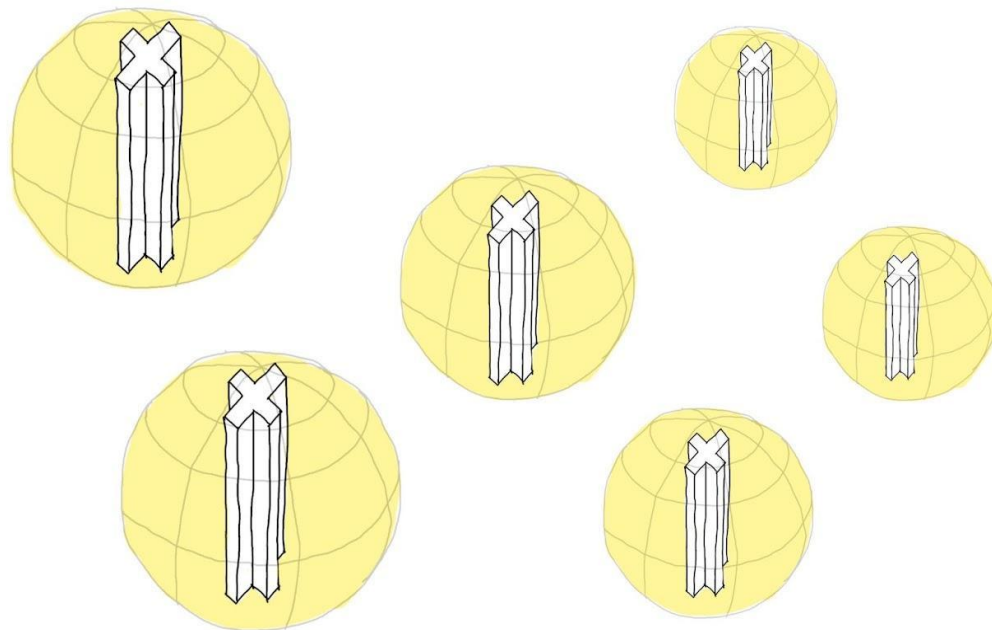


There is a crisis of affordable and adequate housing at a global level, the urban areas and population will continue to grow rapidly in the coming decades and urbanization will have a determining impact on the future of our planet.

**These facts are undeniable.**

# HUMANIZING HIGH DENSITY LIVING

**A VISION FOR HONG KONG .**



Carolina Corsaro  
Mónica Guadalupe Vázquez Garduño  
Stefano Caglioni

caro.cors@live.it  
tallerw.art@gmail.com  
arch.stefanocaglioni@gmail.com

I  
-  
-  
U  
-  
-  
A  
-  
-  
V  
Università Iuav  
di Venezia

INAAAD  
2021 - 2022



Carolina



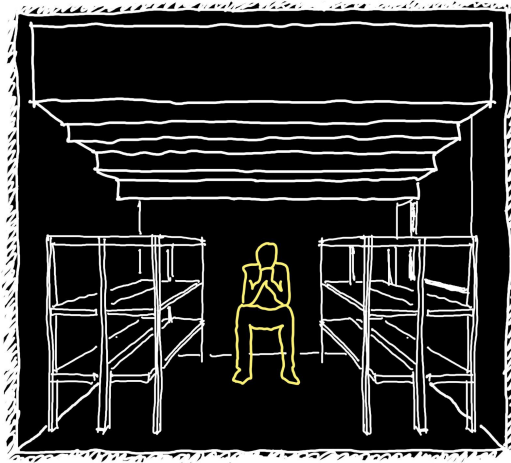
Stefano



Mónica

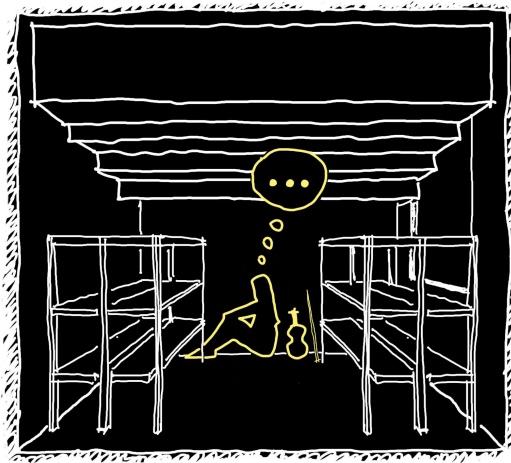
3 different backgrounds, 3 different perspectives

**ONE INTENTION**



**We think that even in small spaces, and in disadvantaged conditions,  
people deserve to live better ...**





**... and disclose their wings !**

- 
1. **CONTEXT AND BACKGROUND**
  2. **THEORETICAL FRAMEWORK**
  3. **EXPERIMENT**
  4. **DESIGN**

**index**

I  
-  
U  
-  
A  
-  
V

Università Iuav  
di Venezia

**INAAAD**

2021 - 2022





# **1. CONTEXT AND BACKGROUND**



# 1. Context and background

## World facts

By 2050,  
**68% of the world population**  
will live in cities, reaching 6.6  
billion people



# 1. Context and background

## Housing shortage and affordability

The global deficit of housing has been an increasing crisis for decades

The housing crisis is not just a matter of **shortage** but also a **fact of unaffordability for millions of households.**





# 1. Context and background

Housing the future

## UN Sustainable Development Goals (SDGs), target 11.1

By 2030, Ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums.

4 million additional adequate houses would be required every year to reach the target



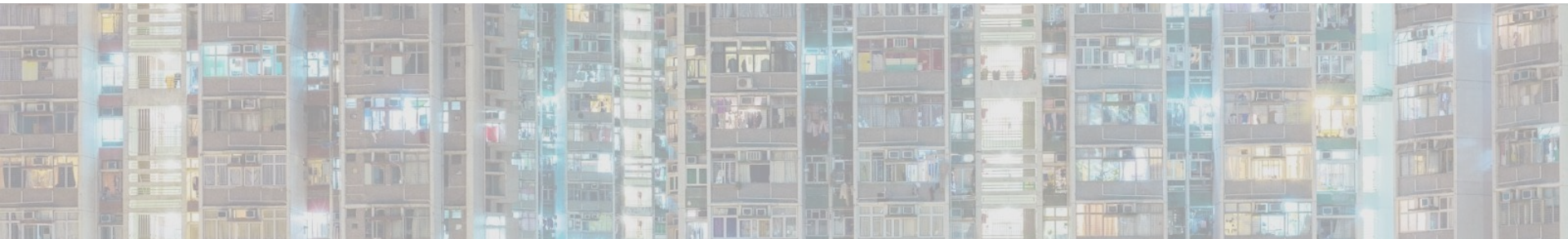
**HOW**



# 1. Context and background

Housing with a higher population density than average

- Affordable housing for more people
- Minimize land waste and promote natural resource conservation
- Can promote social integration and community sense of belonging
- It can be more sustainable
- Social mixing can contribute to generate more inclusive and healthy societies





# 1. Context and background

Using the COVID-19 pandemic as a valuable framework for problem-solving

- Physical and mental health at the centre
- Importance of social interaction and physical contact with others
- Space flexibility and adaptability
- Views to the outside world





## 2. THEORETICAL FRAMEWORK



## 2. Theoretical framework

### Risk factors of high-density living

#### Physical indoor space related

- Not enough space for everyday living
- Lack of windows and views
- Undefined or improper space for work/study
- Limited privacy (spatial, visual, acoustic)
- Lack of storage
- Poor or deficient lighting
- Overstimulation



## **Psychological**

- Stress caused for constrained living
- Too much time spent indoors
- Loss of identity and sense of oneself

## **Outdoor space related**

- Low community bonding
- Low physical activity
- Limited space for social interaction
- Crime and vandalism
- Limited space for recreational activities
- Limited interactive features



## **2. Theoretical framework**

Defining the notion of well being

**The huge challenge for architecture is pursuing livable spaces that help people to enhance their quality of life (physical, mental, emotional, and social) and, as a consequence, improve the social fabric, because individualities build community and planetary health.**





# 3. EXPERIMENT

# 3. Experiment

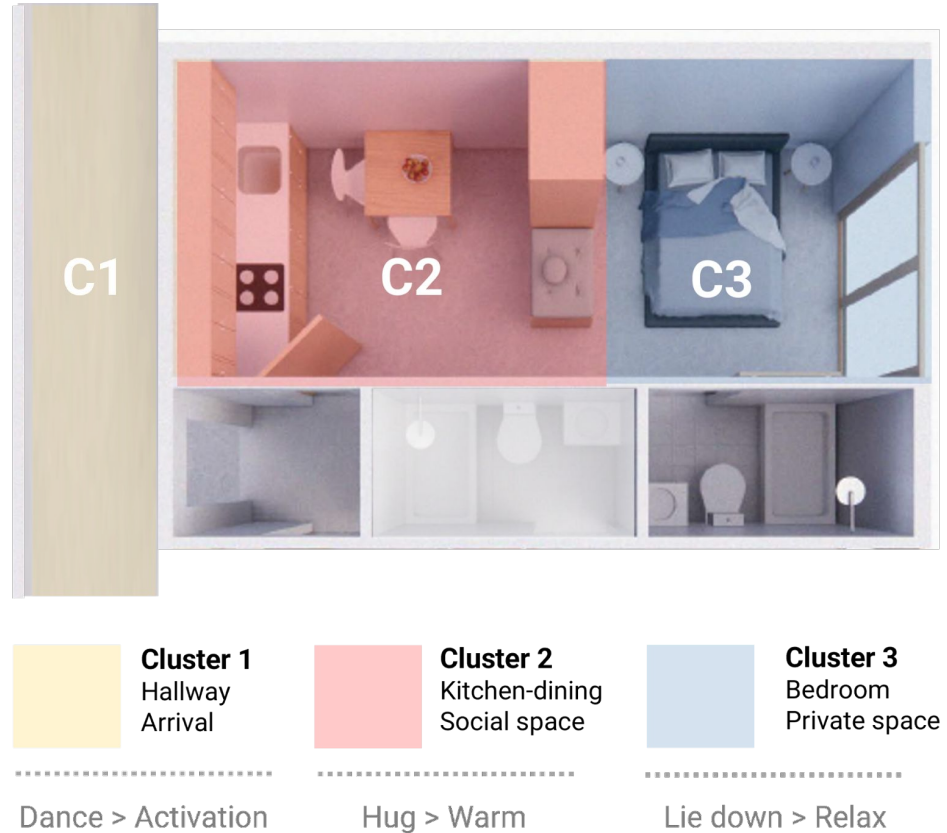
## Analysis of a minimum apartment

A minimum apartment, part of an ongoing real housing project has been studied for the experiment.

The project provides affordable housing for workers, students, and tourists.

In our experiment variations were proposed for the apartment's color, lighting, shape of accessories, and biophilic components in respect of three clusters: an exterior hallway (C1), the social area (kitchen-dining C2), and the private area (bedroom C3).

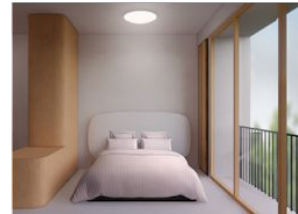
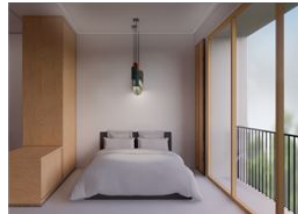
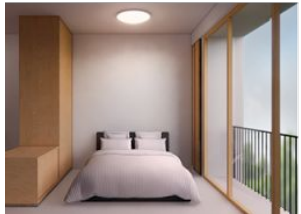
The survey aimed to understand the emotions and preferences for different interior variations of people from various socio-cultural backgrounds and countries.





# 3. Experiment

## Variations



Baseline  
condition

COLOR  
VARIATION 1

COLOR  
VARIATION 2

LIGHT  
VARIATION

GEOMETRIC  
VARIATION

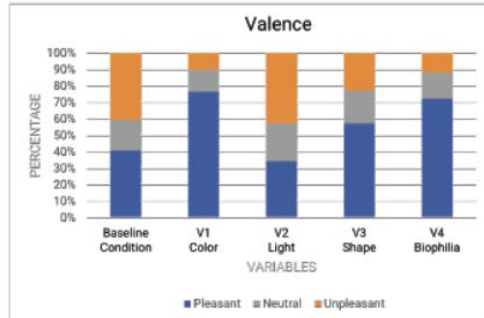
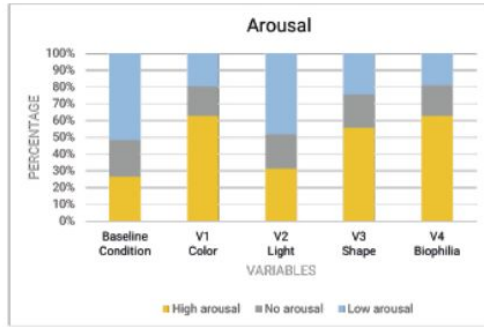
BIOPHILIC  
VARIATION



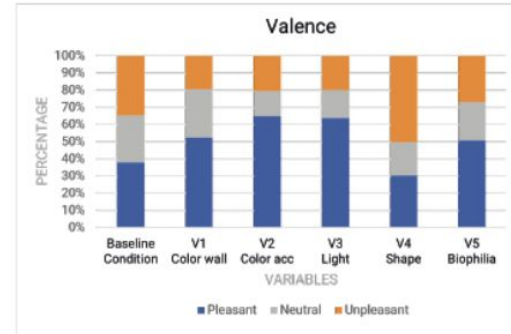
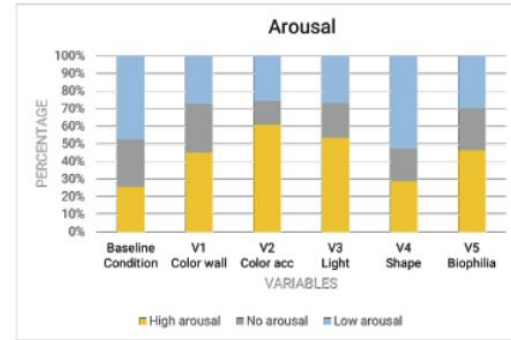
### 3.3. Data analysis

The data collected from this experiment is shown in the following graphics in the descriptive category of statistics.

Cluster 1 - Hallway



Cluster 2 - Social



### **3. Experiment**

#### **Conclusions**

**We collected 185 responses from America, Asia and Europe, and we noticed that on the global and regional scales, there is a common trend for the choices in the hallway and social space, with slight differences per continent, but for the bedroom the selection was diverse. We also confirmed the preference for the values more related to the connection with nature.**

**For the bodily feelings, there was also a significant consistency among the respondents.**



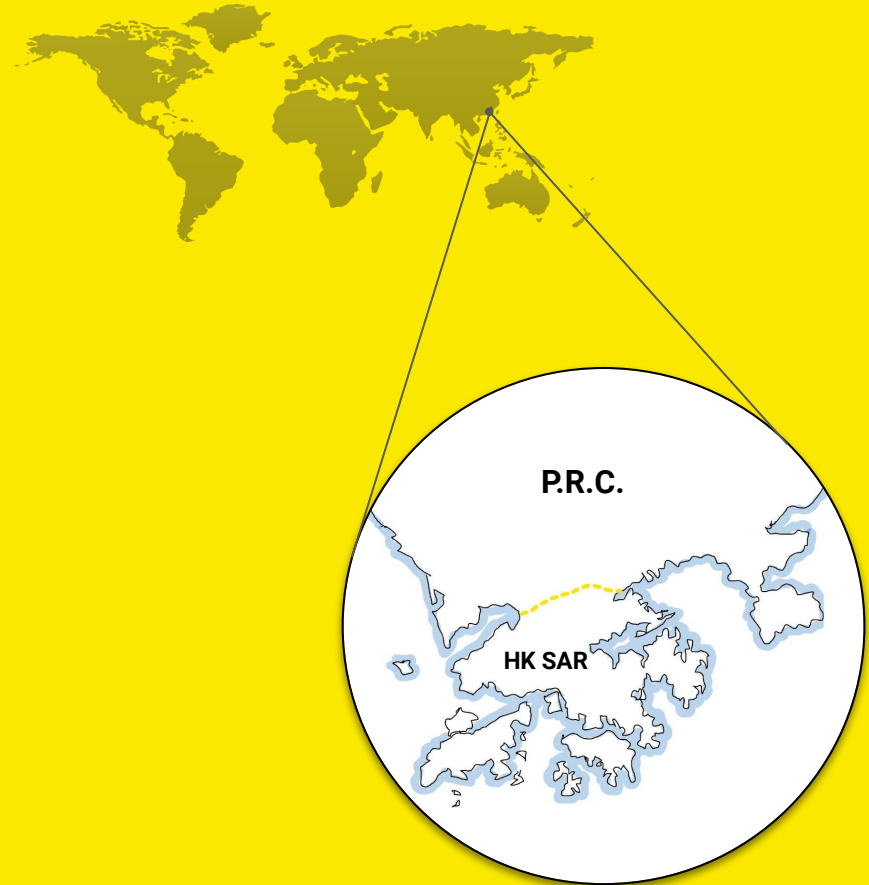
# 4. DESIGN



## 4. Design

### Hong kong in brief

- Chinese special administrative region (S.A.R.)
- Former british colony (1841-1997)
- Regime of urban driven and property-dominated development
- One of the most densely populated place on earth (6,400 pax/sq km)

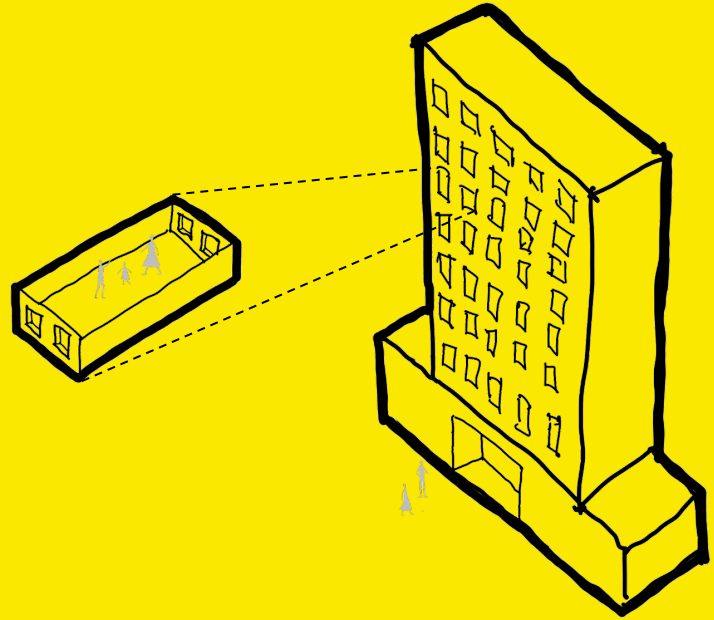


## 4. Design

Hong kong in brief

PUBLIC HOUSING DILEMMA / **WAITING TIME**

6 years for a public flat in Hong Kong, resulting in an uncontrolled rental landscape with landlords profiting from this situation of scarcity, trying to maximise the profit of their assets.

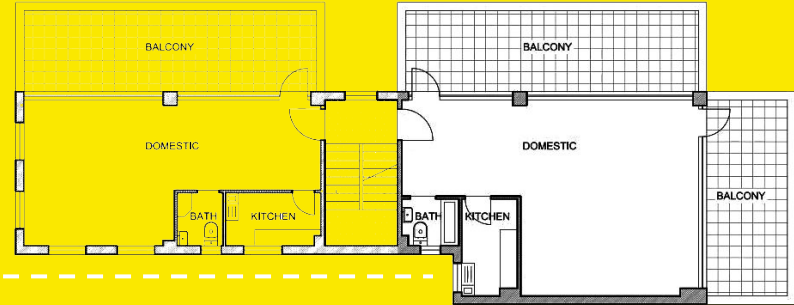


## 4. Design

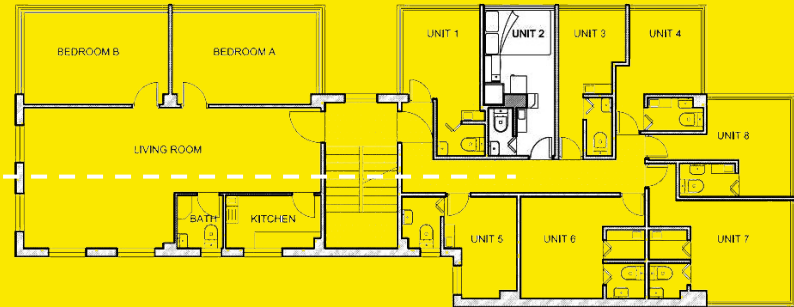
Hong kong in brief

PUBLIC HOUSING DILEMMA / **SUBDIVIDED UNITS**

1960 . 73 sq mt



2016 . 7.2 sq mt



courtesy of DOMAT®

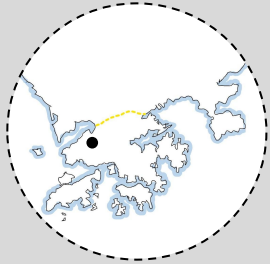




## 4. Design

### **District / New territories (NT)**

**Our proposal (vision) will be localized in a specific district of Hong Kong, called New Territories. Rural lands unlocked by the government in the 80's to address the demographic pressure of white / blue collar immigrants primarily coming from China.**

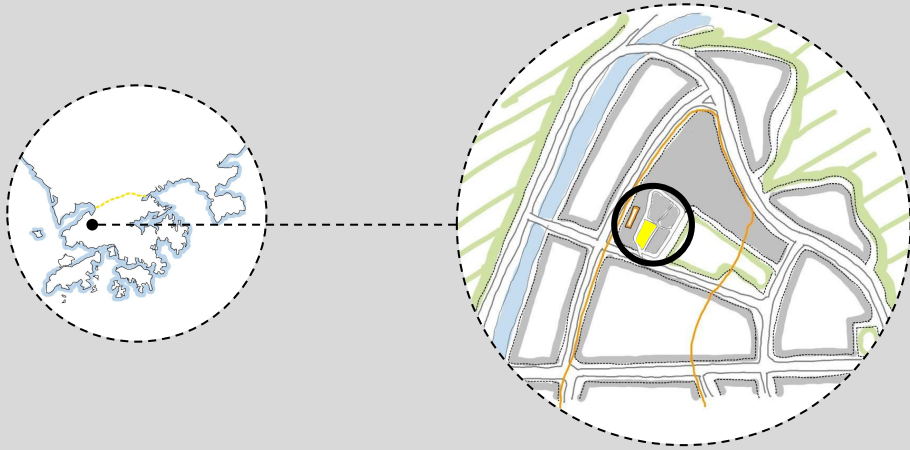




## 4. Design

### Area / Tin Shui Wai

Tin Shui Wai is a new town situated in the wetlands of the New Territories in Hong Kong, which was originally used for fish and duck farming. In the 80's, it was developed under a public housing scheme to accomodate a community of nearly 150,000 people.

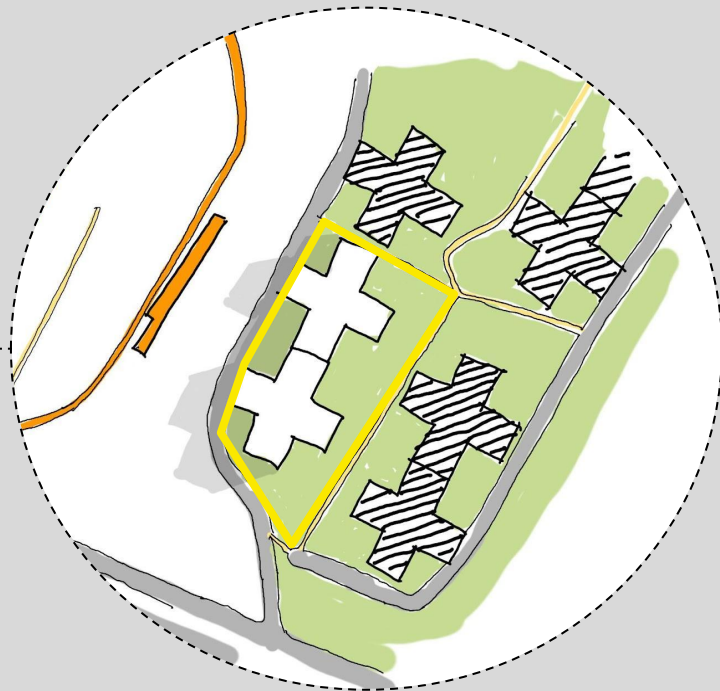
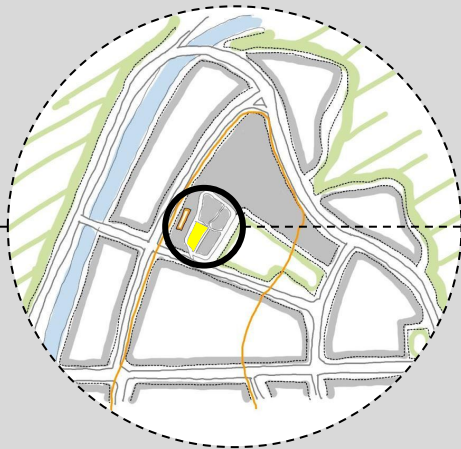


## 4. Design

### Plot / Tin Yat Estate

The chosen plot is part of the Tin Yat Estate, near a Light Rail stop and connected to commercial amenities by major roads. The estate includes nine residential buildings completed in 2001.

Our **plot** is occupied by two 40-storey cruciform towers, with a population of about 1,000 per building on 7,000 sqm.

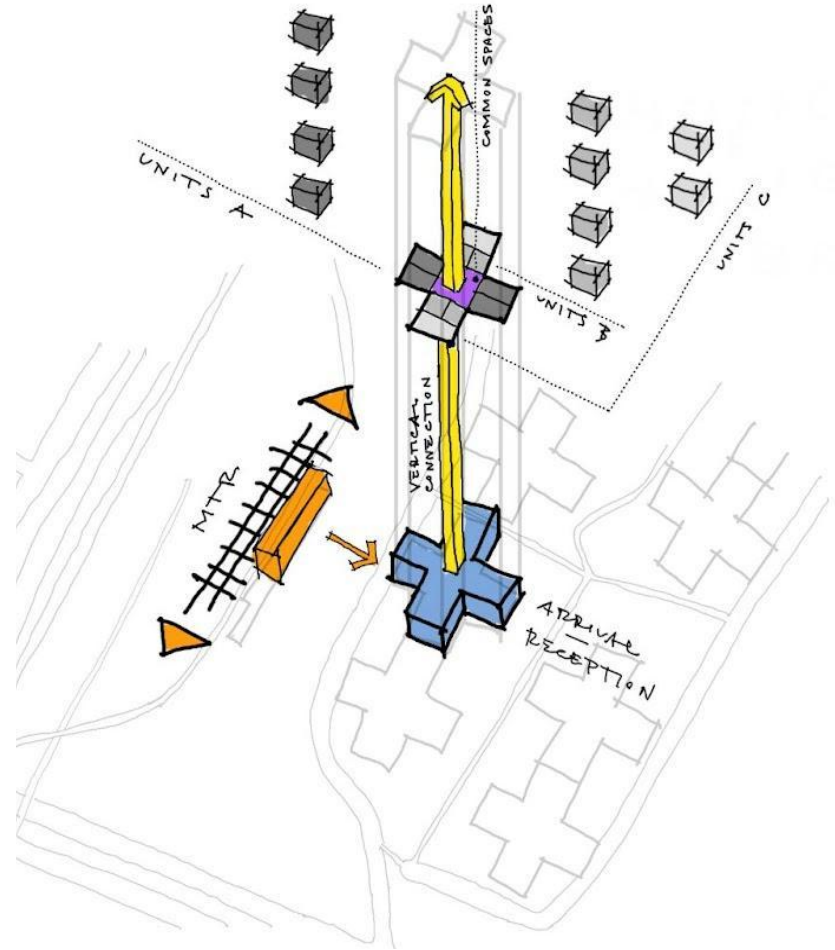


## 4. Design

### Functional program

The majority of the demographic in the area is comprised of the working class who commute early in the morning and return in the evening. Overall, the planning of the new towns focused on easy accessibility to **public transport** to ensure efficient commuting despite the distance from the principal working areas of the city. The residential tower is then designed as a dormitory without specific amenities for the elderly and children who spend most of their time in it.

**Reception** aside, the common areas are limited to **corridors** that lead to various unit levels. Three types of units accommodating families ranging from 2 to 6 members have been planned. (A, B and C)



## 4. Design

### Existing clusters

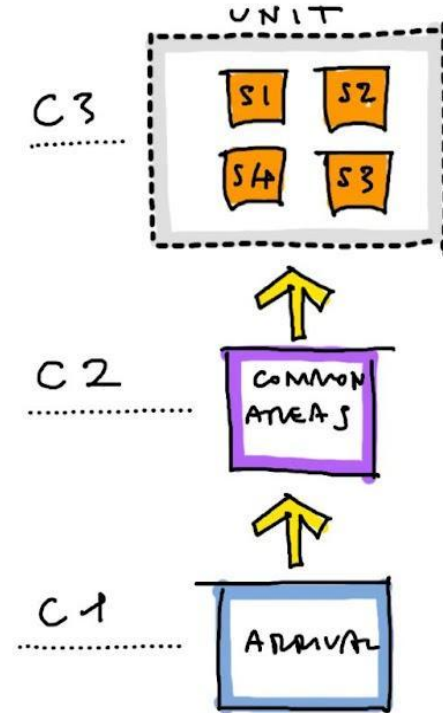
The organization of the existing clusters appears to be very elementary,

We identified three main ones corresponding to:

C1 / the lift lobby arrival

C2 / the corridor distributing to the apartments

C3 / the living unit, with different internal sub-clusters



## 4. Design

### Clusters re-definition

We envision the following sequence of clusters to improve the integration of scales from the urban domain, through the architectural one, and finally to that of the private home, at the same time enhancing the overall experience :

C1 / the path from public transport station

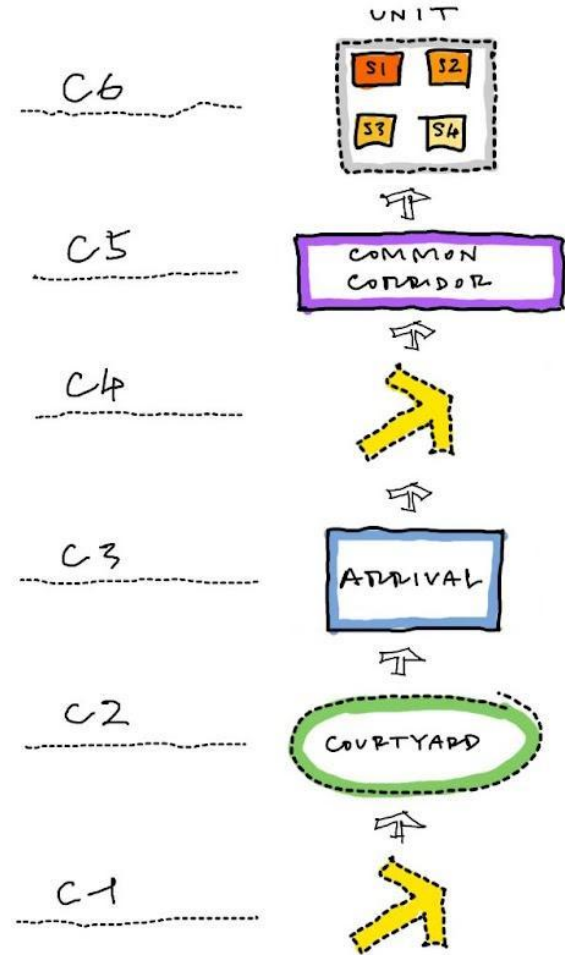
C2 / A generous courtyard welcoming people returning home

C3 / the ground floor, seen as a proper arrival

C4 / the vertical connection

C5 / A corridor intended also as a social space

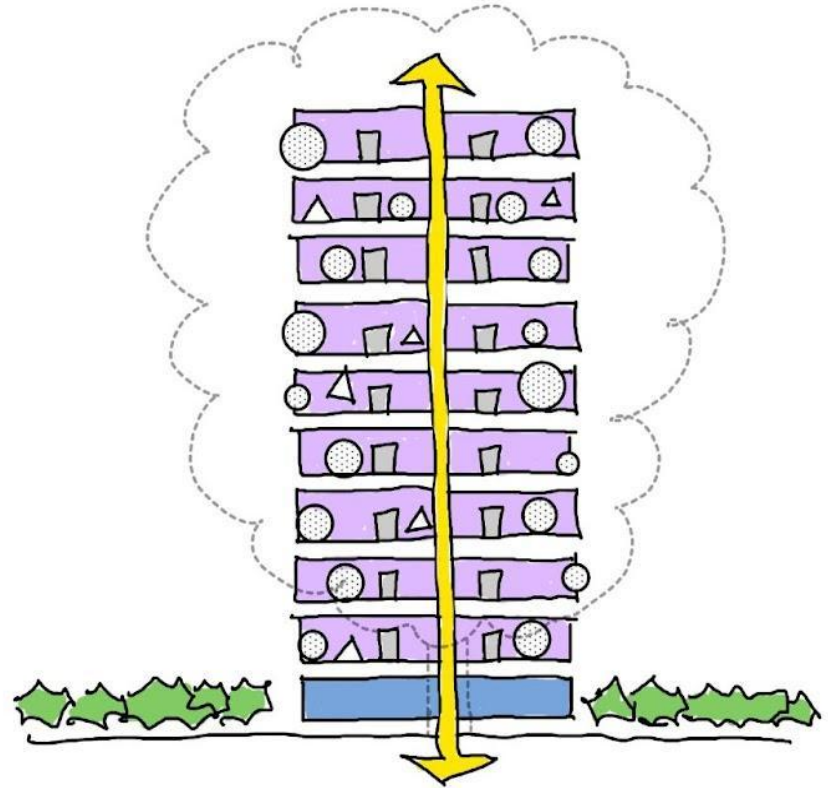
C6 / the living unit, with internal sub-clusters



## 4. Design

### Identification of main emotional driver

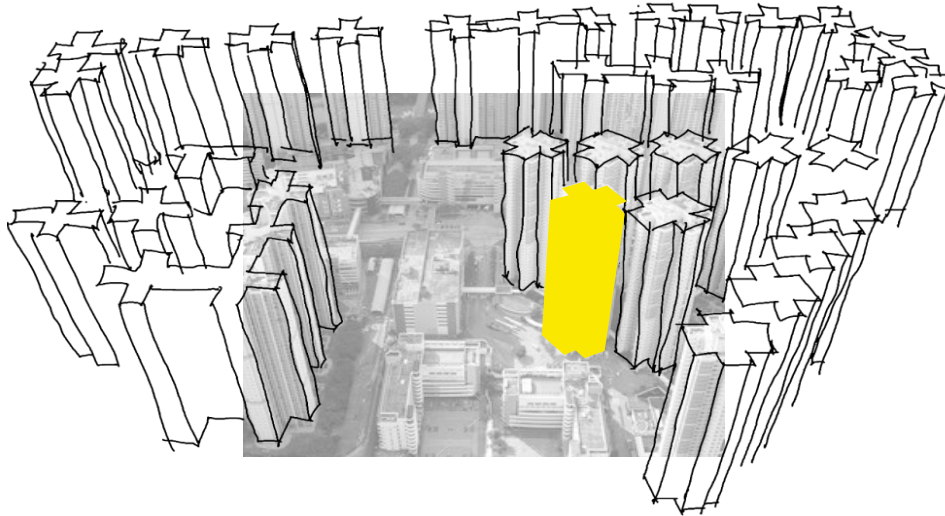
In such an extreme human habitat we want to place the integration of scales at the center, and we believe that the idea of the **TREE** can serve as an emotional driver, acting as a metaphor to facilitate the transition and connection between clusters. The vision behind our design thinking is that of a giant tree, symbolizing protection and housing various species of animals, promoting a dynamic coexistence within the community.



## 4. Design

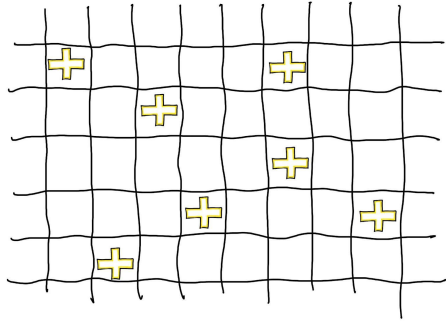
### Cross shaped high rise typology - focus

Our vision lies between an abstract concept and a concrete project. To give it more substance, as said before, we chose to reference an existing and iconic piece of architecture, which is not an exception but rather a standard element of public housing design in Hong Kong: the cross-shaped tower, also known as the "new cruciform" tower. Conceived in the 1980s, this typology belongs to the category of standard buildings, designed primarily to **improve hygiene** and **maximize space**.

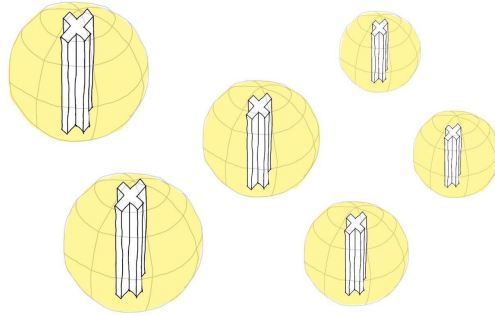


## 4. Design

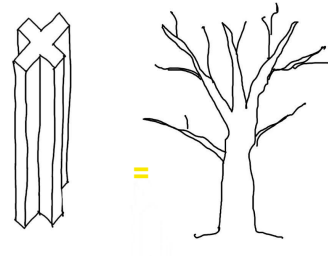
### Cross shaped high rise typology - risk factors



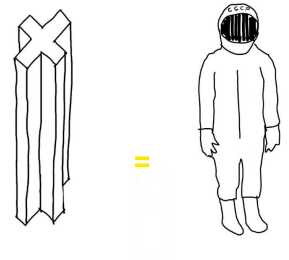
**NOT ADAPTIVE**



**NOT RELATIONAL**



**NO NATURE**



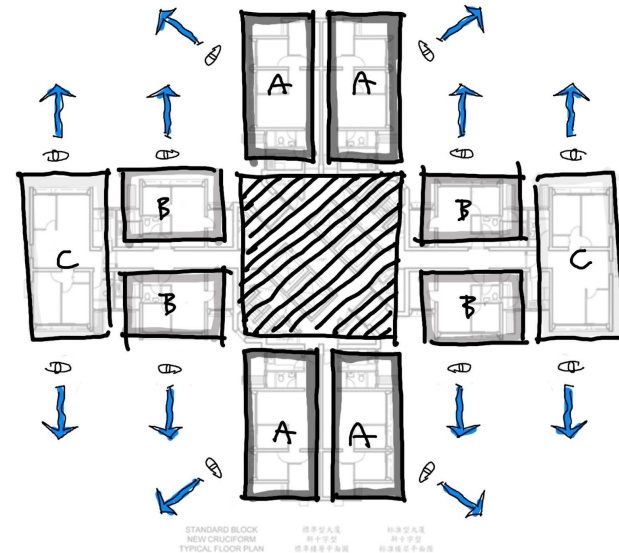
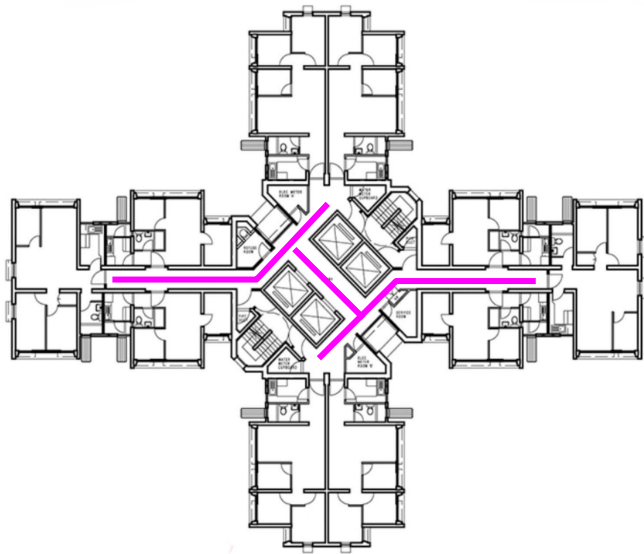
**NO VITALITY**



## 4. Design

### Cross shaped high rise typology - analysis

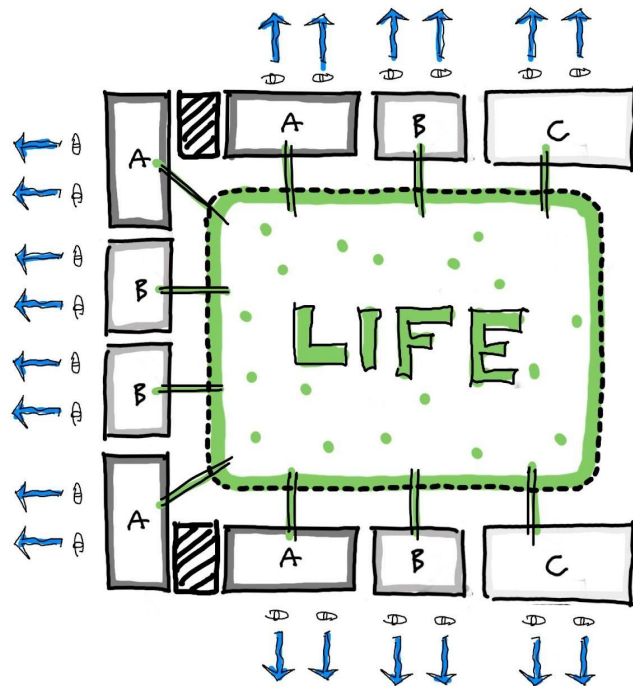
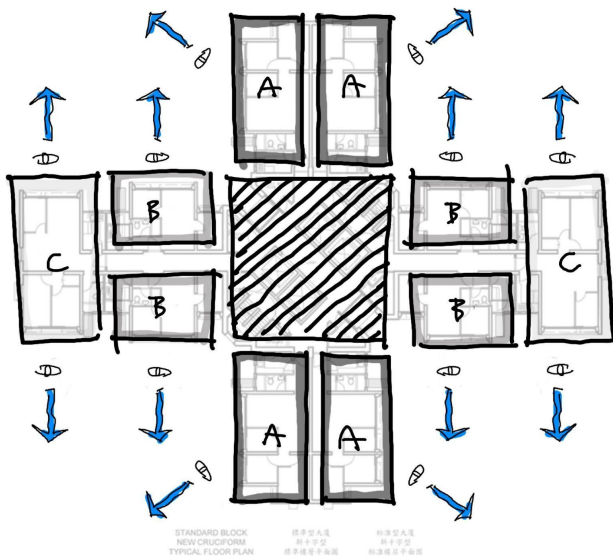
The cruciform building floor plan comprises 10 units, catering to families of 2 to 6 individuals each, as part of the "standard buildings" category scheme. This housing typology prioritizes hygiene and internal space optimization over communal areas, resulting in **corridors** utilized as mere transit spaces.



## 4. Design

### Proposal

Our elementary proposal is to reconfigure the existing 10 units into a new layout that fosters a sense of community, with a central courtyard as the main space of convergence, and circulation occurring through a traditional open corridor.

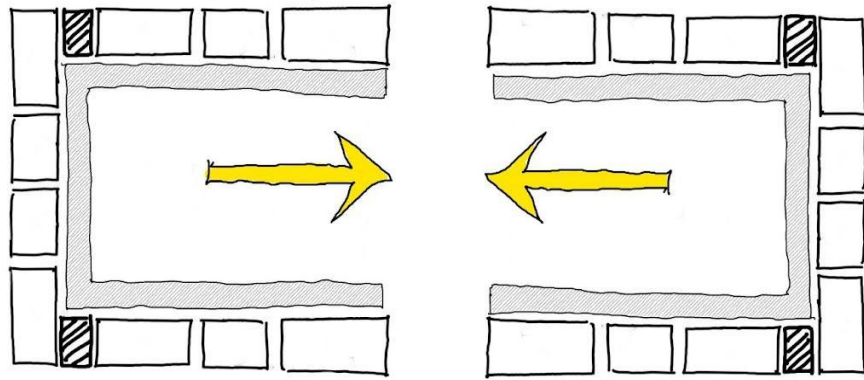


## 4. Design

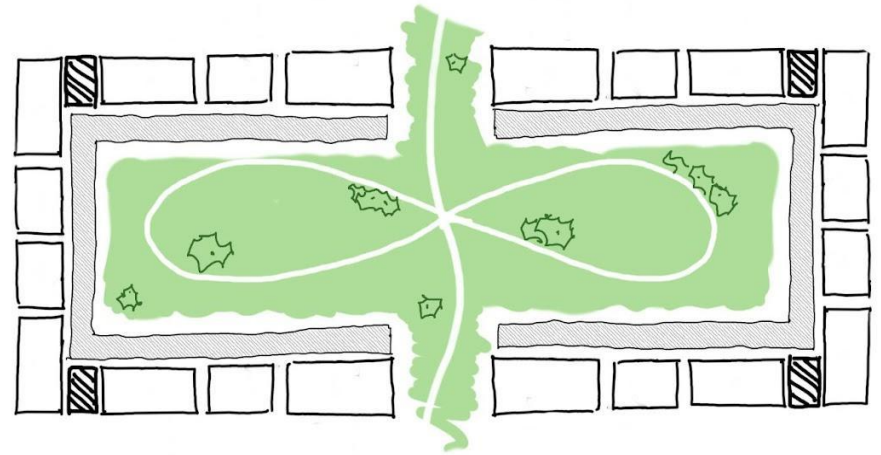
### Protective factors

By combining two buildings, we create a relational “hug” that did not exist before.

We also believe that nature is beneficial at all levels, and having a strong presence of it right in the center of the newly formed courtyard can provide a sense of human existence and belonging to Mother Earth, which can sometimes be lost in a high-density living scenario.



Relational Character



Nature

## 4. Design

### New clusters (3d level)

**C6 Living unit / HARMONY, ACTIVATION, RELAX...**

**C5 Main corridor / ENERGY, RELAX, HARMONY..**

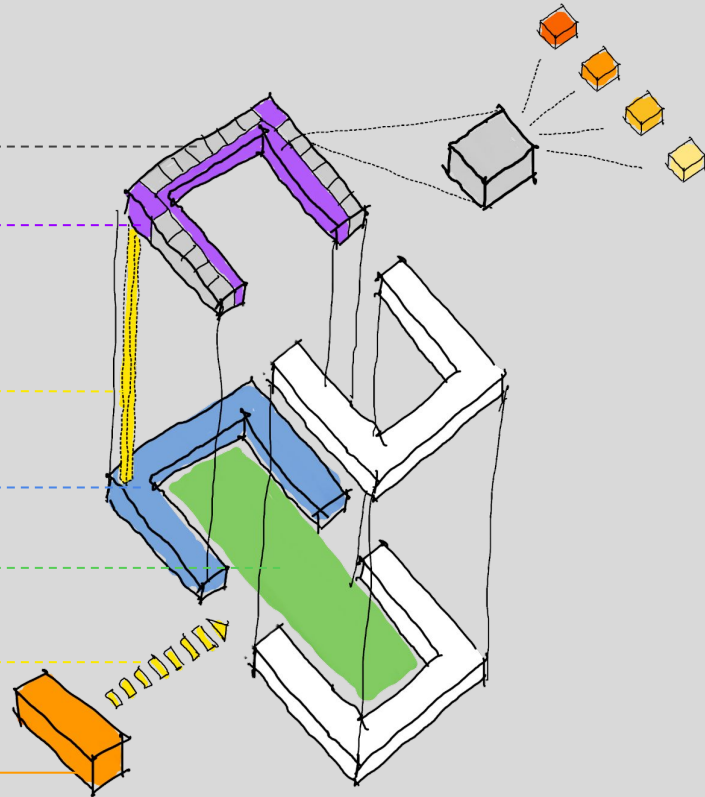
**C4 Staircase / LIGHTNESS, ENERGY**

**C3 Reception Arrival / ACTIVATION**

**C2 Courtyard / AWE**

**C1 Path from public transport station / ACTIVATION**

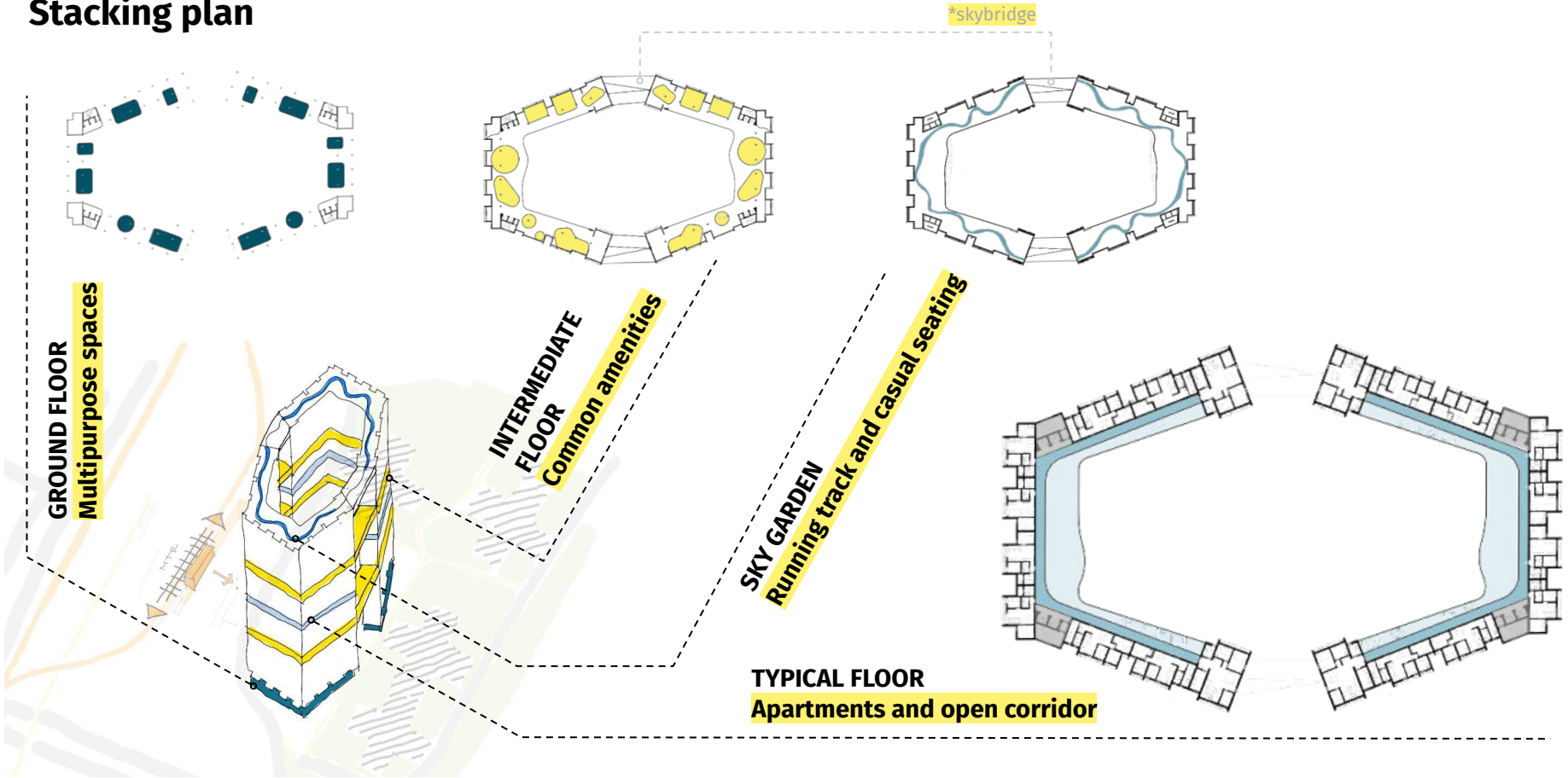
**LIGHT RAIL STOP**





## 4. Design

### Stacking plan



## 4. Design

### Phenomenological approach

**Not the conventional architectural story with plans, sections, and views. Instead, let us dive into the human perspective, seeing the building through the eyes of one of its inhabitants. Let's experience the building's joys and sufferings, struggles and victories, and all the emotional ups and downs that make it a real, living space. Let's try to bring the building to life by feeling the heartbeat of those who live within its walls.**

## 4. Design

### Ad personam narrative

Ms. Chu  
(朱小姐)



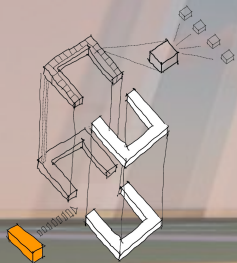
Ms. Chu, originally from Yunnan province in China, moved to Hong Kong in 2008 with her husband, who opened a food import-export business in town. However, after a few years and two children, the couple divorced, leaving Ms. Chu and her family alone in Hong Kong. As a security guard at the Hong Kong Museum of Modern Art, Ms. Chu earned HKD 11,000 (EUR 1,200) per month and could only afford a subdivided unit. After living in a one-bedroom apartment in the popular Yau Ma Tei area for a few years, she was finally appointed a 35 sqm flat in Tin Shui Wai under the public housing scheme. Living in the SU was very tough, with COVID worsening the situation. After relocating to Tin Shui Wai, Ms. Chu realized that **having a decent home is more than just a place to sleep in, it is the foundation of a human life.**

# 1

## THIS IS WHERE THE JOURNEY BEGINS

Ms. Chu after a 45 mins. commute can finally exit the light rail station walking to to her new home. Work is done, finally some deserved “me” time.

Start !





# 2

## THE STARTING POINT OF A NEW BEGINNING

Ms. Chu has reached the entrance of the big courtyard, where the two buildings seem to touch each other in a friendly hug. What's happening after?

activation



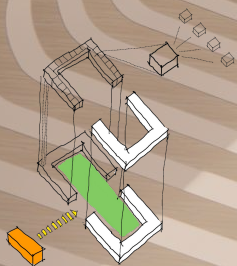


# 3

## THIS IS WHERE THE MAGIC HAPPENS

Walking into the courtyard Ms. Chu finds herself immersed in a mysterious space, a sort of urban temple where she experiences a feeling of hope mixed with lightness, capable of lifting up her spirit after a long working day.

awe



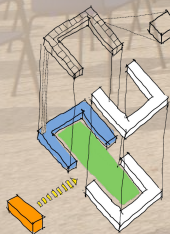


# 4

## THE WAY TO THE LOBBY

Ms. Chu feels as if she's in a natural forest, surrounded by columns of the building clad in timber and spontaneous bushes growing along the path. This landscape reminds her of the lush greenery of Yunnan, her homeland known as the "**Thailand of China**".

activation

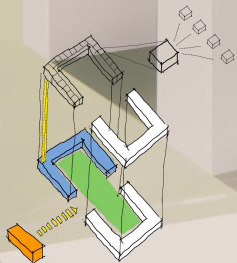


# 5

## EMERGENCY STAIRCASE

That Ms. Chu climbs every single day. She lives on the fifth floor, and she's fit enough to skip the lift, aware that this decision is a win win deal, beneficial for her health, and for the disabled people who won't have to wait too long for the elevator. Groups of teenagers love spending the afternoon here, in this authentic place.

lightness





# 6

## SHOW AT THE FLOOR ARRIVAL

An elderly couple walking home along the dedicated corridor, separated by the social space, animated by kids playing and young couples flirting. Some table tennis and foosball table are here as well, in the most “alive” section of the external corridor. Generous planters and timber finishes contributes to the connection with nature.

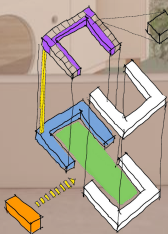


# 7

## WALKING HOME

A neighbour writing peacefully, in a relaxing spot with visual connection with the overall surrounding. He sits in the narrow section of the corridor, where elderly find a quiet space for their activities. She waves at him and ask about his wife, while the breeze gently rustles the leaves of the nearby potted plants, providing a soothing background noise. They chat for a few minutes. "He definitely look like my grandpa" Ms. Chu thinks ..

relax



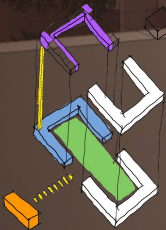


# 8

## SOME TIME OFF

Night life can be as vibrant as everyone prefers, with the freedom to choose either to socialize or to remain in a more contemplative solitude. After dinner, Ms. Chu enjoys the view from the common terrace, making her feel inspired, relaxed and finally happy to look at the future in a different perspective. Elderly people benefit from this moment of the day, in which the tropical heat offers a break, to go out and have a chat with the neighbors, as they used to do in the years they lived in rural Hong Kong. For some who can't venture outdoors this balcony offers a connection to the world.

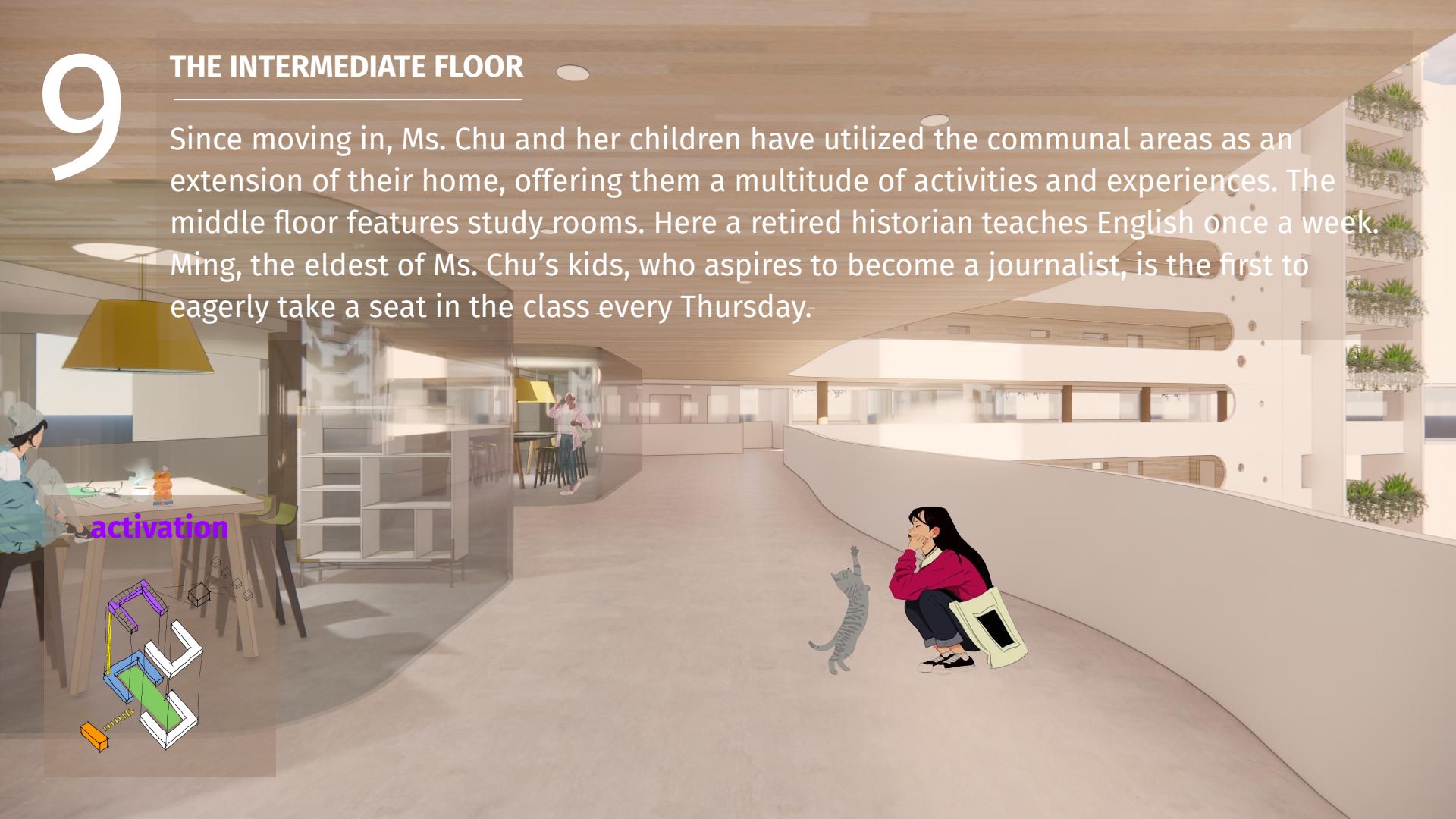
harmony



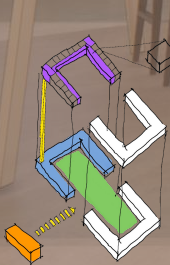
# 9

## THE INTERMEDIATE FLOOR

Since moving in, Ms. Chu and her children have utilized the communal areas as an extension of their home, offering them a multitude of activities and experiences. The middle floor features study rooms. Here a retired historian teaches English once a week. Ming, the eldest of Ms. Chu's kids, who aspires to become a journalist, is the first to eagerly take a seat in the class every Thursday.



activation



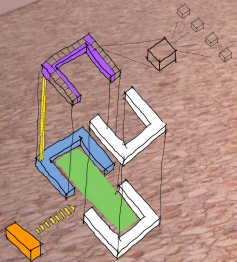


# 10

## A PLACE WHERE JOURNEY ENDS AND LIFE BEGINS

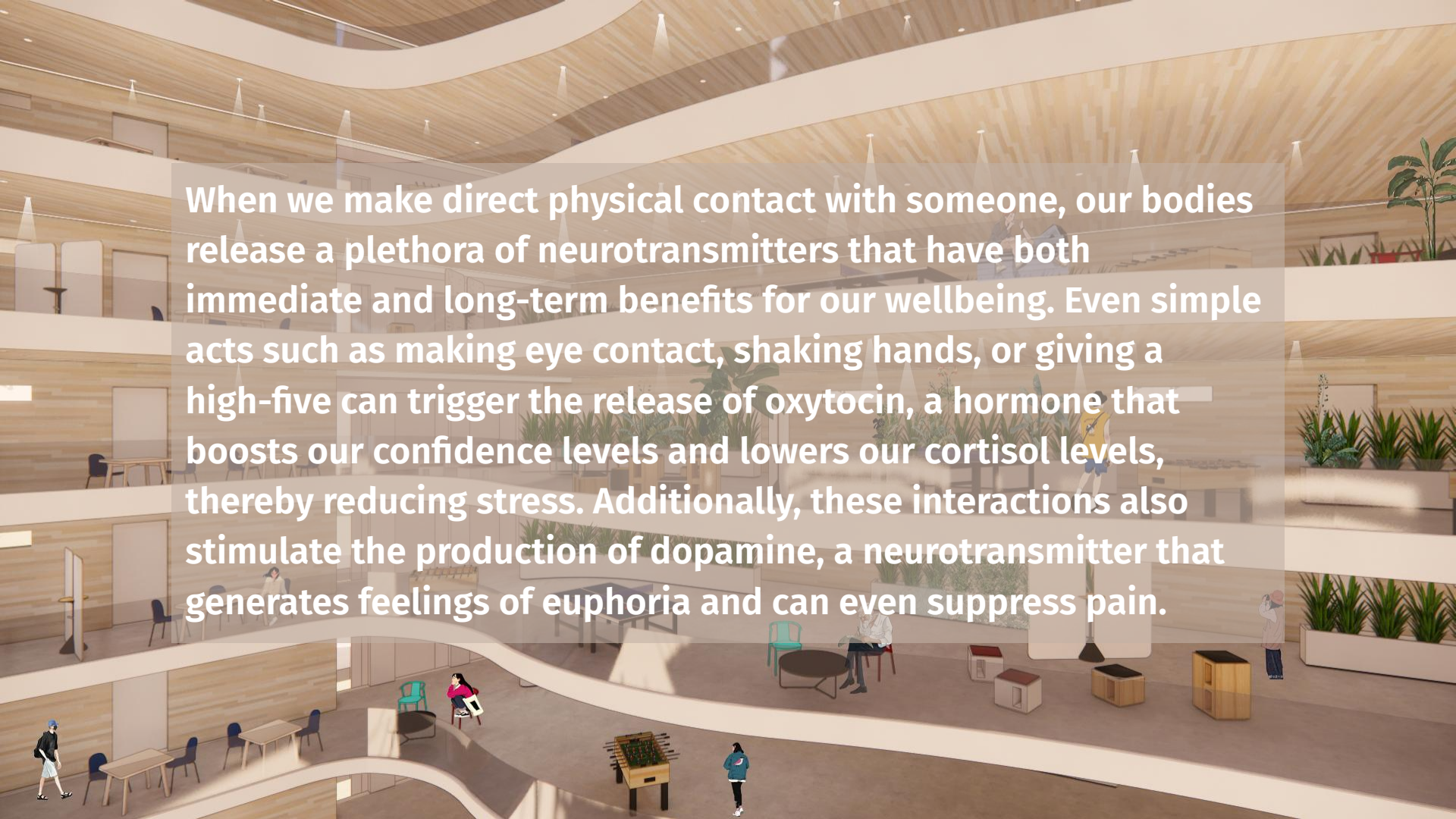
Ms. Chu is here where she releases the stress of the day and indulges in a restorative sunset run. The curvy running track heightens the awareness of her body, allowing her to adjust her steps accordingly and, at the same time, expecting the surprises the soft corner around will bring. Perhaps someone behind the greenery ..

activation



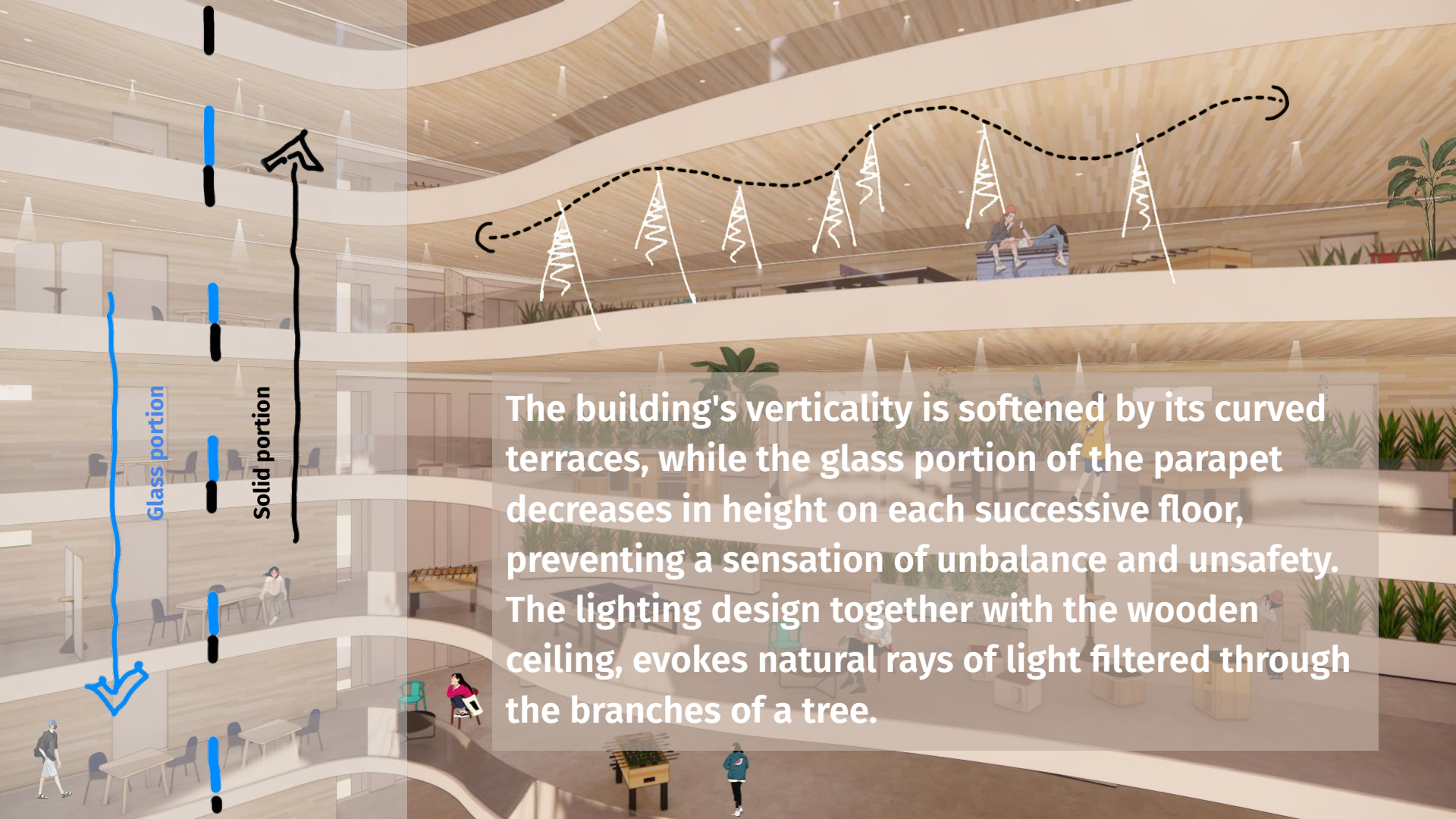






When we make direct physical contact with someone, our bodies release a plethora of neurotransmitters that have both immediate and long-term benefits for our wellbeing. Even simple acts such as making eye contact, shaking hands, or giving a high-five can trigger the release of oxytocin, a hormone that boosts our confidence levels and lowers our cortisol levels, thereby reducing stress. Additionally, these interactions also stimulate the production of dopamine, a neurotransmitter that generates feelings of euphoria and can even suppress pain.





The building's verticality is softened by its curved terraces, while the glass portion of the parapet decreases in height on each successive floor, preventing a sensation of unbalance and unsafety. The lighting design together with the wooden ceiling, evokes natural rays of light filtered through the branches of a tree.

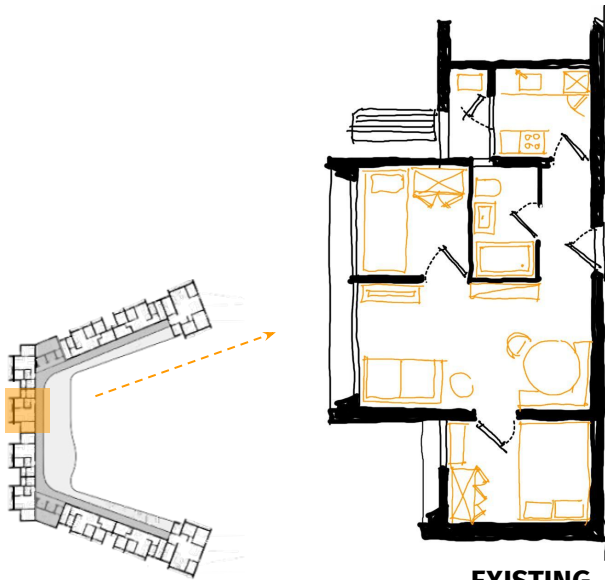


## 4. Design

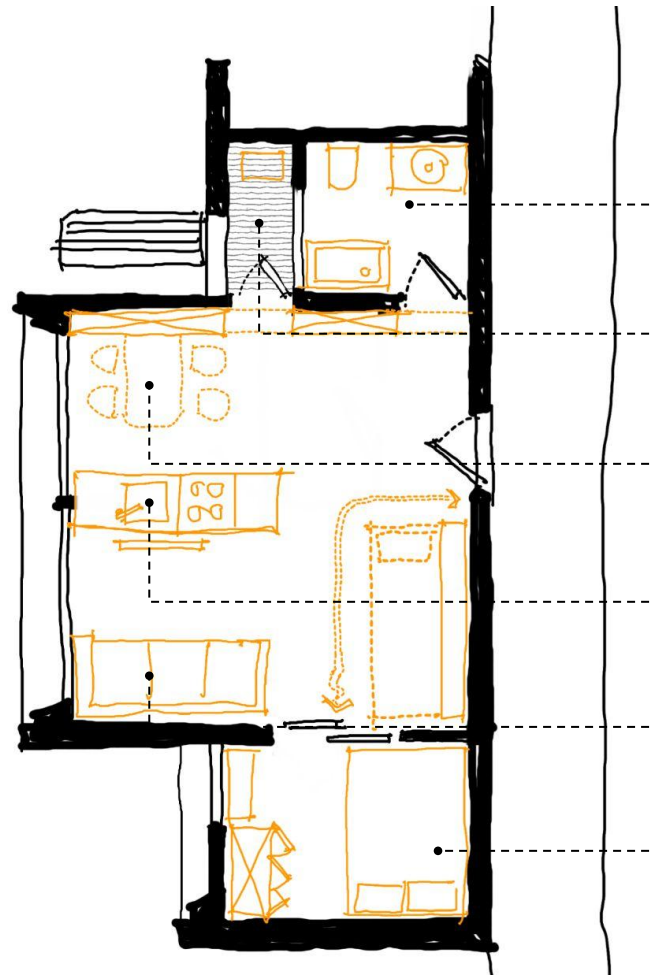
New scheme for the 2 to 4 pax unit

Experience

Background feeling



EXISTING



To dive  
**freshness**

To contemplate  
**harmony**

To eat  
**freshness**

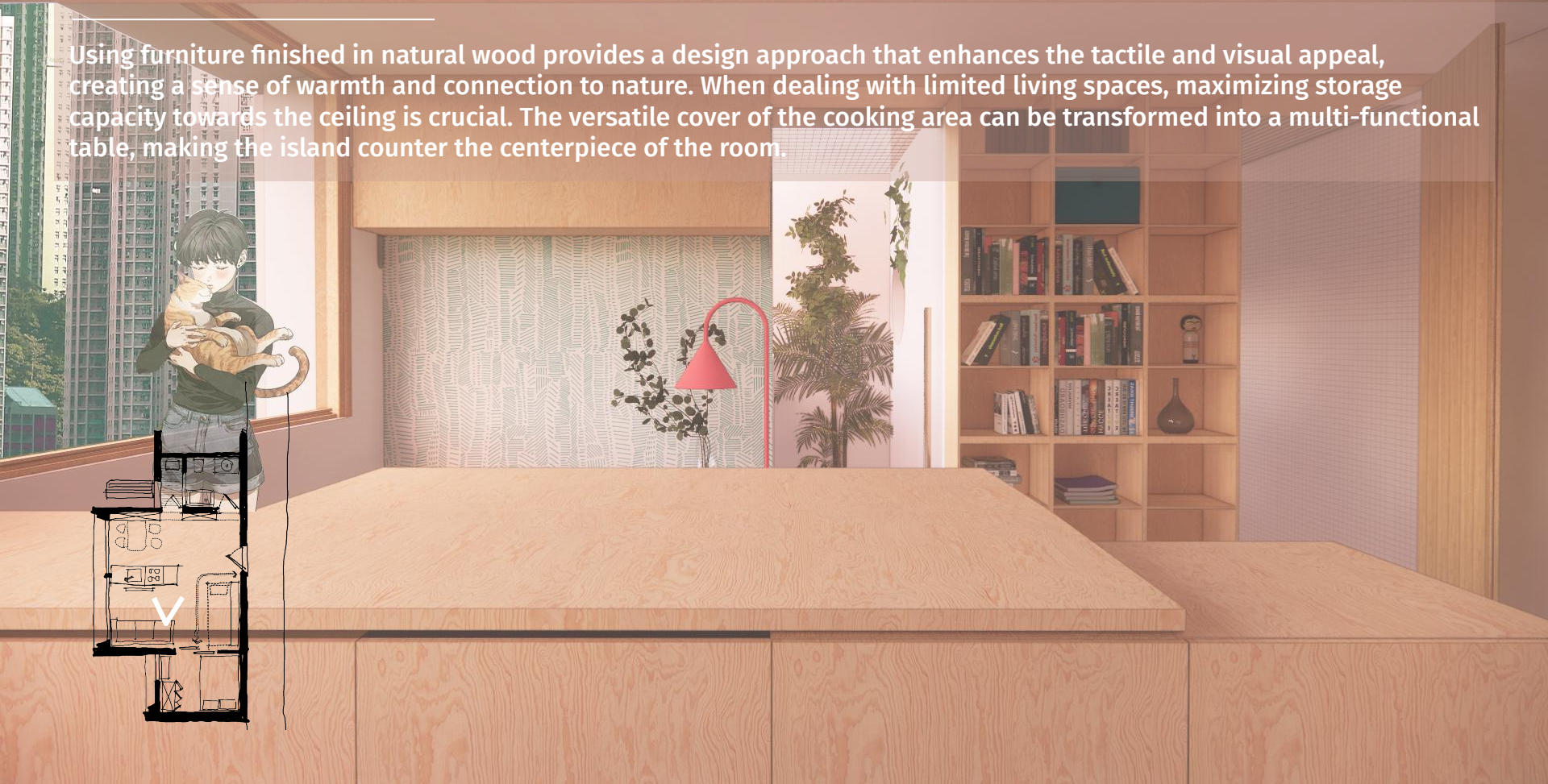
To cook  
**activation**

To sit  
**harmony**

To lie  
**relax**

## DINING AREA / activation

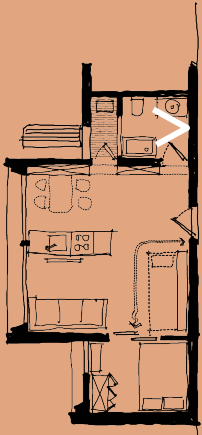
Using furniture finished in natural wood provides a design approach that enhances the tactile and visual appeal, creating a sense of warmth and connection to nature. When dealing with limited living spaces, maximizing storage capacity towards the ceiling is crucial. The versatile cover of the cooking area can be transformed into a multi-functional table, making the island counter the centerpiece of the room.



## WASHROOM / freshness

People feel drawn to curvilinear shapes, and linear designs can be softened by details such as windows, furniture and accessories.

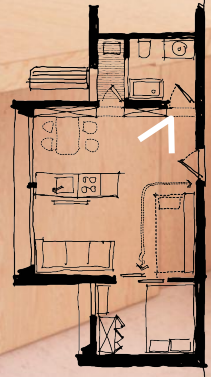
Light colors in small spaces make them feel bigger. The frosted polycarbonate divider allows you to perceive the green of the contemplative balcony, thus translating the experience of a shower into a rain in the jungle.





## LIVING / harmony

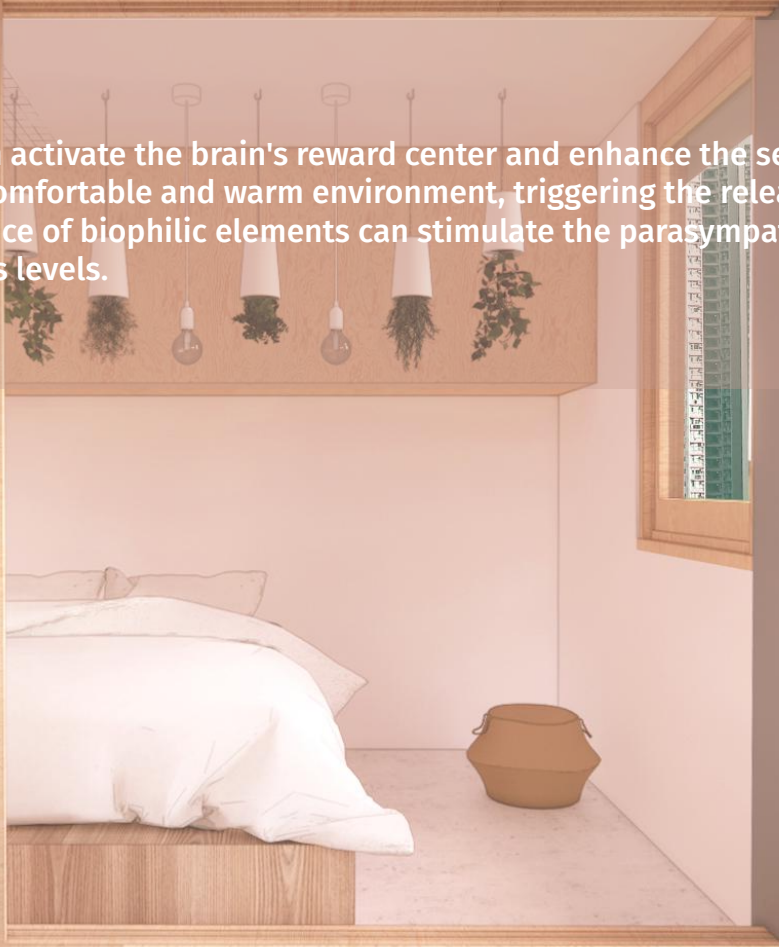
Multipurpose and foldable furniture is a way to provide flexibility to the use of the spaces. The bed is hidden while the desk is in use. Flexibility is definitely not the best answer when designing spaces devoted to different experiences but in such an extreme scenario we think creating soft boundaries can aid the brain's ability to distinguish between different areas and associated activities, which can reduce cognitive overload and enhance focus.



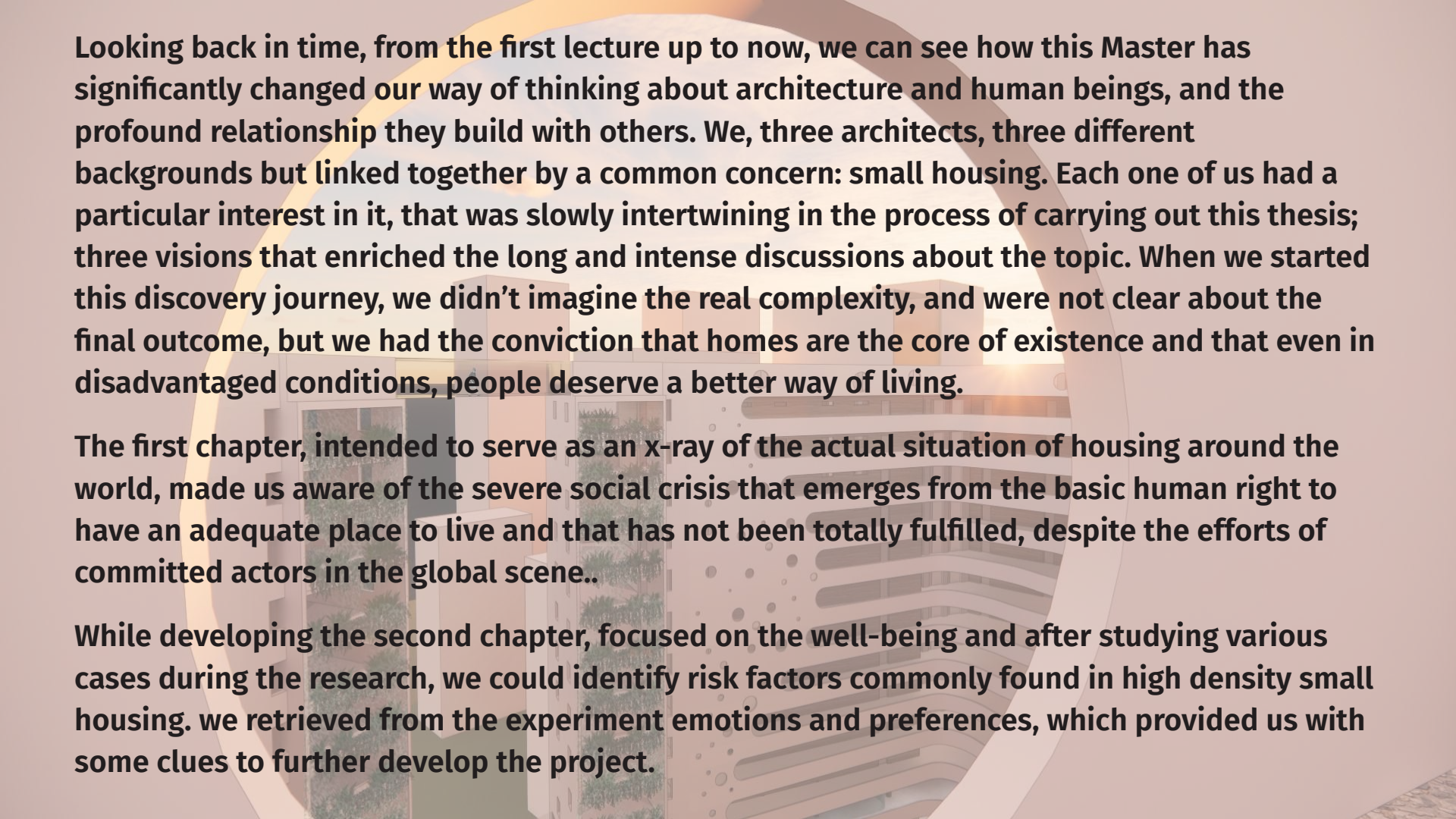


## BEDROOM / relax

Personalizing a space, such as a wall, can activate the brain's reward center and enhance the sense of ownership and belonging. Accent lighting can create a comfortable and warm environment, triggering the release of neurotransmitters like serotonin and dopamine. The presence of biophilic elements can stimulate the parasympathetic nervous system, promoting relaxation and reducing stress levels.



# CONCLUSION

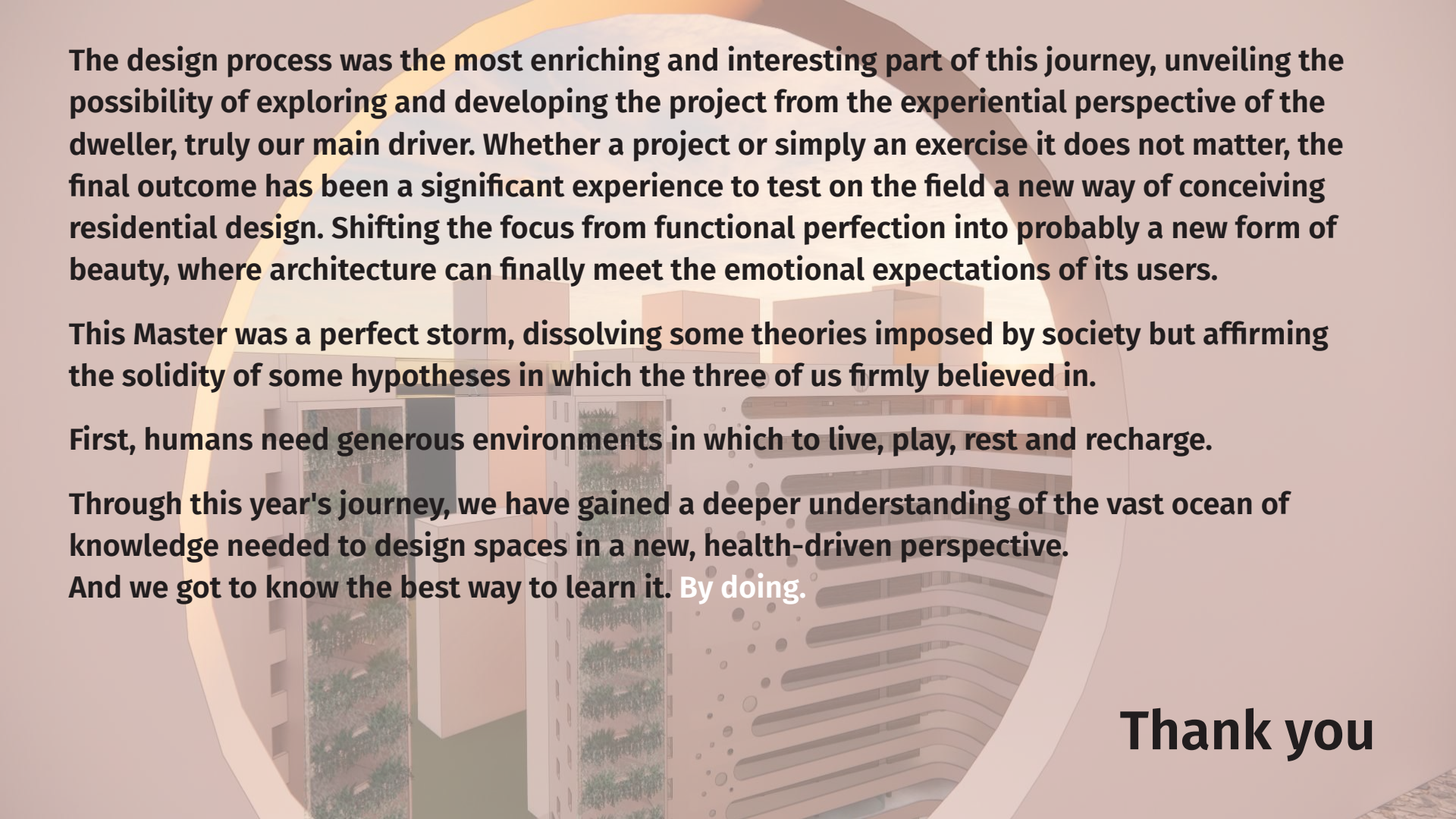
The background of the slide features a photograph of a modern building with a prominent circular architectural element. The image is overlaid with a semi-transparent circular graphic that has a yellow-to-orange gradient, creating a soft, glowing effect around the text.

Looking back in time, from the first lecture up to now, we can see how this Master has significantly changed our way of thinking about architecture and human beings, and the profound relationship they build with others. We, three architects, three different backgrounds but linked together by a common concern: small housing. Each one of us had a particular interest in it, that was slowly intertwining in the process of carrying out this thesis; three visions that enriched the long and intense discussions about the topic. When we started this discovery journey, we didn't imagine the real complexity, and were not clear about the final outcome, but we had the conviction that homes are the core of existence and that even in disadvantaged conditions, people deserve a better way of living.

The first chapter, intended to serve as an x-ray of the actual situation of housing around the world, made us aware of the severe social crisis that emerges from the basic human right to have an adequate place to live and that has not been totally fulfilled, despite the efforts of committed actors in the global scene..

While developing the second chapter, focused on the well-being and after studying various cases during the research, we could identify risk factors commonly found in high density small housing. we retrieved from the experiment emotions and preferences, which provided us with some clues to further develop the project.





The design process was the most enriching and interesting part of this journey, unveiling the possibility of exploring and developing the project from the experiential perspective of the dweller, truly our main driver. Whether a project or simply an exercise it does not matter, the final outcome has been a significant experience to test on the field a new way of conceiving residential design. Shifting the focus from functional perfection into probably a new form of beauty, where architecture can finally meet the emotional expectations of its users.

This Master was a perfect storm, dissolving some theories imposed by society but affirming the solidity of some hypotheses in which the three of us firmly believed in.

First, humans need generous environments in which to live, play, rest and recharge.

Through this year's journey, we have gained a deeper understanding of the vast ocean of knowledge needed to design spaces in a new, health-driven perspective.

And we got to know the best way to learn it. **By doing.**

**Thank you**