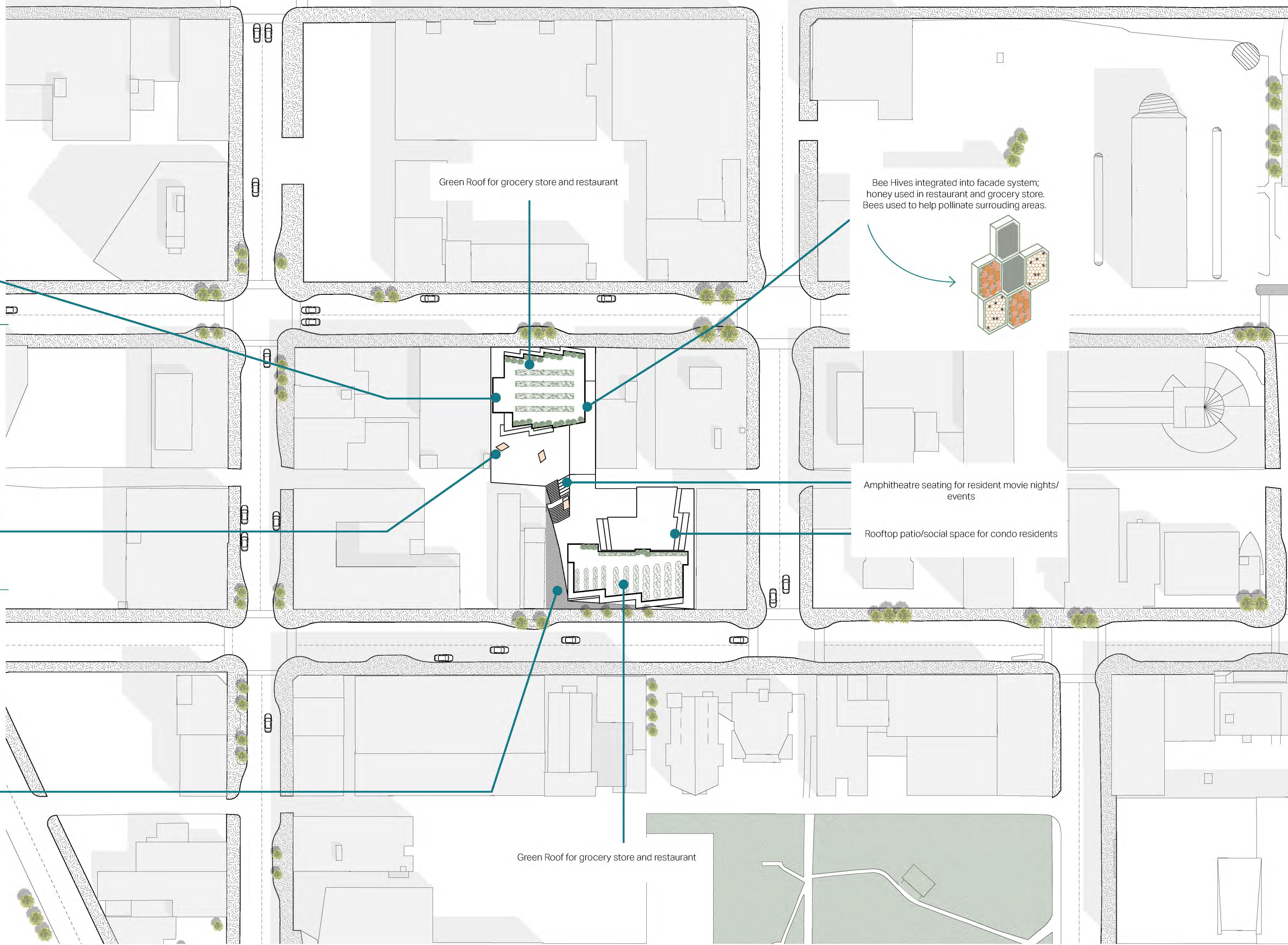


Orquideorama Botanical Garden
(Nico Saleh, "Orquideorama/
Plan B Architects + JPRCR Architects,"
ArchDaily, May 17, 2008.)

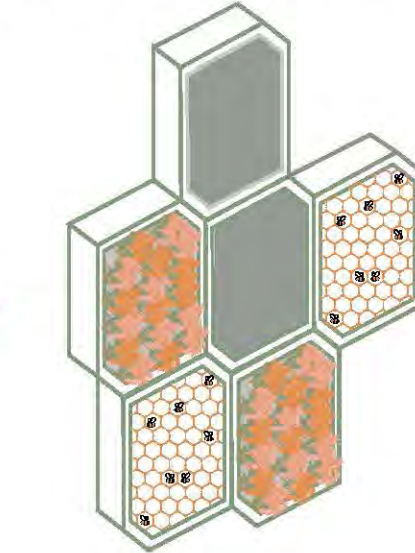
Stone pathway that creates a social corridor from Cedar Street to Larch Street. Pathway integrates greenery to blur softscape and hardscaped surfaces.



High Line New York
(Robin Pogrebin,
"Renovated High Line Now Open for Strolling,"
June 8, 2009.)



Bee Hives integrated into facade system; honey used in restaurant and grocery store. Bees used to help pollinate surrounding areas.



Amphitheatre seating for resident movie nights/events

Rooftop patio/social space for condo residents

Green Roof for grocery store and restaurant

Green Roof for grocery store and restaurant

Plantings to Attract Bees

HERBS	lavender	catmint	sage	cilantro	thyme	fennel	borage
PERENNIALS	crocus	buttercup	aster	hollyhocks	anemone	snowdrops	geranium
ANNUALS	calendula	sweet asylum	poppy	sunflower	zinnia	cleome	heliotrope

Lightwells allow for light to enter into social corridor:
gardens below the lightwells
(can be used for community gardens)
Lit at night to make the space feel safe.

Ramp up to residential
parking and existing parking
spaces

Wood seating integrated into the Corridor
below the lightwells, as well as bench
seating with planters to act as barriers
along the alleyway.

deliveries, garbage disposal,
and snow removal route

Seating integrated around the
lightwells giving people places
to sit and spend time

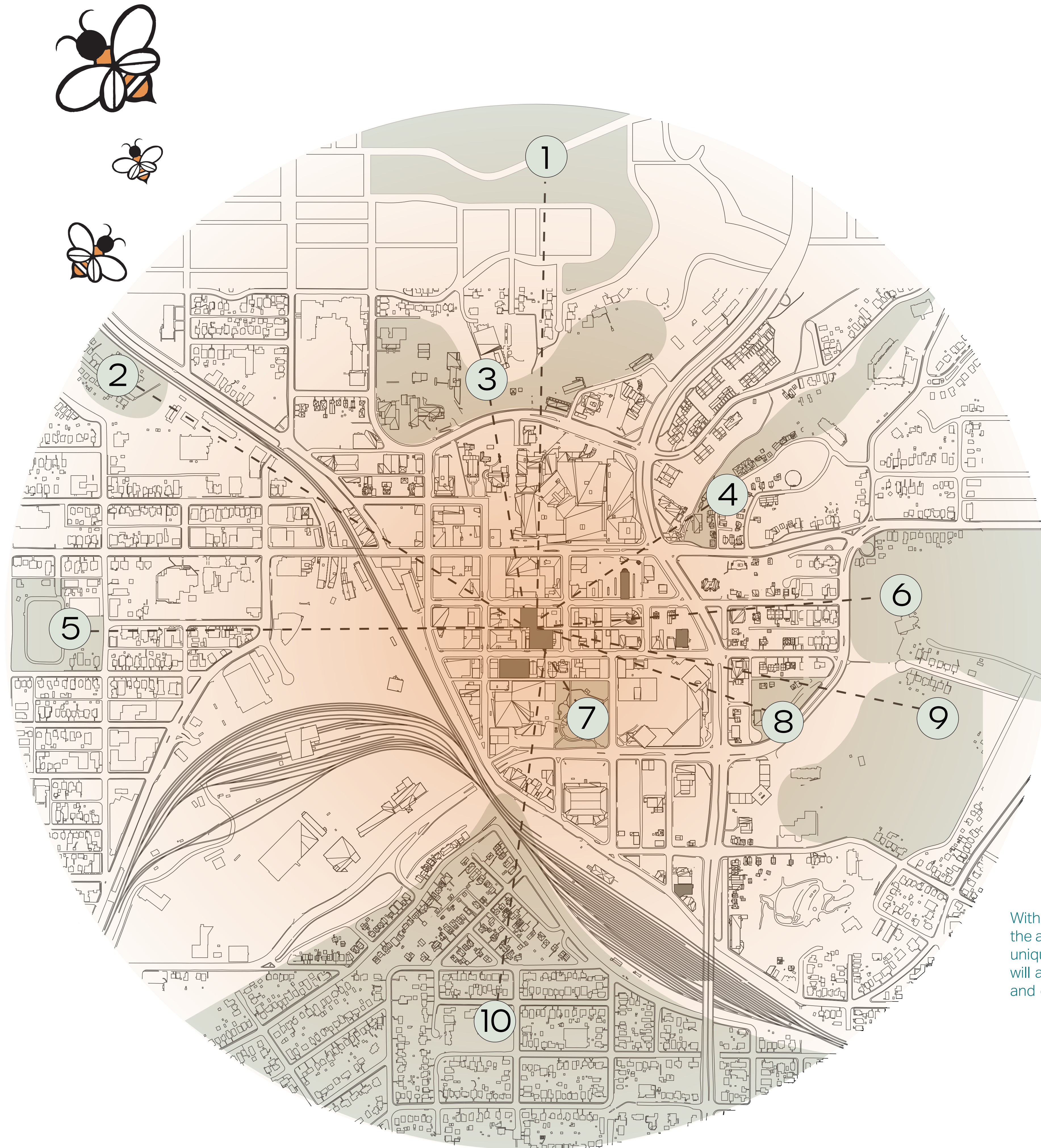
Interlocking Pavers for the Social
Corridor Pathway. Pavers allow for plants
to grow in and takeover the space, and
allow for drainage on the site.

Social Corridor from
Cedar Street to Larch Street:
Promotes connections between
community and residents

Fruit Trees: For Use by public,
grocery store & restaurant

Ramp down to commerical
parking for grocery store
and restaurant



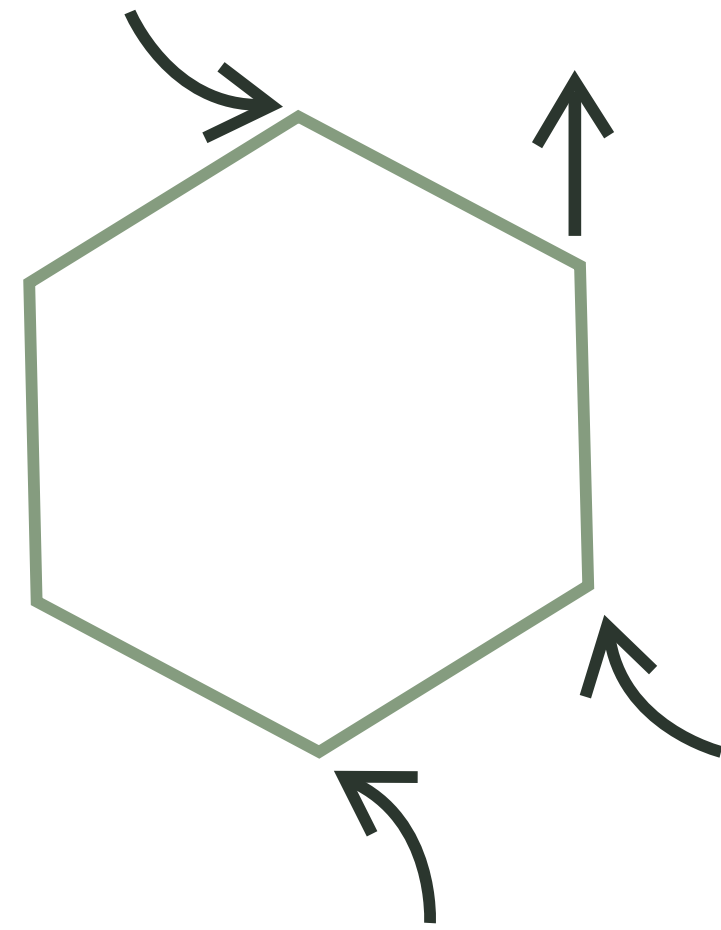


BEE POLLINATION RANGE

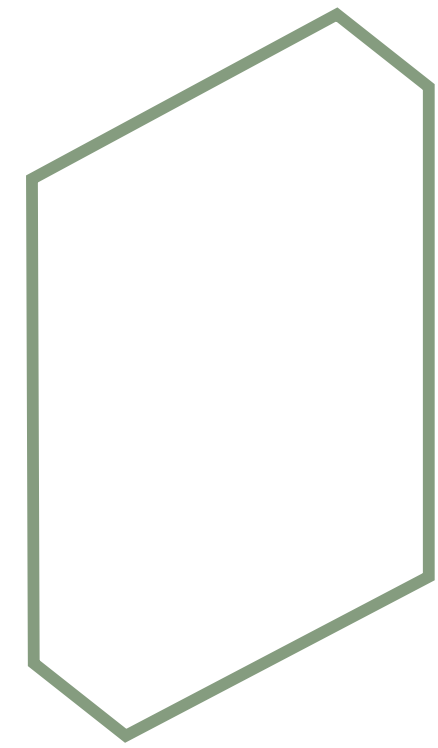
With their 1km pollination range, bees that are kept on site will have the ability to reach at least 10 separate green belt areas, each with unique biodiversity. The optimal position of the beehives on site will assist in pollination efforts of these surrounding green areas, and contribute to a robust honey production that can be sold in the grocery store and restaurant.



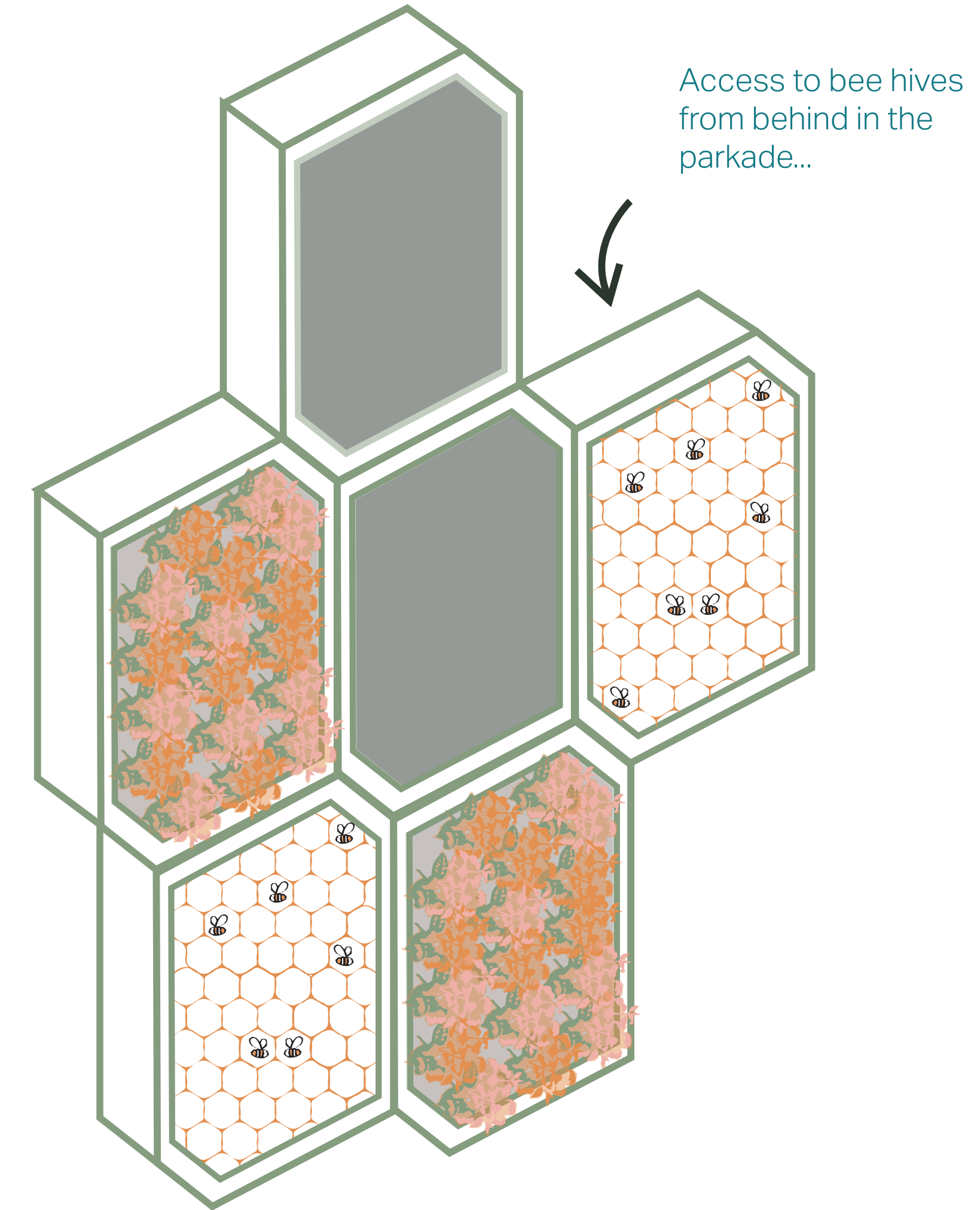
Facade System



Step 1:
Began with a hexagon shape in units which gave the opportunity for residential units to gain more solar access, as well as it is the most basic representation of bees. We pushed and pulled vertices to create and abstracted form the the facade system

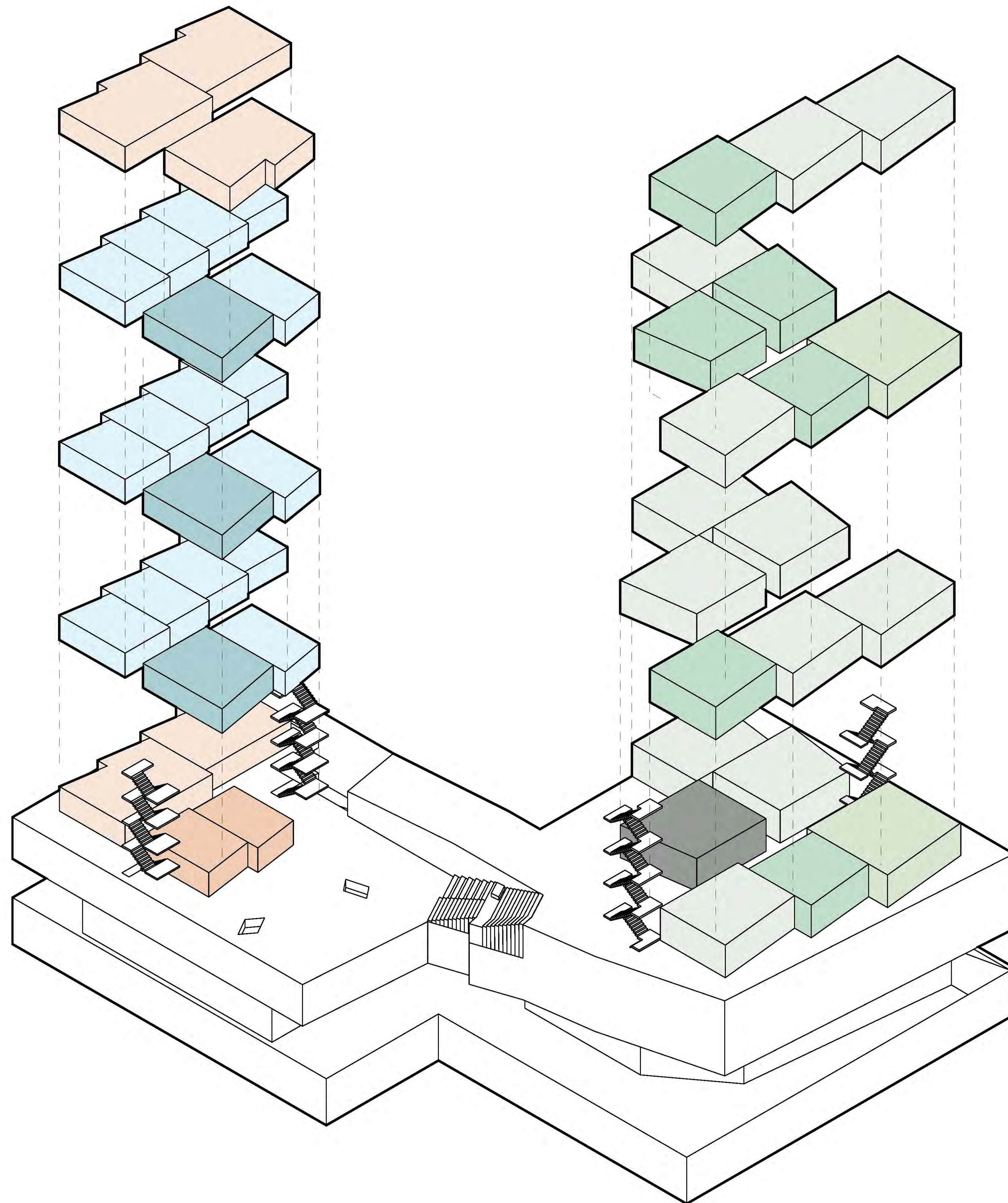


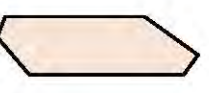







Step 2:
Elongated hexagon form is created for the facade system that will hold wood panels, flower panels, and in specific cases, bee hives.



Step 3:
Hexagon form is tessellated to form the facade system that acts also to shade the southern facade of the grocer store.

Unit Distribution



Unit Type	#	Total Beds
 Transitional (4 bedroom Unit)	5	20
 Transitional (Guest Rooms)	2	2
 Subsidized - One Bedroom	15	15
 Subsidized - Two Bedroom	3	6
 Condo - One Bedroom	6	6
 Condo - Two Bedroom	12	24
 Condo - Three Bedroom	2	6
	45	79
 Bee Storage/Green Roof Storage		

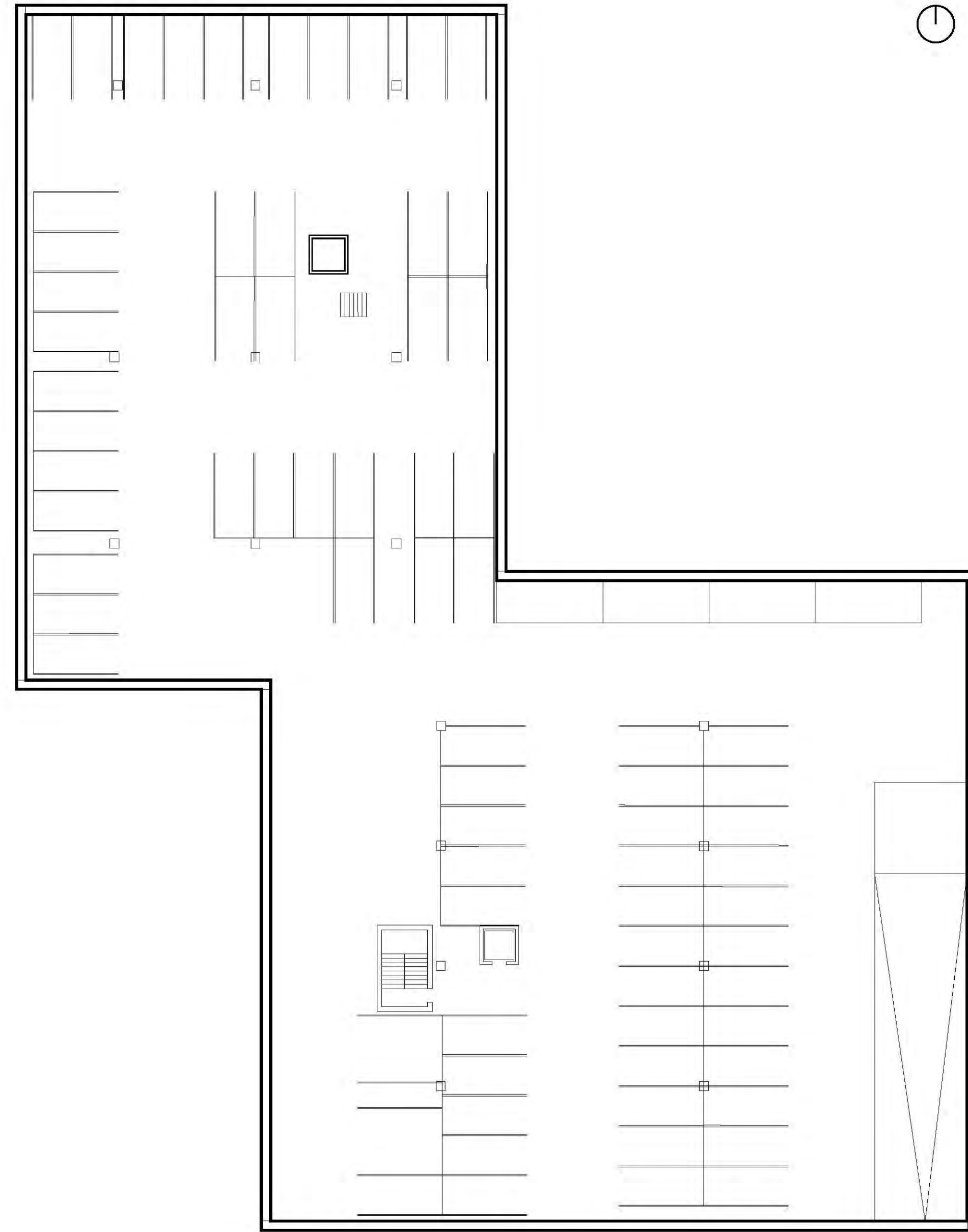
Restaurant Perspective



Courtyard Perspective

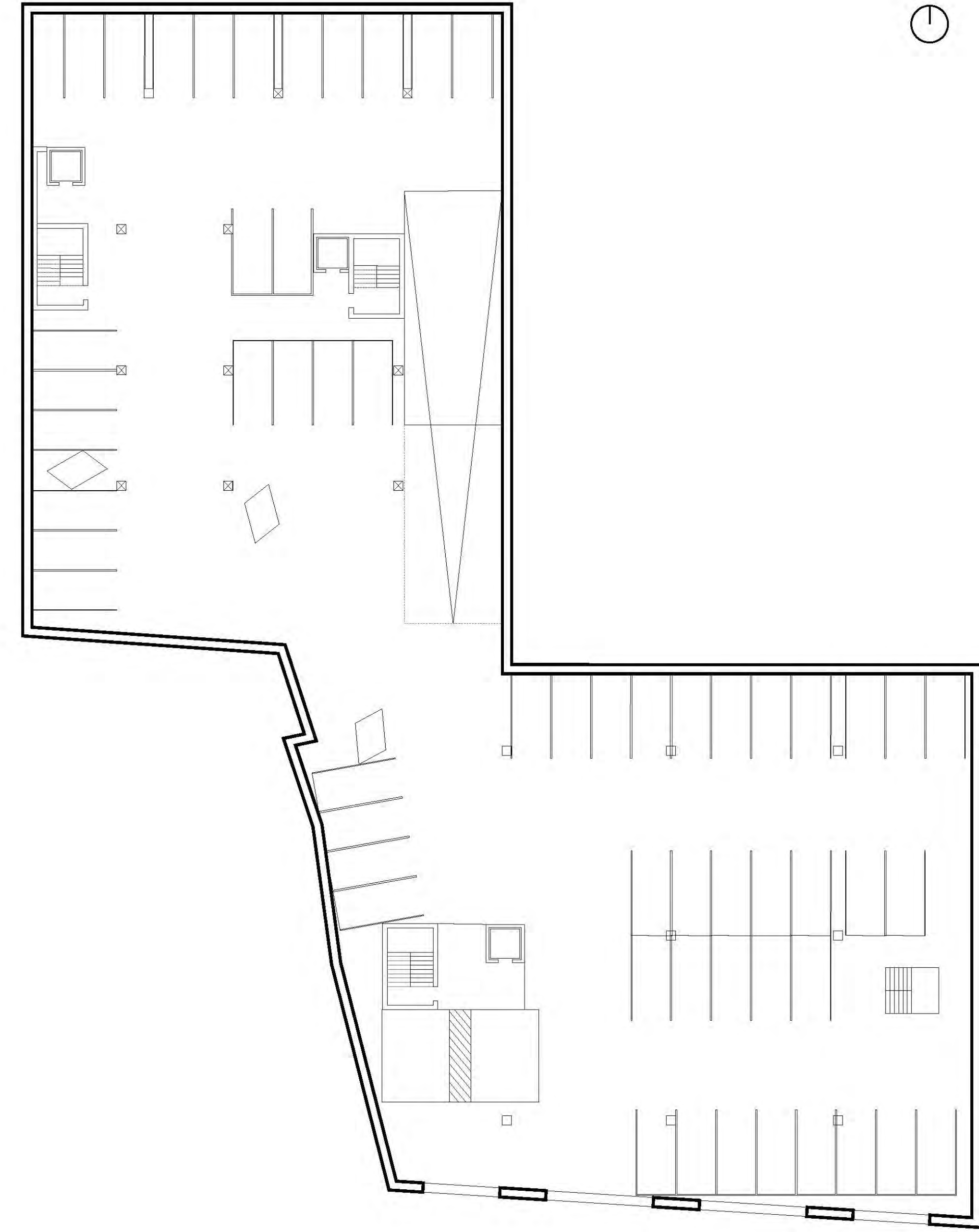


Parking Plans



Underground Parking

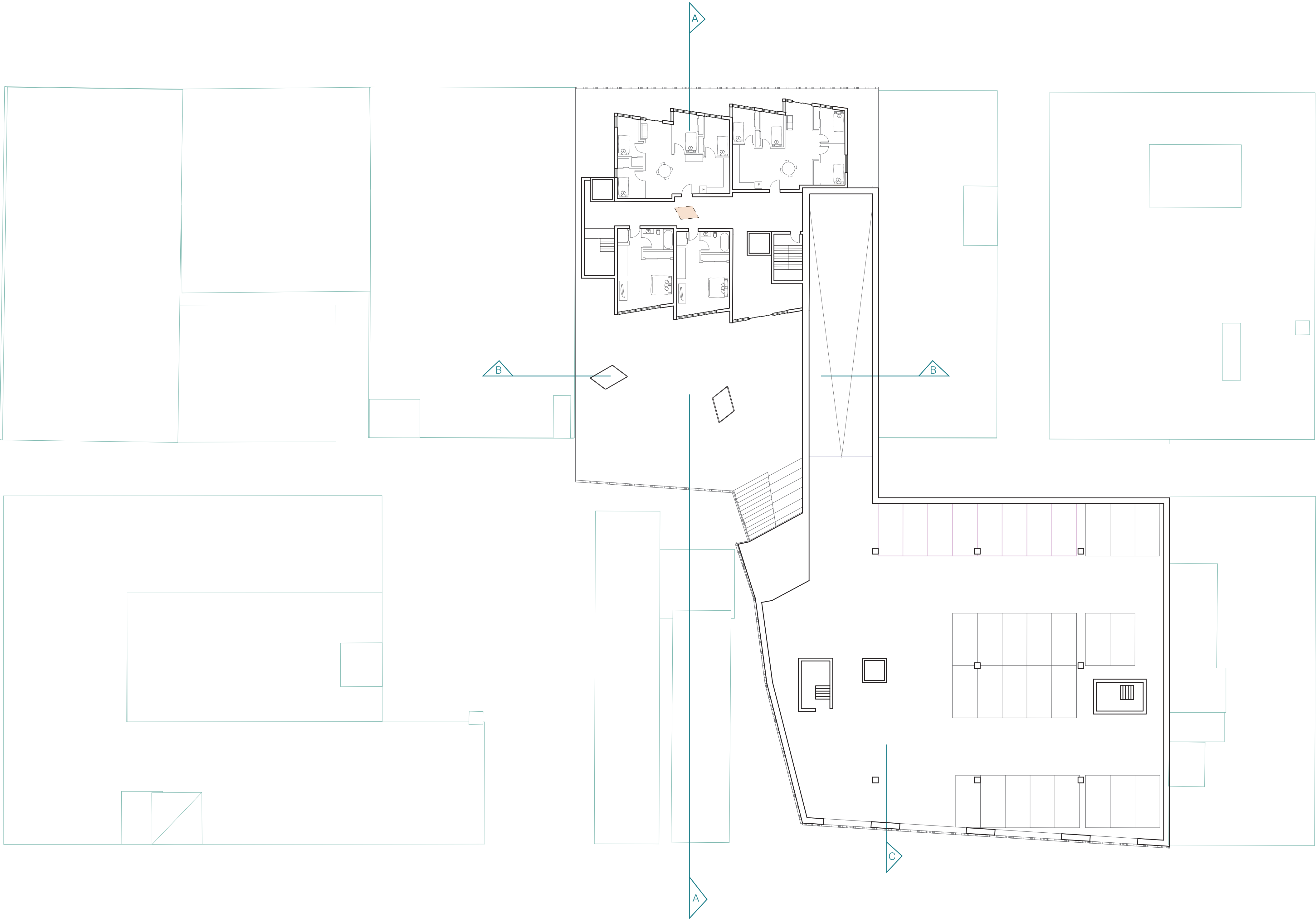
Scale 1:250
0m 1 2 4 8 16



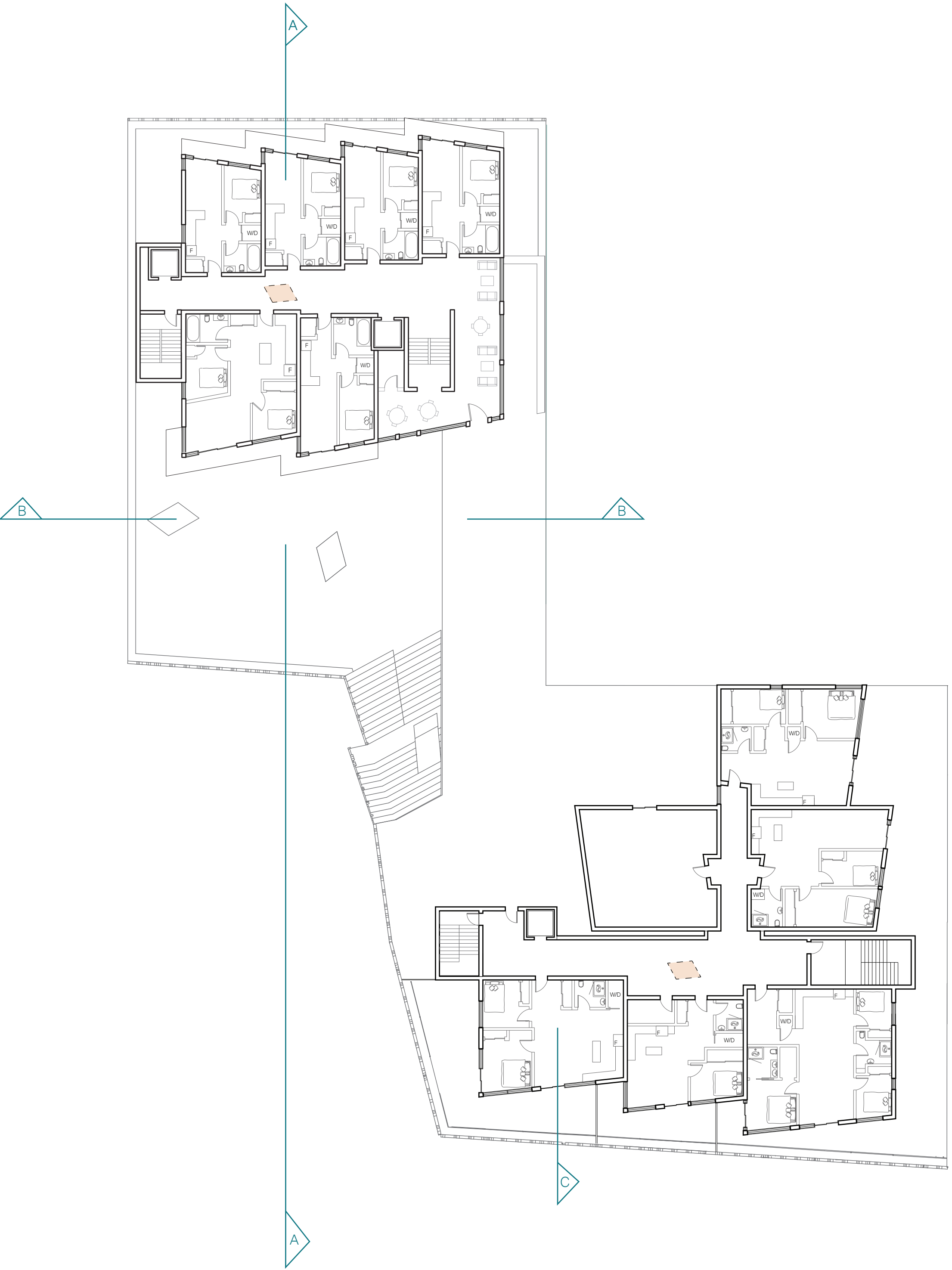
Above Ground Parking - Level 1

Scale 1:250
0m 1 2 4 8 16

Residential Floor Plans



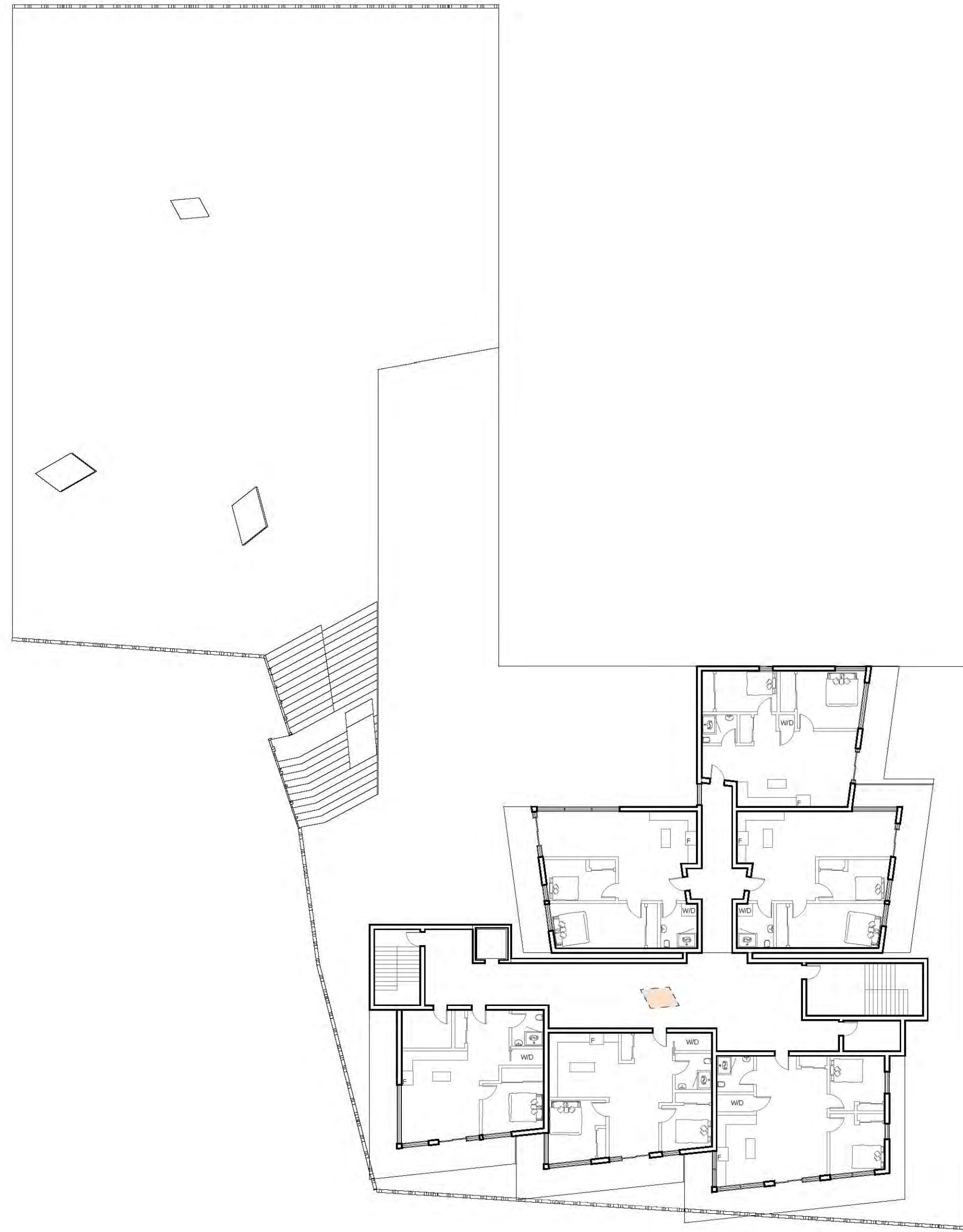
First Floor Plan of North Tower (Transitional)
Upper Level of Parkade



First Floor Plan of South Tower (Condominiums),
Courtyard, and
Second Floor Plan of North Tower (Subsized)



Condominium Floor Plans



Second Floor Plan - Condominiums



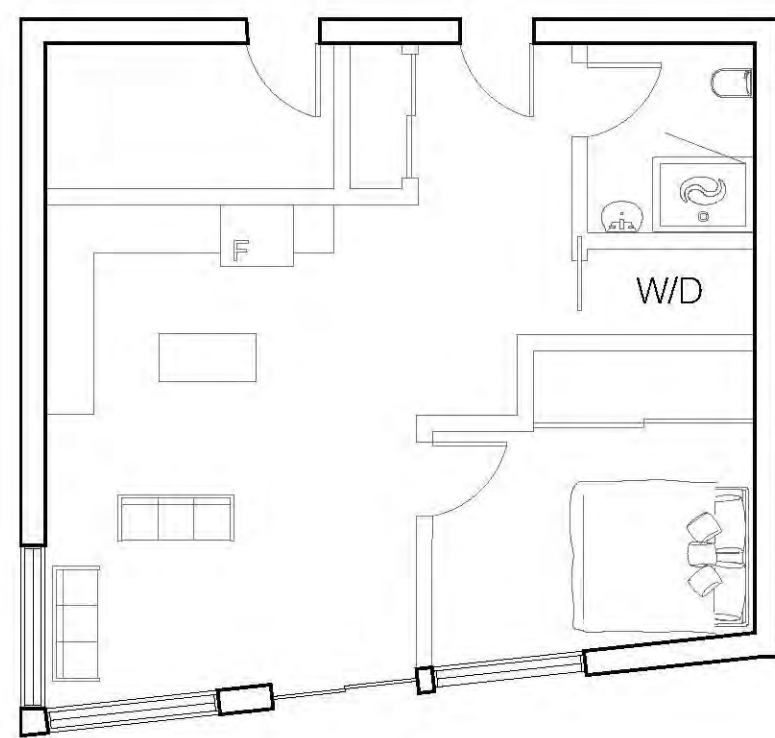
Third Floor Plan - Condominiums



Fourth Floor Plan - Condominiums



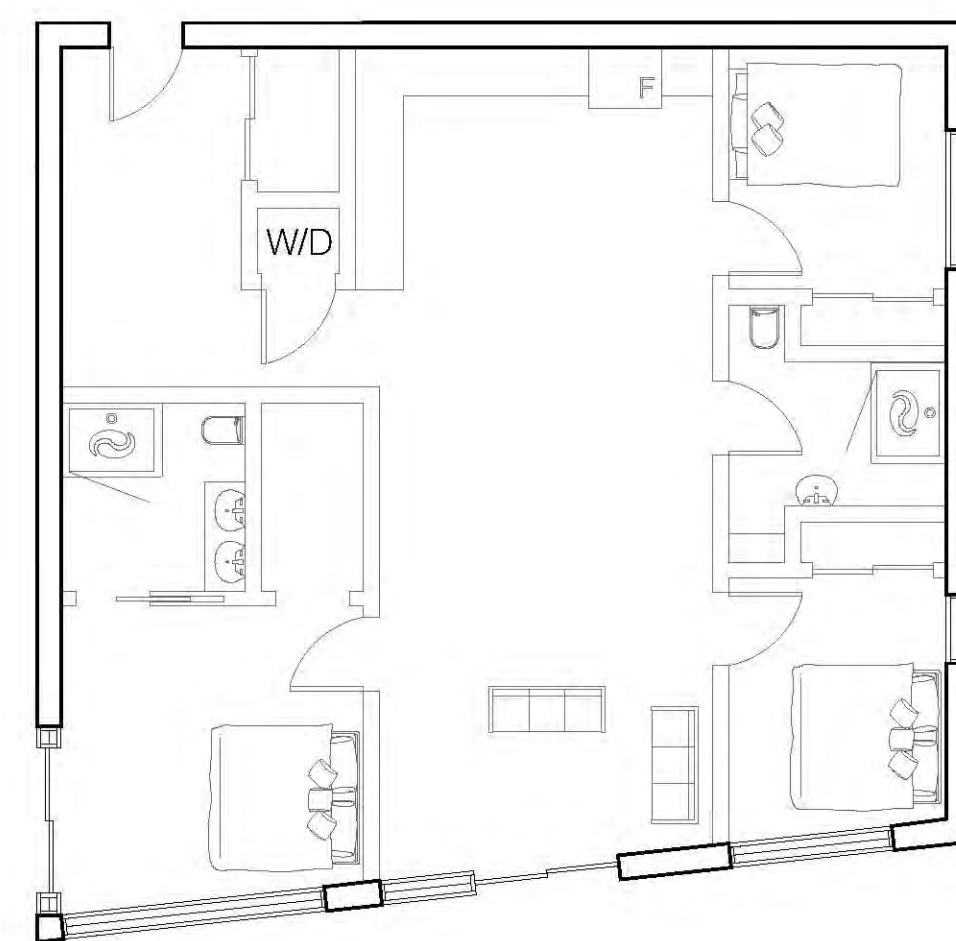
Typical Unit Layouts



One Bedroom

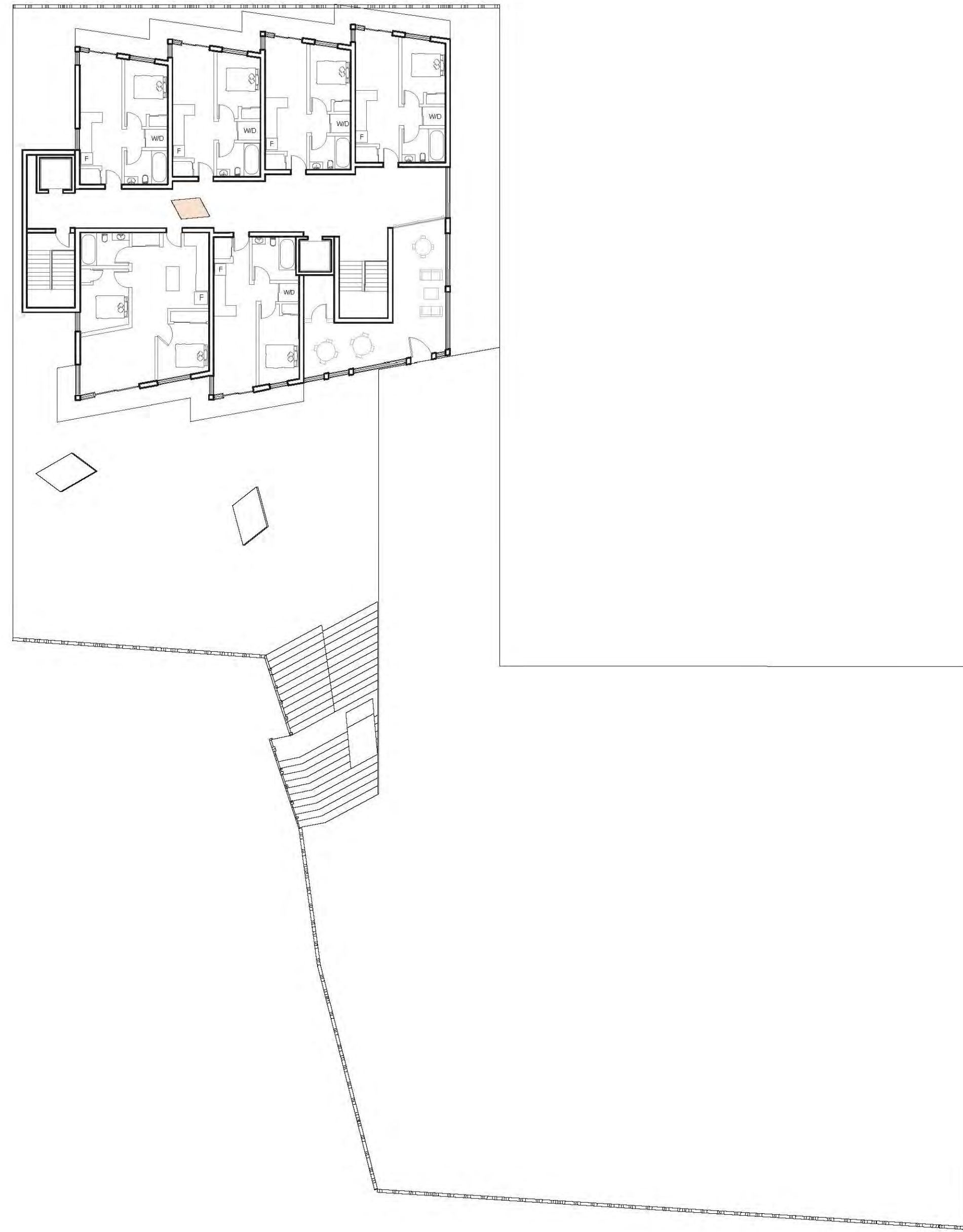


Two Bedroom



Three Bedroom

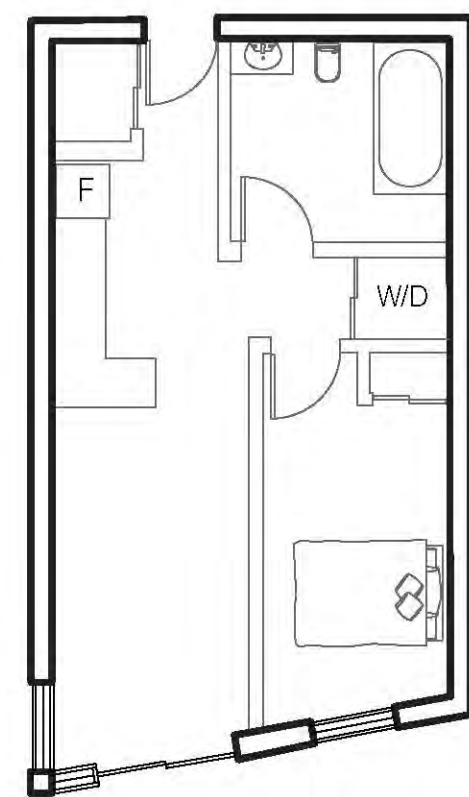
Subsidized & Transitional Housing Plans



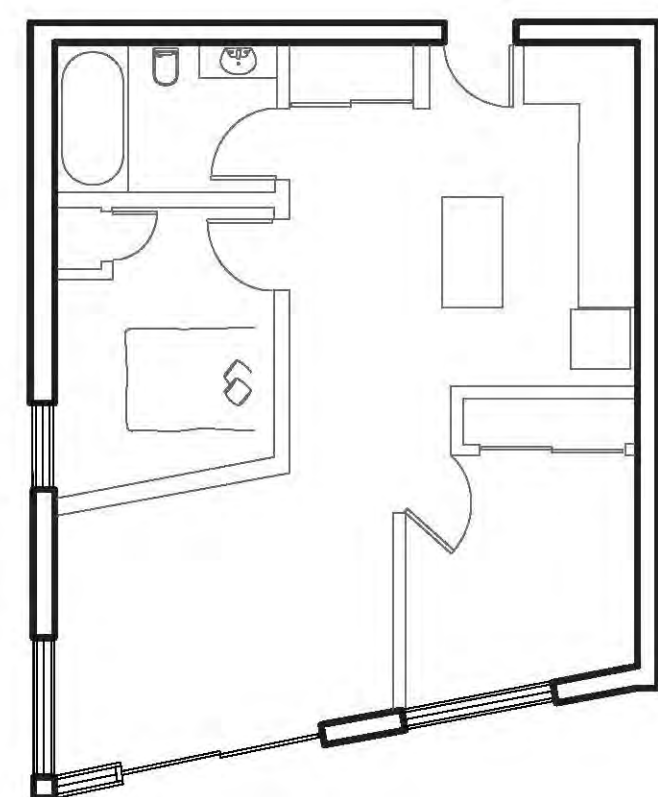
Third Floor Subsidized Housing



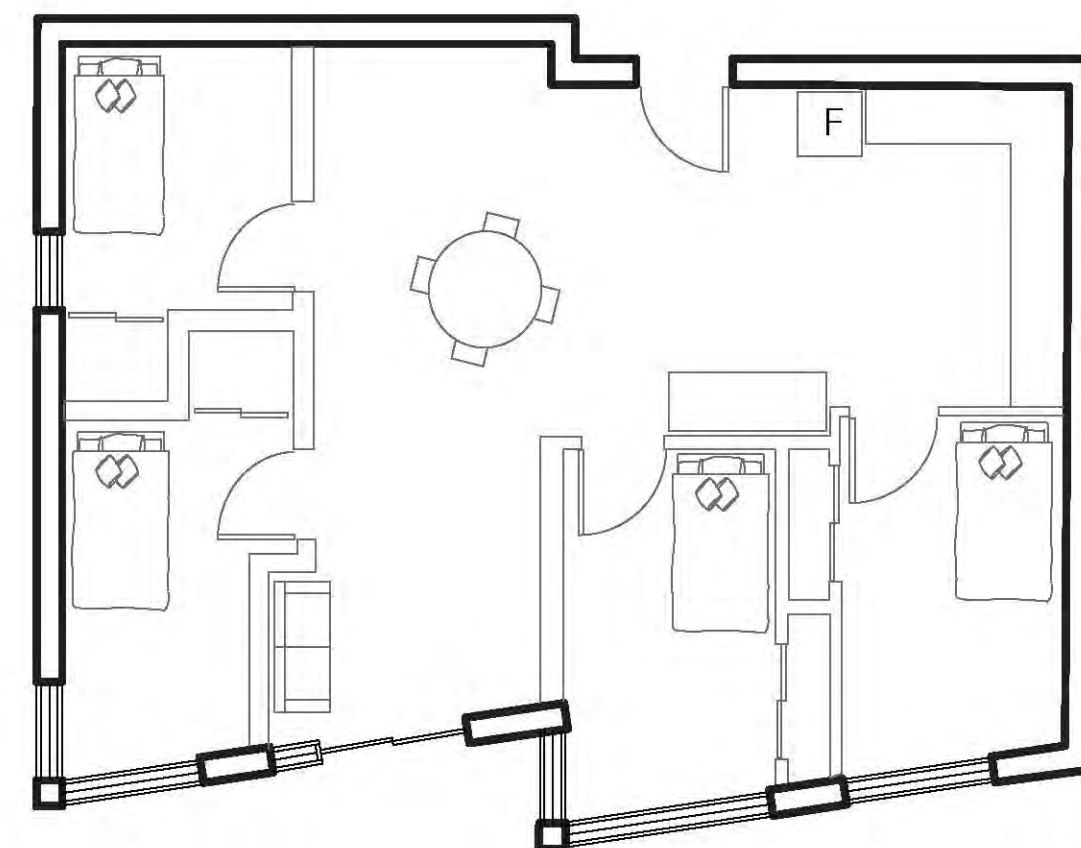
Typical Unit Layouts



One Bedroom Subsidized Housing Unit

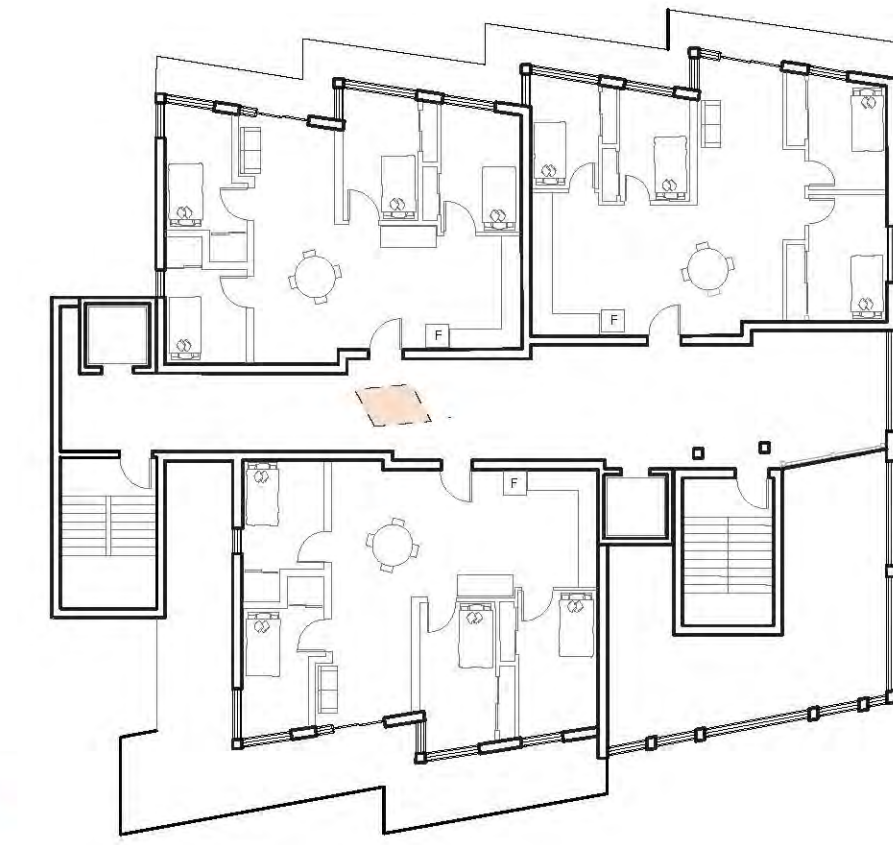


Two Bedroom Subsidized Housing Unit



Four Bedroom Transitional Housing Unit

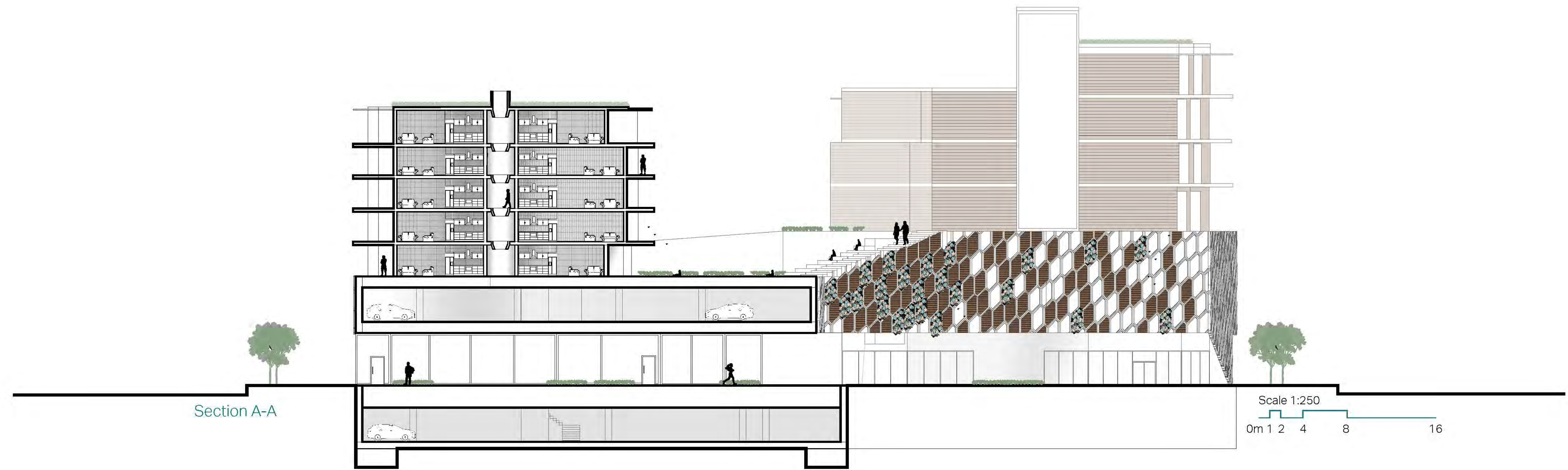
Fourth Floor Subsidized Housing



Fifth Floor Transitional Housing



Sections

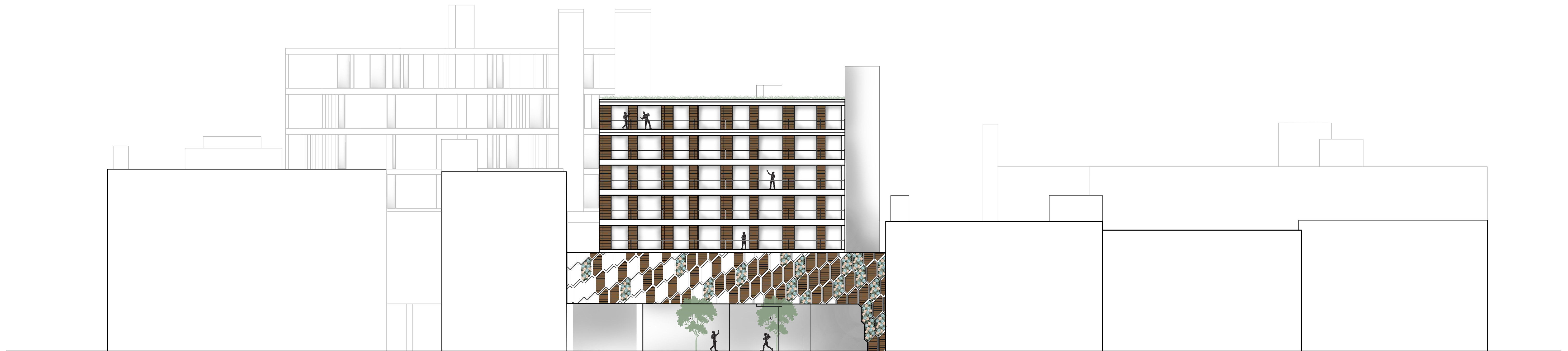


Elevations



Larch Street Elevation

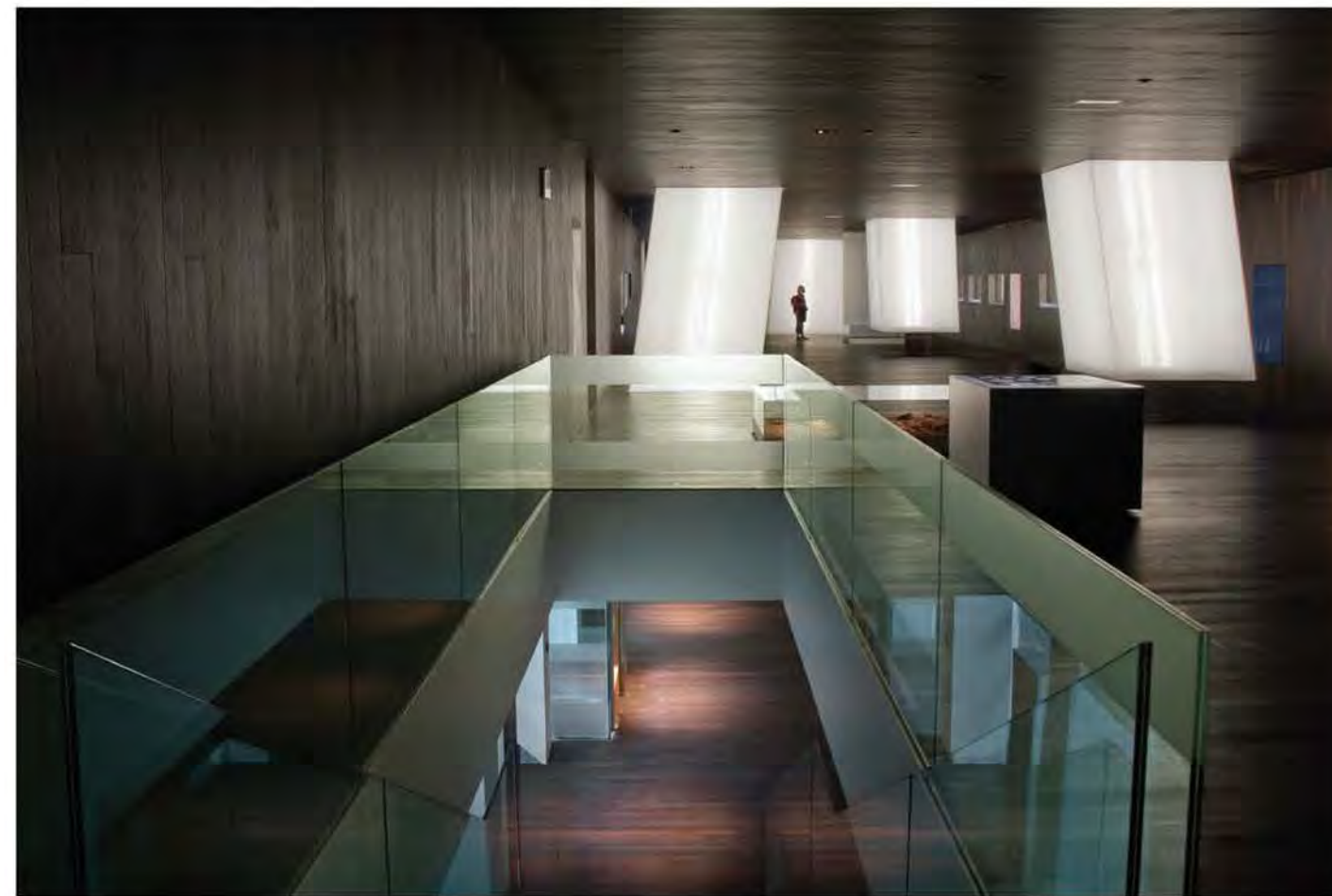
Scale 1:250
0m 1 2 4 8 16



Cedar Street Elevation

Scale 1:250
0m 1 2 4 8 16

Structural Precedents

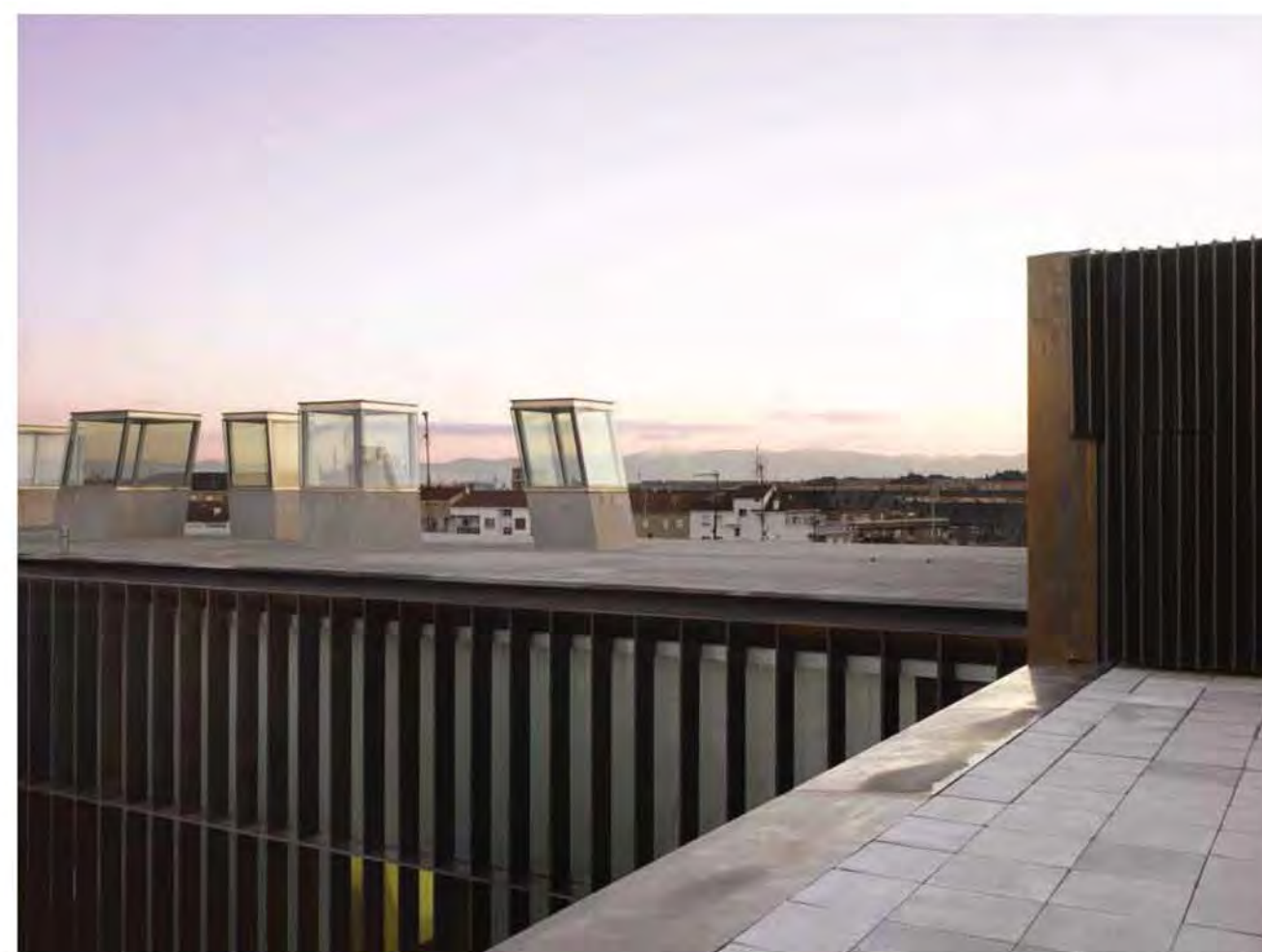
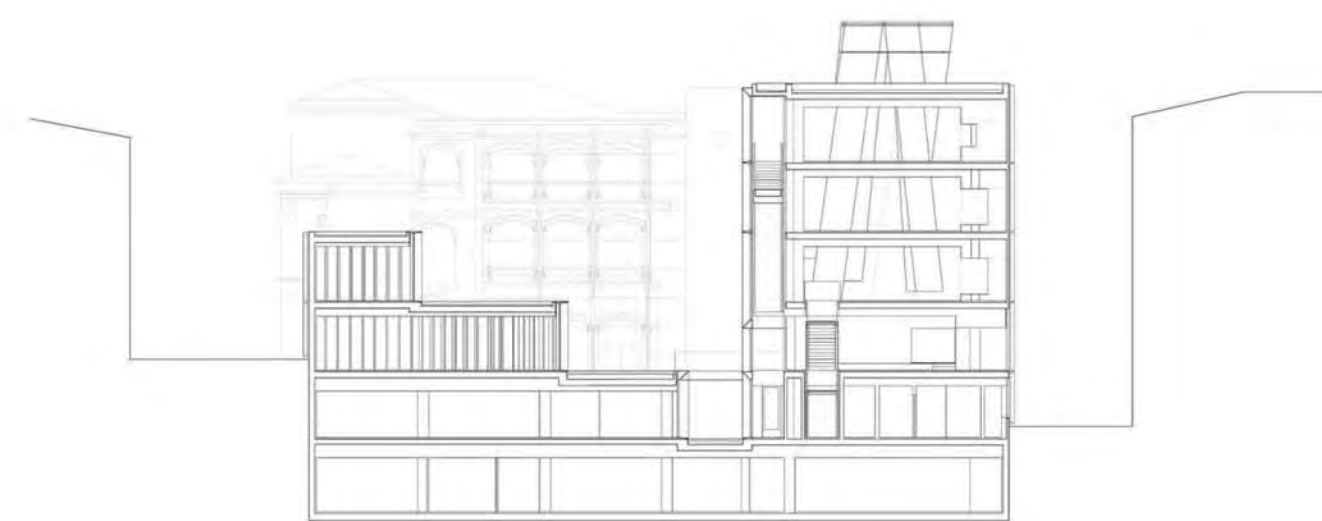


Archaeology Museum of Vitoria

Francisco José Mangado Beloqui

Use of lightwells to bring natural daylighting into the building during the day but also illuminates at night by artificially lighting the same lightwells, creating a soft diffuse light below.

Lightwells protrude out of a flat roof, and have a glass cap to prevent water from penetrating. Having our lightwells protrude up onto our courtyard and green roofs will allow people to peer down into them.



Centennial College

DIALOG & Smoke Architecture

Use of mass timber construction inside a curtain wall facade system (want to implement same facade system in grocery store on Larch Street and in Social Corridor).

The "peeling up" of the exterior facade system guides and directs users to where they are to enter the building - executed on Larch Street at the grocery store to connect the different "layers" of the building (ground floor, parking, and then residential).

Pattern on exterior facade hinting to the bee keeping on site.

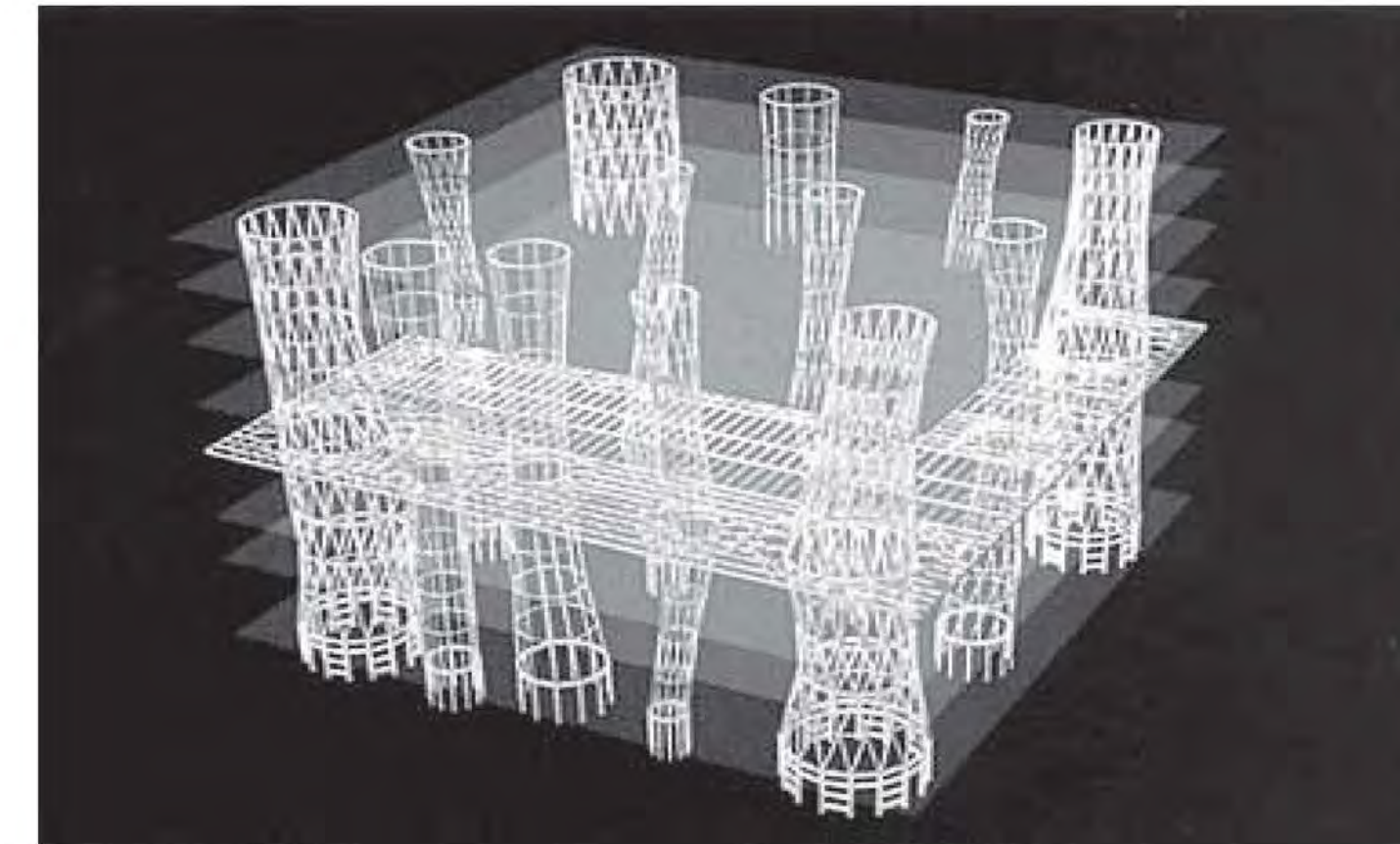


Sendai Mediatheque

Toyo Ito & Associates

Light wells that are also a main structural component (their flexibility gives them tremendous seismic resistance and allows the building to move side-to-side when there are earthquakes, mitigating or avoiding damage altogether).

Want to implement a mass timber solution to the light wells that become a moment of interest, a spot for social interactions and an attraction to the site, while also being structurally integral to the building.

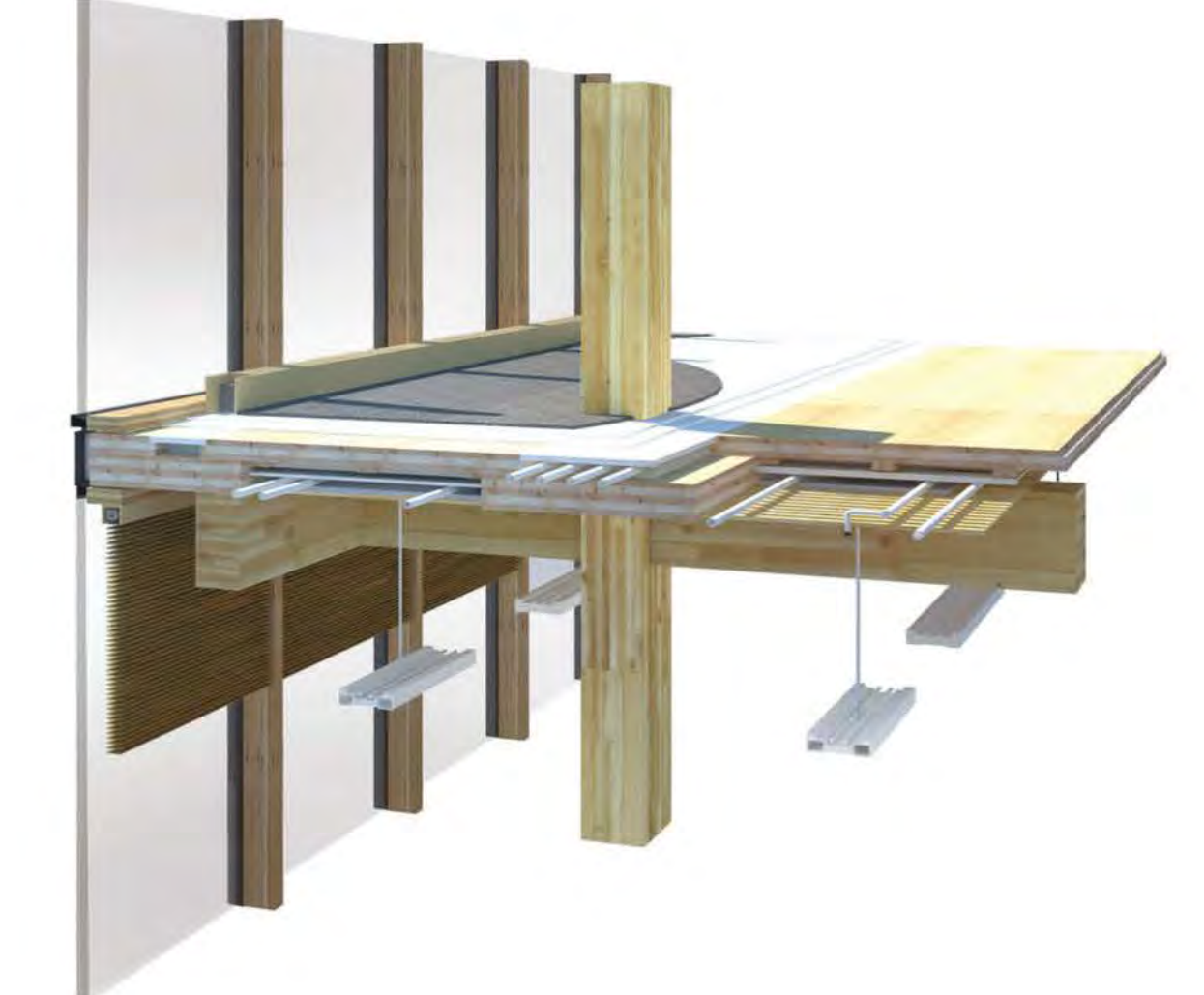


Wood Design Innovation Centre

Michael Green Architects

The CLT and glulam construction is simple yet clean, which is the look for the interior of the residential units that we are going for.

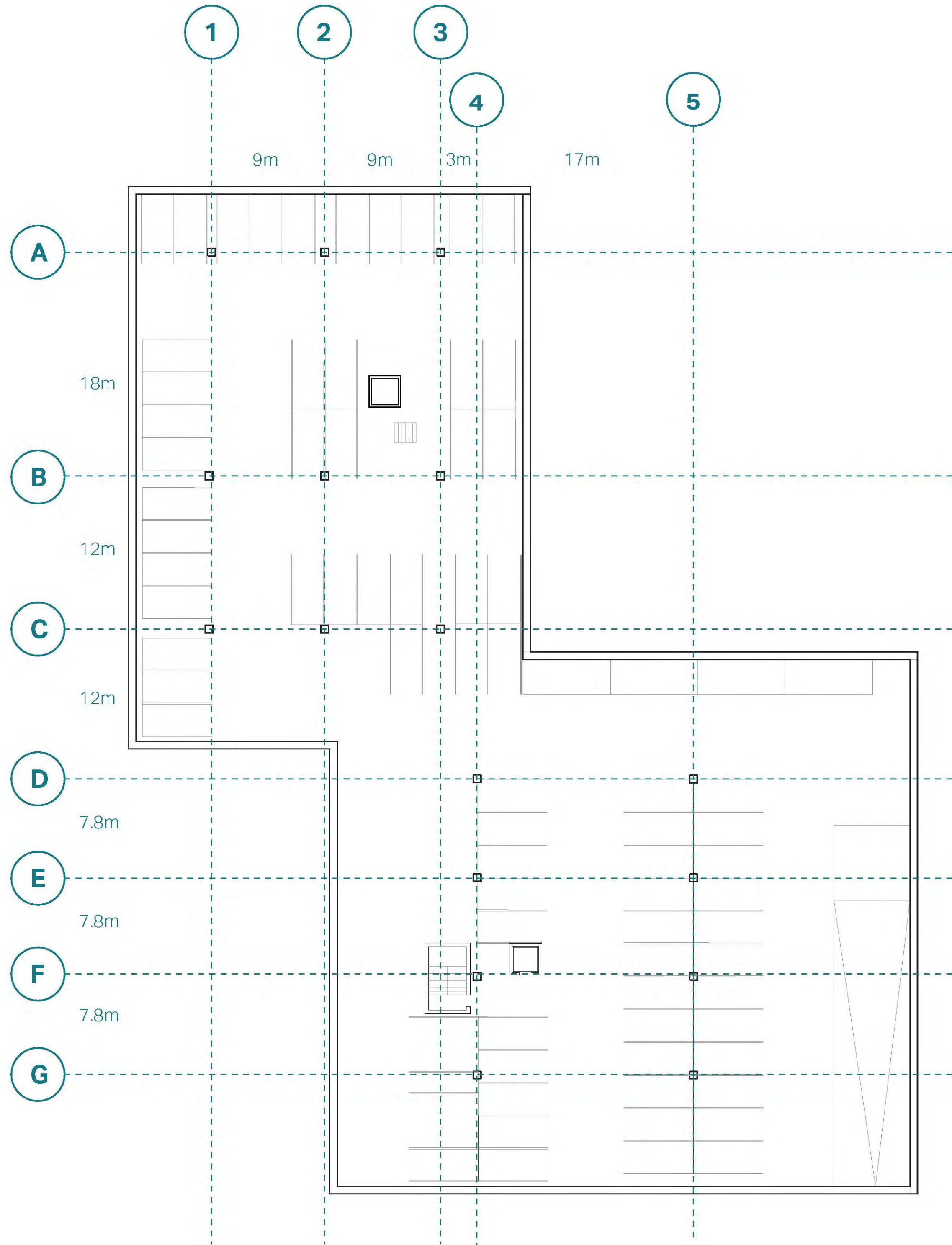
The gaps in CLT Floor Decks provide a channel for mechanical and electrical systems to discretely travel through. A screen or paneling system to cover these channels could further add to the aesthetic of the ceiling.



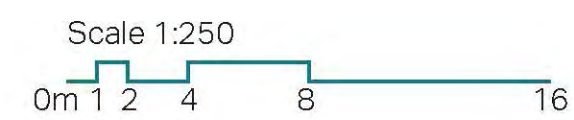
Structural Plans

Underground Parking:

Beams: Concrete waffle ceiling (total slab depth 2m)
 Columns: Concrete (60cm x 60cm)
 Shear: Concrete Stairwell and Elevator Core (600mm width)
 Spans: 10m

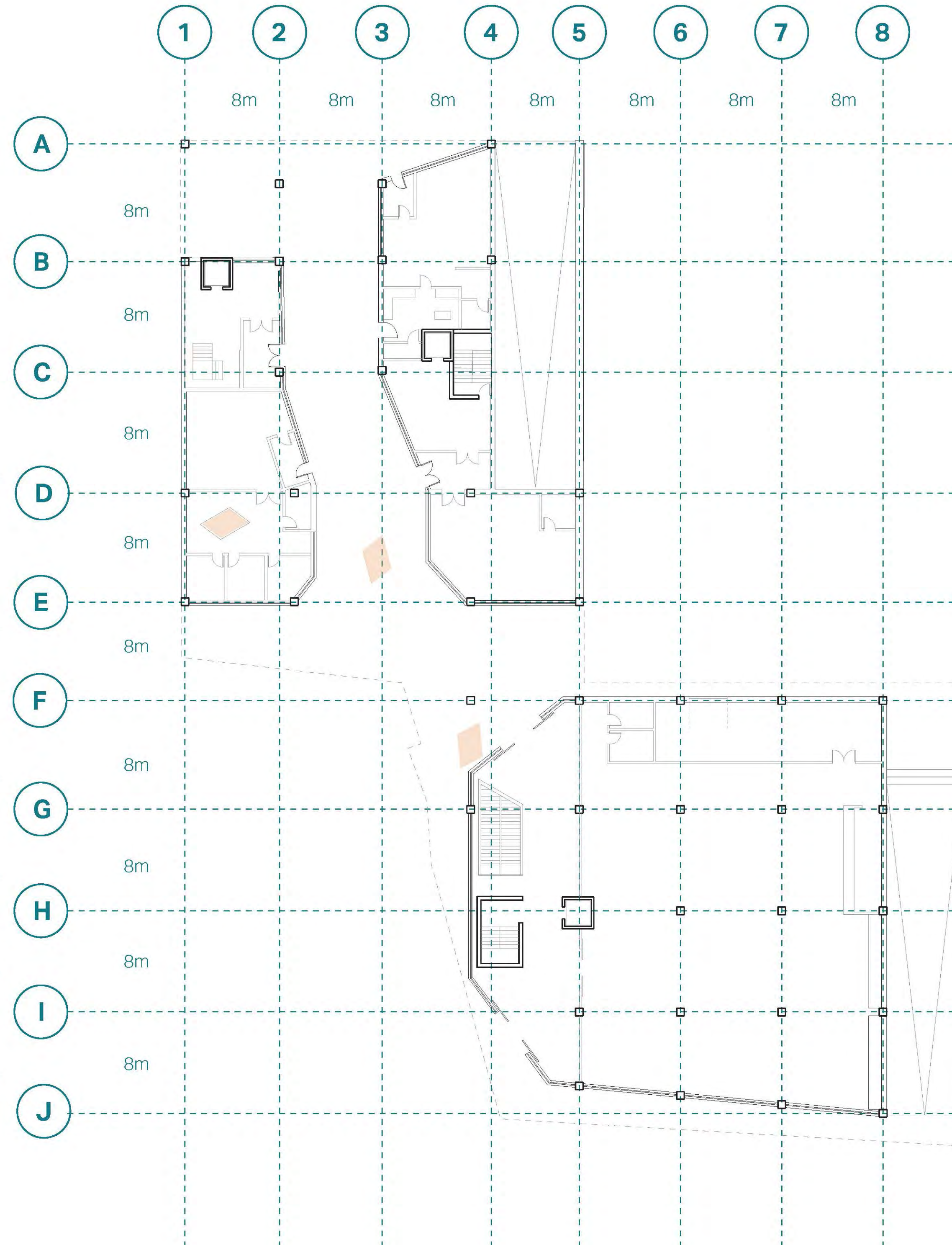


Underground Parking Structural Plan

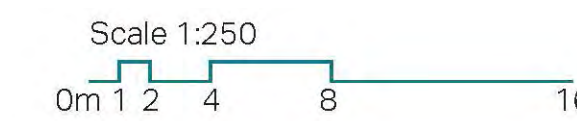


Ground Floor Commercial:

Beams: Concrete waffle ceiling (total slab depth 2m)
 Columns: Glulam (60cm x 60cm)
 Shear: Concrete Stairwell and Elevator Core (600mm wall width)
 Spans: 8-9m

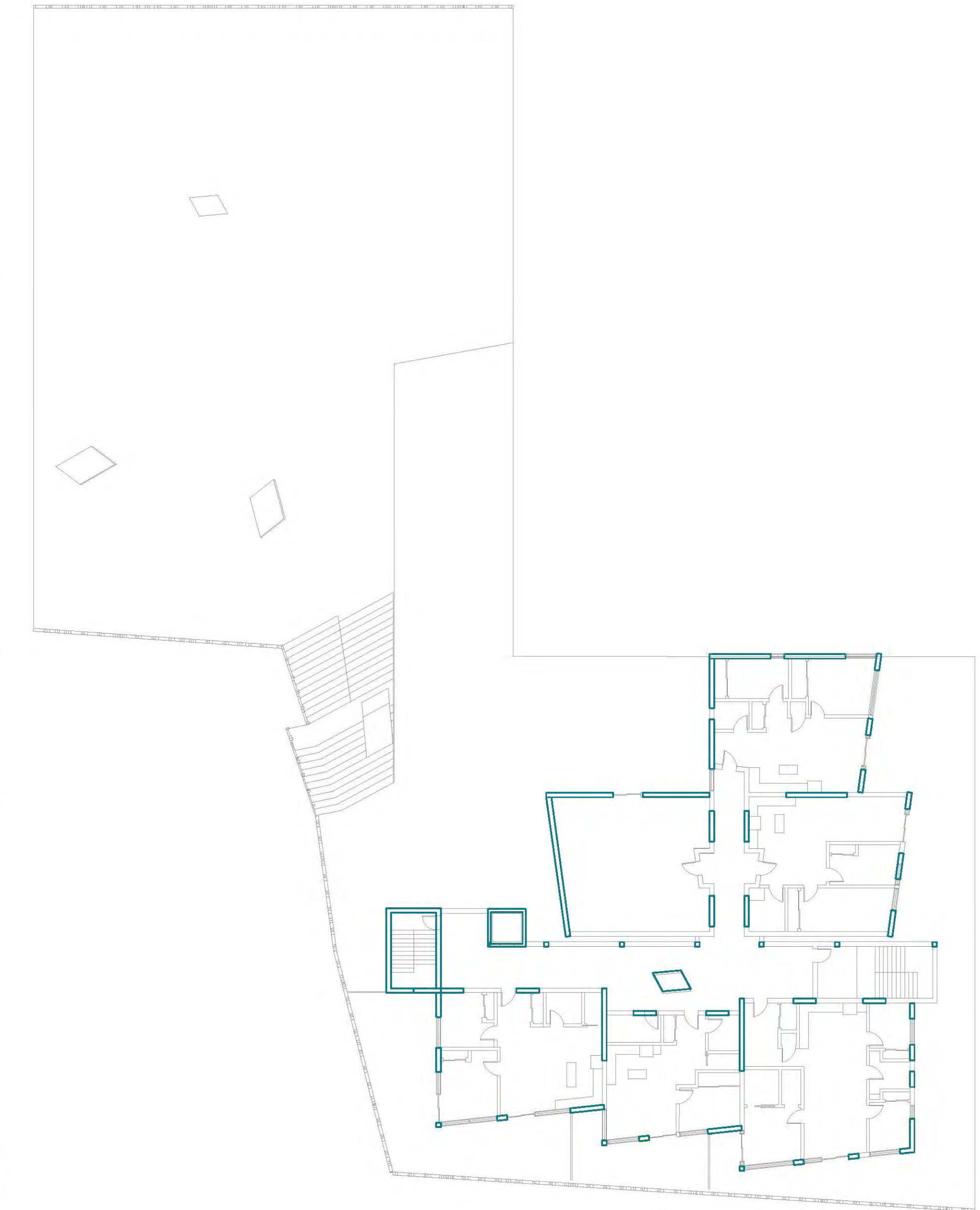


Ground Floor Structural Plan



Ground Floor Commercial:

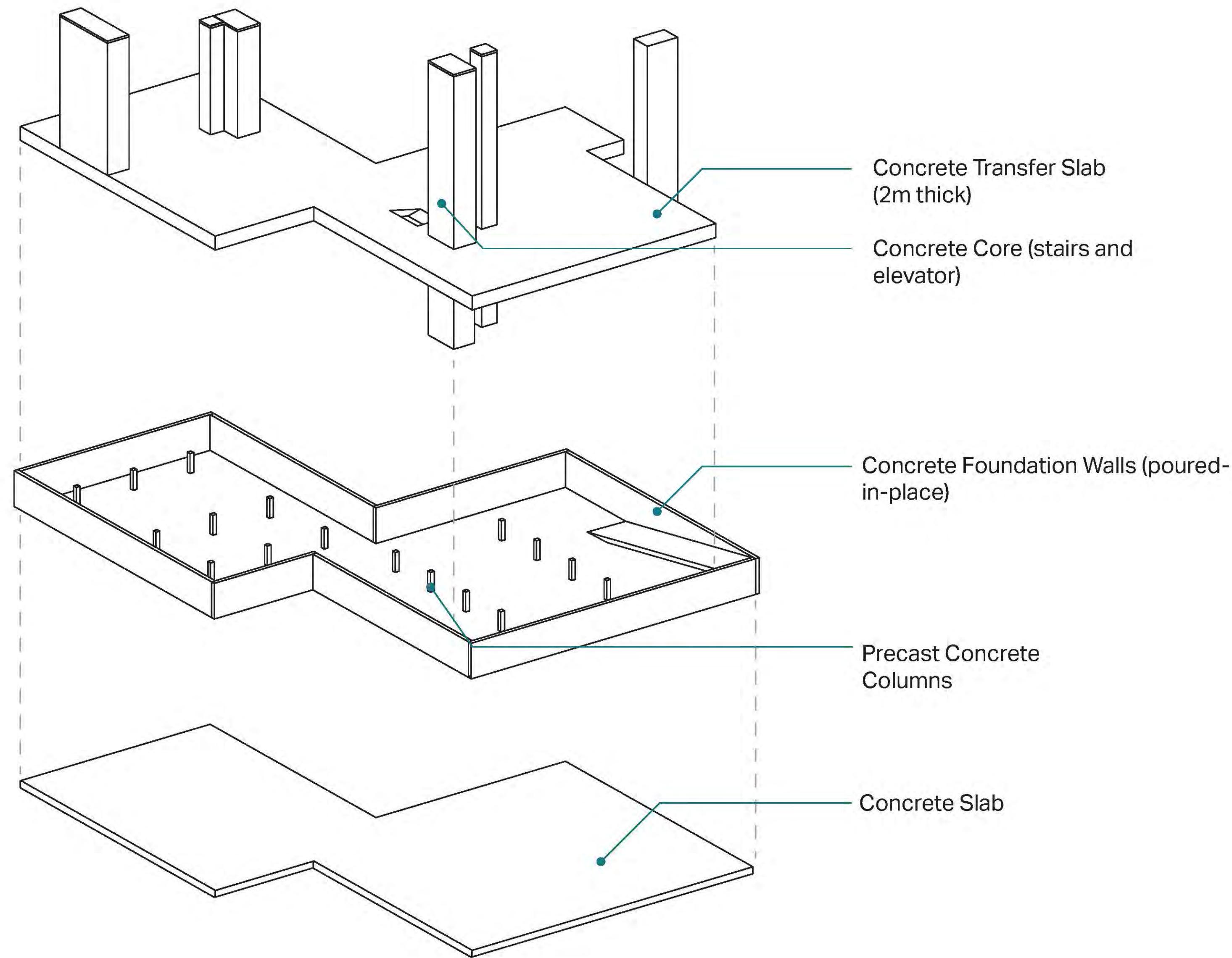
Beams: Concrete waffle ceiling (total slab depth 2m)
 Columns: Glulam (60cm x 60cm)
 Shear: Concrete Stairwell and Elevator Core (600mm wall width)
 Spans: 8-9m



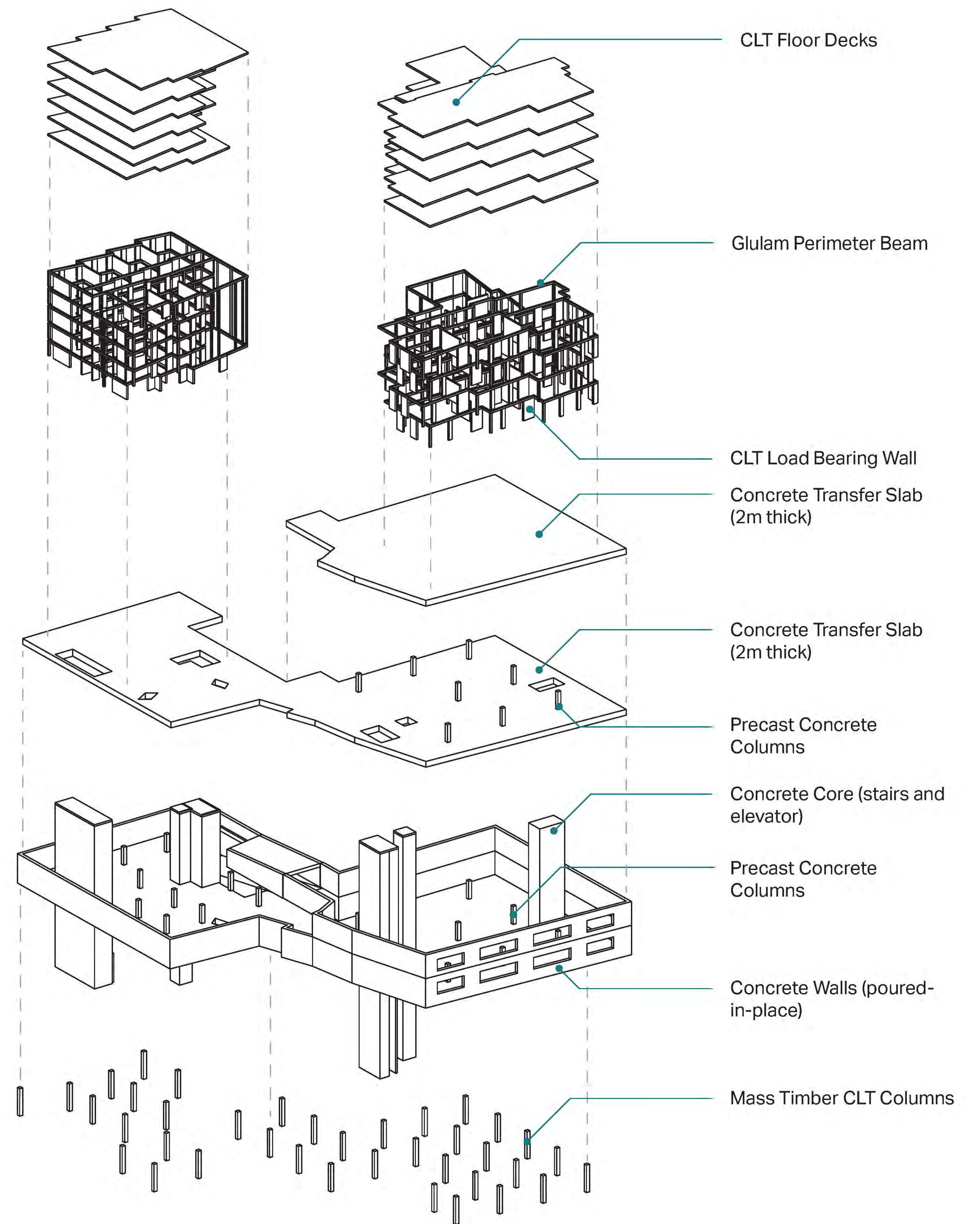
Typical Residential Structural Plan



Structural Axonometric (Exploded)

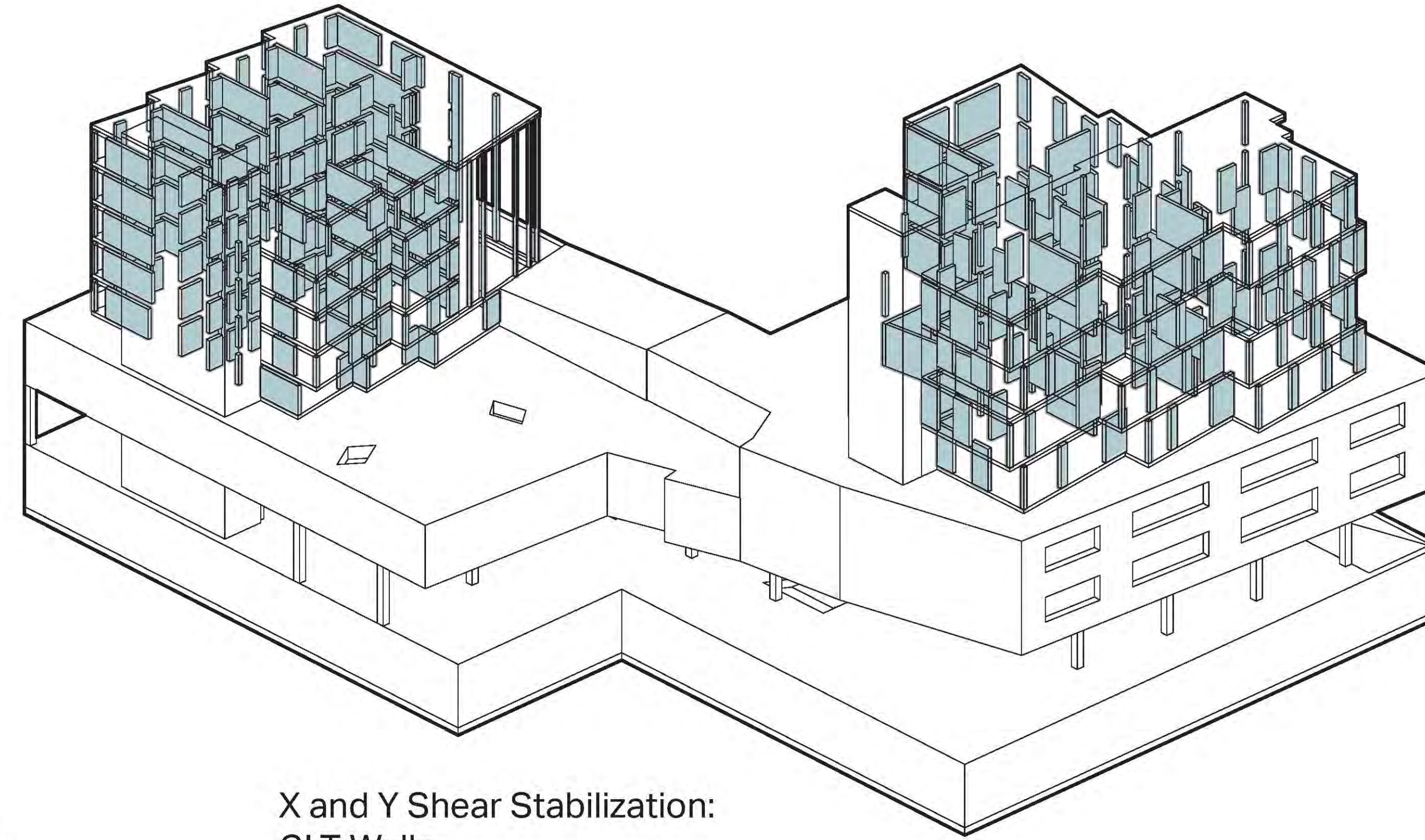


Below Grade

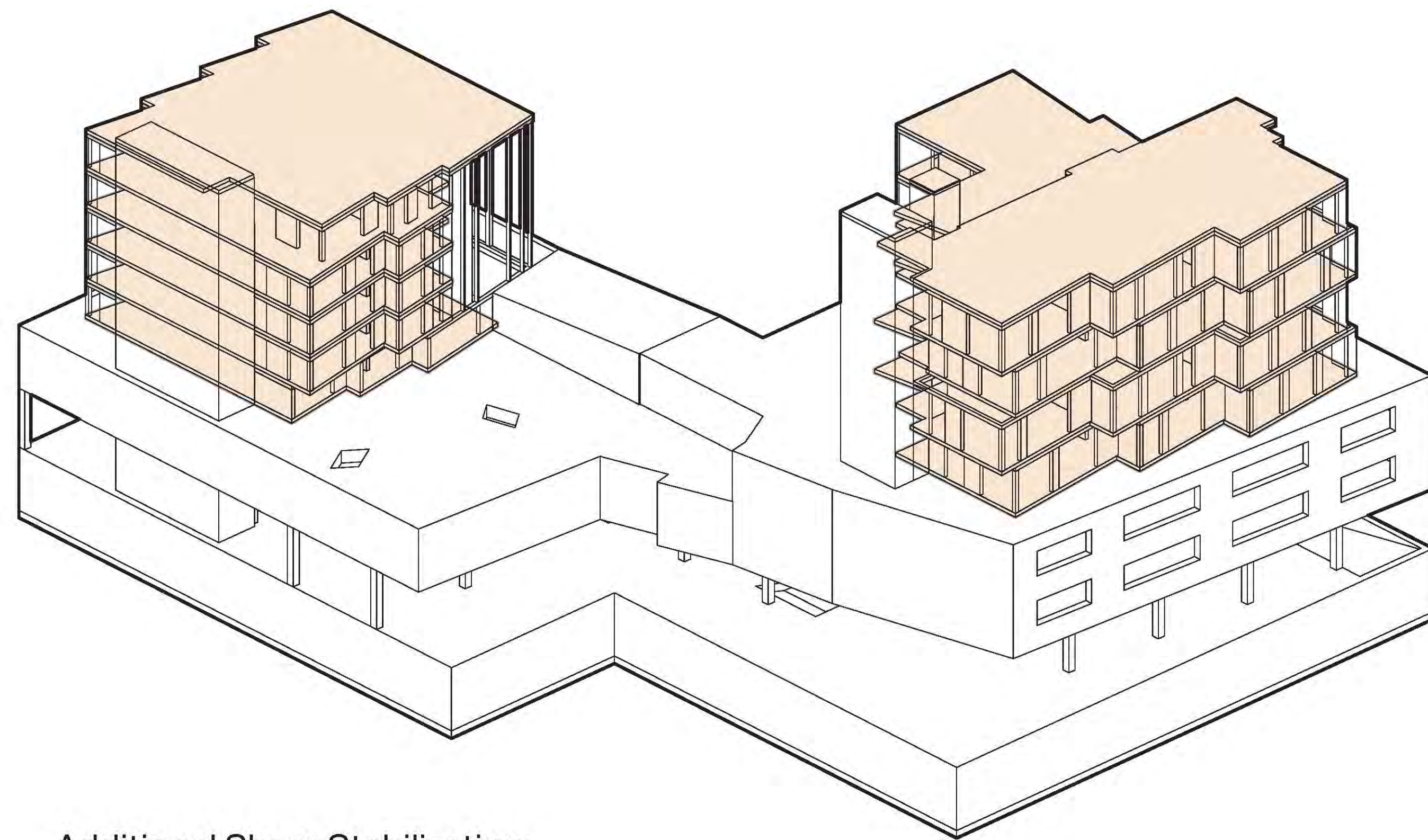


Above Grade

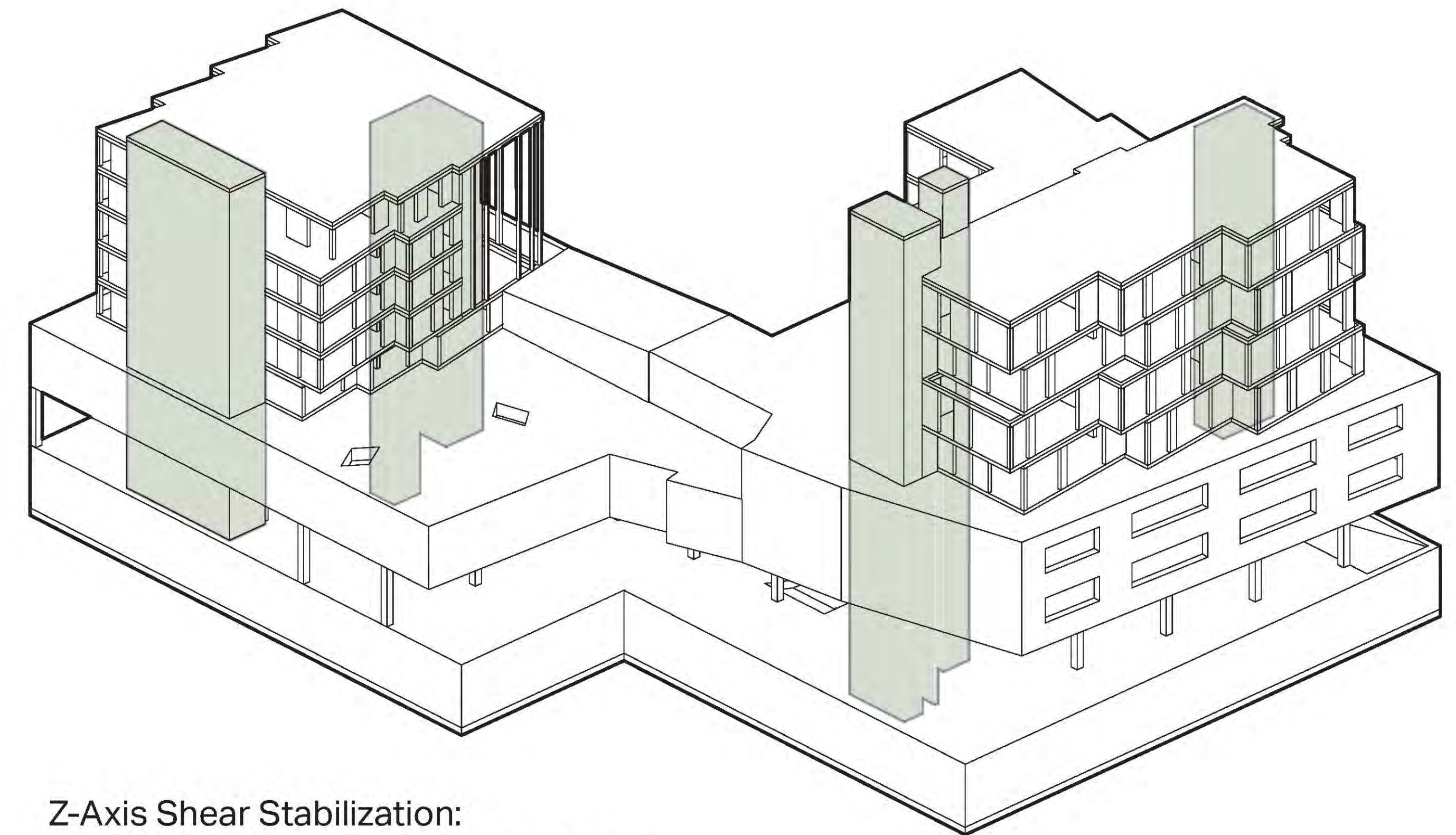
Lateral Stability Strategies



X and Y Shear Stabilization:
CLT Walls



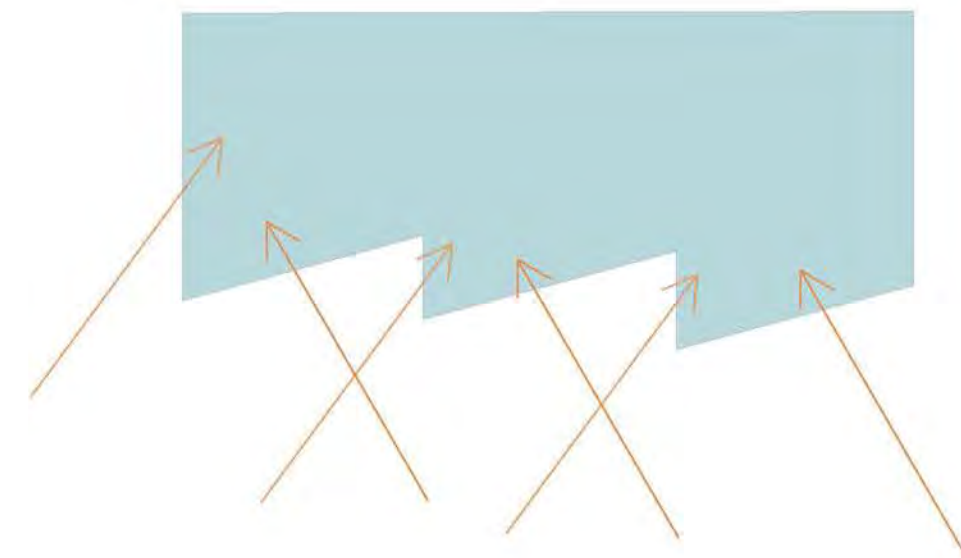
Additional Shear Stabilization:
CLT Floor Decks



Z-Axis Shear Stabilization:
Concrete Stairwell and Elevator Cores

Daylighting Strategies

The Form of the building allows every unit to have to "facades" that allows natural daylight to enter from two directions (two times of day). By having a corner of each unit protrude, it allows for each unit to capture more light, illuminating more of the unit throughout the day for longer periods of time. The form of the building allows for spaces to be lit according to the time of day and use during that time...



Morning - East Sun



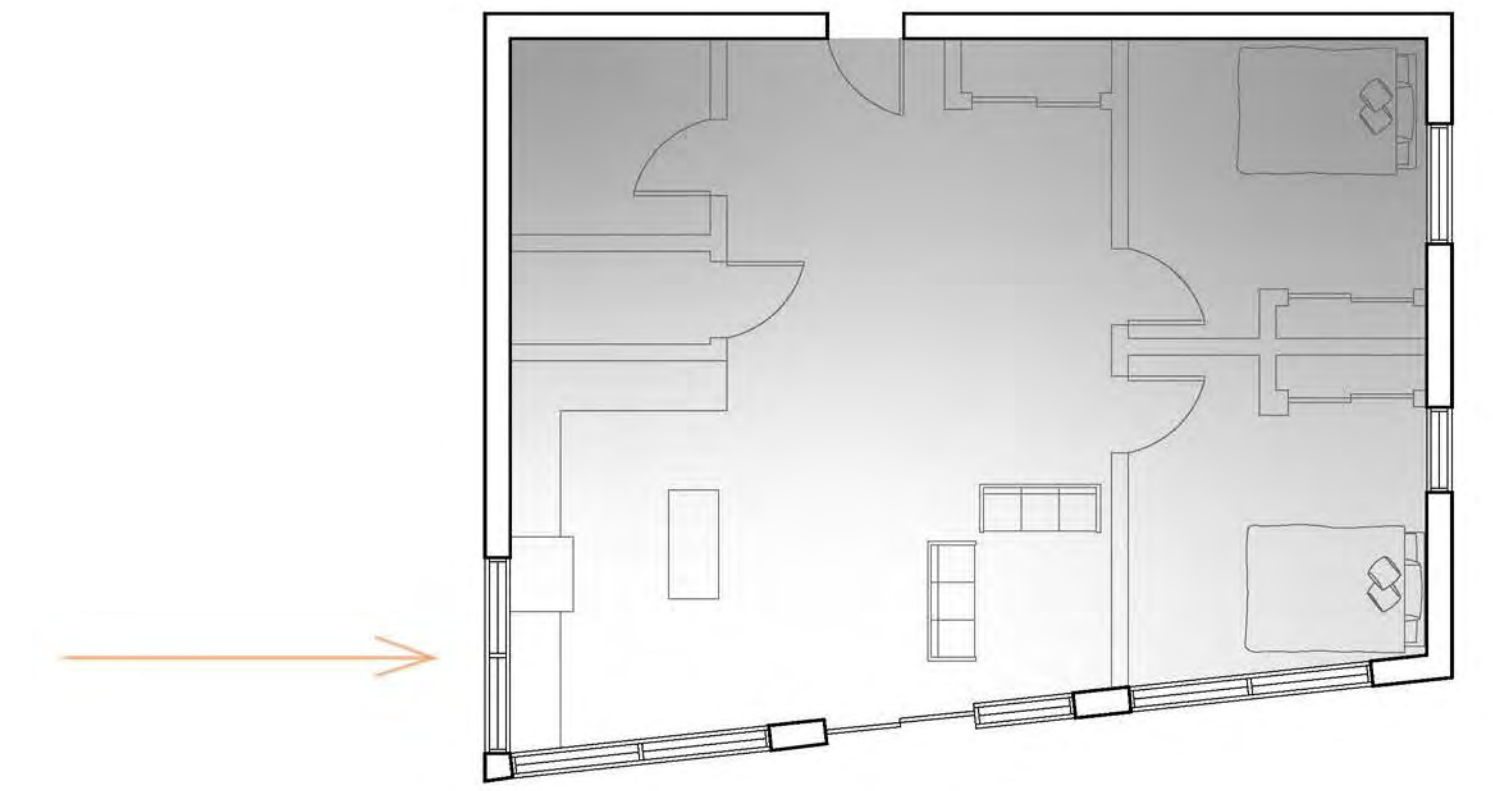
Morning sun from east illuminates bedrooms (useful for Circadian System - bright morning light aids in waking up)

Afternoon - South Sun



In the afternoon, the living space, kitchen and one of the bedrooms is in complete sun. The units all have a large amount of natural ambient daylighting for majority of the day creating warm, welcoming spaces.

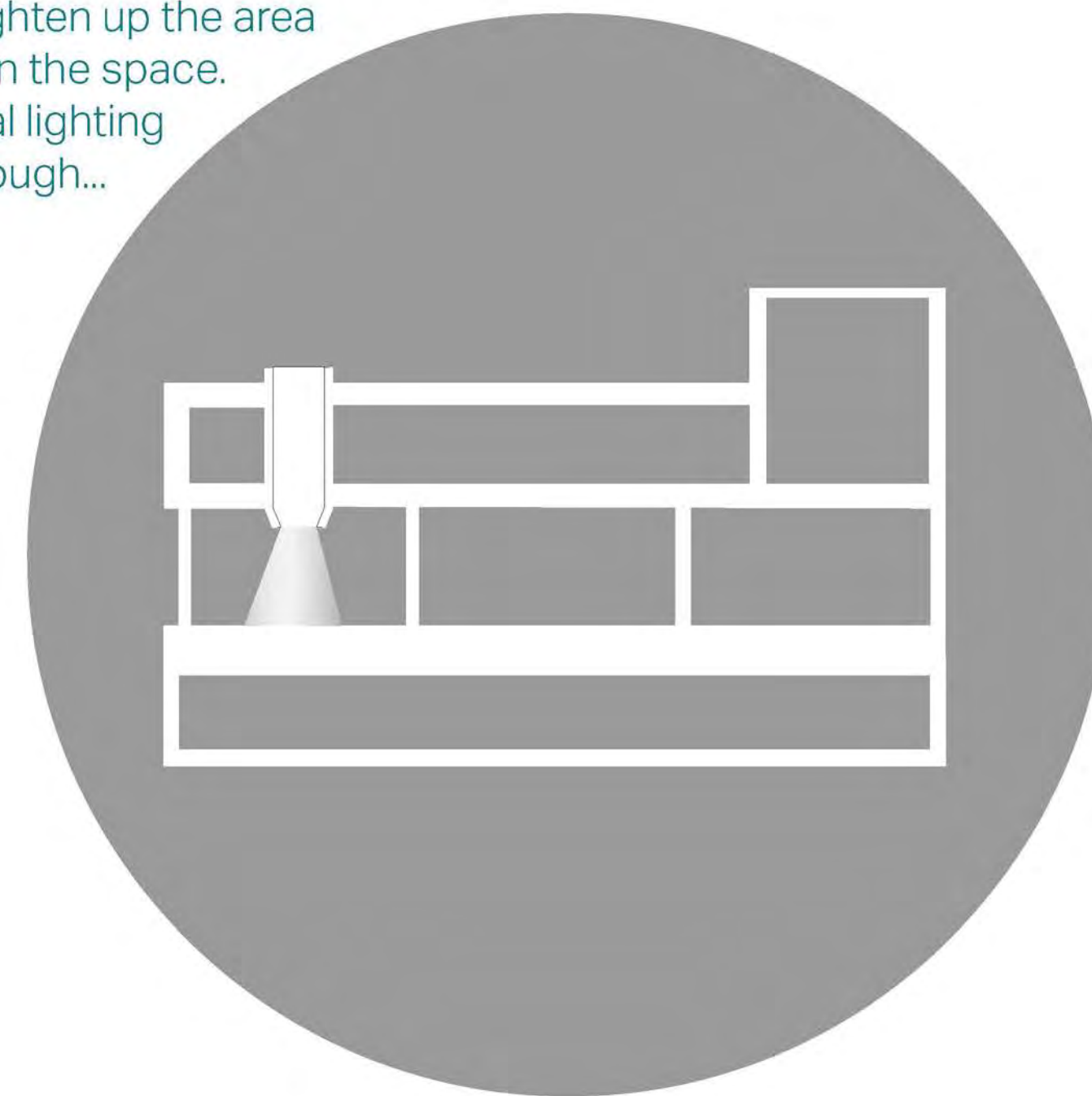
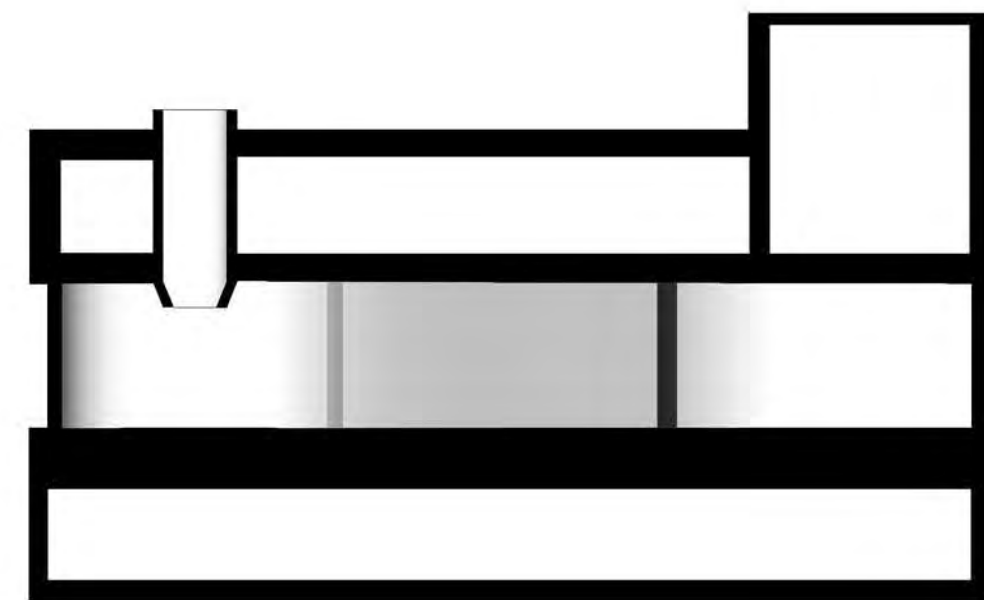
Evening - West Sun



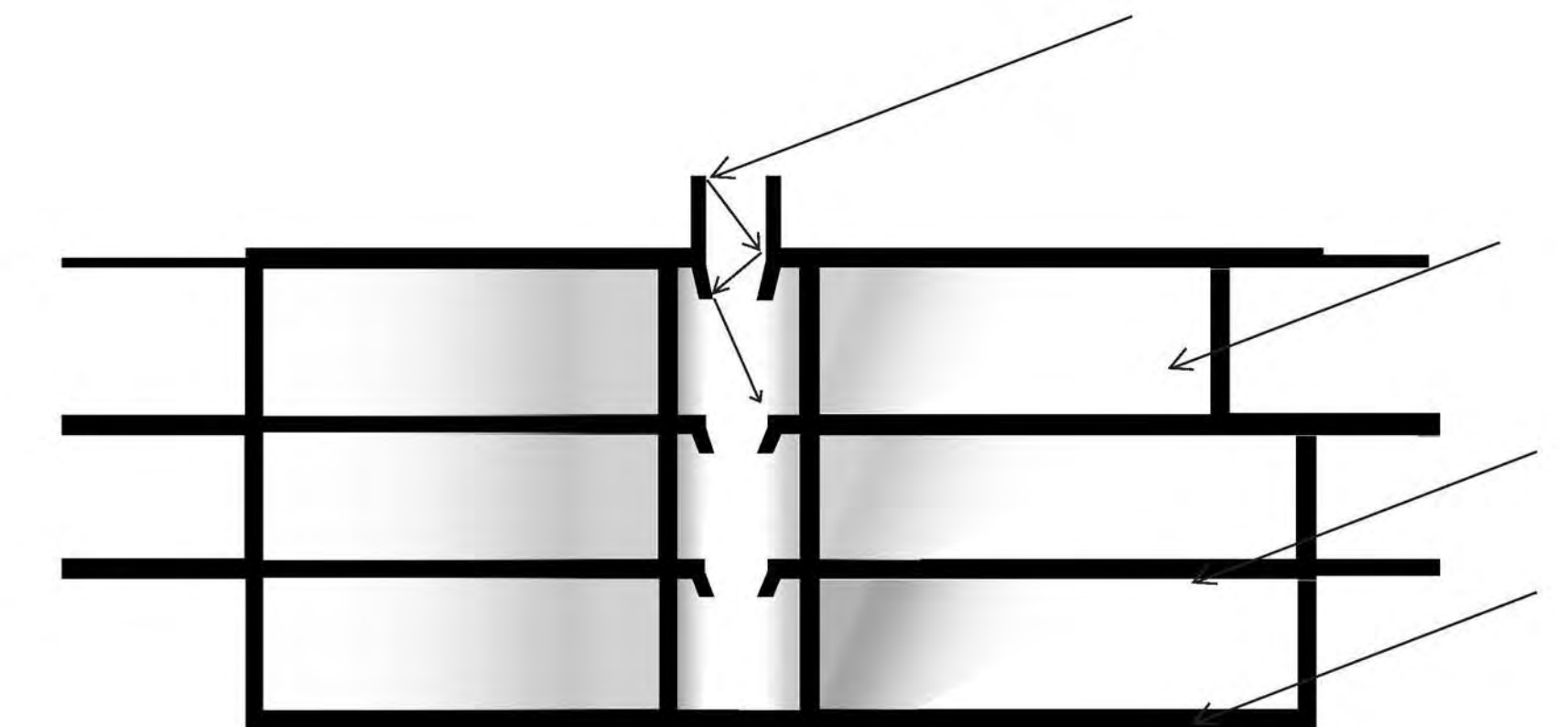
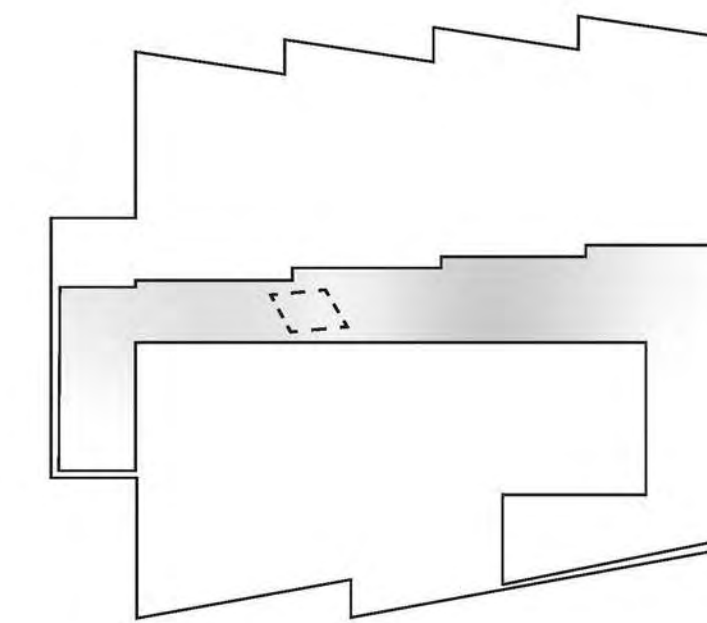
In the evening, the natural daylight coming from the west enters into the protruding corner and will enter into the living space.

Lightwells in Social Corridor

Lightwells bring diffuse lighting into the social corridor during the day to brighten up the area and create an interesting moment for people to pause and spend time within the space. At night time and evenings when it is dark, the lightwells light up with artificial lighting in order to light up the pathway so that pedestrians will feel safe walking through...



Lightwells in Corridors



Lightwells in corridors of residential towers, as well as windows on the east and west facades will bring a large amount of diffuse ambient daylight into these social spaces which will promote interactions and mingling,

Lightwell Model



Lightwells in Social Corridor diffuse daylight through the parkade during the day, and are illuminated with artificial lighting at night. White plastic material at the bottom of the lightwells produce diffuse lighting.



Morning sun will be diffuse and soft creating a calm, peaceful atmosphere.

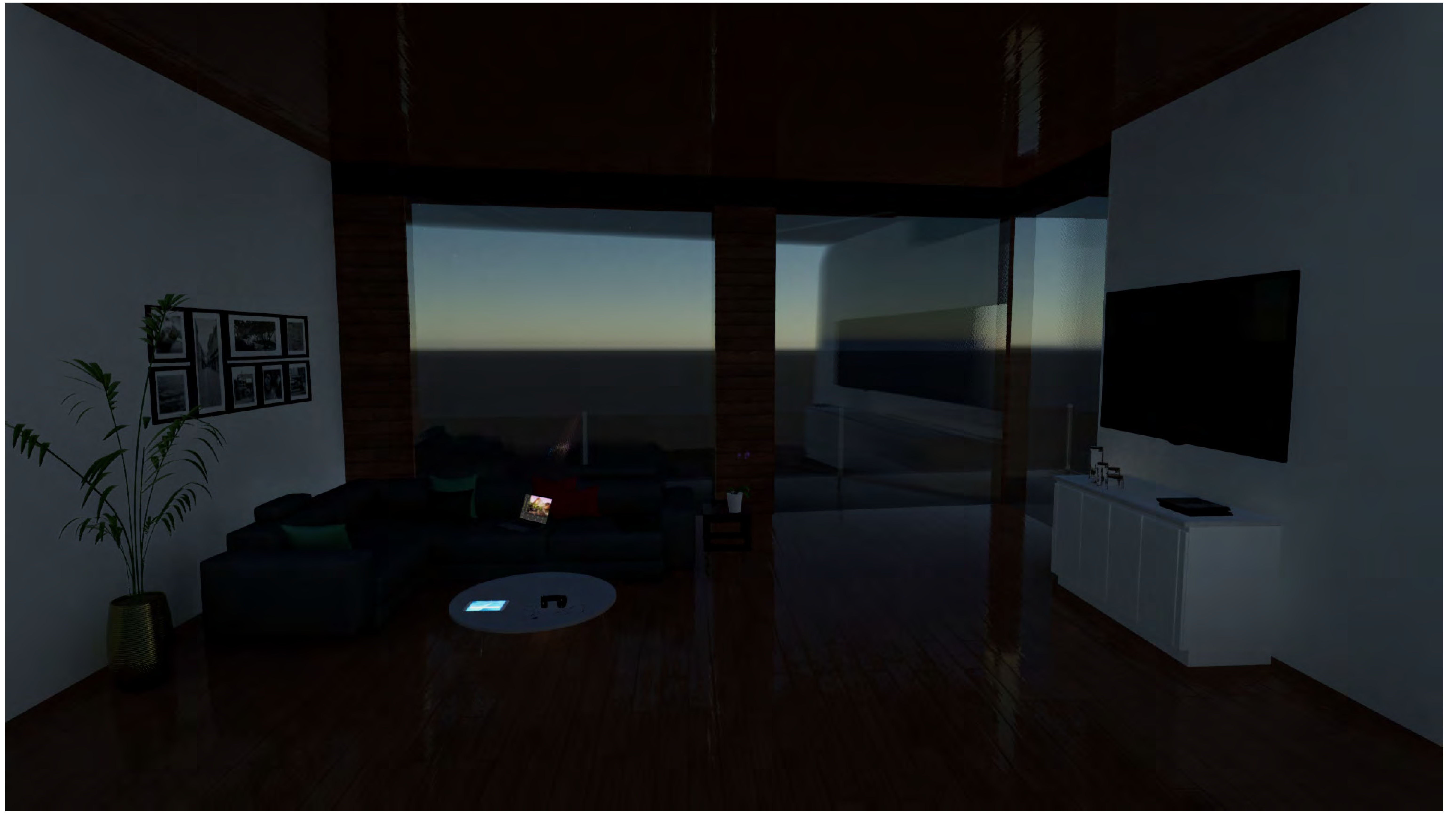


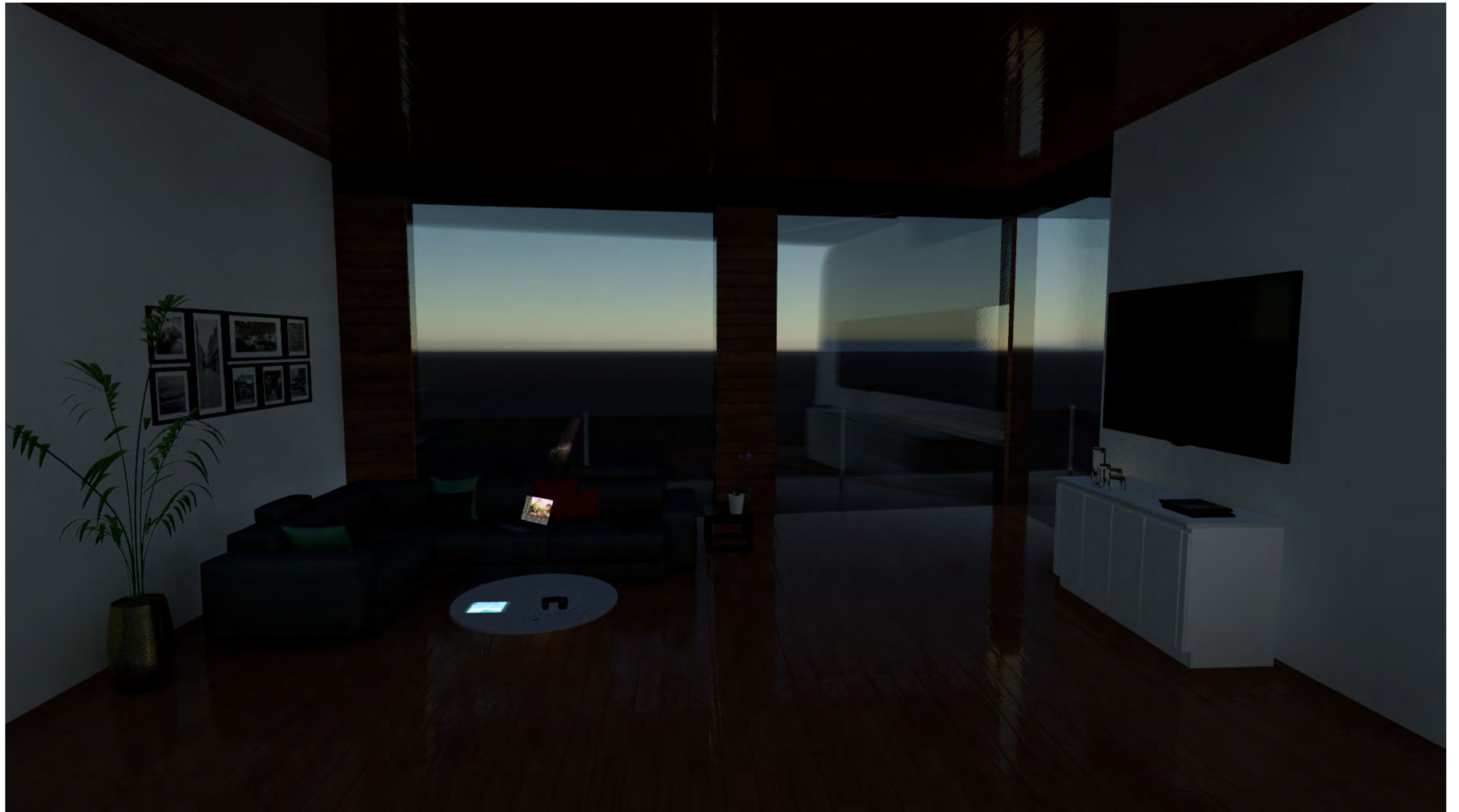
Afternoon (south) sun will create a brighter, more direct stream of light that will produce the shape of the lightwell on the ground.

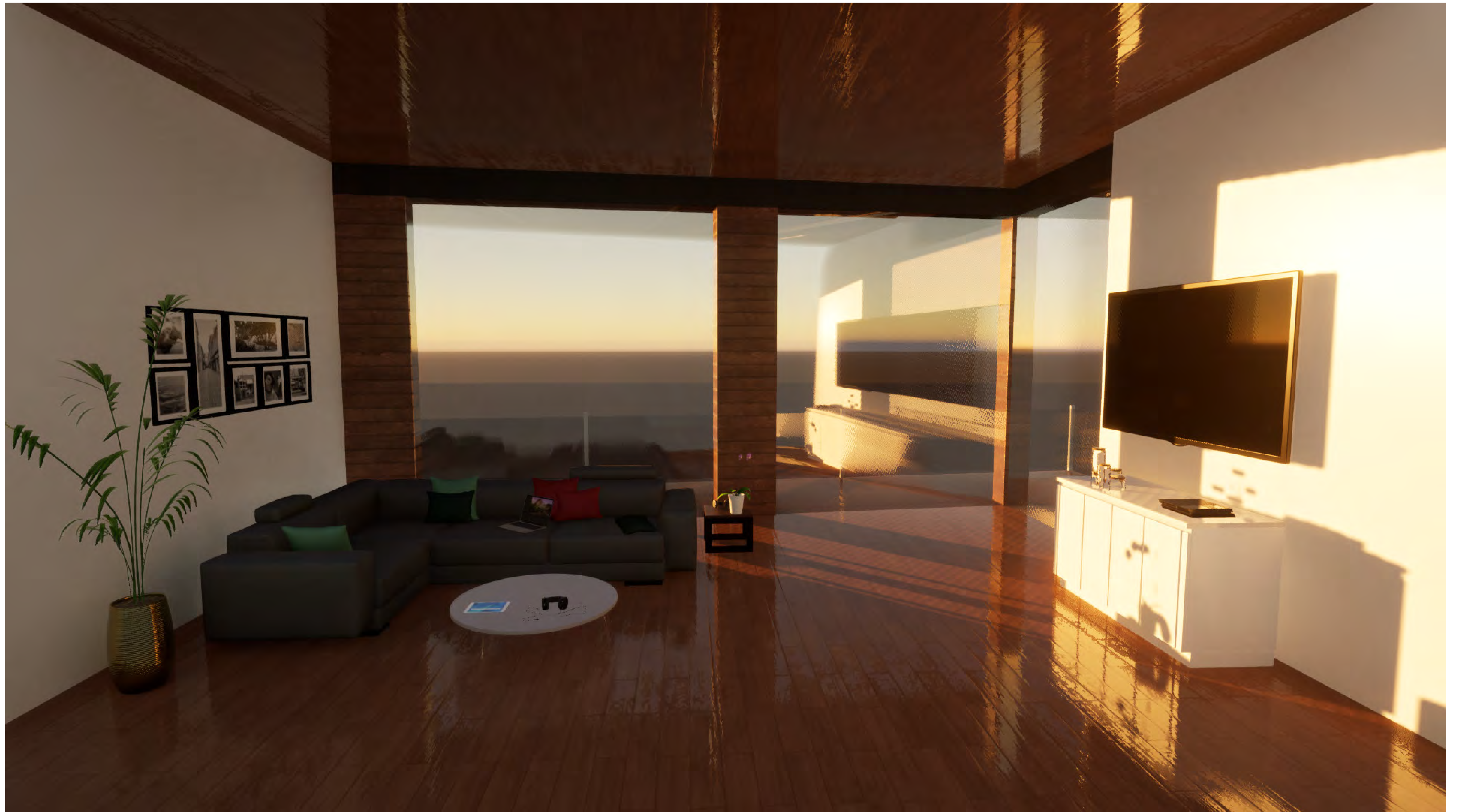


The evening light will be extremely soft and diffuse, which is why artificial lighting will be incorporated in the lightwells in the evenings to make the Social Corridor safe.















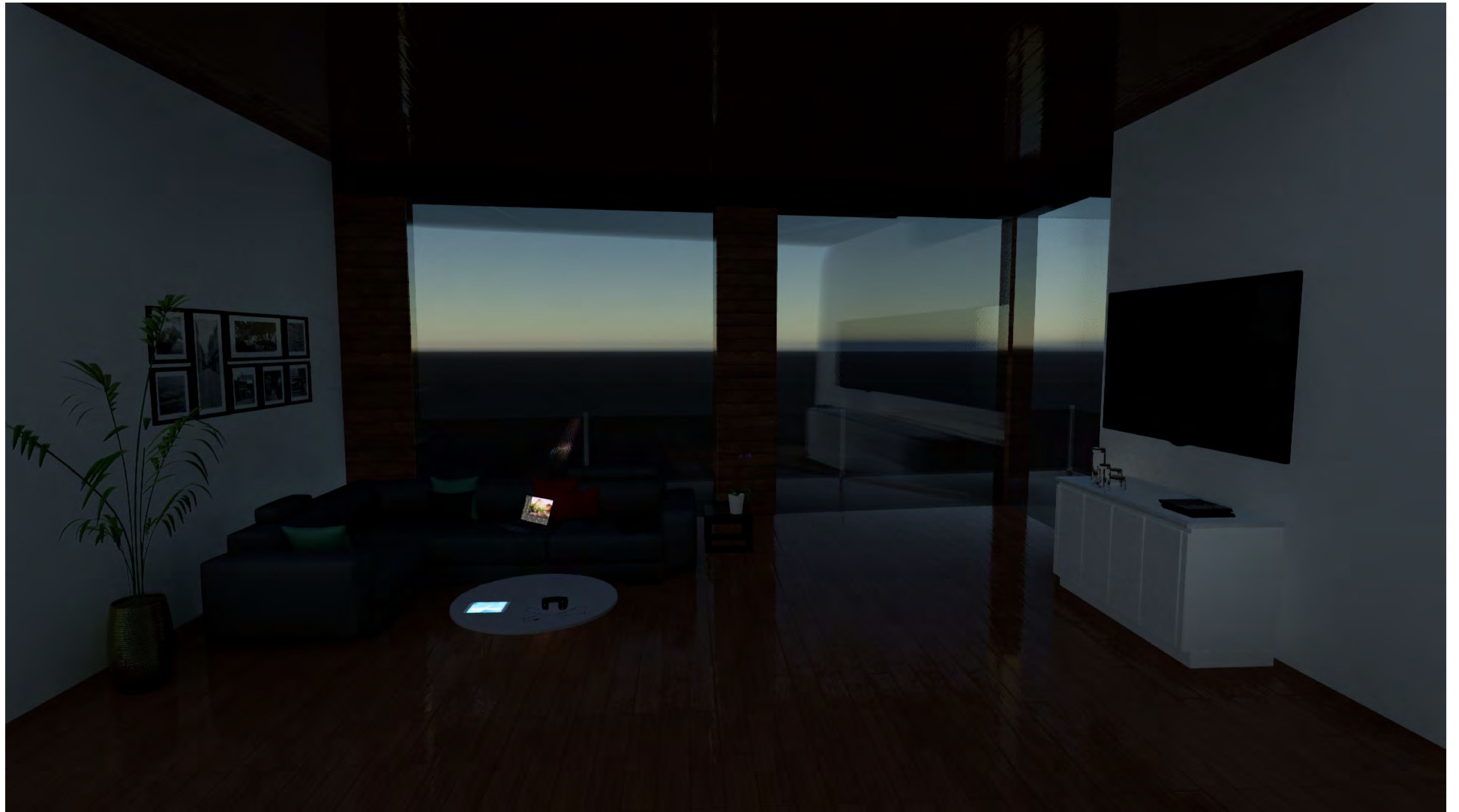




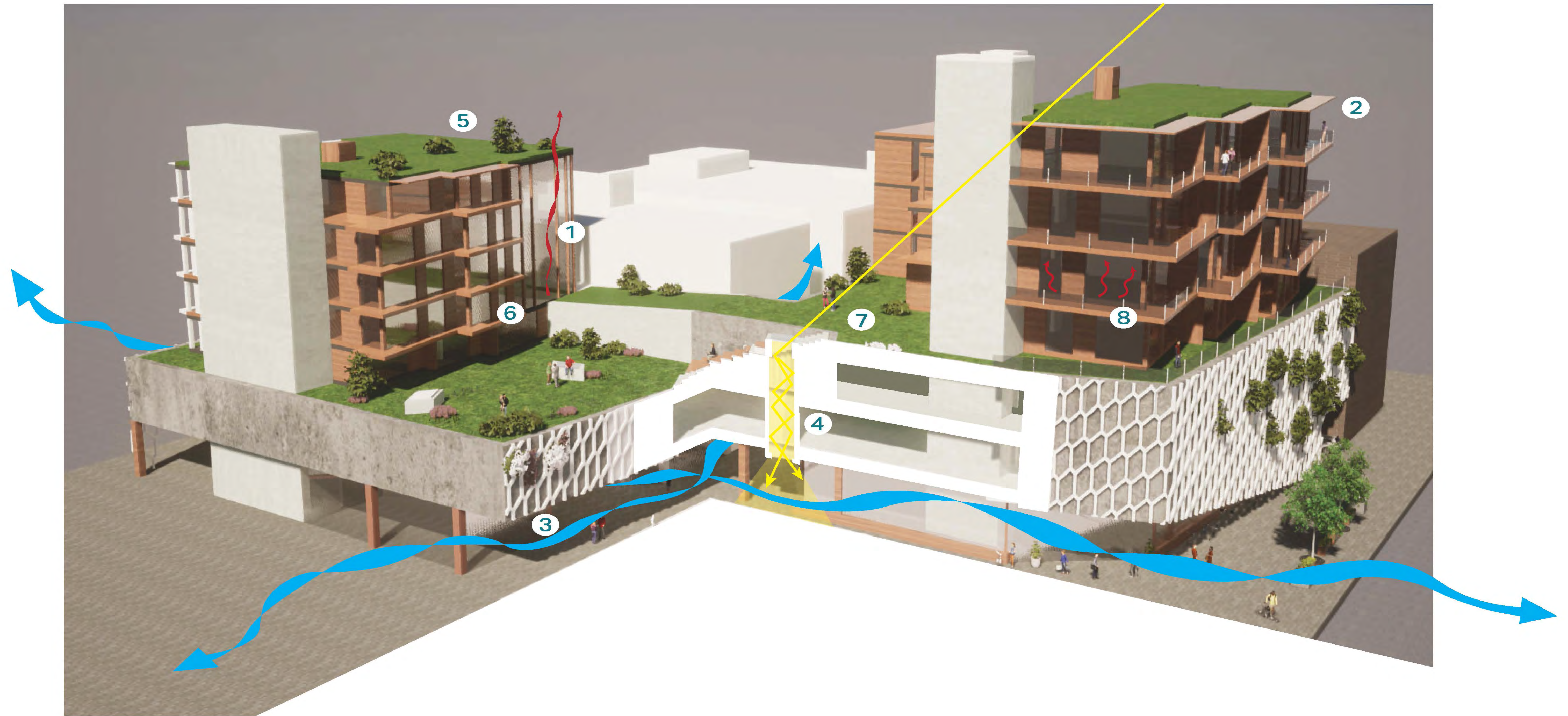








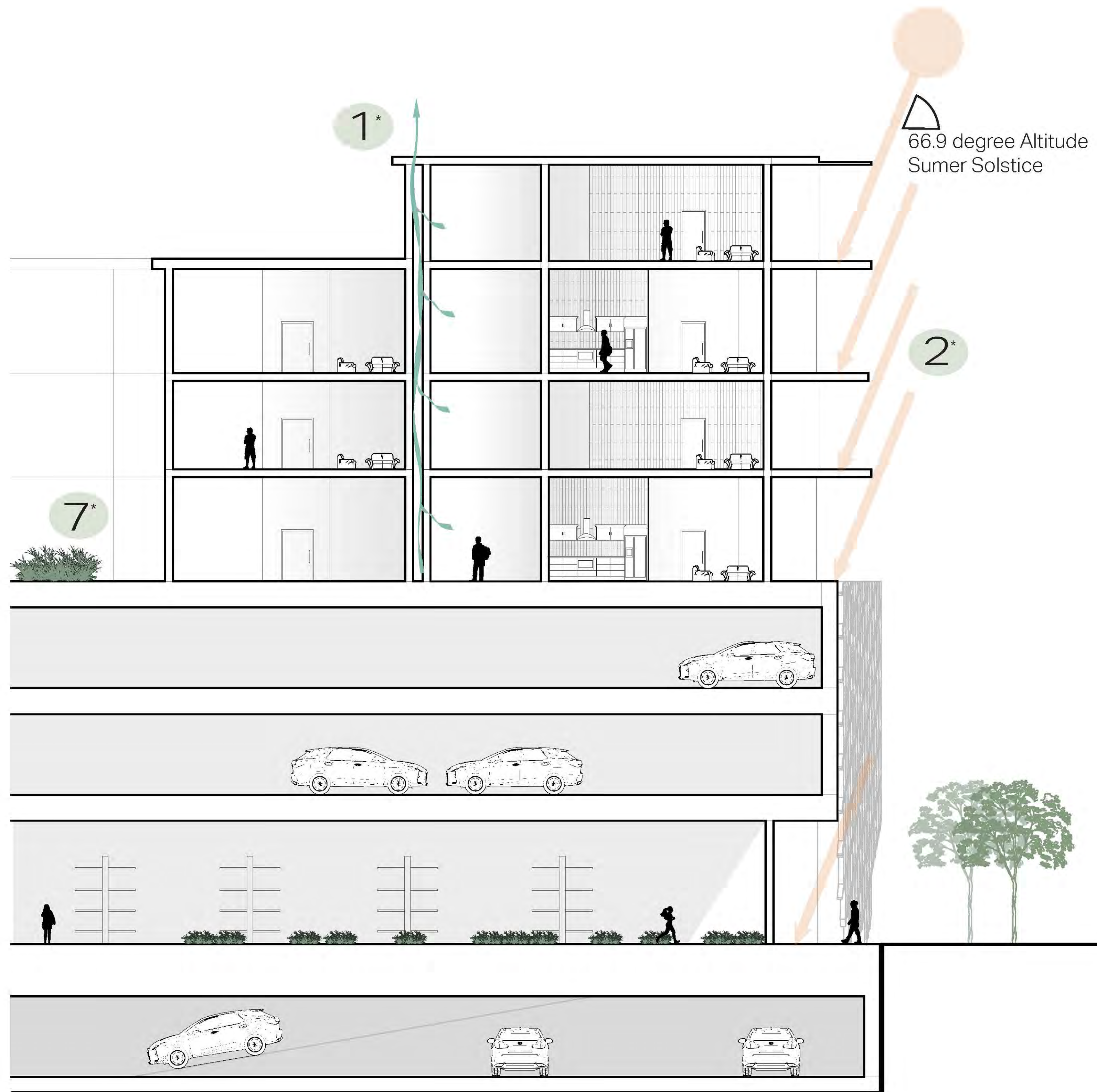
Annotated Sectional Perspective: Passive Strategies



Legend

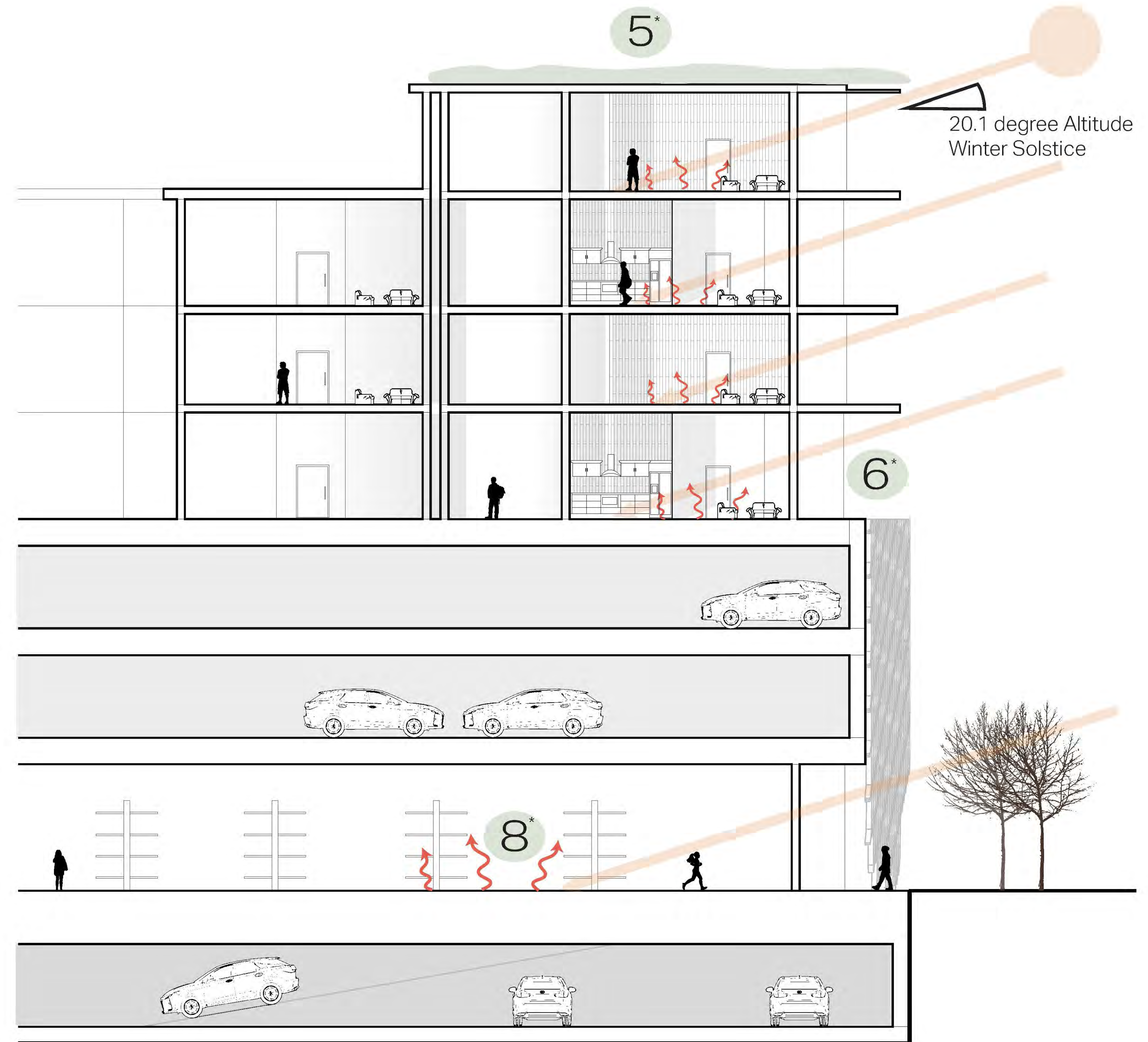
- 1** A continuous volume adjacent to the corridors in both the south and north towers allows for natural stack ventilation (exhaustion of unwanted hot air in summer).
- 2** Balconies (plus integration of horizontal louvers) will shade the units below them. Balconies will also allow residents to utilize their plants as "green shade structures" during summer months when they do not need the extra heat.
- 3** The two pedestrian axes allow for cross-ventilation throughout the site, which is also shaded, which will provide a nice cool environment in hot summer months.
- 4** Light wells are mirrored and layered with lenses to capture and channel light downwards and release it as diffuse light, rather than acting simply as a tube to permit light. This will help mitigate reliance on artificial lighting.
- 5** Green roofs on the condo units and on the elevated courtyard will help to insulate the levels below, benefitting the energy bill in both winter and summer months.
- 6** Protruding corners of each residential unit grant additional access to solar gains into the later hours of the day during winter months, which will help heat thermal mass floors within the units.
- 7** Elevated courtyard space helps to mitigate heat island effect, and lower overall exterior temperature during the hot summer months.
- 8** Concrete floors in residential units provide passive heat via thermal mass properties.

Passive Design Strategies



Passive Strategy
Section C-C (Summer)

scale 1:100
0m 1 2 4 8



Passive Strategy
Section C-C (Summer)

scale 1:100
0m 1 2 4 8

A comfortable courtyard encourages socialization between the various demographics living onsite. Plantings high in nectar and pollen are prioritized to support the bee community.

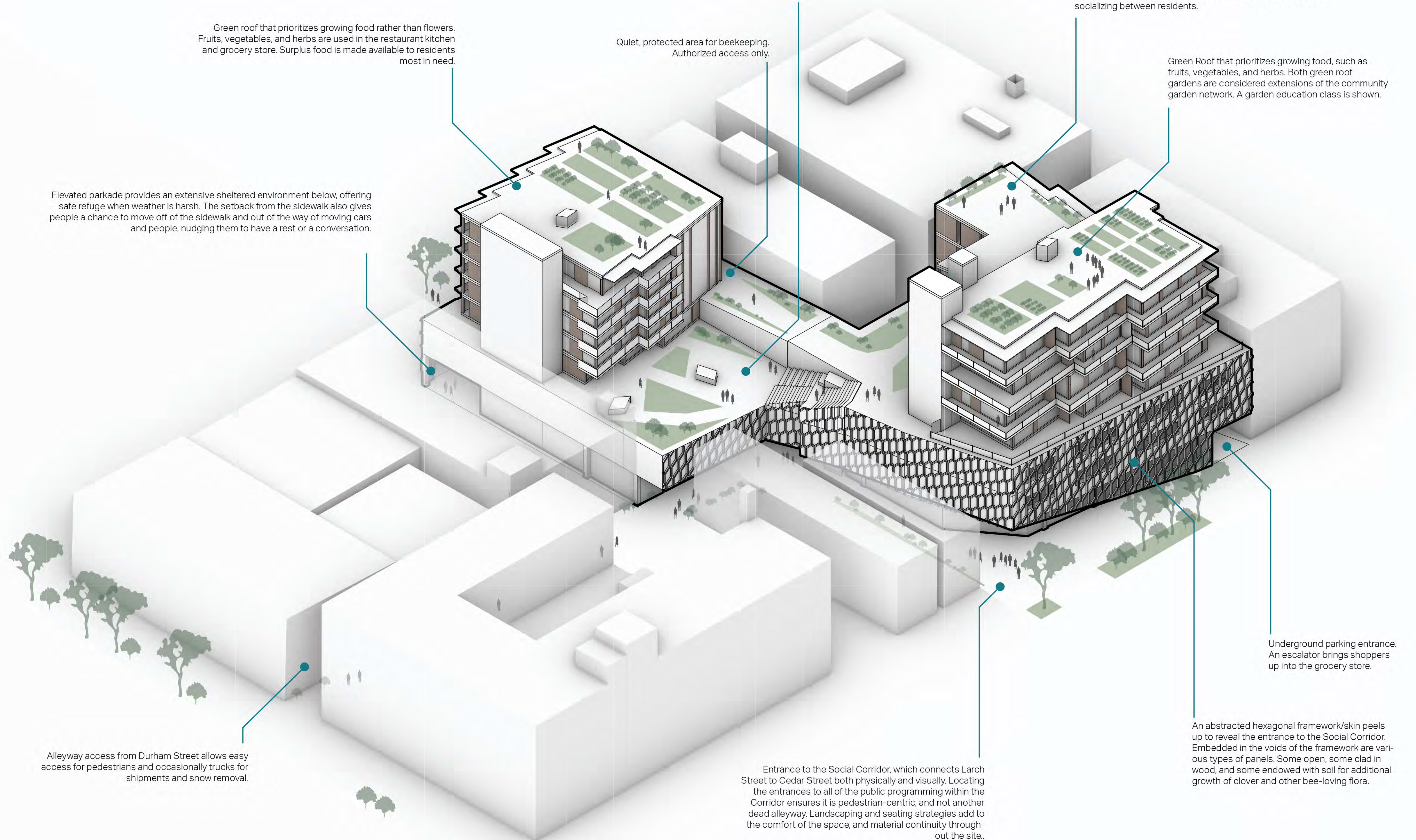
Walk-out rooftop patio for condominium owners. A barbecue, outdoor furniture, and greenery help create a space that is comfortable for prolonged stays, conducive to serendipitous socializing between residents.

Green roof that prioritizes growing food rather than flowers. Fruits, vegetables, and herbs are used in the restaurant kitchen and grocery store. Surplus food is made available to residents most in need.

Quiet, protected area for beekeeping. Authorized access only.

Green Roof that prioritizes growing food, such as fruits, vegetables, and herbs. Both green roof gardens are considered extensions of the community garden network. A garden education class is shown.

Elevated parkade provides an extensive sheltered environment below, offering safe refuge when weather is harsh. The setback from the sidewalk also gives people a chance to move off of the sidewalk and out of the way of moving cars and people, nudging them to have a rest or a conversation.



Underground parking entrance. An escalator brings shoppers up into the grocery store.

An abstracted hexagonal framework/skin peels up to reveal the entrance to the Social Corridor. Embedded in the voids of the framework are various types of panels. Some open, some clad in wood, and some endowed with soil for additional growth of clover and other bee-loving flora.

Entrance to the Social Corridor, which connects Larch Street to Cedar Street both physically and visually. Locating the entrances to all of the public programming within the Corridor ensures it is pedestrian-centric, and not another dead alleyway. Landscaping and seating strategies add to the comfort of the space, and material continuity throughout the site..

Alleyway access from Durham Street allows easy access for pedestrians and occasionally trucks for shipments and snow removal.

Site Axonometric

