

**A Few Square Meters:
Blurring Boundaries and Designing for Urban Density in Hong
Kong**

by

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Dalhousie University is located in Mi'kmaq'i,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

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Abstract

A few square meters. This is the amount of space most Hong Kong residents can call their own in one of the most densely populated cities in the world. This thesis will aim to re-imagine these 'few square meters', in the home, and in the city, by way of food. The occasion of coming together, cooking and dining will be used to challenge our ideas of program, dwelling, and urban conditions. This project will aim to push life into the city and the public realm, by using found space within the existing urban fabric—alleyways, and 'between spaces'—to blur the boundaries between the public and private realms. Thus, exploring how to design spaces that are flexible and adaptable to make the most out of a few square meters, while forging new relationships with the residents, and the city itself in dense urban settings.

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To my family, without whom none of this would have been possible.

To the Faculty of Graduate Studies for the scholarship I have received throughout my Master's degree.

Chapter 1: In Search of Space

Asia's World City

Hong Kong, or 香港 (hoeng1 gong2) in Cantonese, meaning “Fragrant Harbour” attracts millions of tourists annually to see its many attractions such as its variety of cuisine, architectural marvels, and fast-paced lifestyle. With finance on the minds of many residents, Hong Kong is known as one of Asia's major financial hubs, and is proclaimed as ‘Asia's World City’.

As the economy boomed in Hong Kong, many residents have prospered as their wealth grew significantly; the number of millionaires in Hong Kong has risen faster than any other place in the world (Chow 2011). Real estate, particularly the residential market, has become a very lucrative business for those who can afford to invest. Since 2010, the average real estate price of residential properties has doubled or even tripled each year (Deng, Chan and Poon 2016). This quick turn around on investment can mainly be attributed to the high demand for housing, and the limited availability of flats and land. These factors have also contributed to the



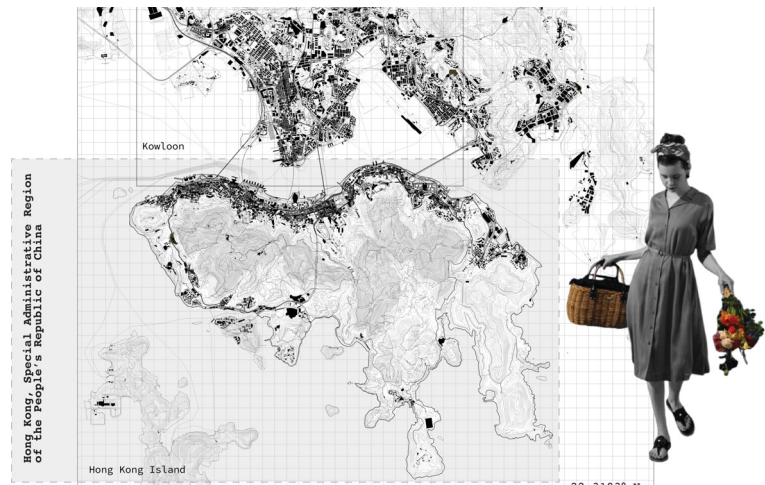
Context photos showing the urban situation being studied. Study of finding moments within the urban density of Hong Kong.

creation of some of the smallest apartments out there, often resulting in a few square meters for the average Hong Kong resident to call home.

6, 841

Situated in the sub-tropical Pearl River delta region of the People's Republic of China, Hong Kong has one of the most extreme concentrations of population in the world, with a 2020 population density of approximately 6,841 persons per square kilometer (World Population Review 2021). At its most extreme period, the Walled City in Kowloon, housed more than 1,255,000 people per square kilometer. This was the most densely populated place on Earth prior to its demolition (Eukliadas 2021). With no consideration for quality of life, this was a sad reality for those who faced no other option at the time.

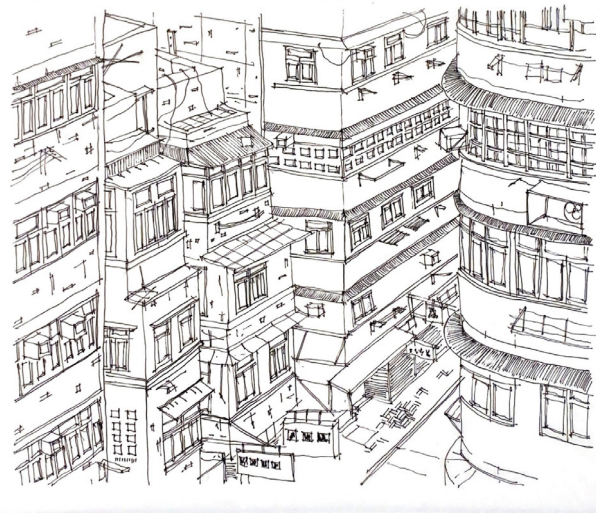
However, it wasn't always this way. Hong Kong began as a small fishing village, that blossomed quickly to become a major trading port and international trading center during the mid 19th century, while under British Occupation (Deng, Chan and Poon 2016).



Map showing three of the main regions in Hong Kong: Hong Kong Island, Kowloon, and the New Territories (base map from Lands Department 2018).

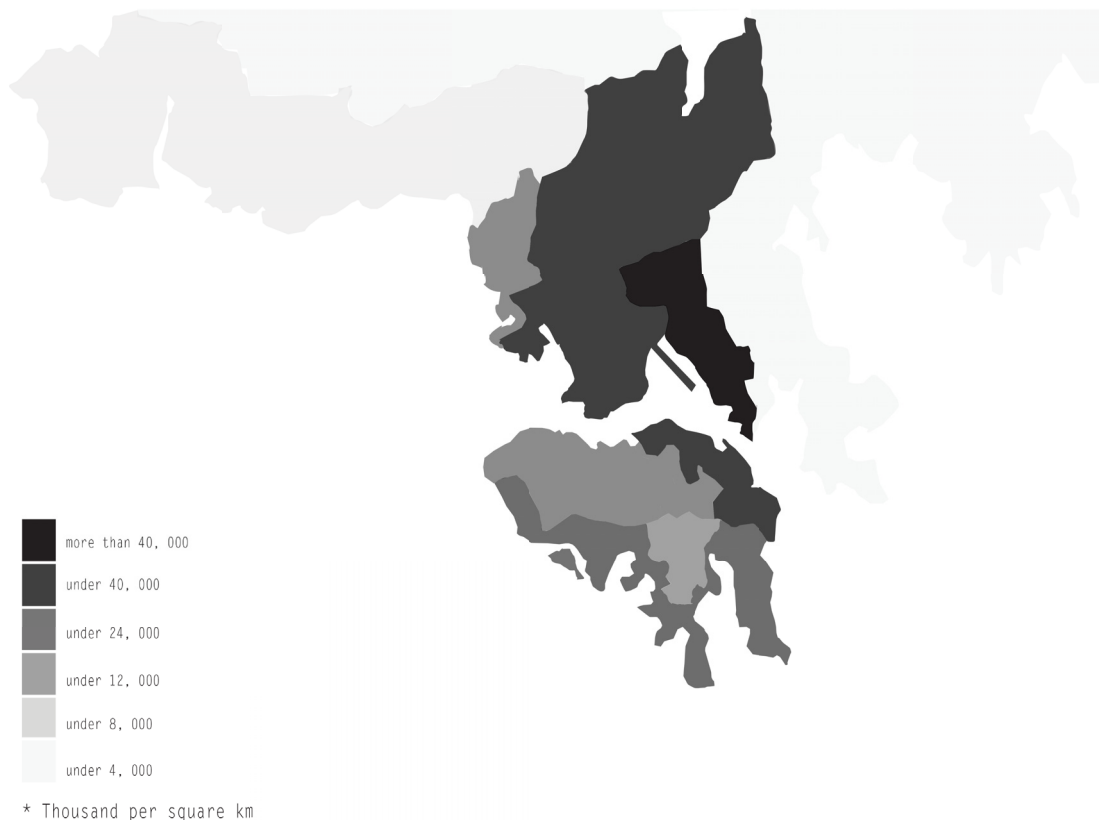


(Base drawing by Smith 2007)



(Base drawing by LCK 2013)

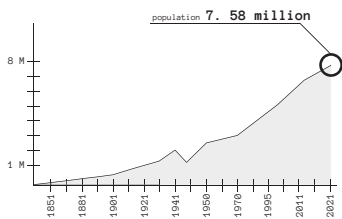
Hand sketches studying Hong Kong urban density.



Map showing the population density in Hong Kong, with the darker tones representing the most densely populated areas (data from World Population Review 2022).

Hong Kong comprises Hong Kong Island, the Kowloon Peninsula, and the New Territories. These three major regions form a landmass of 1,104 km², with only approximately twenty percent of the land able to be naturally developed, and only seven percent of this land allocated for housing development (CEDD 2015). The extreme density is further exacerbated by a mountainous topography which forces the majority of the 7.6 million residents to live along the outskirts of this steep terrain, in some of the most extreme living conditions that attempt to accommodate the high demand for housing.

Hong Kong's hilly geography has become a major hinderance to its housing development, as more people



Current population in Hong Kong (Census and Statistics Department 2021).



The first complexes of the Mark I Building type built in Shek Kip Mei (Chan 2007).

immigrated to Hong Kong beginning in the 1930s, and especially after the Communist Revolution in China in the late 1940s. These population booms and mass immigration movements to Hong Kong over the decades created greater housing problems, resulting in increased sprawl and expanding squatter villages.

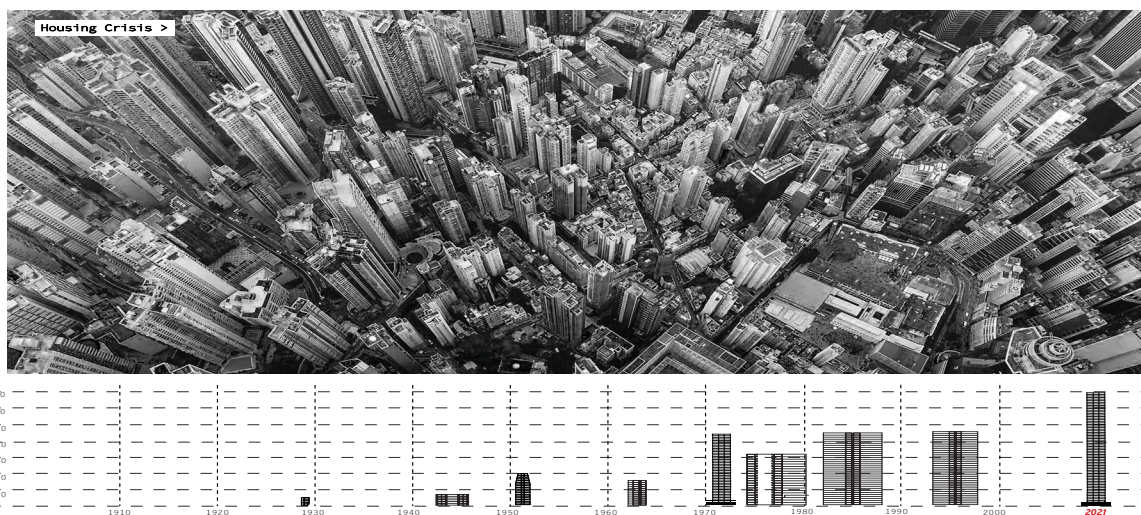
Issues surrounding housing and urban density sprouted in the growing city of Hong Kong and were difficult for the British colony to resolve. The make-shift homes that had been constructed in the face of financial hardship posed a significant risk to their residents as any and all means and materials were used. On Christmas eve 1953, a devastating fire hit one of these villages and left 53,000 people without a home. This event marked the beginning of the public housing program in Hong Kong; it forced the British government to acknowledge the housing problem which up until that point had not received any priority (Deng, Chan and Poon 2016).

Hong Kong's Public Housing

The British government struggled to find a solution to the more than 50,000 people left homeless overnight. They implemented an emergency housing policy to resettle these residents, as well as others that had suffered similar circumstances. Public housing was born in Hong Kong with the construction of the Mark I housing module. These units were built quickly and were all the same: an H-shaped, seven-storey building comprised of an eleven square meter bare concrete cubicle 'unit', without an individual kitchen or bathroom. The units were stacked back to back, with the corridor facing the exterior. Due to fact that these were meant as temporary emergency housing, there was no aesthetic design or much consideration for privacy taken (Chu 2012).

Each person was meant to have approximately 2.2 square meters within the unit, which meant that these units were intended for a maximum of five occupants per unit. However, at the time, family sizes usually far exceeded five people (the baby boom era) and could easily have ten or more people living in one flat. This severely limited that amount of space within the unit and forced residents to shift the majority of their 'life' and household chores and activities to the exterior corridors or courtyard areas (Chu 2012, 12).

As the government was solely focused on meeting the needs of families who had suffered a similar fate to those of the Shek Kip Mei fire, "they were not inclined to embark on a full-scale housing design project to successfully solve the problem of housing and density" affecting the entire Hong Kong population (Rooney 2003, 25). As a result, it was a full two decades before improvements were made to the design. In the 1970s, there were two new and much taller designs introduced: the Twin Tower and the Twin H-Block. These buildings were designed as a 'shell' unit in which the tenants were meant to subdivide their own units to suit the needs of their family. This was termed 'tenant fit-out' and



Highlighting the extreme density and the extreme vertical aspect of the newer residential developments (Yeung 2022).

was meant to be a cost-effective way to try and keep up with the exceedingly high demand for housing. These new designs had increased the spatial standard to 3.25 square meters per person (Chu 2012, 13).

This bare-minimum concept of public housing continued, with only slight increases to the amount of square meters allocated per person as the years progressed. The public housing program was initiated solely as a temporary response, as emergency housing, however as the city's population continued to skyrocket, this form of housing became a permanent fixture in Hong Kong, and would later house more than half of the population (Transport and Housing Bureau of Hong Kong 2020).

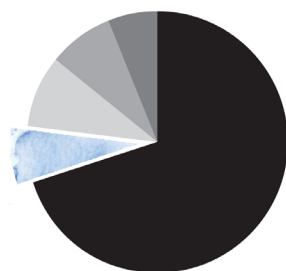


Illustration depicting the land allocation in Hong Kong, with the blue representing the land for housing - a mere 7% (CEDD 2015).

Another major contributing factor to the lack of housing options is the fact that only seven percent of Hong Kong's developable land is allocated for residential properties, as stated earlier (CEDD 2015). This small amount of land available for development also contributes to the surge in property values as they continue to rise at an astronomical rate, which therefore also increases the rental market.

These high prices make it nearly impossible for the general population to be able to afford to buy a home in their lifetime. As a result, people are often in search of a more affordable option, which includes unregulated and subdivided housing.

The name for the subdivided unit in Cantonese can be translated into: 'sliced room', which perfectly depicts the method behind their creation, as apartments literally get sliced into smaller and smaller units (Chu 2012). To create these micro-flats, the landlord typically removes all of the non-load bearing walls within the existing footprint of the flat, and then creates new partitions to form these micro

spaces, thus squeezing as many units as possible and increasing the amount of rent collected each month. The sizes of these units is approximately 2.85 square meters per person (Haas 2017). However, some landlords also partition the units in the vertical dimension by two or three units, thereby stacking the units on top of one another and creating coffin sized cubicles for rent.

This slicing and partitioning has created some of the most extreme cases of living conditions in the world, and have been condemned by the United Nations, calling them “an insult to human dignity” (South China Morning Post 2021).

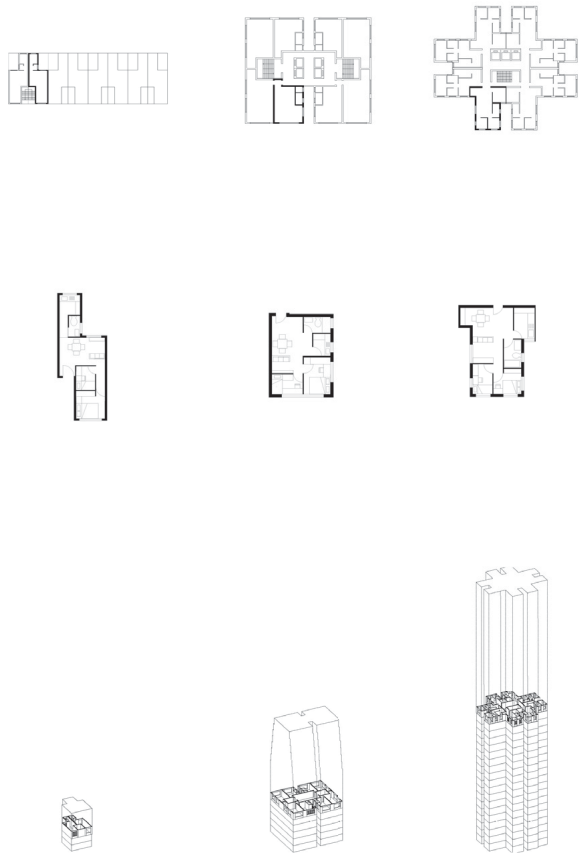
The sheer lack of space, the small available land for housing, and successive population booms, have all propagated a housing typology for Hong Kong that has often been comprised of one room for the entire family. This way of living ultimately heavily influences the lifestyle of Hong Kong residents, and will inform the focus of this thesis. Their small apartment sizes and little available space to call their own, compounds the sensation of high-density living, and often results in an uncomfortable living situation for the residents;



Found space in the urban fabric.

HK housing typologies

private housing



public housing

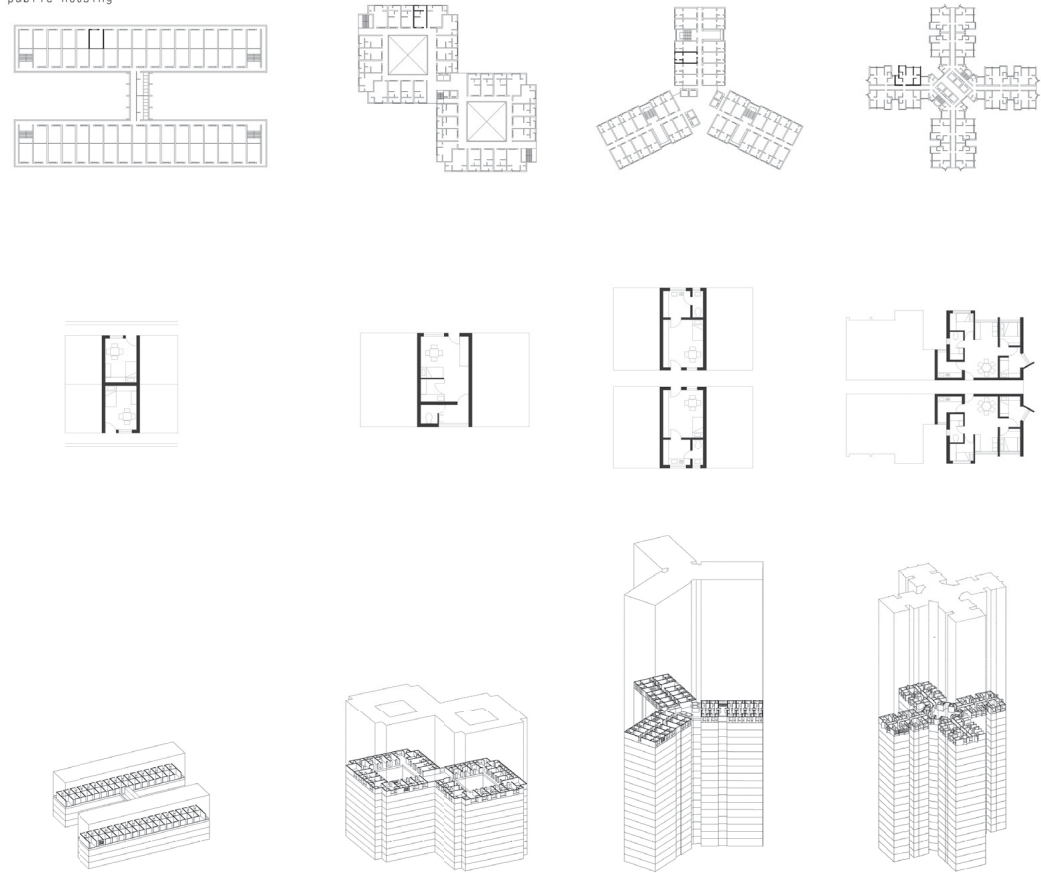


Illustration depicting the apartment plans of the private and public housing complexes in Hong Kong. See rhythm analysis in Chapter 2 for description of how people live and use these spaces.

feeling every day the effects of urban density and what it means to live in a city of extremes.

Considering the densifying urban areas globally, this thesis explores the notion that perhaps the private dwelling doesn't need to do it all. How can we use city spaces and the public realm for dwelling itself? How can we learn from Hong Kong to create this new housing typology?

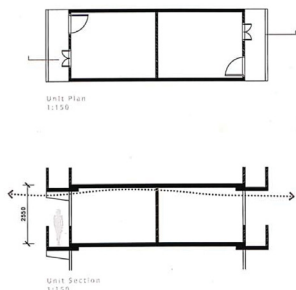
Chapter 2: [Mo Wei] - No Space

Space is precious and extremely valuable in Hong Kong, as people and buildings are densely packed into every available meter. This dense construction of buildings within the urban fabric has a significant effect on the everyday life of its residents. Examples of high-density living can be found at all stages of daily life in Hong Kong—from the morning rush squeezing into the packed MTR train, sharing a dining table with strangers at lunch, and minding your step on the weekends as vendors and food stalls extend their temporary structures out and into the sidewalk (Chu 2012).

But perhaps the greatest indicator of extreme density is found in the home. The average floor area of a flat in Hong Kong is forty-four square meters, within which (on average) four or more family members reside (Keegan 2018). As a result, the Chinese term for ‘no space’ (pronounced *mo wei*) is often used to describe the home (Chu 2012). Living in ‘no space’ has therefore greatly impacted how these residents use the space in the home, and has resulted in strategies to use the space efficiently. This became the study for the basis of this thesis.

The Urban Dining Room

Public housing continued to evolve over the years, however, the one room typology remained for the most part. The earlier types of housing were comprised of a shared kitchen along the public corridor, which resulted in the necessity of creating eating spaces where friends and families could congregate more comfortably. The Dai Pai Dong (open-air food stall) therefore morphed into the mega urban dining room as it takes up public space to accommodate diners.



Section and plan of the Mark I building type showing the uniformity of all units, and exterior corridor (Chan 2007).

Restaurants of many cuisines thrive in Hong Kong, but if one looks beyond the conventional four walls of a standard restaurant, one can see how the city itself sometimes becomes one remarkable dining room. (Cody and Day 2005, 65)

Many restaurants are nothing more than a whole in the wall, or a shuttered closet in the day. However, these dining holes in the urban fabric often change their personalities by evening. “Like restaurant larvae climbing out of their shells, they spill into the alleys, onto the sidewalks or even into the middle of streets” (Cody and Day 2005, 63). “As a series of symbiotically attached restaurants fanning out from the central core of separate kitchens” (Cody and Day 2005, 64).

Thinking closely about the people who live and share the tiny flats and these public spaces has been the driving force behind this thesis. As I have also experienced this extreme way of living, having had my own tiny flat in Hong Kong, and ventured out with friends into these evolving public dining rooms.

A Rhythmanalysis Journal: A Study of Hong Kong Homes

The residents who intimately know and inhabit these typical Hong Kong homes have become invaluable in studying the Hong Kong lifestyle, and were used as a means to study Hong Kong and its housing crisis in greater detail. The first of these residents I studied is Li Suet Wen. She is a single mother living in a subdivided flat.

Li Suet Wen

Unit type: Subdivided Flat

Location: Sham Shui Po

Space: 11 km²

People: 3, mother and two children aged 6 and 8

Rent: HK\$ 4,000

According to SoCO (Society for Community Organization), the estimated number of subdivided flats is approximately 86,500, with approximately 220,000 people residing in these flats.

The median per capita floor space of such a subdivided flat is about 5.3 square meters. Lower than that of current public housing flats, which have about 7 square meters. Kowloon had the highest number of subdivided flats compared to Hong Kong Island, and the New Territories.

The number of people living in these poor conditions has continued to rise over the years, and these figures don't include the many thousands more living in other 'inadequate housing', such as rooftop shacks, metal cages, and coffin homes made out of stacked wooden bunks (SoCO 2022).

Li Suet Wen is a single mother living in one of five partitioned flats while she waits for public housing approval. Within the eleven square meter flat is a bunk bed for her and her two children, a small fridge, small couch, foldable table, a combined toilet and shower stall, a hot plate to cook on, and all of their other belongings.

Li's 6-year-old son and 8-year-old daughter often ask their mother, "Why do we always have to live in such small flats? Why can't we live in a bigger place?" Li said (Chan 2017).

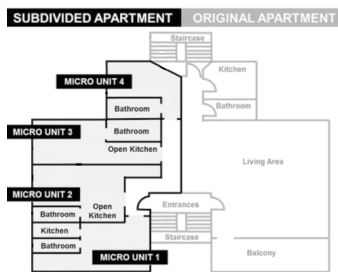
"I say it's because mommy doesn't have any money," said Li (Chan 2017).

Li is like many other single mothers in Hong Kong whose HK\$ 4,000 a month in rent and utilities eats up almost half



Li and her son and daughter amongst their belongings in their subdivided flat (Chan 2017).

the money she earns at a bakery decorating cakes. The average monthly rent for these subdivided flats is shockingly high. Her rent is not as bad as some, which can cost about HK\$ 7,000 for a space that is smaller than the average parking spot (Vit 2021).



Plan showing the original plan of the apartment, and how it has been subdivided into micro-units (Yung, and Lau 2018).

“The bigger they get, the more crowded it gets. Sometimes there’s not even any space to step,” she said. “They don’t even have space to do their homework” (Chan 2017).

Public housing is the best hope for most Hong Kongers living on modest incomes. Li applied two years ago for public housing, but with approximately 282,300 other people on the waitlist, the average wait is 5.4 years (Transport and Housing Bureau of Hong Kong 2020).

The rent for her subdivided flat has also recently increased. As these are usually illegal tenements, and often unregulated by the government there is nowhere for her to turn for help. She is therefore facing eviction. She lives with twelve other people in her subdivided flat, in four micro apartments.

Routine:

Weekday

- Wake up and get kids ready for school (they attend school in the morning)
- Grab breakfast at local bakery on the way to school
- Walk to school
- Mom off to work (The only time she can guarantee hours at the bakery is while the children are at school. She can sometimes do more hours at the bakery if the woman living on the roof as a 'rooftop dweller' is able to look after the children).
- Pick children up from school and go to wet market on the way home to get vegetables for dinner. Cook dinner and rearrange apartment for eating,
- Once finished, clean up and put away table and chairs to be able to move around apartment once more
- Kids to try and do homework on the bed, by moving their belongings to create space

Weekend:

- To the park for kids to play with their friends
- Take MTR to see grandparents living in Po Lam, in the new town in Tseung Kwan O. They live in Po Lam Estate which is a public housing estate. She used to live with them in this apartment, but they quickly outgrew this space when she had her children.

Challenges: Lack of space in the apartment for her and her children to live comfortably. No area for her children to play in the apartment, or do their homework. When her children try and play in the apartment, they disturb the other residents

due to the lack of soundproofing in the partitioned walls. They don't have their own bathroom, or kitchen besides a hotplate plugged into the wall on their pile of belongings. When she cooks on the hot plate, there is no ventilation, so she is covered in sweat by the time the meal is cooked.

Ms./Mr. Cheung

Unit type: Rooftop Dwellers

Location: Sham Shui Po

Space: 10 km²

People: 2

Rent: HK\$ 356

Rooftop dwellers are individuals and families who have created self-made shelters on the rooftops of buildings. They are usually between nine and twenty-seven square meters big, and are made from materials that have been previously discarded, such as corrugated metal and bricks.

These little communities on the rooftops of older tenement buildings are often connected to the host buildings electricity and water supply. As they are also illegal tenements, they are also often unregulated by the government. They worry about their rooftop as it is bristling with TV antennas and a mess of overhead wires which pose a high risk of fire. Since they are generally squatters, they are unable to access the lift in the host building, and must use the stairs. As a result, there is a high risk of fatality if there should be a fire for these dwellers.



Rooftop dwellers against the backdrop of the newer residential buildings (SoCO 2022).

Approximately eighty percent of rooftop dwellers are waiting for public housing, like the Cheungs, who both immigrated from China five years ago.

When it rains, their rooftop dwelling leaks, and there is the added danger of typhoons during the summer months. The house gets very hot and stuffy in the summer, and since they have to climb up ten flights of stairs every day to get home, they are exhausted. Especially when carrying home their food.

They pay HK\$ 356 in rent to the rooftop 'landlord' who oversees this rooftop in Sham Shui Po. Ms. Cheung works 6–7 days a week collecting recyclables, and sometimes looks after the children of the woman who lives in the building below. Cheung Geng-Kau works as a janitor when there is work available.

Ms. Cheung worries about being forced out of their dwelling on top of their tenement as the government plans to demolish these so called 'slums in the sky'. "If they come to clear us out, my income isn't very high, I don't earn very much and the apartments out there are very expensive so I can't afford it" said Mr. Cheung (Chan 2017).

With their unstable income, they're barely able to pay their monthly rent. "If I pay those rents out there, I can't afford to eat" said Mr. Cheung (Chan 2017).

Routine:

Weekday/Weekend

- Ms. Cheung wakes up at five a.m. to begin her day collecting cardboard in her area around Sham Shui Po. She does this to be able to sell it to the local recycling plants to be able to make enough to live. For all of her efforts, she makes about HK\$ 41 a day. She is one of about a thousand older citizens who do this every day. When the company she worked for closed down, she was unable to find any other work, had no savings or sufficient pension, and was faced with a new and hard reality of walking the streets collecting discarded scraps.
- Mr. Cheung wakes up with his wife every morning and hopes that there will be work for him that day. He goes to Lai Chi Kok Rd. where the office for his employer is located to check to see if he will be able to earn money that day.
- Ms. Cheung goes to Lai Kok wet market on the way home with her meagre earnings to pick up food to cook for dinner
- She cooks over their one hot plate, and has to cut her vegetables on the cutting board while sitting on the floor as she doesn't have any counter space to prepare their meal. Once cooked, the plates have to be put on the bed in order to serve the meal. The table can then be set up since they don't have to move about the dwelling until

they have finished eating. Once done, they then have to put the table and chairs away to clean up.

Challenges: Constant threat of fire on the rooftop. Heat and rain in the dwelling cause an uncomfortable environment. Lack of space to cook and prepare meals in the home. Very hot when preparing the meal.

Wong Tat Ming

Unit type: Cubicle/cage home

Location: Mong Kok

Space: 0.9 m x 1.8 m = 1.62 m²

People: 1

Rent: HK\$ 425 a month

With a population of over 7.5 million people, Hong Kong has become the least affordable real estate market, making so called 'cage homes' the only option for some of Hong Kong's residents (Arcibel 2020).



21,200 families live in temporary structures such as **huts, squatters and rooftops**

5,600 families live in factory buildings and commercial buildings

5,800 families live in **partitioned apartments, bedspaces and lofts**

More than **86,500 sub-divided units** exist

More than **119,100 households** with more than **220,000 underprivileged** live in these unsuitable places...

Statistics demonstrating the housing crisis facing Hong Kong (SoCO 2022).

To create these cubicle homes, flats are usually subdivided into fifteen, approximately two square meter spaces (Haas 2017). These residents usually share a kitchen and bathroom with many others on their floor.

These living conditions get very hot due to lack of ventilation, especially in the summer when the temperature can reach into the forties (degrees Celsius). Heat stroke is a constant threat in these dwellings as partitions are erected without consideration for ventilation between spaces. Therefore, along with the desire to move about freely, there is an added desire to stay outside as long as possible, and only return to sleep (Haas 2017).

Wong's cubicle sits beside grimy toilets and a single sink that are shared between two dozen other residents. He works seven days a week to barely earn enough to pay rent. He often has to skip meals in order to afford to live in his cubicle home.

Routine: Weekday/Weekend

- Wake up
- HK Style breakfast



Wong Tat Ming in his cubicle home in Kowloon Hong Kong (Chan 2017).

- Head to work (dishwasher)
- 12 pm lunch (BBQ meats or Cha Chaan Teng)
- Back to work for the afternoon
- Head out to eat dinner
- To park to sit
- Home to sleep

Challenges: Threat of heat stroke within his dwelling poses a threat during most times of the year. No space to stand up and move within the dwelling. Lack of kitchen, bathroom, ventilation, and access to daylight within the unit. Always tries to stay outside as much as possible due to extremely difficult living conditions.

Chen Family

Unit type: Public Housing

Location: Kwun Tong

Space: 39 km²

People: 4

Hong Kong's average cost of housing ranks as one of (if not the) most expensive in the world (Arcibal 2020). As of 2011, approximately 50% of Hong Kong residents live in public housing apartments (either government subsidized housing or rent-controlled housing) because they are otherwise unable to afford housing. Hong Kongers who have applied for public housing face a long waiting time, with the average wait approximately 5.8 years, but can take as long as 10 for some (Transport and Housing Bureau of Hong Kong 2020).

“Living conditions are a great deal better here [in public housing]. There is more space, and each flat has its own kitchen and bathroom, but the atmosphere is not the same. Everybody lives behind closed doors, and the same friendship does not exist” (Rooney 2003, 38). Ms. Chen when explaining the different between her squatter home where her and her family lived for eight years, before getting into public housing.

When asked if they felt if their space was big enough for their family, the father replied “Of course not! You know in Hong Kong, an inch of land is worth a thousand pieces of gold... we have no choice” (Ronney 2003, 85).

“Four people living in such a tiny place. There are no fixed rooms...we eat here, we live here, we sleep here. We fall short of the best, but are better than the worst.” Said the father (Ronney 2003, 86).



Kitchen area found in public housing tenement building (Rooney 2003, 93).

“We eat here, and the TV is just beside us. Our noses can almost touch the screen. Generally, we accept it. We Hong Kong people are accustomed to small space” said the daughter (Ronney 2003, 86).

Despite the small space, they still have guests over to stay in their apartment during festivals. “At the Lunar New Year festival, there would be twenty people over, with two tables of Mahjong. They mostly have to stand up, and stand still” said Ms. Chen when discussing how important it is to be around family for the holidays, but how their small home makes it challenging (Rooney 2003, 86).

“You can’t even fit an extractor hood in the kitchen. Normally, you should expect to have an extractor fan, two cooking rings, and a rice cooker. There’s no place for it. When you

step inside, the washing machine is here, the sink right next to it. The sink can't be any wider because it would prevent the bathroom door from opening... the area is not enough. The bathroom is too small, it is combined with the toilet. You have no idea how unhygienic that is... its ridiculous." Said the father when asked about the layout of their flat and living in high density spaces (Ronney 2003, 87).

"After the bedroom was partitioned, of course we felt that it was better without a bedroom because it was brighter without the partition and there was more space" (Ronney 2003, 103).

Probably one of the most important decisions the family had to make to their flat was whether or not to partition the bedroom as this preference must be weighed against other options and constraints. The Chens did decide to partition a bedroom, and as most families who chose to do this, they decided to keep it as small as possible to not take away from the 'family space'. The walls of the partitioned space closely surround the bed, almost touching on three sides. This decision severely restricted the light in the flat. "In the morning, it only reaches as far as the balcony, there's no sunlight in the flat" said the mother (Ronney 2003, 99).

Routine:

- Wake up
- Get daughter ready for school



Family living in public housing demonstrating how they need to unfold their table in order to eat their dinner (Rooney 2003, 136).

- Breakfast from bakery on the way (Pineapple Bun)
- Dad to work
- Daughter to school (am or pm)
- Mom picks daughter up afterwards
- Walk home
- Wet market for groceries
- Home to cook
- Daughter does homework (usually on top of her shared bed with her mother due to lack of space for table to be unfolded when they're not eating)

Challenges: Difficult to get children ready in the morning due to lack of space in the flat. Apartment gets hot when cooking due to lack of extractor fan and ventilation. No space for children to do homework in the apartment. A lot of life lived on their beds.

Charlotte Leung

Unit type: Private Housing

Location: Mid-Levels, Hong Kong Island

Space: 26 km²

People: 1

Homes in Hong Kong cost an average of 19 times more than the average income of a family. "Father, mother, daughter go out to work for twenty years...and save everything... they could maybe afford to buy a home" (Arcibal 2020).

Hong Kong has one of the largest wealth gaps, with the wealthy making about 51.75 times the salary of the lower

income households, making it exceedingly difficult for the median income families and young residents able to buy their own home (Arcibal 2020). Charlotte Leung's family had been saving for more than 16 years to be able to afford to buy a home. She inherited this unit from her parents, and would otherwise not have been able to afford to buy a home by herself. She is reluctant to start a family due to the severe housing crisis facing Hong Kong. She feels it would almost be unfair to bring a child into this situation. Hong Kong has one of the lowest birth rates in the world, and the younger generation says that the housing problem is related (SBS Dateline 2019).

Routine:

Weekday

- Gym for morning workout
- Head to work on MTR to Kennedy Town
- Lunch in Kennedy Town
- Back to work for the afternoon
- Head home (MTR) and then escalators up to the mid-levels

Weekend

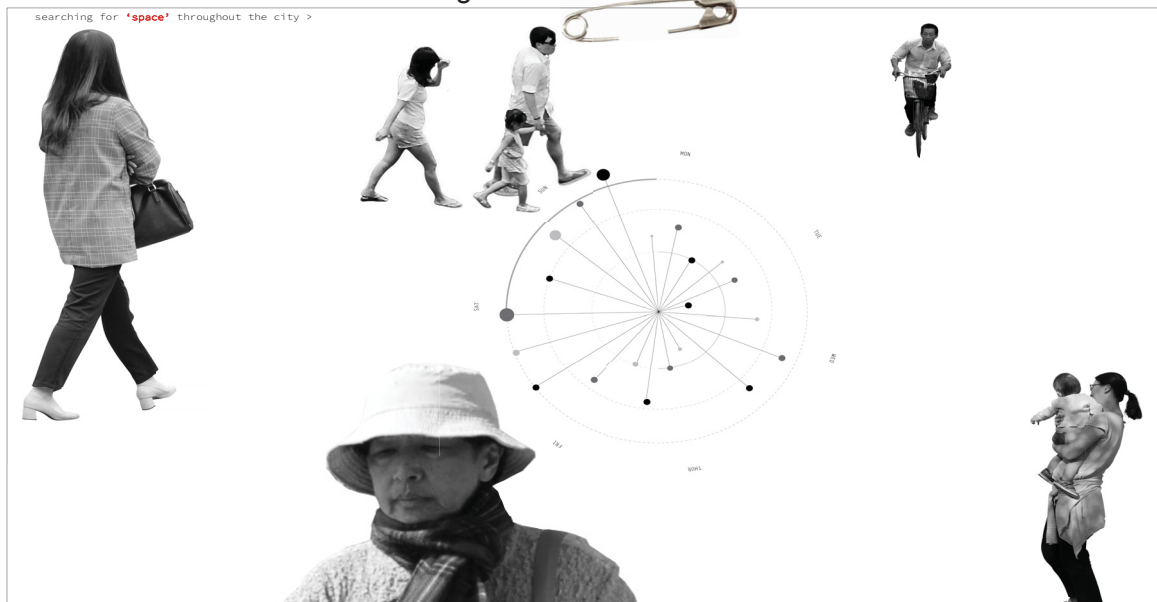
- Yum Cha breakfast with friends
- Causeway Bay SOGO with friends for shopping
- Afternoon snack at HK cafe
- Tram back to Central
- Escalators back to mid-levels

- Grocery store: Park n' Shop
- Out for dinner with friends - hot pot
- Taxi home

Challenges: The kitchen is extremely small, and not designed for a tight space. Therefore, she often gets takeaway on the way home so as to avoid the frustration of cooking. She would like to have family and friends over to her flat, but the lack of space makes it hard to enjoy. She tries not to bring anything more into the home, as 'things' make the space feel claustrophobic.

How Their Apartment Influences Their Life

Each character represents a way of life in a typical Hong Kong housing typology—what can we learn from studying these residents and their routine? How can this then inform a new way of living in a dense urban area; a new building typology that uses public space as an extension to the home? These were some of the questions being posed during this research.



Venturing out into the city in search of food, and space to gather, as the home is often too small or too hot to cook

From the rhythm analysis, certain characteristics for the design emerged. In studying the routines of residents, it was observed that food was a crucial determinant in where these residents went, and the types of spaces they sought throughout the city, as well as how they rearranged their home for food and dining together as a family. People were in search of food, and spaces to enjoy spending time with neighbors and friends.

Eating out in Hong Kong is certainly very popular and is relatively inexpensive, but the home cooked family meal is an important aspect of Chinese family life. Large family gatherings are held in even the smallest of flats, and married children are encouraged to return to the family home to have their evening meal because they often have no time to cook for themselves, but also to maintain a close family relationship (Rooney 2003, 33).

Residents clearly expressed the need to “create multi-functional space, which could be re-arranged to suit different activities over the course of the day” (Rooney 2003, 134). Through routine, it has become second-nature for Hong Kong residents living in the typical Hong Kong flat to unfold and re-arrange furniture with their routine, particularly when it comes to meals in the home-as the dining table is often too large and occupies too much space to have unfolded during the day.

A result of the investigation of the individuals and their current spaces and needs also shed light on their very modest desires and dreams for their home. Something as simple as a window, a breeze, or a sill to grow a plant on were common answers amongst the residents. They don't expect much as it was often said “this is Hong Kong, there's

no space here”. Small changes that could have a significant positive effect on the mental health and well-being of its inhabitants.

Family members expressed a strong desire to have rooms of their own. “A place where they could close a door to have a moment of quiet” (Rooney 2003, 90). Young family members said “it doesn’t have to be very big, as long as it belongs to me” (Rooney 2003, 90). To gain privacy (for sleeping), families also had to sacrifice a degree of internal ventilation and light, as well as put up with the visual block created within the flat by adding partitions. They therefore tried to keep the partitioned space as small as possible. In some cases, walls almost touched the bed all the way around.

High-density space is never static and there is a lot of intense circulation, such as the morning rush for the bathroom, or congestion on the balcony space which is commonly used for cooking, hanging laundry, and washing-up. As residents move through their routine, the circulation space needs to adapt and offer an expansion of adjacent spaces for the residents. Expanding this concept to outside the dwelling, back alleys and delivery lanes can adapt and become backyards.

Residents also clearly expressed the need to have a bigger living space, as opposed to bigger bedrooms. A multi-functional space, which could be re-arranged to suit different activities over the course of the day and accommodate the whole family is desired. “It is likely that they rarely noticed how much they are engaged in creating their own dynamic within the space or how family members create their own

domain through their daily routine” (Rooney 2003, 134). These are both key concepts moving forward.

Extending the Dwelling into the City

Density in the home inevitably means that the locale becomes an important natural extension to the family home and lifestyle. Memories of the home are not confined to the interior space, but also of activities associated with every day living which took people into the streets. A combination of domestic density and predilection for social interaction were major factors in creating a highly externalized lifestyle. (Rooney 2003, 33)

Having lived in one of these small apartments, I understand the toll that these small spaces can have on their residents and have come to understand the need to adapt one’s concept of ‘space’. Some of one’s own concept of space is indeed found in the city, rather than in the home—some of life is lived outside of the confines of the four-walled dwelling.

Hong Kong residents have come to adapt what the limits of the ‘four walls’ are; residents have pushed these limits outwards, and have created a larger sense of ‘space’ outside of the unit and in to the city.

As more cities around the world are becoming dense urban metropolises like Hong Kong, how do we design spaces that are flexible and adaptable to make the most out of a few square meters, while forging new relationships with the city itself and blurring the boundaries between the private and public realms? How can we push more of our private life out into the city? Ideas of program, dwelling, and the boundaries between the public and private realms will be challenged in this thesis by way of food.

Chapter 3: Design - Blurring Boundaries

The notion of high-density living is not a recent phenomenon, and we see that people are living in smaller and smaller spaces as many cities around the world continue to densify. Learning from Hong Kong, this thesis explores how the Hong Kong lifestyle of inhabiting the public realm for private occasion can be pushed even further by designing a new building typology using this idea; by inhabiting and sharing the public infrastructure and using food as a way to investigate this new way of dwelling.

Living in the City

As we have seen, having adequate private space for your own kitchen, dining room, living room, and so forth are not entirely feasible in these densifying city centers due to very limited availability of land, high demand for housing, and sky-rocketing housing prices. Therefore, this thesis will aim to re-imagine one's 'few square meters' by pushing some of the 'home' out into the city, by way of food. The occasions of coming together, cooking and dining will be used to challenge



Semi-public gatherings out in the public realm as restaurants expand at night.

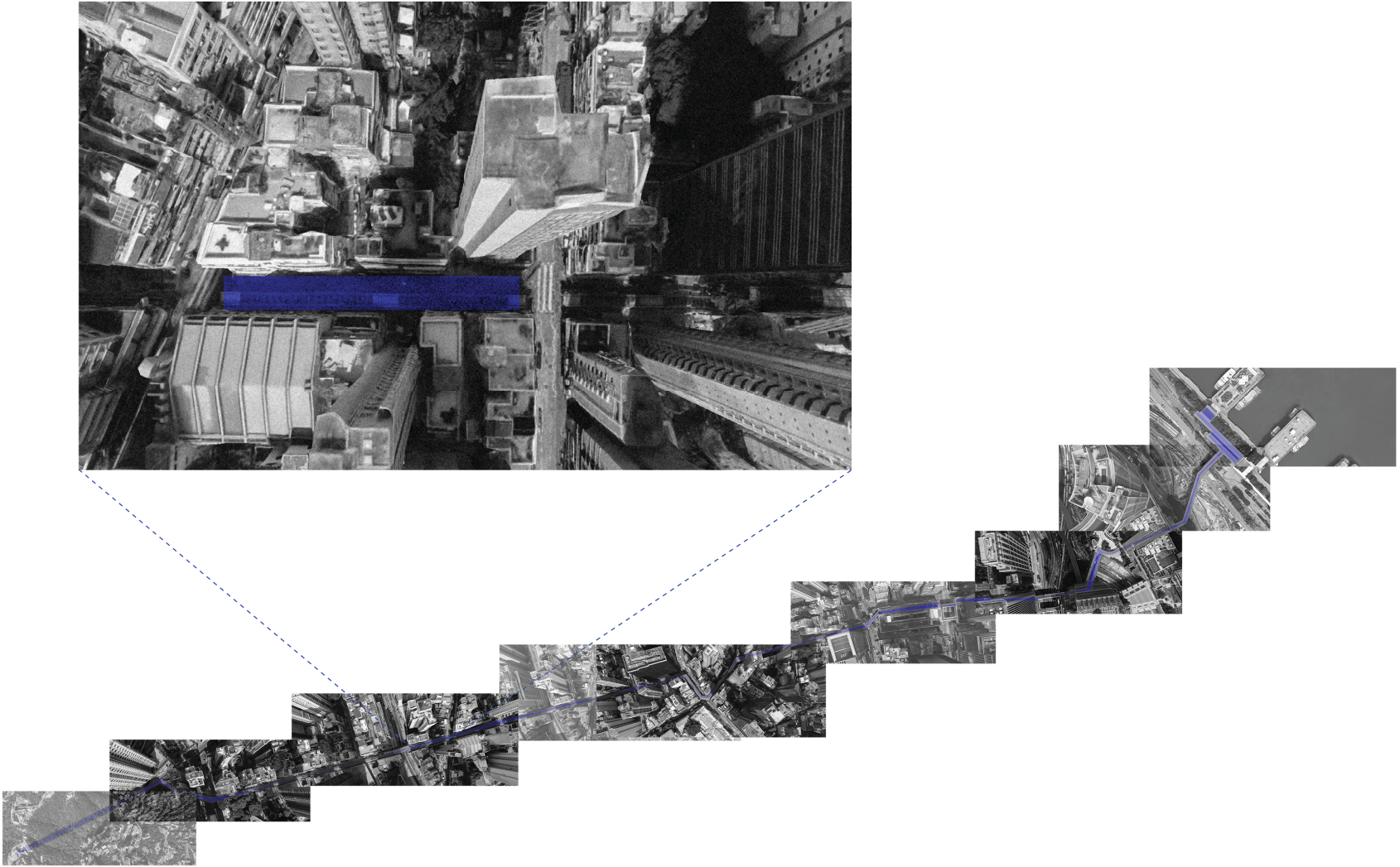
our ideas of program, dwelling, and urban conditions. The project will aim to push some of our every day experiences surrounding food into the city and the public realm as the dwelling doesn't need to 'do it all'.

The widespread desire to socialize while eating and preparing food has created a way to explore these concepts as they offer occasions to test and challenge ways we can dwell in urban density more successfully. A new building typology will be explored which allows us to think about ways architecture can offer solutions and new ways of living in urban density. Relationships between the public and private realms will be re-imagined in this project, such as pushing your dining room into the city and along its streets.

The new typology has developed through studying the routines and experiences of Hong Kong residents as we saw earlier. Through this research, five themes have emerged which have been driving the project: the first of which is using underutilized holes and gaps in the urban fabric.

Underutilized Spaces in the Urban Fabric (1)

There were not any easily identifiable spaces available in Hong Kong for this exploration due to the sheer lack of space and density of existing construction. Therefore, the project has manifested itself through the idea of found space within the existing urban fabric. This is one of the primary themes being explored through this thesis—taking advantage of the underutilised gaps and holes in the urban fabric, and offering multiple and additional opportunities for dwelling to occur by way of food in these spaces. Alleyways, between spaces, and the space above in the urban fabric of every day life have been re-imagined to accommodate a new dwelling typology. This typology is based on a collective of public



Aerial view of the mid-level escalators in Central Hong Kong, with an enlarged view of the site being studied (Google Earth 2021).

conditions and more private spaces that blur the boundaries between these two realms.

Inserting Into 'The Space Above' Through Structure



Initial sketch showing ideas about suspending above existing buildings.

The investigation, which is in the realm of public infrastructure, could be applied in a variety of urban spaces—not just Hong Kong. The uses of the space may change with each city, but the value of creating additional uses of existing spaces is applicable elsewhere, especially in dense urban metropolises.

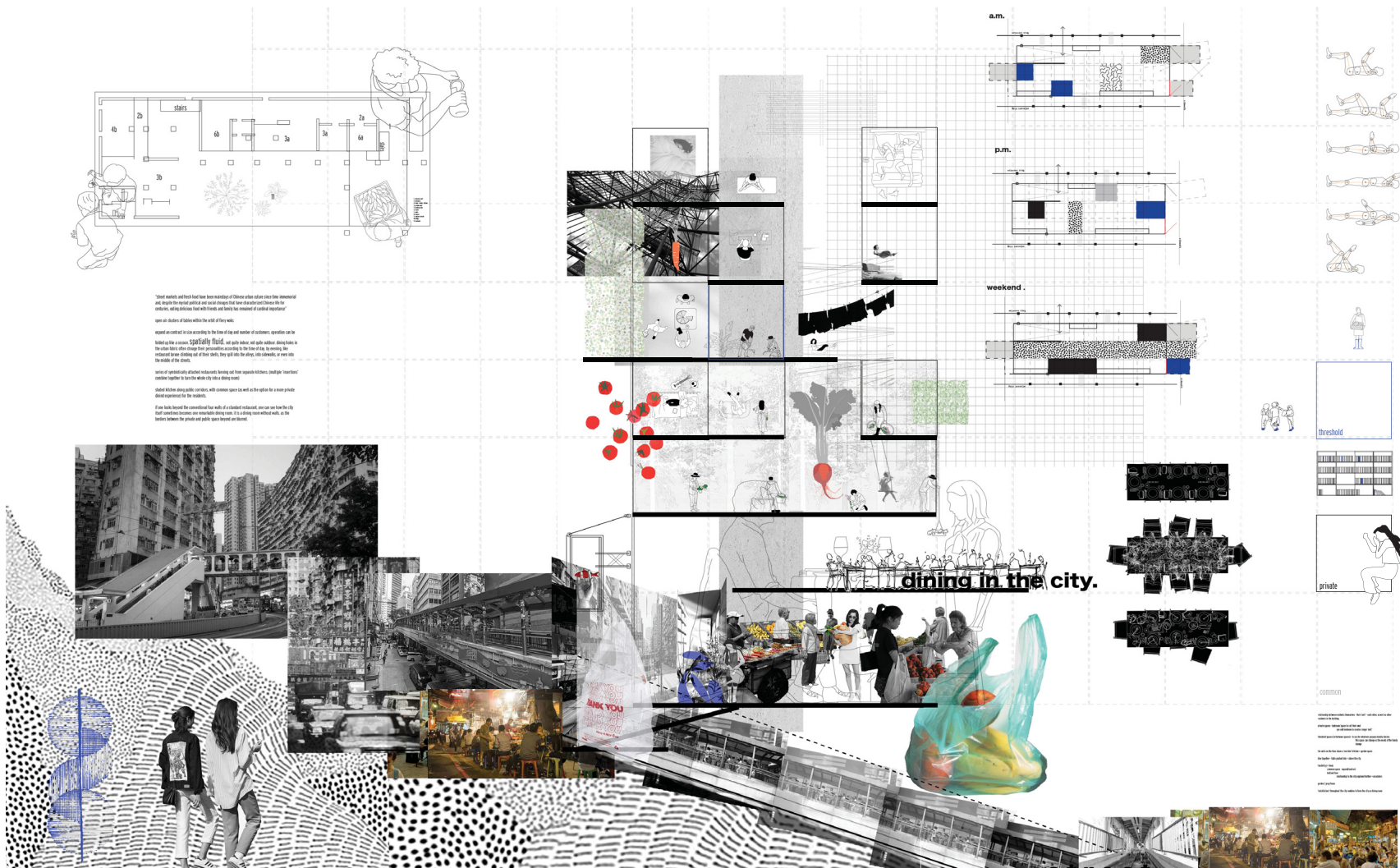
Using the Hong Kong experience as a basis for the investigation, and studying how people move through the city, it was noted that there are primary pedestrian circulation corridors throughout Hong Kong Island, and many of the social interactions and pit stops to home or work occur along these routes. As these circulation corridors are limited to pedestrian circulation, the thesis is taking underutilized spaces in the realm of public infrastructure and expanding the use of them by Inserting into the space above. Thus, inhabiting the realm of public infrastructure.



B1/M5 Charette. Thinking about blurring boundaries.

The investigation is working with existing tight circulation corridors in Hong Kong which are found in the mid-levels area. These are a series of elevated walkways and escalators that allow the residents to more easily to ascend the terrain. These pedestrian corridors change direction during the day, thus encouraging the notion of 'routine' within the investigation.

A series of stilted structures are being studied to be strategically inserted with minimal disruption to circulation space, such that the space above is given new and additional opportunities. The structure will maximize found



These models and their floor plans have been modified to illustrate what it will be like to live in the building and, despite the rigid grid and narrow changes that have to be made to fit the building into the existing urban fabric, it will be a place that will be a measure of urban department.

Open air structure of the building with the grid of the site.

Repeat structure in size according to the time and number of customers. Operator can be located on the ground floor, or on the upper floors, and will be able to move back to the street level after the presentation according to the time of the morning, the afternoon or the evening, and if the building is to be used as a restaurant, it will be able to move into the middle of the street.

Series of spatially defined outdoor seating areas that are separated from the street level and can be used together to form the whole city into a dining space.

Added kitchen along public corridor, with common space as well as the option for a more private dining area for the operator.

If one looks beyond the conventional floor plans of a building, it is clear that we can see the city from a different perspective. It is a city that is not just a building, but a space between the private and public, open beyond the street.

dining in the city.

COMMON

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Thinking about the space above and how to accommodate activities, permeability, food, and inhabiting the public realm for private occasion.

Locale of study > Under-utilized spaces in the urban fabric

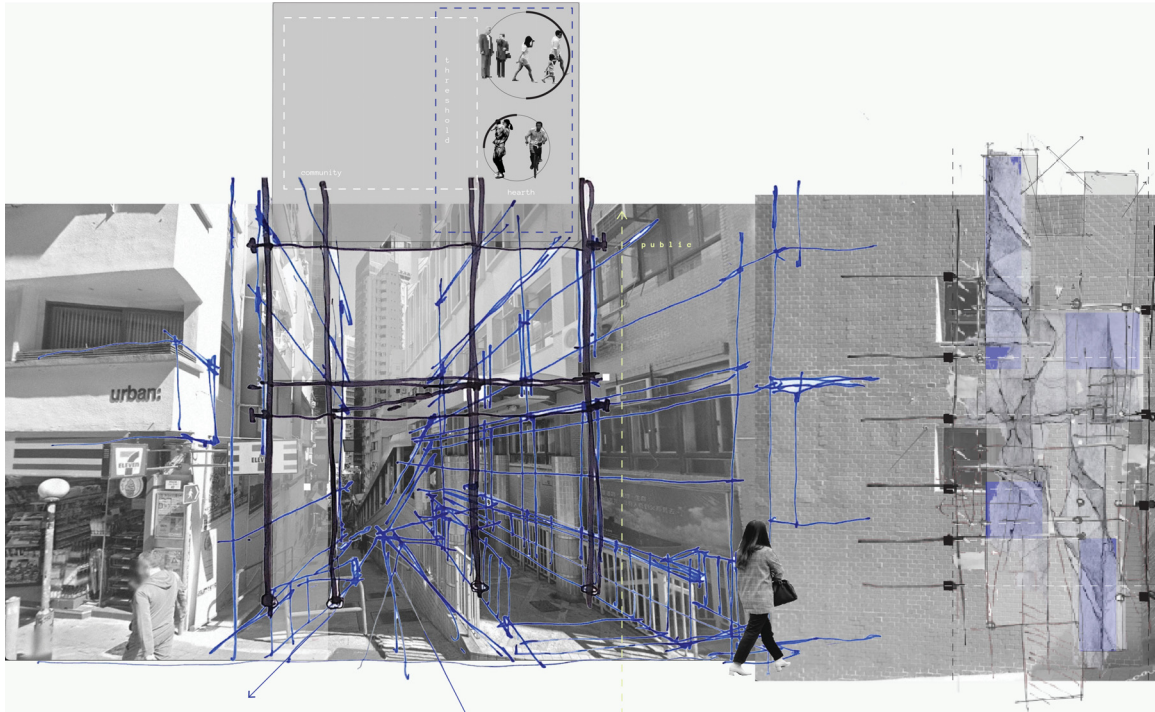


Map indicating the area being studied which is the mid-levels area in Hong Kong Island (Slamchica 2011).

space above the alleyways, between the existing adjacent buildings while minimizing disruption to existing use. Such that their residents can share and have access to a few more square meters, while new residents in the structure can benefit from a community to share, cook, and socialize with.

Creating a structure that had minimal intrusion and touched lightly the existing environment was important, while respecting the existing buildings. It is co-habiting with, and respecting, the existing circulation activities that occur in this area. Not hampering the existing circulation, and thereby welcoming this life to now happen at multiple levels above and in the new insertion as well.

The insertion is flexible and adaptable, such that it is able to change with the routine of the residents, and the cyclical nature of the city. Lobbies, corridors, common spaces in the day can be modified and reduced so that other functions



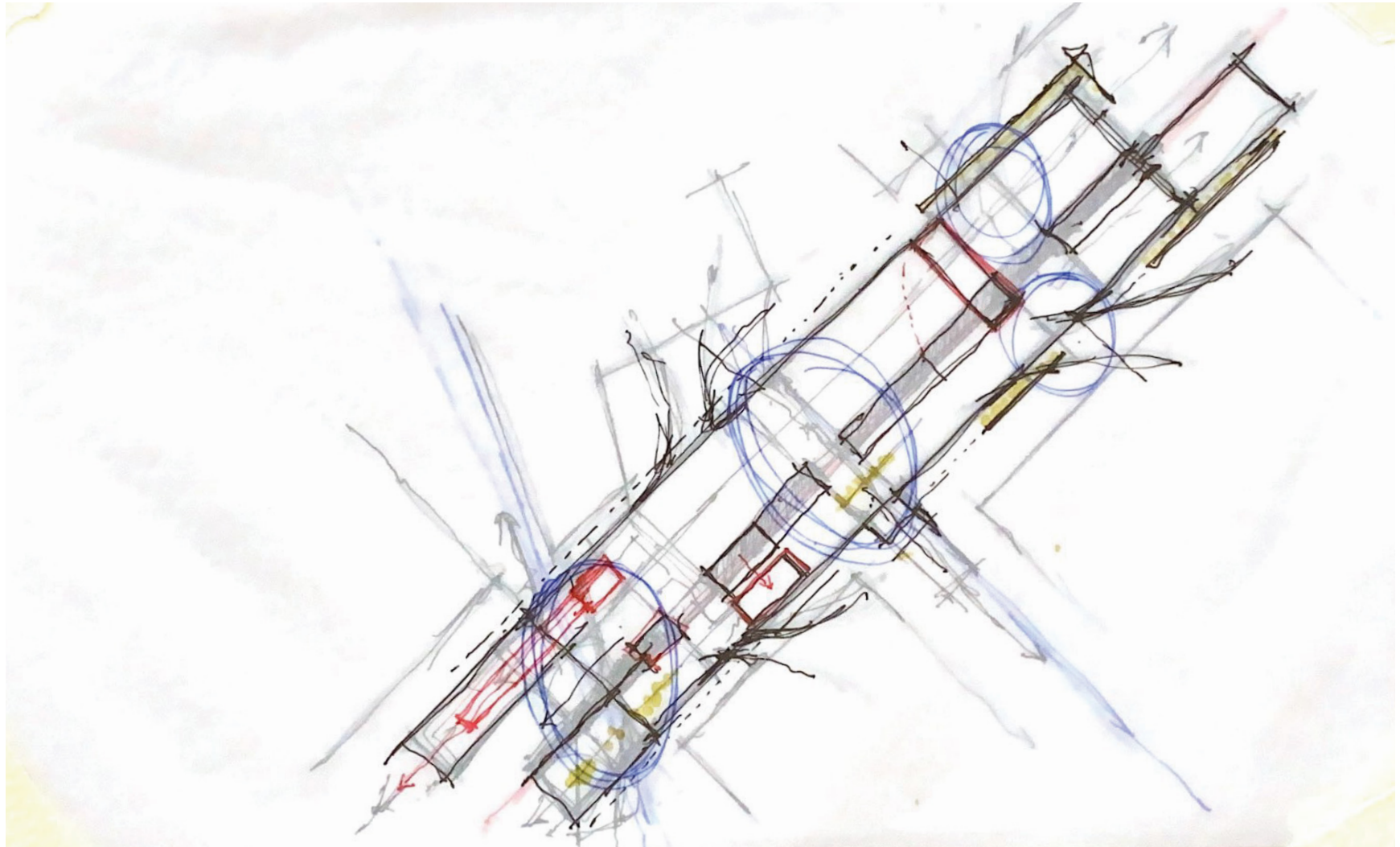
Initial studies on how to form a structural framework that respects the existing flow of pedestrian circulation (Google Earth 2021).

can expand at night, while public spaces in the building can accommodate gathering and coming together with friends and family.

Thinking about architecture like a rubber band rather than as bricks and mortar-the structural intrusion is going to be fixed, but the way it is clothed, inhabited, and occupied will be quite flexible, adaptable and can change over time according to its use both in time of day and time of year.

The Hearth as Private Realm (2)

In studying the routines and investigations into the lives of residents and how they moved through their daily experiences, it followed that the structure of the insert needed to be executed so that it caused a minimal disruption to daily life as noted. Therefore, the majority of the structure was aligned with the existing escalator circulation at ground level. Within the upper levels of the structure, new



Plan study of hearth alignment and the need for engagement and extension of activities and animation over the sidewalk and street below.



Ground floor plan showing existing circulation space and alignment with structure above.

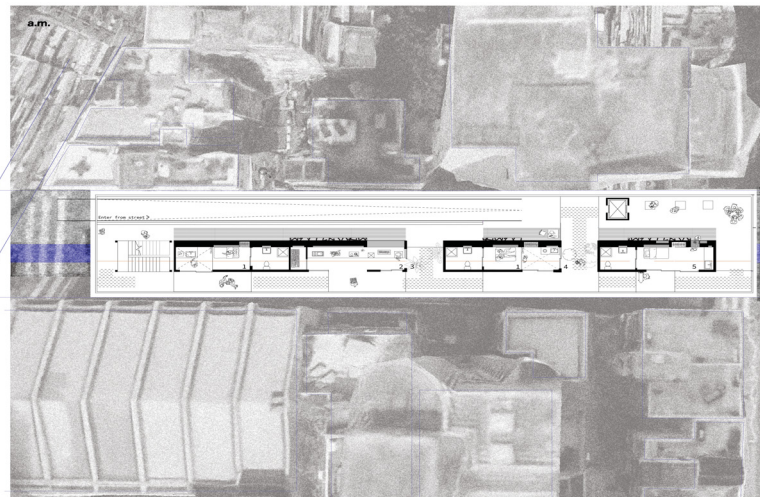
opportunities for private units within the structural hearth were created where the threshold between the public and private realm doubles as service space, thus blurring this spatial boundary.

Circulation spaces on the upper levels are the thresholds between public and private realms, thereby also blurring these definitions, and challenging our notion of dwelling and our ability to share city infrastructure.

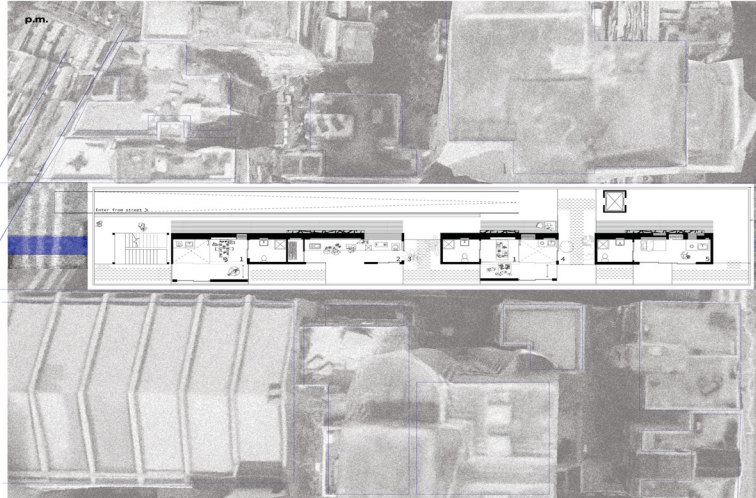
Previous examples of high-density buildings don't often focus on the community aspect of dwelling, and enjoying food and family together. This building, and structure, provides community and collective use of spaces, as it occurs elsewhere in the city.

Bringing the City Up and Into the Building (3)

The desire to bring the city up and into the building was encouraged through the incorporation of elevated public and semi-public streets and sidewalks within the building. New uses along these elevated streets were held aloft, above the current daily routine of circulation, with ramps and elevators providing vertical access to new opportunities



First floor plan showing the private heath space and the alignment with the existing escalator circulation below.



First floor plan showing the flexibility of the private health space and the expansion into the 'backyard' space.

above, making multiple layers of sidewalks and street fronts above.

Typically, the street level is the most public area, and the building is more private as you move vertically. This insertion into the public infrastructure augments the activities and experiences that are happening already, and explores the idea of providing multiple levels for these existing relationships to happen vertically throughout the building. Thereby, the same footprint of space can afford five or ten times the amount of opportunities for interactions and gathering that were previously occurring in the same square meter of land.



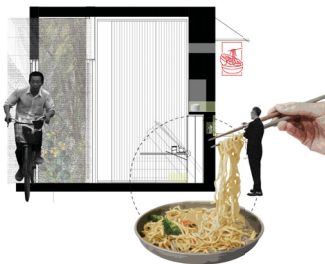
Initial sketch showing ideas about suspending above existing buildings.

The theory for urban high-rise buildings 'the higher you get the more private it becomes' was challenged in that public gathering happens at some of the highest levels in the new structure-as community dines over, and in the city together. The notion that there are multiple street levels within the building was welcomed, and public and community activities were encouraged at more than the ground level. Welcoming social interactions to occur at multiple places within the building. Such as the idea of the community hearth. Which

is a community table that grows from the core of the building and can be pulled out to accommodate large community gatherings over and in the city.

Threshold Spaces (4)

The 'sidewalk' within the building acts as public threshold to the semi-private spaces, and its program is determined by the residents dwelling within the hearth. Blurring the lines between public and private realms by way of thresholds occurs throughout the project. Studying areas associated with circulation, and service alleys, provided cues as to how to create opportunities for more uses to happen at different times of the day. This was a core component of the architectural language explored in this project.

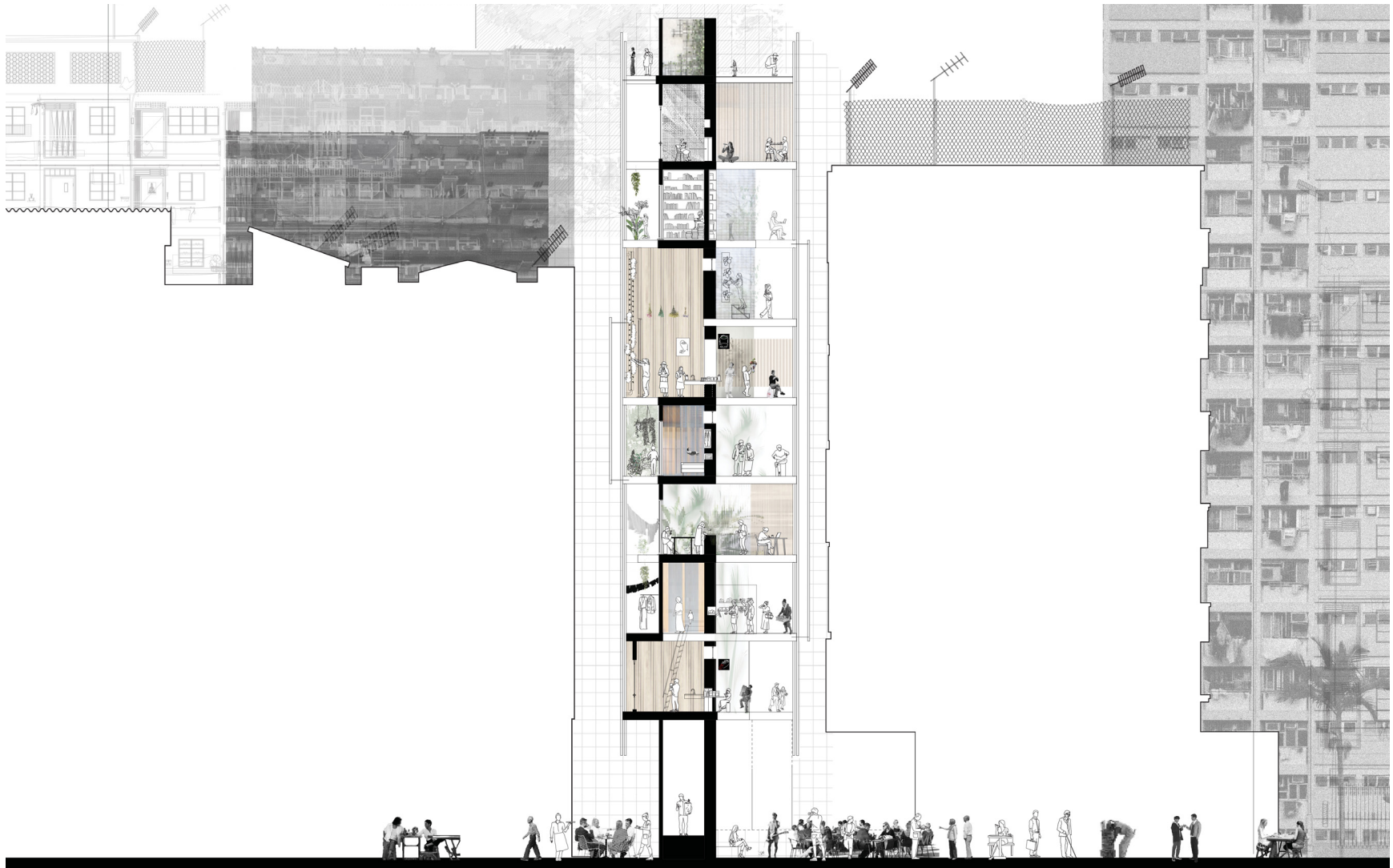


Graphics above depicting the flexibility of the hearth space, and how it adapts for the residents.

Hong Kong city life adapts and operates through a variety of routines at various scales. These routines are happening within the home, but also throughout the city as residents claim aspects of the public realm as needs arise. Shuttered dai pai dongs open and expand at certain times of day. Sidewalks become restaurants. Delivery alley ways between high rise buildings become social and gathering space. This led to the investigation for the project into how can this then be applied at the building scale as well?

The various spaces need to be able to adapt and change use over the course of day and year depending on the needs of the residents. The cyclical nature of the building and its adaptability was designed to suit a variety of routines and uses, as spaces should offer a variety of occasions at different times of the day and the year.

Using the traditional dai pai dong as example for the expansion and adaption that occurs daily, the building



Building section depicting the flexibility of the threshold space, the importance of creating voids within the structure for growing food together as a community, and the public space on the ground floor occupied for dining in the city.



Inside of the private hearth space, with a glimpse of the threshold between the public and private realms.

makes opportunity for multiple uses. Such as the expansion of the private hearth space into the 'backyard' in the evening to offer more gathering space for family members within.

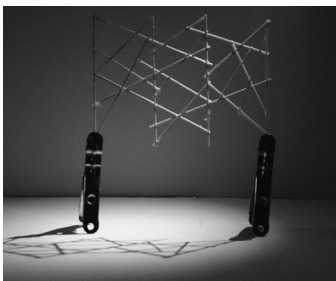
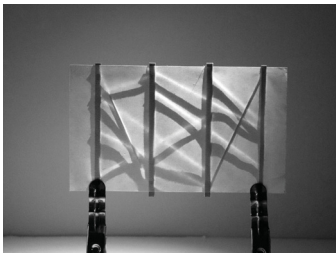
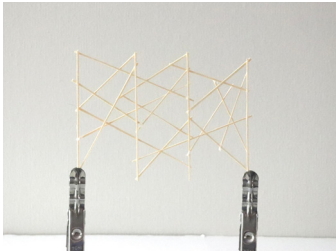
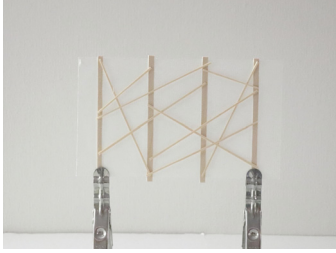
Routine of the Escalators as Example of Adaptability

Escalators flow one way in the morning and the other way in the afternoon. This lends itself to the idea of flexibility of 'space' within the project. For example, as the escalators show us, we don't need two lanes, one for each way. They adapt in that they flow one way in the morning, and the other in the afternoon. In relation to the project and circulation space-when not being used for pedestrian traffic-can the circulation spaces be used for something else? I.e., sitting and social gathering. These spaces can't be just circulation space, or perform solely one duty, due to space constraints. They need to perform more than one duty or function as it occurs elsewhere throughout the city. How can the spaces around them be designed to adapt expand and occupy those circulation spaces when not being used primarily for circulation? For example walk around and amongst tables and chairs because the sidewalk is now the dining room.



Facade study reinforcing the importance of visual connectivity using multiple layers of veils and screens.

Permeability (5)



Images above depicting screen studies in terms of visual connectivity.

It was important to create a framework for the building facades that allowed visual connection into the building at multiple levels above grade. People need to understand what something is about in order to feel comfortable taking part. In this project, the public needed to be able to glimpse inside a living and breathing building bustling with life, to thereby feel encouraged to explore and join. Therefore, instead of one façade, there are multiple planes through veils and screens to reinforce visual connections. It was important to offer glimpses of the activities by pulling nature into the building and pulling out some of the activities occurring within. Public cantilevered program spaces pierce through the screens and veils of the facade above the existing street and sidewalk, to offer occasion for dining out and in the city.

It was recognized that in order to be successful, it was important to permit daylight and openness down into the core of the structure as well, so that all street levels benefited from at least some daylight. Sensory and tactile experiences were explored by way of green spaces in this project, while community was fostered through growing food together. As ventilation and day light were core aspects that residents spoke about.

The permeability of the facades was intended to incorporate themes of nature. Banyan trees by way of branch patterns and root systems have been used to model the translucent nature of screens and panels throughout the building. The sense of natural materials was understood as important in providing a comfortable environment and were necessary to balance the steel and concrete structure at the core. Respecting the traditional use of bamboo scaffolding seen



Building section showing the relationships among the residents within the hearth and the five themes behind the framework of the building. As well as the importance of food as a means to challenge our conventional ways of thinking about living in urban density.



Image of the multiple planes of screens within the project to form the shell of the insertion.

throughout Hong Kong as inspiration, the steel structure at the extremities of the building (where the connections to translucent facades are found) have been designed so as to respect this local way of building.

These five themes formed the framework for the project. Each inspired by the residents and their daily routines and movements throughout the city in search of space and food.

Chapter 4: Conclusion

By at least 2050, if not earlier, the number of “urban dwellers in China is expected to increase by three hundred million to total more than one billion” (Goldhagen 2017, xx).

China will eventually have 125 cities with populations of more than one million. Its number of metropolises of five to ten million people will number sixteen, and it will have seven gargantuan cities of more than ten million people, with several of them greater than twenty million. (Goldhagen 2017, xx)

“This will require the construction of four trillion square meters of floor space in approximately five million buildings” (Goldhagen 2017, xx). This statement like no other depicts the need to study growth in our cities, and the need to implement solutions for this urban density ahead of time.

Studying a city of extremes with extreme population density, extreme building density, and only extremely small spaces remaining to develop, enable and requires us to learn how to deal with pressing issues, such as how to live in a city like Hong Kong-in a new way.

Since there are virtually no remaining spaces to develop (small or otherwise), we need to find currently underutilized spaces and develop those to support additional functions and people. As populations continue to grow around the world, and more people continue to move to the larger cities, urban conditions are becoming denser around the world. An adaptable building typology designed for living in these conditions could be applicable everywhere while blurring the boundaries between the public and private realms.

This thesis highlights the importance for better utilization of currently underutilized gaps in the urban fabric, including those of circulation, by way of food. However, the theme that

ties it all together may be replaced by commerce, theater, or other unifying activities.

Applicable . . . Elsewhere?

For this notion of blurring the boundaries to be applicable elsewhere in urban conditions, a set of principles have been developed:

1. Dense city
2. Find fissures or cracks in the urban fabric that people move through and are high pedestrian activity zones. Seems to be the most beneficial in through lots, side alleys or service alleys.
3. Insert a structure that doesn't impede this flow of pedestrian activity, but rather enhances it. Thereby enhancing the space that is already enjoyed by the public, without blocking the major facades of existing buildings.
4. Create a space for inhabitation, for the 'room(s) in the city'. The structure provides spaces that people lack in their private dwellings.
5. Find the thread that ties it all together i.e., food as was the case in Hong Hong.

However, what about other scales? Is this framework able to be applied to the suburban condition, for example? To illustrate this idea, I will give an example from my own suburban neighborhood. Two doors down, there is a piece of land, an 'easement' which is owned by the municipality, and found between two existing homes. If this blurring of boundaries were to be applied to this suburban condition, this easement could act in the same way as the threshold in this project. Perhaps the land could be modified in such

a way so as to connect the street to the park area behind, thereby enticing people into the park. The public could then enjoy services on this parcel of land in the same fashion as it occurs in the project, as it acts as an access point/gateway/threshold between the public and private realms. Café opportunities for example, could be found at the sidewalk and other services above or amongst the trees thus encouraging pedestrians and the public to explore this plot of land between the two adjacent homes. This would require a lot of cooperation amongst different parties as well as a change in perspective in how we look at preconceived notions of public and private spaces.

Breaking down the boundaries between public and private realms, and finding ways that they can be a little more malleable and 'blurred', while promoting the ability for change and adaption in our dwelling patterns was explored during this thesis.

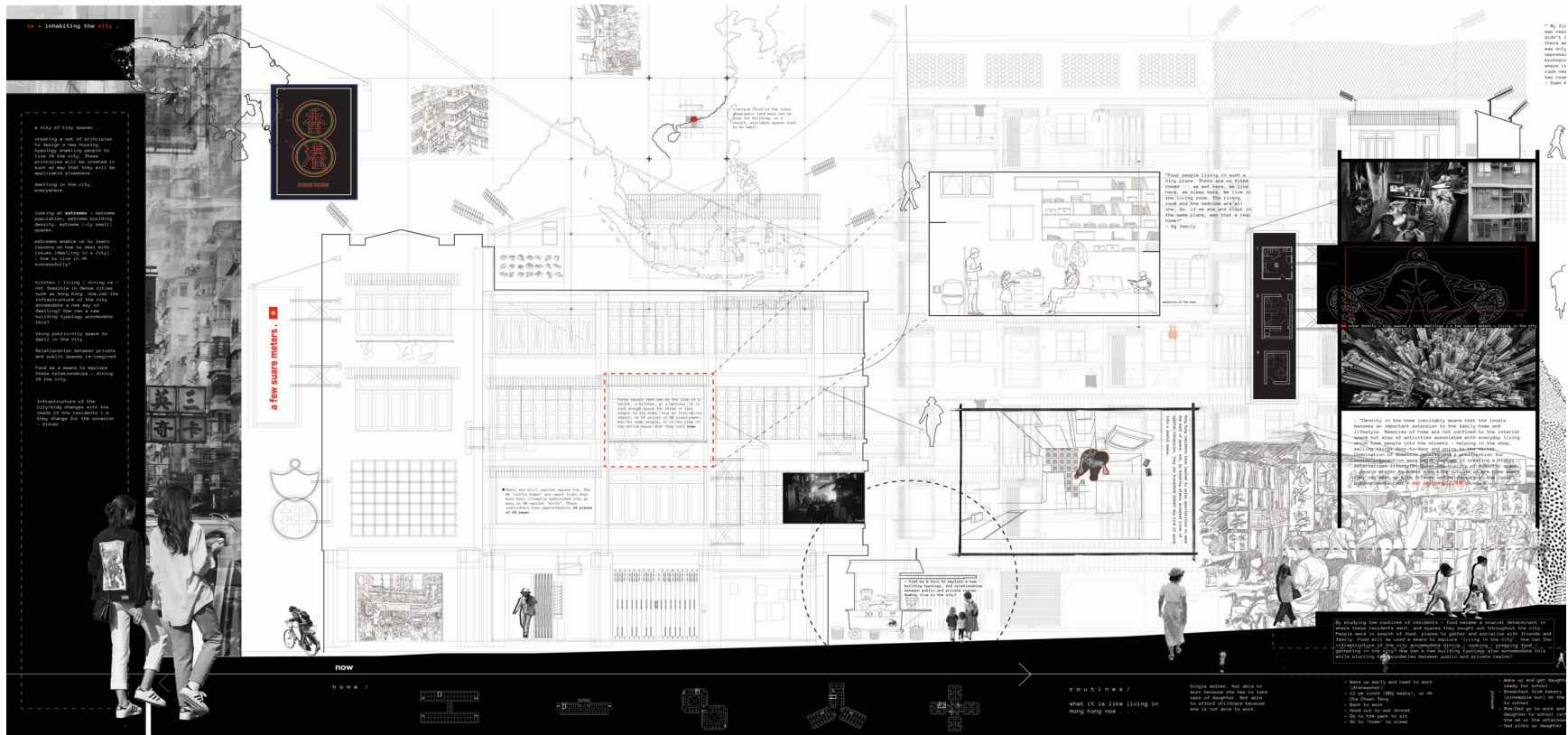
Each condition in which this idea were to be applied would have to be evaluated in order to determine how those boundaries can be softened while asking parties involved to consider blurring the boundaries of private ownership in a variety of urban and perhaps suburban conditions. Current private property owners would have to be asked to consider a modification of what they consider to be 'theirs'.

Moving Forward

We respond to our environments not only visually, but with our many sensory faculties-hearing, and smelling, and especially touching-working in concert with one another Our built environments are the instruments on which this orchestra of our senses play its music (Goldhagen 2017, 38).

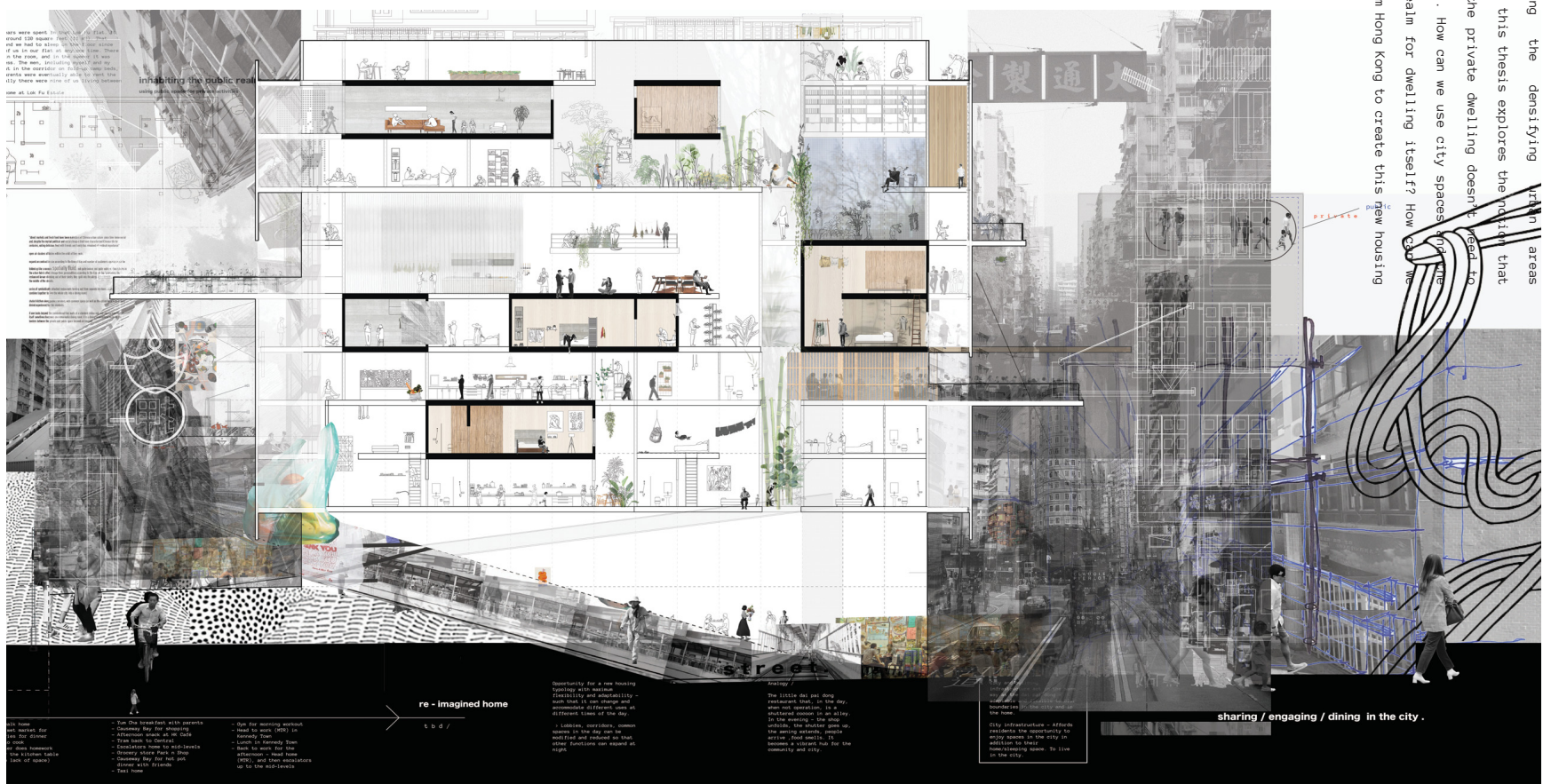
Lets ensure that the new housing solutions delivered during this exponential growth, do so in a fashion that respects the

need for personal space, the need for community, the need for shared space, and can be as adaptable as possible while we move forward into the future.



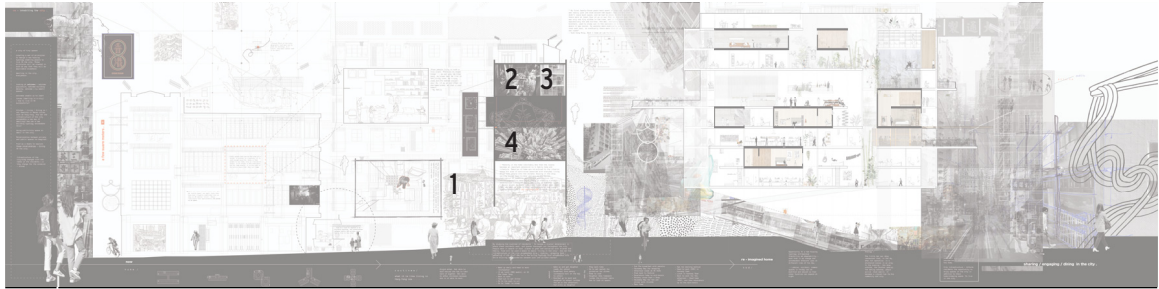
A section through the studied space in this thesis. This image attempts to depict what the current living situation is like for Hong Kong residents, as well as their current relationship to the city. As one moves through the drawing, new architectural languages and spatial relationships are tested, in order to try and create a new way to live in growing urban density—a way of life that could be applied to other cities similar to Hong Kong.

Considering the densifying urban areas globally, this thesis explores the notion that perhaps the private dwelling doesn't need to do it all. How can we use city spaces for the public realm for dwelling itself? How can we learn from Hong Kong to create this new housing typology?

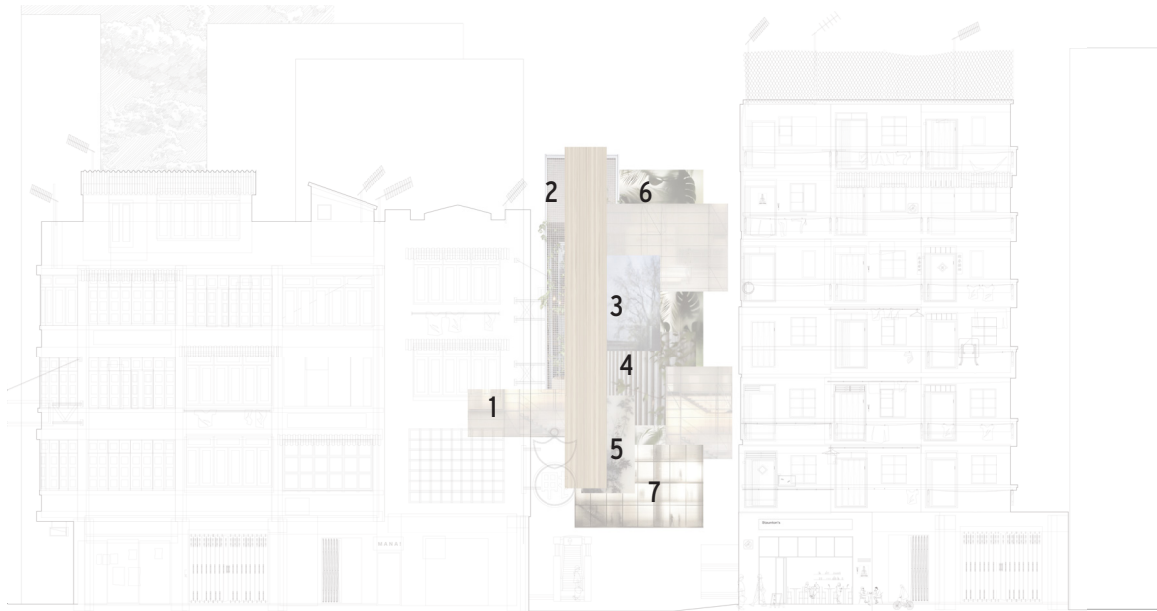


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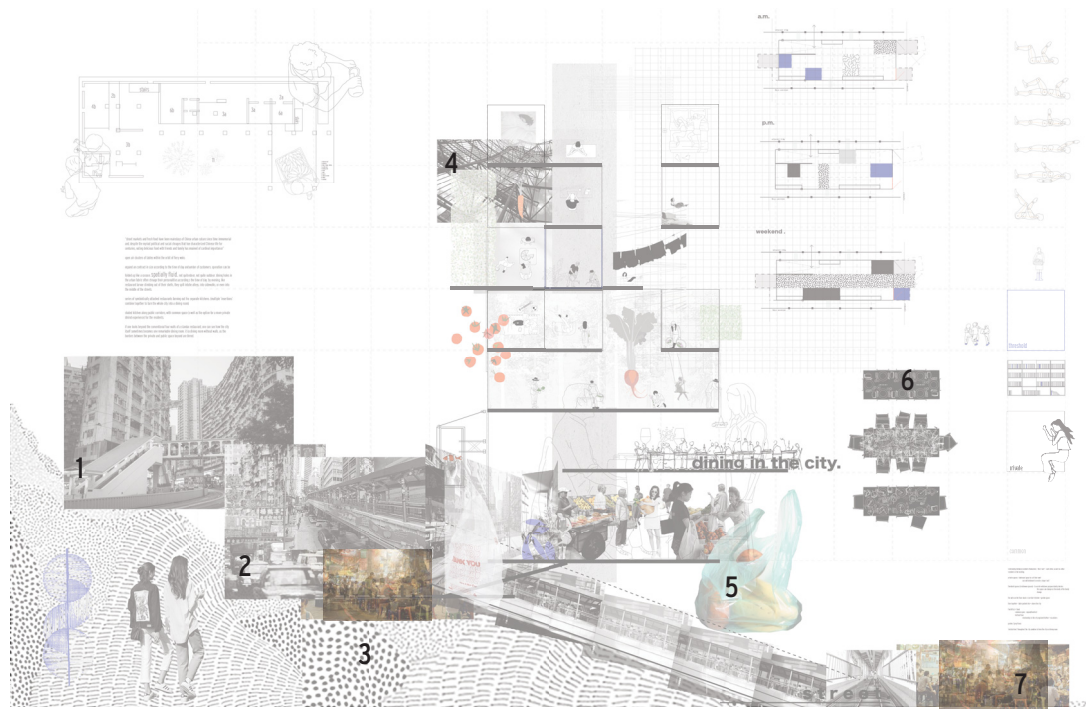
Appendix A : Collage Sources



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