ONE'S HOME

*Finding a balance between
community and individuality*

YURI TAKEMOTO

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*A thesis
submitted to the Victoria University of Wellington
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Victoria University of Wellington

people who live alone

"We use the noun *HOUSE*
to refer to a building...
We use *HOME*
in a more personal and
emotional way to refer to
where someone lives."
- Cambridge University Press, 2020

"Home is where there is
one to love us"
(Swain, 1956)

Fig. 0.1. Final design- view from courtyard

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ABSTRACT

The urban lifestyle separates many families, forcing members to live alone.

As population grows and cities condense, we need to build up, and live small. However, as we and the space we occupy become smaller relative to the city, we lose the sense of integration with and connection to context (Florian Urban, 2012). Without feeling belonging, we often feel loneliness. Those who live alone need to feel that they are a part of a community while celebrating their individuality.

This thesis explores ways to reduce loneliness through the design of social housing through co-living. It considers the diversity of people and their choices of living needs, creating a place where we feel belonging as part of a community, while having enough privacy to feel safe. The design aspect of the thesis explores the different design techniques which reflect studies of sociology and learnings from precedents in order to support the physical and emotional well-being of the residents while also being more sustainable by being space efficient.

Fig. 0.2. Final design- ground space

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Fig. o.3. One's Home- overall diagram

research question

HOW CAN THE DESIGN OF
URBAN ARCHITECTURE
FOR PEOPLE LIVING ALONE
ENHANCE THEIR WELL-BEING?

INTRODUCTION

STARTING POINT

I have always been fascinated by the way people lived; as I have a multicultural background being Japanese and growing up in New Zealand, as well as other experiences such as studying abroad in the UK and travelling. In each place, people lived in different ways but all sought for comfort and happiness.

The starting point to this thesis was my family. With my mother, father, grandfather, and myself living separately in different parts of the world by ourselves, I often empathised with their feelings of loneliness. I felt this especially when my grandfather moved from his family-home where we all used to live, into a care facility when we moved out and my grandmother passed away. His new 'home' was a single unit in a tower block, where apart from moments when the care workers checked his health, he was by himself.

Fig.o.4 and o.5 show his old home where he lived in a space tailored to his lifestyle, designed by an architect who worked closely to the family needs. Fig. o.6 and o.7 show his new home, one of the many care units in a tower block. Seeing this change, and seeing my other family members being apart for our own reasons, I started to wonder how, in this urbanised and individualistic world, can we live as a community?

BACKGROUND

DEMOGRAPHY

Looking at who lives alone currently, according to Statistics New Zealand (2016), the likelihood of those living alone increases with age. Of those who lived alone in 2013, nearly half were aged 65 or older. Whereas these figures apply to New Zealand holistically, Wellington city's demography shows difference. Wellington city, due to tertiary institutes being situated within the city, has a higher population of 'Tertiary education and independence (18 to 24)' living alone. The young workforce of people between the age of 25 to 34 has shown the highest increase, as well as ages 50~59, 60~69, and 70~84 which also show continuous increase in population (.id community 2018). Given these statistics, the design should best cater for tertiary students, the young workforce, those who have retired, as well as older workers.

The idea to design for one age group was dismissed during the scope setting process after looking at traditional community models, where the younger ones learn from the older, and the older gains new perspectives from the young. Diversity is very important in creating awareness and understanding of different people, rather than to stay in the bubble of an individual's mind. Gravis, Davis, and Larkin (2002) note that intergenerational interactions in housing typology, especially for those who are older, suggest a positive impact on their well-being.

Judd, Dean and Brown (1985) also state that there are changes in the population structure, social attitudes and behaviour which diversifies household types and lifestyles away from the traditional nuclear family. So although demographic information can be used to understand what type of people are most likely to reside on the broader sense, predictions of how these people will choose to behave are harder to make, therefore it is important to design for diversity.

Fig.o.4. Grandfather's old home

Fig.o.5. Grandfather's old home diagrammatic drawing

Fig.o.6. Grandfather's new home diagrammatic drawing

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Fig.o.7. Grandfather's new home (minnanokaigo 2011)

DENSITY

While currently 55% of the world population live in urban areas, continual increase to 68% is predicted by 2050 (United Nations, 2018). The population of NZ is currently 5.1M, and a large increase is predicted, to 5.19–5.94 million in 2030 (New Zealand Government, 2020). This means that the density of the current urban areas are likely to increase (United Nations, 2019). The idea of sharing, in the form of co-living, and minimising the occupancy space can provide an adaptable exemplar for living in the urbanised contexts. Densely populated environments, such as Beijing, Rome, or Edo, are historically preferred by the majority when

planned and designed well (Rybczynski, 1986). Stewart-Pollack and Menconi (2005) note that “Urban environments that concentrate their products, services, support, wealth and economic opportunities are more sustainable than their suburban counterparts because urban populations consume less energy and reduce dependency upon road transportation (page 5)”. As part of this research, megacities of Japan (Tokyo, Osaka and Nagoya) will be used as areas of study for dense cities. The final thesis design proposition is of a scale large enough to be an effective catalyst for the wider urban context.

LONELINESS

Loneliness affects the well-being of an individual. People especially experience loneliness from the contemporary culture of individualism which increase people's sense of insecurity (Hanlon, et al., 2012). This is dangerous as feelings of loneliness associates with an increased mortality risk over a 6 year-period amongst those above 50 years of age (Luo, at al., 2012).

A seemingly simple way to reduce loneliness is for a person to live with family, friends or a significant other, however this is not always possible due to many personal circumstances.

Loneliness reflects both objective and subjective conditions (Smith, 2015). Objective conditions are factors such as the number and depth of social

contacts, while the subjective condition is how an individual interprets their own level of social connectivity through their emotions. To address the objective condition, the architect can design to encourage social interactions by providing social spaces. While this is possible, there is no guarantee that people placed together in a shared space will interact with each other. The latter, subjective condition, is difficult to address as an architect does not have the ability to accurately predict occupants' emotions. We can however assume the way majority of people may behave or feel, based on design psychology. These studies connect different design elements to the behaviour or emotions of the user. Applying this knowledge gives the designer a degree of control.

Fig.o.8. Diversity

Fig.o.9. Isolation

Fig.o.10. Loneliness

CO-LIVING

An obvious solution to reduce the risk of individuals feeling social isolation and loneliness when having to reside alone, is to put people who are living alone together as a group.

Shared living models exist all around us already, such as hostels, flatting, co-housing and co-living. While considering these options, co-living became the focus because hostels are mostly limited to one group of people, such as students who attend the same educational facility or travelling people. Flatting is smaller scale and often works within an already established community, and co-housing tends to be a community with families. Co-living involves a higher degree of sharing when compared to co-housing. It is an appropriate research focus because of its scale with higher levels of management. It caters for a more diverse, larger group of people who are by themselves.

WELL-BEING

What is 'well-being'?

According to Newell (1998), well-being is to establish and maintain healthy internal physiological and cognitive functioning. It is important to consider people's well-being for their own mental health and for the community to function well. When a person's well-being is disturbed, it can cause stress which is

Dillon (2019) notes that the benefits of co-living are “one of the most compelling solutions to the housing crisis, housing quality, community development, and mental health that there is” (page 9). He also mentions the potential economic and social benefits of co-living, which include reduced costs due to the sustainable design, when passive solar design is effectively in place, and the reduced areas per person through sharing. In terms of the mental health and community development, he says that “there is the option to enjoy company when you feel like it and have privacy when you need it” (page 10). Hypothetically these are great ideas when executed well. The challenges come in how to execute these ideas to accommodate all the needs of each diverse resident, without inadvertently creating social isolation within a community.

a health risk (Stewart-Pollack and Menconi). It is a crucial part of their wholistic health, therefore an extremely important element to consider.

PRIVACY

At the end of a long day, we all need a place to unwind and relax. For this to be possible, we need a space of our own. “Experiencing privacy has important benefits for us at any age, such as enhanced feelings of well-being and the development of self-identity (Stewart-Pollack & Menconi, 2005, p.221)”.

As Westin (1967) explains, there is “the need for ‘personal autonomy’ – our sense of individuality, the freedom to separate ourselves from others to be alone with our thoughts and feelings, to explore our capacities and limitations, to strive for independence, to think and act coercion” (Stewart-Pollack & Menconi, 2005, p.3). Without ‘personal autonomy’, we begin to lose the sense of who we really are.

The need of privacy seemingly contradicts the ‘community’ aspects of this thesis. The need for

shared space and facilities seem far from the idea of providing privacy. Here, the key for providing privacy even within the communal spaces, are to provide choice and individual control. Stewart-Pollack and Menconi (2005) says that the negative experience of privacy is crowding. Here, crowding does not equal density. Stokols (1972) describes crowding as “a personal and subjective reaction of space and the feelings of infringement (page 7)”. Crowding tends to make people withdraw from social interactions and become less considerate of others. The sense of crowding is often heightened when users cannot control environmental elements, or lack space and resources necessary to function the way they want (Evince et al., 1999). This means that ensuring users have agency over their space, and offering them with enough resource to give choice. This can reduce the sense of crowding therefore provide an effective sense of privacy.

AIMS AND OBJECTIVES

The objective of the thesis is to provide a way which people collectively live while establishing an effective community in the urban context, especially for those who live alone. The main intention is to support the well-being of occupants through the design of housing. For this to be possible, the design of the space should provide enough privacy for the residents to relax for their comfort and retreat, while encouraging them to form a tight community through the use of shared spaces.

Sustainability is also a driver of the research. Creating co-living opportunities and designing shared spaces will reduce the amount of resources needed to build and operate the building. Vale & Vale (2009) note that the first option which needs to be considered, in terms of sustainable living, is to have smaller buildings and to “share nicely” in order to reduce wasted resources (page 129).

To aid occupant well-being through the design of the residence, the spaces should be comfortable for both sharing and privacy needs. Its intent is to encourage social mix and reduce social issues in the living environment.

The thesis intends to provide ways which can subtly encourage human interaction and a sense of community without taking away the safety of personal space. The intention is also to not appear institutional, like a conventional rest home, but to provide homes where each individual can feel that the space is tailored for them. A final aim is to present design strategies based on research which have a sense of place and belonging.

By providing these design strategies, I hope to contribute to housing discourse in New Zealand by showing an exemplar of how people in New Zealand can live efficiently, while wasting less resources and living in a tight community which will improve individuals’ well-being.

METHODOLOGY

This thesis is a design lead thesis, where designing is used as a method to drive and reflect the research (Rendell, 2004). It is suggested that “instead of posing research questions and then finding answers, in much design research the process operates through generative modes, producing works at the outset that may then be reflected upon later” (Rendell, A way with words: Feminists Writing Architectural Design research, 2013, p.117).

The thesis will consist of three phases, each phase being a research stepping stone for the next. Starting with a smaller, less constrained design in phase I, the design will be critically analysed and research will aid to explain what is successful and what needs improvement. Phase II will use this reflection and additional research to design an improved and larger scale design. A similar reflection and research cycle will occur for phase II, leading onto phase III where the scale will once again increase, with more complexity and detail. By gradually increasing the complexity of the design, the thesis aims to break down the issue piece by piece, to understand each design element, and how they interact more deeply.

The research includes analysis of Japanese design, and sociology. By exploring and considering social issues that are occurring in larger cities such as Tokyo, potential ways of living in a denser future can be compared and suggested through design for a New Zealand context. Sociological knowledge will help predict the social behaviour of the residents, and give a basis for knowing how to design spaces which encourage interactions and community building without compromising comfort.

Fig.0.11. Methodology diagram

PHASE I
BEHAVIOUR AND OCCUPANCY

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PHASE I

BEHAVIOUR AND OCCUPANCY

Phase I consists of two design exercises of medium sized residential buildings. The first design, Design I, is designed in under 3 weeks as an opportunity to dive into the thesis. The second design is also a quick exercise, extending the exploration on a different site.

Phase I is a starting point, iterating possibilities and analysing how designs may affect the residents' behaviour. The emphasis is on exploring how people may occupy the different designed spaces.

Kowloon Walled City images (Lambot, 2017, p.122)

- <Fig. 1.1. The communal roofs
- >Fig.1.2. Elevation of the south side

PHASE I
PRECEDENT STUDY I

BEHAVIOUR AND OCCUPANCY

Main precedents which influenced Design I

PRECEDENT 1
CITY OF DARKNESS
IAN LAMBOT & GREG GIRARD

The fascination for Kowloon Walled City is well described by former Hong Kong-based architect Ian Lambot; “Despite its dystopian appearance, the now demolished Kowloon Walled City is fondly remembered by some former residents. Over the half-century from 1946, it grew without input from architects or planners, from a squatter camp inside an abandoned military fort to the most densely populated place on earth. The 14-storey amalgam of interlinking buildings housed over 35,000 people, along with factories, shops, schools and all other normal urban provisions. It has much to teach us about bottom-up, community-driven development” (Lambot, 2017, p.124)

This means that the density was 1,930,000/km², which, comparing to Wellington’s density of 900/km², means that where one person resides in Wellington, 2143 other people will live in the Kowloon Walled City (World Population Review, 2020).

What amazed me through the images in “City of Darkness” by Girard and Lambot (1993) were the energy of people, simply wanting a place to live, unbound to style or fashion. Lifestyles of people, their preferences and belongings are visible on the facades. Many stair cases and open spaces were shared, as they say that “if there was a building with a neighbouring staircase, it was often co-opted for use by the new building” (Lambot, 2017, p.129). The diagrams show how these spaces were utilised and shared (fig. 1.1).

<Fig. 1.3. Costume Shop// USE (Tokyo Institute of Technology Tsukamoto Architectural Laboratory & Atelier Bow Wow, 2002, p.50)
>Fig.1.4. Painter’s room (Tsuzuki, 2003, p.179)

PRECEDENT 2

PET ARCHITECTURE GUIDE BOOK

TOKYO INSTITUTE OF TECHNOLOGY TSUKAMOTO
ARCHITECTURAL LABORATORY & ATELIER BOW WOW

In this book Yoshiharu Tsukamoto explains the value we find in buildings built in tight spaces, between buildings. These buildings just came to be, rather than planned, as a result of the users’ needs. Without needing to conform to styles or pretensions they express customisation directly to its form and facade. Tsukamoto suggests that “by using these natures, we may be able to utilize Pet Architecture as a tool to direct the use of urban spaces and recycling used urban openings in the coming future” (Tokyo Institute of Technology Tsukamoto Architectural Laboratory & Atelier Bow Wow, 2002, p.8).

PRECEDENT 3

TOKYO STYLE

KYOICHI TSUZUKI

This book is filled with photographs of homes, of those residing in tiny apartment rooms in Tokyo. Rather than asking the residents to prepare and clean their rooms immaculately such like in magazines often seen in the architectural field, he photographs them as they are, full of life and clutter.

Tsuzuki (2003) talks about the fascination and familiarity which we find in these cluttered spaces. He uses the word ‘mono-maniacs’ as ‘mono’ in Japanese means ‘stuff’ to illustrate how much value each person holds in their belongings. He also briefly notes the background of the resident next to the photographed room; explaining their job, hobby, what they hold dear to the heart, reflecting why the room is as it is.

I saw importance in this book as architects can often forget that the residents do not have the same background or mindset as them. Pristine renders or beautiful illustrations of clean, well-kept spaces are what is often idealised. However, not all people live this organised, minimalist way. Designing a small space is efficient. However the ‘stuff’ that each resident collect needs a place to go. This book made me think about how people actually occupy space, according to their lifestyle.

TOP ROW Weston Street Site
(Allford Hall Monaghan Harris, 2017)
<Fig. 1.5. Street Scape
^Fig.1.6. Interior
>Fig.1.7. Kitchen

BOTTOM ROW Tietgen Dormitory (2016)
- Images by Mark Southcombe
<Fig. 1.8. View from courtyard
>Fig.1.9. Exterior from street

PRECEDENT 4

WESTON STREET

ALLFORD HALL MONANGHAN MORRIS

This co-living building consists of eight split level apartments, a shared open plan living, kitchen, and study spaces split across three floors. This creates a “complex play of interlocking units” offering connectivity throughout the entire building (Allford Hall Monaghan Harris, 2017). The unique aspect of this building is its focus for ‘work’ space with an open plan office space on the ground floor. The building is designed for the developer Solidspace and this building is the workers’ place to live and work (Solidspace, 2021). To provide separation, the office’s entrance faces a different side from the residential entrance.

It is situated on a texturally complex site, with Renzo Piano’s Shard, industrial buildings, and traditional brick buildings, all in close proximity. To respond to these different scales of buildings, the form is stepped, and “the brickwork façade and metal windows reference the warehouse aesthetic of this historic part of the city” (Allford Hall Monaghan Harris, 2017).

PRECEDENT 5

TIETGEN DORMITORY

LUNDGAARD & TRANBERG ARCHITECTS

Tietgen Dormitory, designed by Lundgaard & Tranberg Architects located in Copenhagen, is a student dormitory built in 2006. This design deeply considers the lifestyle of the residents. The architect places great importance in “the meeting between the individual and the collective” (Lundgaard & Tranberg Arkitekter, 2006).

Each unit is designed to a degree of flexibility; the modulated furniture can be placed where the resident chooses, which changes the dynamic of the space as well as strengthening a sense of identity through customisation. The dorm consists of 30 groups of 12, sharing a kitchen, common room and utility room. the form provides a smooth circulation around the building where private bedrooms look out to the surroundings and the shared spaces placed on the inner ring, looking into the courtyard.

Its tectonic form translating each space to the exterior and the displaying the lifestyle, it almost resembled Kowloon Walled City, in a modern, organised manner.

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list for further details.

Co-living residence models
(Inokuma & Naruse, Re-think about Living
and Gathering, 2014)

^Fig. 1.10. High-rise Section Model
vFig.1.11. 2 storey Model Ground Floor

PRECEDENT 6

RE-THINK ABOUT LIVING
AND GATHERING

NARUSE INOKUMA ARCHITECTS

Although this design is yet to be built, it is an interesting conceptual design of a high-rise co-living residential building. Inokuma, from Naruse Inokuma Architects, discuss the benefits of sharing through this design (Inokuma & Naruse, 集まって住む、を考えなおす (Re-think about Living and Gathering), 2014).

A key idea is that sharing a kitchen amongst a group of residents allow to save both space and money, meaning that the kitchen can be upgraded to a much larger model with more utilities, as opposed to a minimal kitchenette which would otherwise be used by individuals.

Two types of buildings were shown at the exhibition. One was a high-rise building with single storey bedrooms and double height shared spaces which connect the different floors. This creates spatial depth and connectivity. Residents of different floors will gather in these shared atrium spaces, breaking the territorial boundaries between floors which would otherwise exist.

A 2-storey co-living design was also exhibited. In this design, all shared spaces are located on the ground floor and the private bedrooms are located on the first floor. This makes the bedrooms much more private as less activity outside of the rooms will take place on the first floor. Placing all shared spaces on the ground floor where the entrance of the building is also located means that residents are prompted to move through social areas, which increase the chances of natural interaction.

DESIGN I

SCOPE

Location: Bond Street, Wellington CBD, New Zealand
Site Area: 95 m²
Use: Residential Co-living Apartment

As this was an exploratory exercise, other important aspects such as the number of units, gross floor area, or the floor area/ unit were not determined. The location choice was influenced by 'Pet Architecture Guide Book'. The Bond Street site was selected for its characteristic of being a well located unused small space in the heart of the city.

This design focuses on 'people', including their behaviour as individuals, as well as a collective. Some key motivations are as follows;

HUMANENESS

People find great joy in expressing who they are. Being able to express yourself through your home can be difficult when living in replicated apartment rooms, exactly the same as the neighbours. In the 'individuality' part of this thesis, I would like to address not only 'privacy' but the idea of 'humaneness' which are elements such as considering the resident's personality or behaviour in the current context of increasing cultural diversity.

INTERACTION

Community building is a key element to reducing loneliness so interaction becomes important as interacting with other residents will naturally create opportunities to build a community. The task is to encourage interaction through design, without making the residents feel uncomfortable by not giving them enough privacy. Pikusa (1975) in terms of loneliness says that it is important for residents to feel that they know their neighbours well enough that they can depend on them in times of need without feeling intruded upon or required to engage in unwanted interaction.

“THERE IS A GROWING REALISATION
(NOT ALWAYS WILLING) THAT DESIGNERS
ARE VERY DIFFERENT FROM USERS”
(JUDD, DEAN AND BROWN, 1985)

scale 1:1000 on A4

^Fig. 1.12. Site Plan of Bold Street Site
<Fig. 1.13. Bold Street site from Willis Street
>Fig.1.14. Bold Street site from Bond Street

DESIGN I

KEY DESIGN CONSIDERATIONS

CONTEXT

The chosen location, Bond Street site, is situated in the city centre of Wellington down a side road. One of the challenges behind this design is the placement of the garage door being directly behind the site (fig. 1.14). Another is its size and shape, being very small and oddly shaped. Working with an extremely small site with unique characteristics can bring out raw individuality, as suggested in Pet Architecture Guide Book (Tokyo Institute of Technology Tsukamoto Architectural Laboratory & Atelier Bow Wow, 2002).

Connectivity to context is an important aspect of this thesis, as stated by Florian Urban (2012), with an example of the “Sarcellitis: the mass housing disease” warning what happens when the sense of belonging through connection to context is lost. This is a threat to the well-being of the residents. Fig. 1.15~1.17 shows the design process of how this is approached. As the street front consists of mostly shops on the ground floor, placing a retail/café space at the ground level could enhance the connectivity to context. It will activate the building by providing an activity for both residents and non-residents.

The design of the ground floor and entrance location is crucial in terms of connecting to the context.

These drawings explore how the residents will flow into the building while allowing the existing building to be accessed.

<Fig. 1.15. Ground floor concept sketch
>Fig. 1.16. Ground and 1st floor concept sketch
vFig. 1.17. Circulation concept sketch

CIRCULATION

Circulation type and location is another large focus of the design, as all residents must use the stairs, hallways or lifts in order to access their rooms or other facilities. It becomes the 'bump-space;' and somewhere necessary to be. Fig. 1.18~ 1.19 show the two options tested through the design process; central and dispersed.

The benefits of the central circulation design is that it concentrates the residents into one area. It becomes the hub and separates the private and public distinctively. On the other hand, the dispersed circulation makes residents travel throughout the building, giving them the need to stop by at different floors. While this creates a slightly higher sense of privacy to the circulation itself as there is less exposure, it decreases privacy of individual rooms as other residents may be walking by at a more intimate proximity.

In Natapov, et al. (2020)'s research, they state that linear layouts are the most intelligible however visually simplistic and dull. Grid-based layouts are evaluated as the most difficult for wayfinding, with low visual access, spatial ambiguity and spatial complexity, however they are visually interesting and have 'nice composition'. Applying this to Design I, the central circulation has a 'linear layout' and dispersed circulation is a 'gridded layout'. This means that the central circulation will be easy to follow, less complex and less visually compositional, whereas the dispersed circulation is hard to navigate, complex and more visually interesting.

<Fig. 1.18. Central circulation diagram
>Fig. 1.19. Dispersed circulation diagram
>Fig. 1.20. Vertical connectivity and circulation diagram

Development -

- Locating the bathrooms on the shadier Southern side.
- Placing common spaces towards the Northern atrium.
- Additional rooftop space

- Creating more vertical connectivity by extruding common spaces into the atrium.

Development sketches

- <Fig. 1.23.
- >Fig. 1.24.

SPLIT LEVELS

In order to create connectivity throughout the entire building, split levels are often used. The Weston Street Precedent (Precedent 4) is a good example of this. Whereas full levels create a tighter horizontal relationship of each floor, split levels connect each floor and give a sense of openness to each floor.

Full levels

Split levels

- <Fig. 1.25. Full levels diagram
- >Fig. 1.26. Split levels diagram

OCCUPANCY

Figures 1.27~1.36 explore the way a person may flow through space, and the different interactions and experience this brings when designed differently. Fig. 1.27~1.31 are of the full level design, and Fig. 1.32~1.36 are the split-level design.

In the split-level design, the occupant has to travel further, where more people gather, therefore they are more likely to bump into different people. In the full level design, only the people on their floor share the shared amenities, therefore they are less likely to bump into different people, but may form a tighter community with those on their floor.

These are only speculations and do not go into a lot of detail, however an interesting starting point to think about how these different designs bring different experiences.

SPLIT LEVEL OCCUPANCY DIAGRAMS

Fig. 1.27 3rd floor plan diagram

Fig. 1.28 2nd floor plan diagram

Fig. 1.29 series of sketches showing how a resident flows through a split-level design

Fig. 1.30. 1st floor plan diagram

Fig. 1.31. Ground floor plan diagram

FULL LEVEL OCCUPANCY DIAGRAMS

Fig. 1.32. 3rd floor plan diagram

Fig. 1.33. 3rd floor plan diagram

Fig. 1.34. series of sketches showing how a resident flows through a full level design

Fig. 1.35. 3rd floor plan diagram

Fig. 1.36. 3rd floor plan diagram

DESIGN I REFLECTION

BEHAVIOUR AND OCCUPANCY

Design I is the starting point to a few questions, such as 'how do people interact?', 'how can communities form in vertical living?', and 'how do people move through space?'.

Activity systems influence a person's choice of living, including location, house form, and their relation to the site (Judd, Dean, & Brown, 1985). In order for the residence to be desirable, it must cater these different needs. Choice and placement of programs are very important in this context, as these become the activity system. Interactions are more likely to occur where people have a reason to be there. Utilities, such as shared kitchens or laundry areas, which have a clear purpose are some examples. How the placement of these affect the way people interact, begins to be explored in this phase. This should be explored and analysed further in the upcoming designs.

The specifications for this design is unclear, with no set number of units, floors or number of utilities. This should become refined for the upcoming designs to give more validity to the design. The rooms are also poorly designed, with little care to the functionality. These aspects are given greater consideration in the following design development.

Fig. 1.37. Split level design shared space

PHASE I
PRECEDENT STUDY II

BEHAVIOUR AND OCCUPANCY
Main precedents which influenced Design II

PRECEDENT 7
LT JOSAI 1
NARUSE INOKUMA ARCHITECTS

"In this constantly changing society, what we strive towards is to continually redefine richness in life through architecture. Diversity in housing that is not simply bound by the ties of family, lodging that connects various countries and regions, commercial facilities that place more emphasis on experience as opposed to the simple purchasing of commodities, new offices in an age in which communication and innovation will bring about new business opportunities, nursing and care facilities fit to an individual's life; while these places are all meant for differing uses, they all give birth to new values through the concept of "sharing"" (Naruse-Inokuma Architects, 2021).

Shared spaces formed from the residual space from the three-dimensional planning of the unit layout. The entrance hall and the dining area are designed for larger groups of people to gather, while the living area and the spaces by the window towards the edge of the building are designed for individuals to enjoy their alone time if they wanted to (Naruse-Inokuma Architects, 2021).

Although all the units appear to be the same in plan due to their shape, Naruse-Inokuma Architects (2019) note their focus on diversity as each unit has their own characteristic due to their proximity to other spaces and ceiling heights. This accommodates the preference of each resident, especially as they are interviewed prior to moving in.

Page 46
LT Josai 1 diagrammatic floor plans
<Fig. 1.38. Ground floor
^Fig. 1.39. 1st floor
>Fig. 1.40. 2nd floor

Page 47
LT Josai 1 images (Naruse-Inokuma Architects, 2021)
<Fig. 1.41. Ground floor
^Fig. 1.42. Exterior
vFig. 1.43. 1st floor

PRECEDENT 8

LT JOSAI 2

KAZUKI MOROE ARCHITECTS

Kazuki Moroe Architects (2011) discuss that there is a lack of flexibility and freedom when private and public spaces are completely separated. Allowing space within the public space for individual activities, and providing connectivity within the private space, creates freedom of lifestyles. To make this happen, they designed open high ceiling connecting spaces and low ceiling spaces that allow for concentration where the presence of others can be felt while being alone, such as the study space.

Whereas LT Josai 1 focuses on keeping all spaces very diverse, LT Josai 2 keeps the units generally regular. It is very interesting that at a glance of the floor plans, LT Josai 1 appears to be more uniform and LT Josai 2 appears to have more variations. In reality it is the opposite.

The stepping form is to prevent direct eye-contact of the opposing building, LT Josai 1. The window placements of each unit are designed to allow for the view of the gardens while preventing lack of privacy.

Page 48
LT Josai 2 diagrammatic floor plans
<Fig. 1.44. Ground floor
^Fig. 1.45. 1st floor

Page 49
LT Josai 2 images (Kazuki Moroe Architects, 2011)
<Fig. 1.46. Atrium
^Fig. 1.47. 1st floor
vFig. 1.48. Exterior at night

DESIGN II

SCOPE

Location: 4-chome-40-9 Ikebukurohoncho, Toshima City, Tokyo-to 170-0011, Japan

Site Area: 199 m²

Use: Residential Co-living Apartment

units: 10

Gross Floor Area: 320 m²

Floor Area/ Unit: 32 m²

The site is chosen as 4-chome Ikebukurohoncho, Toshima City it is the densest area within Tokyo, with 37,104 people per km² in 2018 (Tokyo Metropolitan Government, 2018). Density is an important aspect of the thesis as mentioned in the introduction.

The other considered factors for the selection of site are the closeness to the train station, park and shops. Being close to public transport is important for co-living as not everyone will own or have space for a car. This is especially relevant for older residents as they may no longer own a licence. The park and shops are places which make living densely while sharing more comfortable for the residents, as the park will provide outdoor access and the shops allow for the residents to regularly shop rather than stocking products which require more space. This is also an effective way to encourage residents, especially those who are retired, to go outside where they can feel more connected to the community.

Fig.1.49. Design II site plan

PROGRAM

The program, its sizing and location in relation to each other become important in predicting the flow of people. For example, by predicting where people are likely to cluster and interact, the design can start to achieve the balance between privacy and connectivity. The idea of this had begun in design I, where the occupancy, flow and potential interactions were illustrated of a resident's morning (Fig. 1.27~1.36.).

There are many different physiological and psychosocial factors which affect a daily pattern of a person; they are both internal and external factors, such as the sleep types (M-Types and E-Types), social factors and physical needs (Paine & Gander, 2016).

The person's upbringing, age, occupation, and physical and mental conditions, affect their routine. Each person is different and an individual does not behave the same every day. This means that predictions of the behaviour of people, and how they will occupy a space, are hard to be sure of.

One big factor which determines the routine of a person is their occupational status. For example, a university student will have a timetable of their courses which will determine what and when they will do certain activities in a day. A working person will get up before their starting time and attend work as a routine, depending on the type of their work. A retired person, unemployed person or those who work from home are more likely to spend longer times inside the residence and use more of the facilities.

In this thesis, I have categorised people as; working, retired, and student, although being aware that everyone behaves differently and not all belong to a category, this will allow for rough predictions to be made.

DESIGN II

KEY DESIGN CONSIDERATIONS

CONTEXT

The building is angled to follow the original footpath, with the entry at the centre of the building where there is a cut out through the centre in order to give more privacy to the residents. It can also be accessed through the back, from the side of the park. The small backyard prevents the building form being too close to the neighbours while allowing it to breath.

Design II concept images
 Top row
 <Fig. 1.50. Main entrance
 >Fig. 1.51. View from park
 Bottom row
 <Fig. 1.52. Wider context
 >Fig. 1.53. View from street

PROGRAM

The considerations of program are further introduced in the design process. In this design, the programs are; bathroom, laundry, dining, kitchen, lounge, and bedroom. These are the standard programs that are in a residence. Excess space, such as the landing space and the large hallways provide areas for a little flexibility, such as study space, relaxation space, or extra storage.

This is influenced by the principles of LT Josai, Precedent 7 and 8. The Auckland design guide is used as a starting point for the dimensioning, and the various precedents previously discussed influence the sizing.

Fig.1.54. Program diagram

Like in Design I, different combinations are explored such as dispersing shared spaces or having one large shared space. The combinations are tested in different scales.

Fig. 55. Concept diagrams of program layout

FLOOR PLANS

N
scale 1:200 on A4
*Southern Hemisphere

GROUND FLOOR

1st FLOOR

2nd FLOOR

3rd FLOOR

Design II floor plans
< Fig. 1.56. Ground floor
> Fig. 1.57. 1st floor
< Fig. 1.58. 2nd floor
> Fig. 1.59. 3rd floor

ATRIUM

Connectivity between the floors are created by atriums spread throughout the building. This prevents the shared areas from being too open and large yet still giving the sense of connection in a subtler way. These open spaces allow for natural light and view, creating a light and comfortable atmosphere.

Sections through main atrium

^ Fig. 1.60. Short section

v Fig. 1.61. Long section

SHARED SPACES

A main circulation space concentrates in the middle of each floor. The ground floor dedicates itself to shared facilities; the kitchen, lounge and dining spaces. The intention behind locating these all in one place, on the ground floor where residents are required to enter in order to go in and out of the building, is to encourage people to meet naturally. By keeping the spaces open and accessible, the aim is to make the residents feel more welcomed to enter. The elevator and stairs are placed by the door, so that although the ground floor is social and open, residents can still choose to go to their room with privacy.

Design II Interior images

< Fig. 1.62. Extra space for social interaction

> Fig. 1.63. Atrium space from 2nd floor

< Fig. 1.64. Looking out onto the back yard

> Fig. 1.65. Ground floor shared space

FAIR OR UNIQUE?

While the previous design has bedrooms which are different shapes and sizes, this design has equal sized and shaped bedrooms for fairness. The question of fairness or individuality comes into the design during this phase. Having irregular bedrooms allows people who have different preferences such as size over natural light vice versa to have more options. Adjustment of price can be made for people with diverse incomes, according to the characteristics of the room. This will however make administration difficult, as pricing and maintenance become unique per room. Some residents who do not get their preferred room may also find their space unsatisfactory.

On the other hand, having similarly designed rooms mean that each room is more equal with the same rent and room content. However, this will not as easily accommodate the unique needs of individuals.

Equal design bedrooms are tested by each bedroom having the same dimensioning with access to a balcony. The layout of the rooms, with the placement of doors and windows, is also the same or similar.

FAIR

UNIQUE

<Fig. 1.66. Equal sized units
>Fig. 1.67. Different sized units

MANAGEMENT

One of the reasons of success mentioned by Operation Manager Okumura, of the LT Josai, is the systematic housekeeping. He says that interviews are crucial in order to determine whether the new coming resident will get along with the existing residents, and to be sure that they will respect others' individual space and belongings. He values balance, such as maintaining an equal number of female and male residents, as "this is to prevent trouble" (Jinno, 2017). When opening the facility, trained staff lived with the first set of residents to teach them how to maintain a comfortable environment. As more residents move in, the residents who have more experience show and teach the new ones.

At LT Josai, the key management procedures for the maintenance of the buildings are that management staff inspect of the shared areas once a week, cleaners clean the shared kitchens and bathrooms also once a week, a roster is set for the residents to take out the rubbish, as well as other rules such as no smoking inside the building, and signing guests in (LT Josai, 2020). These procedures are the standard for residents which have shared areas.

In some cases, individuals may be unable to harmonize with each other, causing social stress when being in the same space. Disagreements and fall-outs are a part of human nature, and are often temporal. In these short periods of social discomfort which are not serious enough to require a group rearrangement, the residents should be able to access near by facilities which are not in their immediate use. This means that providing facilities which are not claimed by any groups in times of discomfort are important, and should be considered for inclusion in the upcoming designs.

DESIGN II REFLECTION

BEHAVIOR AND OCCUPANCY

Design II reflects heavy influence of the LT Josai precedent study and associated research.

After the design of both unique (design I) and fair (design II) I noted benefits in both options. The two buildings of LT Josai are precedents which test this idea. The residents and the managers note that both dwellings are successful, despite the differences between the two (Jinno, 2017).

The main differences between the LT Josai examples and what this thesis tries to finally design, are; scale and diversity. While the buildings of LT Josai house 13 and 21 people, the final design of this thesis designs for around 300 people. When the size of the facility and the number of residents increase it is likely to become more difficult to maintain the facility, as social responsibility decreases with crowding (Stewart-Pollack & Menconi, 2005). To prevent this, it will be necessary to create smaller communities within the wider community. By grouping a number of residents as one smaller community, this could be achieved.

Secondly, the diversity of LT Josai residents is limited to working people. The residence limits its residents to working individuals. For the designs of this thesis as mentioned previously, people of diverse age and status are considered as residents. This means that designing rooms which cater for the different specific needs, will be more appropriate in this context. Moving forward in the next phase, the units will be categorised, with different characteristics to suit different needs of groups of people, while offering fairness amongst the categories.

PHASE I SUMMARY

Comparing Design I and II, they both show strengths and weaknesses. Design I, although clearly unrefined, explored occupancy; how people would inhabit and interact within the building. On the other hand, Design II is more developed with systematic sizing and finished floorplans. However, it does not study residents' experience of the design as deeply. In Phase II, the learnings from these designs should be reflected, and consider both refining the design and the implications for the resident's experience.

This phase studied; programs as well as activity systems and how the placement of these encourage residents to occupy space, the effect of circulation types on the level of privacy, ways to create vertical connectivity, and whether to design fairly or uniquely. These design factors will be further considered in the next phase, as well as refining and discovering other important factors.

FINDINGS

- 1) The importance of locality and connection to context.
- 2) How the design of circulation affects the likelihood of the different groups of residents interacting.
- 3) How the size and proximity of shared spaces within the building can affect the size and tightness of the community.
- 4) Split levels and atriums contribute to the experience of the shared spaces.
- 5) The program sizing and location in relation to each other can help predict the flow of people.
- 6) Providing unique options of unit design can accommodate diverse needs of different people.
- 7) Effective management is a crucial part of providing and maintaining a healthy community.

NEXT

- 1) Design a larger scale building to achieve higher density within the city context in order to be more sustainable.
- 2) Consider the unit design and the comfort of living.
- 3) Strengthen the connection to context.
- 4) Refine the design over all.
- 5) Consider how to be more space efficient through flexibility.
- 6) The 'privacy' aspect needs stronger focus.

PHASE II

SHARE AND IN-BETWEEN

PHASE II

SHARE AND IN-BETWEEN

Phase II takes phase I further, now looking at a larger scale and designing to a more resolved standard. Influence of Japanese design is introduced during this phase, focusing on density, the 'in-between', and the community aspects. The idea and need of privacy is further investigated during this phase in order to provide better user comfort.

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RESEARCH

JAPANESE INFLUENCE

WHY JAPAN?

Japan has a long history of dense cities, with many great and banal precedents of urban living, therefore I saw opportunities in learning from and applying these to current and future New Zealand. I also grew up in Japan until the age of 8, being familiar with the culture. With three of Japan's cities classified as megacities, they are good examples to observe for densifying cities of New Zealand.

Fig.2.1. City up to the horizon: modern Tokyo seen from Mori Tower (Hildner, 2014, p.12)

TRADITIONAL JAPAN

Fig. 2.2 is a diagram of a typical layout of Munewari-Nagaya during the Edo period, between 1603 and 1868, occupied by those with lower incomes such as the employed workers. Wealthier shop owners resided in the larger Nagaya facing the streets with more space. Toilets, wells and baths were shared, placed towards the centre of each block. There are famous stories of the women who collected water from the wells, bumping into each other and chatting for hours, illustrating the tightness of their community (Fig. 2.3). Houses during this period were designed and built by the government, which created the coherence (Nishi & Hozumi, 1983).

Fig. 2.2. Typical layout of Munewari-Nagaya

Fig. 2.3. Morning Scene after Snow (Kunisada, 1823)

MACHIYA GENERIC FLOOR PLAN

- SPACES
- deck
 - circulation
 - communal space
 - shared bathroom

INTERIOR AND LIFESTYLE

Fig. 2.5 shows the interior of a typical unit. Each of these small units have what a household needed at the time; a water vase, sink, kamado (grill), lamp, food storage, wardrobe, mirror, Hibachi (heater), and a set of futon, bedding which can be folded away. By having shared bathrooms and toilets, a lot of space is saved. Futon also plays a crucial part in allowing these units to be as small as they are. This is because it is a foldable form of bedding, which means 'bedrooms' do not have to be allocated. The space can be a bedroom when the futon is folded out, and when the futon is put away, the space becomes suitable for other functions.

<Fig. 2.4. Fusuma space flexibility diagram
>Fig. 2.5. Munewari nagaya generic floor plan

DESIGN ELEMENTS

Key design elements of a Japanese home ;

- Shoji* (Fig. 2.10); Translucent sliding outer partition doors and windows.
- Fusuma* (Fig. 2.7); Vertical rectangular panels which can slide from side to side to redefine spaces within a room, or act as doors.
- Engawa* (Fig. 2.6,2.9); Edge of the house, used as a type of veranda, an engawa has the role to connect the inside of the house with the outside.
- Doma* (Fig.2.11); Earthen floors, treated as a threshold between outdoor and indoor. Shoes are taken off in the doma space before entering the other rooms.
- Tatami* (Fig.2.7); Woven straw flooring.

Elements such as Shoji and Engawa help provide a gradual progression of privacy from outside to inside. They also provide natural ventilation and for plenty of natural light to enter the building without compromising privacy (Fig. 2.9) .
The different floor types, of the transition between Doma and Tatami or wooden flooring, emphasised by the slight elevation, also support the creation of spatial hierarchy. They heighten the sense of privacy despite being in close proximity to the neighbours. Fusuma add flexibility to the interior layout, as the resident choses the level of openness, which divides a larger space into smaller more intimate spaces.

“AUTONOMOUS, INTERSTITIAL SPACES SUCH AS VERANDAS (ENGAWA) EXIST IN TRADITIONAL JAPANESE ARCHITECTURE. SUCH SPACES MAKE IT POSSIBLE TO CONTROL IN COMPLEX WAYS THE ACTS OF SEEING AND BEINGS SEEN (KITAYAMA, 2014, P.7)” .

Traditional Japanese design elements (Norman F. Carver, 1955)
Fig. 2.6. Engawa (p.116)
Fig. 2.7. Fusuma partitions with Tatami flooring (p.117)
Fig.2.8. Elements in context (p.121)
Fig.2.9 Engawa with opened partitions (p.150)
Fig.2.10. Shoji (p.148)
Fig.2.11. Transition from Doma to Tatami flooring (p.113)

IN - BETWEEN

One characteristic of traditional Japanese houses, is the in-between space.

Western designs typically divide the outside and the inside clearly with most spaces having specific functions, such as kitchen, bedroom, or lounge. Compared to this, Japanese homes traditionally consist of undefined spaces with flexibility which allow the users to decide the level of privacy depending on the function. What allows this to be possible are the lifestyles, the furniture, and the design elements previously discussed. Design elements such as the shoji and fusuma, give spatial flexibility, making each space functionally ambiguous. Other elements such as the Engawa which is the edge of the house is used as a type of veranda which connects the inside of the house with the outside. It provides a threshold space where it is not private or public.

Studies and applications of 'in-between' spaces are also discussed in the European context. Evans, Lepore, & Schroeder (1996) discusses that an example of application of these ambiguous spaces is to provide common areas such as sitting rooms as a transitional

space between a corridor and the bedrooms rather than a direct entry. Environmental stress can be reduced and visual sense of privacy is increased.

Kitayama (2014) explains that sightlines play a crucial role in creating opportunities for positive human interactions. Where the sightlines overlap, people become aware of each other and they are prompted to show consideration. The in-between spaces soften the sightlines as well as providing more opportunities for them to cross over.

Some design techniques discussed by Alexander et al. (1977), include spatial hierarchy and intimacy gradient, which have visible progression of space, giving users more sense of control. These techniques create spatial depth, and having spatial depth can ease the undesired sense of crowding. In-between spaces become a key element in achieving these techniques.

“IF THE ESTABLISHMENT OF RELATIONSHIPS BETWEEN PEOPLE BECOMES THE STARTING POINT FOR THE CONCEPTION OF SPACE, ARCHITECTURE BECOMES A QUESTION, NOT OF WALLS ARTICULATING SPACES, BUT OF WHAT IS IN-BETWEEN SPACES (KITAYAMA, 2014, P.7).”

TOKYO, NEW ZEALAND, and DENSITY

With the knowledge of having dual cultures growing up in both Japan and New Zealand, I have categorised the 4 main elements that allow Tokyo to be as dense as it is now, in comparison to New Zealand cities. These factors are;

1) HISTORY

Japan has a long history of having dense cities. In the Edo period during the 1600s to late 1800s, Edo's lower city density was 69,000 people per km² which is extremely dense (Hildner, 2014). The communities were very tight, partly due to the proximity of each unit and the lack of sound insulation, allowing no choice as you can hear each other and feel their presence (Matsui, 2017). Residents often went to their neighbours to borrow items, sharing food and spending time together. Although times have changed and people do not live this way anymore, some design elements are translated into today's design. The mindset passes down generations and still remain, as people are more accustomed to the idea of living densely. However, looking back to the development of Japanese living, cities did not start very dense. It started to densify during the Nara Period, 710 – 784, heavily influenced by the Chinese Tang dynasty (Nishi & Hozumi, 1983).

This shows that density can be introduced into a non-dense context and people will adapt to it over time. New Zealand cities are densifying and as it continues to do so, the relevance increases.

2) NEEDS

Huge cities such as Tokyo offer unique opportunities, such as more quantity and diversity of jobs, a busier lifestyle and many other stimulants which attract people. There is also a glorification of 'living in Tokyo' amongst many youth. "People live in the city because of its convenience or glamour, in other words, because everything they want is at their fingertips. The city attracts people who want the excitement of living in a highly concentrated area, despite the limited space, or a fast-paced lifestyle. I think this is a major factor in why people return to Tokyo" (Look Japan, 2003, p.6). Because there is a high demand for people to live in Tokyo, and these people want to be able to easily access what they came for, density occurs naturally as the large number of people desire to live in the same area. New Zealand cities also function similarly, and, as Tokyo is a megacity, the opportunities and needs are amplified at a global level.

3) FACILITIES

With the history and needs, Tokyo offers many facilities which make the urban form of living densely easier. Some of these are: effective public transport, public baths, net-cafes, convenient stores, accessible food, and accessible gadgets. To explain some, public baths allow for a place of community building as well as allowing the choice for buildings not to offer baths in their building. Net-cafes are singular compartments which often provide a working space with a computer which you pay for hourly fees to stay. It provides a private space outside of your home. Convenience stores located closely to anywhere you live in Tokyo offer nearly everything you would need, with a huge variety of pre-cooked meals for an affordable price. This makes busy urban lifestyles, and lack of cooking space, much more bearable. Food choices of restaurants and street food have a wider variety of options for cheap prices. Accessible gadgets, sold in places like Daiso or countless other stores, offer easy ways to customise your home to create more comfort and storage.

4) ATTITUDE

Many people in Tokyo tend to prioritise 'convenience', 'cleanliness', and 'ease of maintenance' over 'size', 'garden' and 'authority'. Home ownership has been a part of the kiwi dream in New Zealand (New Zealand Parliament Paremata Aotearoa, 2006). However, this is becoming less prominent Bell (2001) says, "as New Zealand becomes more culturally diverse, the ways people live their daily lives less and less fit a standard pattern or stereotype, if they ever really did" (page 7). This implies that their attitudes and views are more likely to differentiate between individuals. With the global outlook of urbanisation increasing, the demand for renting and convenience will also increase.

REFLECTION

External factors outside of the designer's control, such as the 'history' or the 'needs' of residents are difficult to address unless going into the scale of urban design. In this thesis, this is not the intention. However, a well-designed building which can cater for these factors can become the catalyst for the area surrounding and give opportunities for other developments in the future.

Factors 'facilities' and 'attitude' can be addressed in the design. Providing convenient facilities within the design as well as choosing an urban site which is close to other useful facilities can make the dense design more desirable. In terms of 'attitudes', providing co-living housing which can compete with the comfort and peace of living in a large standalone single dwelling could potentially shift people's attitudes. This can include design elements such as soundproofing, light penetration, providing greenery and good view, as well as using design psychology and techniques to make a small space feel large.

PHASE II
PRECEDENT STUDY

SHARE AND IN-BETWEEN

Main precedents which influenced Design I

PRECEDENT 9

REVIVAL HOUSING IN KAMAISHI
ATELIER TEKUTO

This project was designed for a post-disaster revival public housing for a village which was badly affected by the tsunami in 2011 Japan. Atelier Tekuto's idea was to not only provide housing, but to help recreate the community which once existed. This focus took form in multiple scales. On the large scale, a community centre was designed on the ground for all residents and the other villagers can gather. The common exterior corridors on each floor which are double the standard width accommodates small social gatherings for "mid-size communities" (Atelier Tekuto, n.d.). Lastly, spaces for "small communities" are designed between the dwelling units for casual interactions. Such considerations for the different scales of interactions should be included in the designs of this thesis.

Fig. 2.12. Exterior view of Revival Housing in Kamaishi (Atelier Tekuto, n.d.)

Fig. 2.13. Interior view of Double Helix House
(onishimaki+hyakudayuki architects, n.d.)

PRECEDENT 10

DOUBLE HELIX HOUSE

ONISHIMAKI + HYAKUDAYUKI ARCHITECTS / O+H

The aspect in focus of this design is the diverse atmosphere of spaces. There are rooms with plenty of light, others dark, and others in-between. The intention behind this is to allow choice of space for the inhabitants to suit their mood (Yoshida N. , 2017). There is an external staircase, as well as internal, providing many options to experience the building.

PRECEDENT 11

YUTENJI APARTMENTS

KOH KITAYAMA

This building’s layout and form correspond to its surroundings through study of the town grain. The building complex consists of small volumes woven together to respond to the surrounding allies. “These connected units comprise large, adjustable distances and spaces with differing qualities, so they are experienced as far bigger than the spaces actually are. Due to the intersecting sightlines between the units, signs of life maybe mutually sensed” (Kitayama, 2014, p. 109). The idea of reflecting context through its form and the effective use of space will be reflecting in Design III.

Fig. 2.14. Yurenji apartments courtyard (Kitayama, 2014, p.111)

Fig. 2.15. 20K Apartments (Kitayama, 2014, p.44)

PRECEDENT 12

20K APARTMENTS

KOH KITAYAMA

Much like the traditional Japanese house design, this design has an Engawa, and like a fusuma or shoji, two layers of wooden partitions separate the spaces. This allows for two of the units to become one if the residents desire, considering for relationships which are not strangers nor family to live in close proximity while having privacy (Kitayama, 2014). This building is a great example of how the traditional Japanese housing design can be translated into today's context.

PRECEDENT 13

HUMBLE HOSTEL

CAO PU STUDIO

The focused aspect of this precedent is its flexibility. There is a sliding wall which consists of windows, doors, and storage cupboards at the front of the hostel which faces the communal courtyard space. This wall can be slid back and forth, changing the indoor and outdoor proportion, providing breathing space when there are fewer guests. "The 'given back' area can be used for public leisure, a tearoom, a chess room, a bar, or for the neighbours to store their bicycles" (Cao Pu studio, 2021).

Fig. 2.16. Humble Hostel (Cao Pu studio, 2021)

DESIGN III

scope

Location: 178 Willis Street, Te Aro, Wellington

Site Area:

Use: Residential Co-living Apartment

Units: ≈ 80

Gross Floor Area: 2550 m^2

Floor Area/Unit: $\approx 33 \text{ m}^2$

For this phase, Education House is redesigned. It is chosen firstly for the location, as it is in the heart of the city, for its size, as it is a size up from the previous sites and for the familiarity, as I have lived there before. My experience of living in this building become one of the drives for writing this thesis, therefore I have decided to come back to its design. With the existing design housing 108 units with the floor area per unit being, $\approx 33 \text{ m}^2$, the revised design aims to have around the same number of units but with less floor area per unit, in order achieve efficiency.

Fig. 2.17. Design III Site plan

EDUCATION HOUSE

The location is Education House on Willis Street, one of the non-catered student residents of Victoria University of Wellington. I lived here for a year, during which some issues of the design were noted. The kitchen, bathroom, and bedroom are all jammed into one tiny space and it does not offer very nice communal spaces. Fig.2.19 shows the entry into the singular common room which all 108 residents share. The common room has no view, very little light, and does not appear welcoming (fig. 2.20). It is rarely utilised, with the artificial lights mostly off. During my experience of living there, I used the common room a few times with friends, where I recorded no other people to enter the room for hours during our use. Making new friends in the residence seems difficult to do, with little opportunity to meet or talk to the other residents.

The problem also lies in how the main circulation is designed. The internal staircase and lifts are placed where there are no windows, or anywhere to stop for a chat or rest. Fig. 2.21 is an image of the main areas of circulation. These spaces are sociofugal, and are not designed to provide a comfortable experience or for the residents to linger in.

The design process began with massing studies, exploring a 'what if' scenario of the current Education house. These reveal that even a small change, allowing for more light and introducing more common space, can greatly impact the building (fig.2.22).

Fig. 2.18. Entrance of Ed. House

Fig. 2.19. Entrance to common room

Fig. 2.20. View from common room

Fig. 2.21. Hall way to units

Fig. 2.22. Education House explorations

DESIGN III

KEY DESIGN CONSIDERATIONS

PROGRAM

The programs used as a basis for Design I and II, are standard functions that are commonly seen in a house. Moving into Design III, these programs and functions to base the upcoming designs on are evaluated. Bell (2001) in regards to New Zealand households, says that homes comparing to the past now serve a greater variety of functions and their use for leisure, while forms of work also changes. The enhancement of technology mean that there are far more things that can be done at home, such as working, shopping and watching movies through the use of the internet.

The recent occurrence of COVID-19 has brought this to further light and accelerated the digital enhancement and the need to rely on technology. Lockdowns all around the globe enforced people to achieve daily activities from home, giving a new need for homes to function as a place not only for intimacy but also as workplace and socialisation.

This gives the need to provide more programs and flexibility within the design. Fig. 2.23 is a brainstorm of the different things that may occur in a home.

Fig. 2.23. brainstorm of activities in a home

Fig. 2.24. Concept sketches of North side of the site at ground level

Fig. 2.25. Design III Designed Site plan

site plan
Scale 1:250 on A4

Fig. 2.26. Street connectivity conceptual sketches

RESPONSE TO SITE

Willis Street has multiple hospitality and retail stores on the ground floor. To correspond to this, and because the current Education House has store space, a cafe has been designed on the ground floor facing the street. This increases the connectivity of the residence to the wider context, providing space for residents and non-residents.

Fig. 2.27. Form concept sketches

FORM

The massing of the building on the site is considered in these sketches, leaving the North side open as courtyard space in order to let natural light through to all rooms. This also helps to create a shared outdoor space on the ground floor.

While there is consideration to show the most natural view of the Kelburn and Brooklyn hills towards the west side of the building, this is not possible as the surrounding buildings block this view.

The tectonic form of the building is influenced by precedents such as Tietgen dormitory, Weston Street Site by AHMH, and in part, Kowloon walled city. This is to emphasise the sense of identity and ownership, to visually show that each floor and each unit are of their own identity. Visually showing human scale also helps the building to feel relatable.

Form and flexibility
conceptual sketches

< Fig. 2.28.

> Fig. 2.29.

FLEXIBILITY

The idea of having a degree of flexibility came into this design during this phase. This is influenced by the Japanese design elements which allow for flexibility of space depending on the user needs. Precedent studies such as the 20K Apartments and Humble Hostel supported the idea.

Fusuma, the sliding partitions which can function as both doors and walls, are introduced into the design. By doing so, the aim is to give the users a heightened sense of 'choice and control', which Stewart-Pollack & Menconi (2005) argue as "key interrelated concepts of privacy", which aid well-being (page 13). It also contributes to efficiency, as spaces can start to have more than one function. Juliet balconies are also introduced here as a part of this concept, as they allow the space to be both very open and fully closed.

Fig. 2.30. Ground floor plan

Fig.2.31. Sketch of the courtyard

BALANCE

"Grandpa is forced to drink tea or play cards on the street whether he likes it or not, since at home there is no space for him during the day. And for the son who exits the communal shower with a towel wrapped around his hips, greeting five neighbours on his way back to the apartment is often more of an annoying necessity than a sign of deeply felt community spirit (Florian Urban, 2012, p.161)"

The above statement refers to *lilong*, a system of traditional dense houses in Shanghai, translating to "system of alleys". They are similar to the idea of *Munewari-nagaya* discussed in the research section of this phase. Although, the tightness of community and the benefits of traditional dense living has been highlighted previously, this statement indicates negative effects of living with a lack of privacy.

The key here becomes balance with 'choice' and 'control'. Sufficient privacy is a fundamental aspect of well-being. In order not to create spaces which feel crowded and overwhelming, learning from these traditional dense designs, it is important for residents to be able to avoid constant direct contact if they choose.

To accommodate this idea, there are multiple pathways to allow for choice (fig. 2.32). The sliding partitions support this, giving opportunities for the space to be more open or more closed.

4TH FLOOR

scale 1:200 on A4

- deck
- circulation
- shared
- shared bathroom
- private
- services

CONNECTIVITY

From studies of precedents such as; Alexandra and Ainsworth Estate (Precedent 14), Whittington estate (Precedent 15), Sakura Apartment (Hildner, 2014), and Hong Kong Design Institute competition (Kitayama, 2014), these precedents which feel especially connected despite their scale and have multiple ground levels in common. Florian Urban (2012) explains the importance to feel grounded and connected to the context. He says that creating floors which act as if it is a ground floor can ease the sense of isolation on the higher floors. Introducing these floors can mimic the sense of connection to the place. These floors also create more meeting points as they become the floors of intersection. This aims to build smaller communities within a larger building. This consideration begins to show in the sketches, with large verandas and outdoor paths on higher floors (fig. 2.27~2.29, 2.35).

<Fig. 2.35. Conceptual sketch section
>Fig. 2.36. 4th floor plan

<Fig. 2.37. 5th floor plan
>Fig. 2.38. Spatial Hierarchy Diagram

SPATIAL HIERARCHY

As briefly discussed in the research section, Alexander et al. (1977), argue the importance of spatial hierarchy and intimacy gradient, which create a progression of space, giving users more sense of control. Rather than having a social space, such as a lounge, directly connected to a bedroom, which is a very private space, having an intimacy gradient means that there will be intermediate spaces, such as a hallway with a small seating space, adding spatial depth and reducing the sense of crowding. By having this gradual increase of spatial load, it provides a sense of safety and control to the users.

This idea begins to show by having the main staircase, which also acts as an atrium space, with majority of the social spaces such as lounges, shared kitchen spaces, dining areas, and laundry rooms towards the middle, then hallways around this central shared area, and finally an outer ring of private bedrooms (Fig.2.38). The majority of rooms also have an internal partition, fusuma, which adds another degree of spatial hierarchy. The floors are also designed to avoid bedroom doors opening into the sightlines of others. The elevators and the side staircase are located on the outer ring, in order avoid attention, or unwanted interaction, as this may disturb the residents' sense of comfortable privacy.

SPACES

- deck
- circulation
- communal space
- shared bathroom
- services

unit plans
scale 1:100 on A4

UNIT TYPES

8		x 6	14.5m ²
7		x 10	11.7m ²
6		x 4	6m ²
5		x 12	9.2m ²
4		x 6	7.1m ²
3		x 21	8m ²
2		x 12	9m ²
1		x 2	15m ²

<Fig. 2.39. Unit type diagram
^Fig. 2.40. Unit type 1
vFig. 2.41. Unit type 4

UNIT TYPE 1

UNIT TYPE 4

DIVERSITY

The design caters for a diverse range of people with their own different personalities and preferences. In order to accommodate this, I have designed 8 different unit types with different features (Fig.2.41~2.46). This takes in consideration the different priorities of people; for example, a student like myself, may prioritise cheaper rent and less amenities, whereas an older retired person may prioritise comfort over cost. Some people are more comfortable in open spaces, therefore may prefer rooms without partitions which can also be cheaper, while others who are more sensitive and require higher levels of solitude may prefer rooms which have more partitions that amplify the intimacy gradient.

^Fig. 2.42. Unit type 3
<Fig. 2.43. Unit type 2
<Fig. 2.44. Unit type 5
<Fig. 2.45. Unit type 7
>Fig. 2.46. Unit type 8

UNIT TYPE 3

UNIT TYPE 2

UNIT TYPE 5

UNIT TYPE 7

UNIT TYPE 8

UNIT TYPE 6

<Fig. 2.47. Unit type 6
>Fig. 2.48. Section through unit
vFig. 2.49. Concept sketch

UNIT DESIGN

The units of Design III are very small. They intend to provide what the residents need, and encourage them to also use the shared facilities of the building.

Realising that some of these units may be hard to inhabit due to their unique shapes and their small size, detail designs of the interior in order to create more habitable rooms begin. Unit 6 goes into the most detail, showing a loft furniture design which aids the expansion of the habitable space vertically as a way of adding spatial depth.

SPATIAL QUALITY

Indoor quality, such as natural ventilation, sun light and over all atmosphere, are very important in terms of well-being (Stewart-Pollack & Menconi, 2005). I have tried to make this possible by allowing most of the units to have cross ventilation, as the hallways and connecting spaces can be opened up to the outside.

The atmosphere aims to be light, welcoming, and soft. Although this design does not yet go into as much detail with materiality or construction design, these conceptual renders show the use of materials such as wood and light colours to try achieve this warm light atmosphere.

SPACES

deck
circulation
communal space
shared bathroom
services

UNIT TYPES

4	8
3	7
2	6
1	5

Fig. 2.50. View point diagram of interior perspectives

Fig. 2.51~ 2.57. Interior perspective drawings showing spatial quality

Fig. 2.58. Exterior perspective drawing of Design III

DESIGN III REFLECTION

SHARE AND IN-BETWEEN

Increased considerations of the individual unit design and living qualities began to be considered, however, the interior design and quality of each unit are not yet refined. Some of these units, such as unit type 3, may be uncomfortable spaces to live in as it is incredibly narrow and small. People own a lot of 'stuff'. Referring back to Tokyo Style (Tsuzuki, 2003), each person owns a lot of things, which mean a lot to them. These 'things' can comfort people and help express themselves. This factor was not well considered when designing these units. In the next phase, the quality of life and how people will inhabit these spaces should be further considered.

The design also did not yet develop in detail. Important design factors, such as materiality and construction, need further consideration as they affect the quality and atmosphere of a space. The exterior design and the connection to site will also be improved. The material identity of the building in regards with the context is unclear without this further designing. In the coming phase, both the detail design of the interior and the exterior design with its connection to context, will be more resolved.

During the August presentation when showing this design, a question was asked;

Putting lonely people together... will this really lead to them having better well-being and creating a community?

The design is to cater people who are mostly living alone, and cater for people who want to live in single unit housing. They do not have to be lonely. However, this question helped me think further about how people live, feel, and connect. This leads to the next phase, where I study implications of design psychology and sociology at a deeper level.

UNIT TYPE 5

^Fig. 2.59. Unit type 5 interior layout options
vFig. 2.60. Unit type 5 interior layout options close up

UNIT DESIGN

To finish off this phase, I begin to explore how the units can become more comfortable for residents. To do so, interior systems are implemented in order to cater for different needs, and to allow the residents to have more control over their space. These interior designs must have a level of flexibility to encourage customisation, without needing to design each unit completely new.

Unit type 5 and 6 from design III are further developed. A modulated system of bars and shelves are introduced, which the resident can choose where the bars and brackets are installed.

The internal partition, materiality change, and slight changes of levels add spatial depth, which is an important aspect of comfort.

UNIT TYPE 3

Fig. 2.61 show some of the different options which Unit Type 3 can be customized. For example, some people may prefer more storage, and others may own less belongings but need more space for relaxation. In these designs. Fig. 2.62 shows how space can be saved in the narrow design.

Fig. 2.61. Interior layout options
Fig. 2.62. Space saving

Fig. 2.63
Fig. 2.64. Unit type 3 interior images
Fig. 2.65.

Fig. 2.66. Dimensioned diagram of module

PHASE II SUMMARY

The Japanese influence, in-between spaces, designing to cater individuals' needs, and how these can be implemented were the main points of focus for this phase. Comfort and flexibility of space increased in response to the findings. The idea of creating smaller communities within the large, by having multiple shared utilities such as having a kitchen for every 5~7 units, increases the residents' sense of belonging. Design III is much more refined in comparison to the previous designs, as more is considered. The size is also much larger, which allows for more complex design implications to be developed at a larger scale.

The unit interior design has shown opportunities for the upcoming phase. The sizing of these modules are working well, so it will be carried through into the next phase, as a way to help determine the combined sizes. The upcoming phase will further refine the ideas, going larger in scale, and refining the design details.

FINDINGS

- 1) Programs must provide effective activity systems which accommodate both private and social needs of each resident.
- 2) Providing convenient facilities such as food stores either within the design or locating the design near such facility increases desirability of the co-living residence.
- 3) Providing residents 'choice and control' is crucial in aiding their well-being. This can be provided through designing flexible spaces.
- 4) Learning from Japanese design, such as fusuma and shoji, and providing in-between spaces can increase spatial flexibility.
- 5) Implementation of spatial hierarchy and depth can aid the maintenance of desirable balance between private and social spaces.
- 6) Designing each unit in detail and giving the residents control to customize will give more comfort and increase the individuals' well-being and sense of ownership.

NEXT

- 1) Go larger in scale to achieve higher density within the city context.
- 2) Refine the detail design, materiality, and external design.
- 3) Further study sociology and design psychology in order to better predict user behaviour
- 4) Consider the different sizes of community, from immediate neighbours to the larger street scale.

PHASE III

COMFORT IN HIGH-RISE

PHASE III

COMFORT IN HIGH-RISE

The final research phase, Phase III, intends to show learnings and improvements from previous phases while getting into more detail in terms of the large scale and the small scale. In this context, the large scale refers to the urban and exterior design, its overall connection to the context, and how the different programs and units are placed in relation to each other. It also refers to the literal scale of the design, now aiming to house around 300 units. Whereas the last phases did not go into details of the design such as materiality, the interior details and closer analysis of the sociology within the design, this phase will explore the implications of these smaller details. By going into larger scale, the building's environmental impact increases, therefore it is more important to design efficient spaces and minimalising wasted space.

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PHASE III RESEARCH

SPACE AND BEHAVIOR

DESIGN PSYCHOLOGY AND SOCIOLOGY

Following the question of 'will putting lonely people together really lead to them having better well-being and creating a community?', I felt the need to understand at an even deeper level how space affect people's well-being and interactions. It is important to understand the effects of space on people, in order to provide comfort for their well-being. Knowing the types of spaces people prefer, what really feels comfortable, and how different people react to different spaces will facilitate the use of shared space, where interactions will occur.

DESIRABLE SPACES

Kaplan & Kaplan (1989) argue that the characteristics that are effective in reducing environmental load and are;

- Complexity; we interact with, explore, and learn from environments rich in information. Complexity which interests but does not demand a great deal of focused attention can be helpful in distracting from environmental stress.
- Coherence; patterns of elements that help to provide a sense of order. Repetition of lines, form, colour, texture, progression of scale and balance help us make sense of the complexity
- Legibility; characteristics aiding ability to understand and remember an environment.
- Mystery; if it is not accompanied by the perception of danger, sense of mystery can provide the opportunity to learn something that is not obvious or apparent.

PERSONAL SPACE ZONES

Sommer (1969) talks about the personal space zones associated with these needs. He categorises spaces into two; 'sociofugal spaces' which are designed to discourage interaction and communication with others, and 'sociopetal spaces' which encourages interaction and communication. For example, in a sociofugal space, chairs are placed so that direct eye contact will be avoided, supporting solitude and anonymity. On the other hand, in a sociopetal space, chairs will face each other, supporting needs for intimacy and easing verbal and non-verbal communications. For the context of Design IV, there should be a balance of these two types of spaces, to allow for enough privacy for residents to feel comfortable, but to also encourage community building.

AVOIDANCE

In order to encourage and provide a sense of community, the residents must use the shared facilities to create more opportunities for positive interactions. What prevents this, are avoidance behaviours of each individual. As previously mentioned, like the sense of crowding causing stress and therefore making the person withdraw from the space, there are multiple factors which causes a person avoid certain spaces.

According to Mehrabian (1976), factors used to predict approach/avoidance behaviours are;

- The environmental load, which refers to the level and the complexity of information rates within a space;
If the load is too high to process, or too low to gain new information, people will avoid the space.

- The ratio of novelty to familiarity;
A good balance between the two makes a space feel safe and comfortable.

- Our individual ability to screen stimuli;
This refers to an individual's preference; some people prefer quieter environments with less stimuli while others may be comfortable in higher load environments.

- Our attitudes, expectations, memories and motivations;
People's pre-conceived ideas and beliefs about certain environments

- Our feelings of affiliation with others in the environment;
a person may either want to interact with or avoid another person in a space, depending on their affiliation.

- Our perception of performance;
whether the environment appears to support a person's performance of a task will affect if they will approach or avoid that space.

It is a given that environments must be pleasant, comfortable and approachable, but to predict personal preferences becomes harder, when considering the diversity of residents. The design must provide environments which accommodate those who want to concentrate, as well as their need for in-voluntary attention or positive distractions (Kaplan, 1979).

NATURE

The presence of natural elements such as water, natural light, colourful plants, and other species indicate safety according to our functional-evolutionary perspective (Stewart-Pollack & Menconi, 2005). This is why we feel more comfortable in places where we can sense or see these nature elements and improve our well-being.

Stewart-Pollack & Menconi (2005) argues that "we need that ongoing relationship with nature to continue to develop and maintain our physical and emotional health and well-being"(page 47). Therefore, the design should be designed to feel connected to nature. This can be achieved through allowing natural light into all units, natural ventilation, and integrating vegetation where possible.

Fig. 3.1. Green Hall-way

Combining this factor with the concept of having an 'intimacy gradient' discussed on page 97, Spatial Hierarchy, the above idea is drawn as an example of how to potentially aid well-being through design (fig. 3.1).

“WE PERCEIVE ATMOSPHERE THROUGH OUR EMOTIONAL SENSIBILITY - A FORM OF PERCEPTION THAT WORKS INCREDIBLY QUICKLY, AND WHICH WE HUMANS EVIDENTLY NEED TO HELP US SURVIVE (ZUMTHOR, 2006, P. 13)”

ATMOSPHERE

Alexander, et al. (1977) discuss that nature’s cooler tones and less openness of a space aids voluntary attention. This means that providing spaces which have these characteristics can provide a calming reading space, working or studying space, and a space to feel solitude within a public context. On the other hand, warmer tones and more openness aids involuntary attention, a space where social interactions are more comfortably achieved. In both situations natural warm light is important for comfort (Stewart-Pollack & Menconi, 2005).

These are based on direct and indirect qualities of natural environments, deeply imbedded to us as part of our functional-evolutionary perspective of environmental preference (Kaplan & Kaplan, 1989). As each resident will have their own preference at different points of the day, it is important to cater their needs by providing both options within the building.

Fig.3.2
Space to aid voluntary attention

Fig.3.3
Space to aid involuntary attention

PHASE III
PRECEDENT STUDY

COMFORT IN HIGH-RISE
Main precedents which influenced Design IV

PRECEDENT 14
HONG KONG DESIGN INSTITUTE
COMPETITION
KOH KITAYAMA

This design is a competition entry for the Hong Kong Design Institute. The way this design weaves itself into the surrounding context, is studied to apply to the designs of this thesis.

The building tops are covered by vegetation as if it was a large park. The form derives from the external shape of the site and the ground level is opened by pilotis where the surrounding environment and pedestrians are integrated into the site “producing an environment that is not isolated from its surroundings (Kitayama 2014, p.78)”.

The building consists of four levels, a ‘community plaza’ on the ground level open to public, ‘common platform’ on the second floor which has facilities for all students, third floor ‘activity field’ with studios and cafes, and fourth floor, “‘student village’, in which groups of small classrooms are assembled liked a village (Kitayama 2014, p.83)”.

The way this building gradually goes from more private programs at the top of the building down to public spaces incorporating itself into the surrounding context, shows an example of how a design can connect to the wider context.

Fig.3.4. Hong Kong Design Institute Competition 2006 (Kitayama 2014, p.81)

PRECEDENT 15

ALEXANDRA AND
AINSWORTH ESTATE

NEAVE BROWN

This project is a housing estate in London, consisting of 520 apartments, a school, community center, youth club, heating complex and parkland. I visited this site as part of a housing workshop.

The access into each apartment are external, consisting of a complex system of stairs, lifts, pathways and bridges. By creating multiple external pathways it feels as if there are multiple ground floors and public outdoor spaces.

Each apartment has a balcony which looks out onto the central pathway, seeing and being seen throughout the complex.

Fig.3.5. Alexandra and Ainsworth Estate, 2019, image by author

Fig.3.6. Diagrammatic drawings of Alexandra and Ainsworth Estate

Fig.3.7. Whittington Estate courtyard, 2019, image by author

PRECEDENT 16

WHITTINGTON ESTATE

PETER TABORI

Some characteristics are much like Precedent 10, with the stepping form and complex external access. While Precedent 10's building layout is linear, this project is gridded with rows of streets. This forms blocks of apartments, making the neighbourhoods more intimate. Although this is good when the neighbourhood is tight, the aspect of seeing and being seen becomes much stronger in this design, which may disturb the privacy of the residents.

DESIGN IV

SCOPE

Location: 45 Abel Smith Street, 275 Cuba Street, and 6 Kelvin Grove
Te Aro, Wellington, New Zealand
Site Area: 2260m²
Use: Residential Co-living Apartment
Units: ≈ 300
Gross Floor Area: 27000 m²
Floor Area/ Unit: ≈ 70m²

This site is chosen, as firstly it meets the criteria of being located in the city, and surrounded by many convenient facilities. Secondly, this site offers great opportunities, being located on Cuba street, one of the most active and well-known streets of Wellington. Currently the site consists of a car rental store and a poor quality office building. Neither design correspond well to the uniqueness of the Cuba Street environment. Offering a higher density housing and retail complex, it could be a catalyst for effective densification and activation of the area. Design IV can potentially restore some of the street’s underlying character and design richness at a higher density.

The scale of the design has increased from the previous designs, as a means to discover more complex implications of the research and contribute more to the urban context. The art deco styled building, 250 Cuba Street, remains on the site, as it corresponds to the heritage area of Cuba Street, with existing residents and shows strong characteristics on site. It will also help create a scale transition to the larger scale of the proposed building from the historic scale of the street.

Fig. 3.8. Design iv site

“THE BEST WAY TO APPRECIATE CUBA STREET IS TO... WATCH THE PARADE OF STYLES ON THE BUILDINGS OPPOSITE, THE PLAY OF DECORATION AND STRUCTURE, AND ENJOY THE PASSING SHOW OF WALKERS AND TALKERS, BUYERS AND SELLERS. WELCOME TO WELLINGTON’S MOST INTERESTING STREET”
(DANGERFIELD, 2014, P.13)

CUBA STREET

Cuba street is an interesting street, with category 1 heritage buildings such as the Bank of New Zealand building and the Logan Brown restaurant. It also has a heritage area, 'Cuba Street Heritage Area', which includes the neighbouring buildings, 251-255 Cuba Street (Heritage New Zealand, 2021).

The street consists of many styles, ranging from the many classical buildings lower down the street, art deco, modern and post-modern styles.

Fig. 3.9 Building age mapping (Southcombe & Charleson, 2014, p. 29)

Fig. 3.10. Occupation Diagram of East Elevation of Cuba Street (Southcombe & Charleson, 2014, p.29)

Fig. 3.11. East Elevation of Cuba Street, Abel Smith Street to Webb Street (Southcombe & Charleson, 2014, p.28)

DESIGN IV KEY DESIGN CONSIDERATIONS

STUFF

Referring back to Precedent 3 according to Tsuzuki (2003), we are 'mono-maniacs', possessive of our belongings and feel comfort when surrounded by things we own. In the Design III Reflection, I discussed the lack of consideration of 'stuff' in standard housing design and the initial design of this research. This was addressed as a design response in 'Unit Design', providing storage and customisation. This will be further developed in this design.

Prior to starting this design, I reflected on the 'stuff' I have, as a reminder and example of how many things a person may own (fig. 3.12). I created a 'schedule of objects' to catalogue this as an exemplar. This will be kept in mind when designing each unit and surrounding spaces.

Fig. 3.12. My schedule of objects

SITE

The site and its relation to context is the starting point of design. Studies of the flow of people, the sun, and surrounding programs are firstly considered as shown in the sketches below. When considering massing, the surrounding buildings including; the tall residential building (2 Kelvin Grove), Southern Cross Garden Bar Restaurant, 50 Cuba Street, and the remaining context are carefully considered. These buildings have very different design languages, orientation, use, and mass. The new design considers all of these aspects.

Fig. 3.13~Fig. 3.15. Site analysis and concept sketches

Fig. 3.16~Fig. 3.20. Site analysis and concept sketches

Some programs require more privacy than others, therefore are placed further away from the main street. The residential entrances are more discreet than the spaces which are accessed by the public such as the retail spaces.

Fig. 3.21~Fig. 3.27.
Site analysis and concept sketches

As nature is crucial for the well-being of people, green space is designed at the corner of Abel Smith street and Cuba Street, providing public green space for both the residents and non-residents.

architectural projects - humble hostel Peoples' Architecture
iANS. - sansi - mfo - Micro hutong.

Retreat place

^ Fig. 3.28~Fig. 3.31. Concept sketches in relation to site
v Fig. 3.32. Exterior concept sketch in relation to context

These drawings are sketches responding to the language of the surroundings, and illustrate what is imagined at the early concept stage. The tectonic forms previously mentioned follow through from the previous phases, as well as the fake ground floors.

- GF : Shared spaces .
- Rubbish
 - Storage
 - Bike storage .
 - Meeting room
 - function room
 - Relaxation space ,
 - less physically able priority

1st in 3rd

- dynamic - suitable for
- ① inter-floor dwelling younger families .
 - ② across-floor dwelling flexibility .
- safer &

atrium where shared

ground (?) every 2~3 floors . communal gardens .

Atriums to connect .

Fig. 3.33 ~ Fig. 3.37.
Concept sketches of section in relation to site

These sketches begin to consider the floors above ground floor and their relationship to the streets and surrounding context.

Fig. 3.38 ~ Fig. 3.43.
Concept sketches of how to incorporate nature into design

LIFESTYLE AND TIME

The diagram below studies how my grandfather would use and flow through space in one morning. He wakes up in his bedroom. He washes himself, then prepares his breakfast. After having his breakfast, he would relax, enjoying his hobbies. The flow through space and their relationship to each other becomes important in design. Although the hallway to move through to the next space, may not seem significant, it is a very important space for him to adjust into the next space. Although everyone's morning routines and lifestyles are different as discussed before, such in-depth consideration is important when designing the building.

Fig. 3.44.
How my grandfather would use and flow through space in one morning

ABEL SMITH STREET AND CUBA STREET CORNER

Fig. 3.45. Perspective image of Design IV

PUBLIC ACCESS

In response to the activity of Cuba street, 5 sections of the ground floor are rented out for retail or hospitality, such as cafe, restaurant, or bar use (Fig.3.48). The corner of Cuba Street and Abel Smith Street becomes a public courtyard, providing an 'in-between' space between the street and the buildings. This also provides a 'third place', a place which is not home or work, a place for people to go to be part of a community, where sense of place can be heightened (Oldenburg, 1989).

This courtyard space, as well as the roof top of the existing 250 Cuba Street, can be used to hold events, such as markets, or exhibitions. There are external stairs to access this area, and elevators from the Abel Smith Street side as well as the Cuba Street side, can be used for those who need to.

The existence of trees, benches, and vendors are key factors to comfortable public spaces therefore included into the design (Avalone Neto, Munakata, Jeong, & Yoshida, 2016).

KELVIN GROVE AND DRIVEWAY CORNER

CUBA STREET AND DRIVEWAY CORNER

^Fig. 3.46. Perspective image of
vFig. 3.47. Design IV at ground level

Fig. 3.48. Design IV Floor plan - Ground floor

THIRD PLACE

"Residents of high-rise buildings have little opportunity to socially interact with their neighbours, and this lack of social interaction may generate community-relevant negative outcomes, such as loneliness, reduced helpfulness, and insecurity, all of which have an adverse effect on the overall satisfaction level of the community (He, 2019, p. 4)".

As a response to the above statement, the idea of 'third place', briefly mentioned in the last section, is implemented through shared areas of the ground floor of the building. Oldenburg, (1989) explains that 'first place' is 'home' and 'second place' is the 'work place', and all of these spaces are designed in this co-living complex. On each floor, 'micro-neighbourhoods' are designed which offer spaces for the first place and second place. The ground floor offers spaces which people of any floor and any micro-neighbourhood can use, as the 'third place'.

scale 1:500 on A4

scale 1:500 on A4

1ST FLOOR

< Fig. 3.49. Design IV Floor plans
> Fig. 3.50.

2ND FLOOR

scale 1:500 on A4

GROUND SPACE ON 6TH FLOOR

<Fig. 3-51. Perspective drawing of Design IV
>Fig. 3-52. Design IV Floor plan

GROUND SPACE

In regards to high rise residential well-being, Xinyi He (2019) also suggests that creating a "ground space" every few floors, the people who live on higher floors can interact with these "platforms" and will be more willing to use this space for social interaction". This idea informed design III, and becomes more prominent in this final design.

On 3rd and 6th floors, there are larger shared outdoor spaces, with more shared utilities such as shared laundries and function rooms. These floors, like the 'third place', are intended to provide a place to connect the different micro-neighbourhoods. This will prevent residents from feeling suffocated from being too tightly bound to their immediate neighbourhood. On the 9th floor, the rooftop space, is also a shared area where residents can hang washing, and access a communal vegetable garden.

3RD FLOOR

scale 1:500 on A4

< Fig. 3-54. Design IV Floor plans
> Fig. 3-55.

scale 1:500 on A4

MICRO-NEIGHBOURHOODS

As this design becomes a lot larger and the floors become higher, the importance of community heightens. Dunbar (1992) argues that people have limits to the number of others they can maintain stable social relationships with. He says that a person can maintain around 150 relationships, however beyond that is difficult to keep track of. In this 300 unit design, if a resident is required to maintain a good relationship with all 299 other residents, it will be overwhelming.

Xinyi He (2019) explains that based on the research findings, about 12 units could be grouped together to produce a micro-neighbourhood that enhances social interaction (page 41). To reflect this finding, around 12 units are grouped within one floor. They have shared facilities in common, encouraging them to form a community.

<Fig. 3.56. View from kitchen on 6th floor
>Fig. 3.57 Design IV Floor plan

scale 1:500 on A4

ACCESSABLE UNITS

As this co-living residence houses people of diverse physical abilities, some units are designed to be accessible. These units contain bathrooms and kitchenettes within for the residents' convenience.

These units especially are located on the 'ground space' floor, floor 6, for ease of movement and access to the shared facilities which are located on these floors. The hallways are also designed wider than the other floors. Although these residents will not share as many facilities such as the kitchens or bathrooms, common spaces are still provided where they can interact with each other.

6TH FLOOR

7TH FLOOR

8TH FLOOR

9TH FLOOR

^Fig. 3.58.
>Fig. 3.59.
vFig. 3.60.

Design IV Floor plans

INTER-FLOOR CONNECTIVITY

Openness and connectivity are characteristics which encourage positive social interactions. In order to create spaces while expanding the micro-neighbourhoods, double height spaces are implemented in the social areas. These spaces are either the lounges, in-between spaces, or the kitchens.

Although direct contact is not likely to be made due to the orientation and size of these double height areas, there will be presence of others while occupying these spaces, which increase the sense of safety and connectivity.

Fig. 3.61. Long Section of Design IV

“MAKE SURE THAT YOU TREAT THE EDGE OF THE BUILDING AS A
‘THING’, A ‘PLACE’, A ZONE WITH VOLUME TO IT, NOT A LINE
OR INTERFACE WHICH HAS NO THICKNESS. CRENELLATE THE
TOP OF BUILDINGS WITH PLACES THAT INVITE PEOPLE TO STOP.
MAKE PLACES THAT HAVE DEPTH AND A COVERING, PLACES TO
SIT, LEAN, AND WALK, ESPECIALLY AT THOSE POINTS ALONG
THE PERIMETER WHICH LOOK ONTO INTERESTING OUTDOOR LIFE
(ALEXANER , ET AL., 1977, P. 755)”

ROOF-TOPS AND VERANDAS

As living on higher floors do not allow for residents to have a backyard, areas such as the roof-top or veranda becomes especially important. All the units have at least one veranda, Juliet balcony, or a cloister.

These spaces not only provide a threshold, privacy gradient zone which separates the outside and the inside, but also allows occupants to have an in-between space to observe the surrounding environment. This relates back to the functional-evolutionary perspective of environmental preference, where being able to look around the surroundings while being in a safe zone, brings relaxation and comfort to people (Stewart-Pollack & Menconi, 2005).

VIEW OF ROOF-TOP

Fig. 3.62. Perspective image of Design IV

ATMOSPHERE

As discussed in the Research section of this phase, atmosphere of a space contributes to the preference and level of interaction amongst the residents. In spaces with more social intentions, such as the kitchens or the lounges, ceilings are higher, often double height, with larger windows to allow for more light and openness and consisting of warmer colours (Fig.3.63). There are also other spaces such as Fig.3.64. which aids voluntary attention, with nature's cooler tones, less openness and calmer atmosphere.

By providing multiple options of different atmospheres, this co-living residence will offer the sense of freedom and choice to the residents.

ATMOSPHERIC DRAWING OF LOUNGE

<Fig. 3.63.
>Fig. 3.64. Atmospheric drawings

ATMOSPHERIC DRAWING OF STUDY SPACE

MATERIALITY

The materiality of the building contributes greatly to the atmosphere and comfort. The use of vinyl or rubber, petroleum-based products, are avoided as they contribute to poor indoor air quality. Natural elements such as the wooden components, cork flooring, and nature's colours, make spaces more desirable, as there are many benefits of natural environments to human health and well-being (Stewart-Pollack & Menconi, 2005).

DESIRABLE SPACES

During this research phase, the importance of the balance between complexity, coherence, legibility, and mystery are discussed. The design has incorporated these research findings by adding 'complexity' through its form, not being uniform from bottom to top, but changing every 3 floors. The 'coherence' comes from the design language staying consistent throughout the entire building through the details, such as materiality, and dimensioning. Human scale and general grid systems create 'legibility' and there is a sense of 'mystery' with multiple extrusions and screens which prevent private spaces from being too exposed. These design techniques reduces environmental load, and make the spaces more desirable.

Fig. 3.65. Section drawing of Design IV

OCCUPANTS PER UNIT

Although this thesis aims to house people who live alone, sometimes dynamics of the occupants may change. They may decide to live with someone else. It is possible for them to share one unit, however, in case the unit is too small, some considerations are made to allow for two units to join as one.

Seeing examples of flexible designs such as precedent 12 (20K Apartments) and 13 (Humble Hostel), the idea to change the size and connectivity of spaces are implemented. Fig.3.66 and 3.67 show this idea in place. This is an idea, and not the main focus of the thesis.

Fig. 3.66. Before combining units

Fig. 3.67. Combined units

MANAGEMENT

In Research Phase I, the importance of management was discussed. As Design IV is much larger scale, the need for management increases. In order to maintain comfort and harmony amongst the residents, each micro-neighbourhood will be managed as an entity. This will involve actions which were learnt from LT Josai; management staff inspect of the shared areas and cleaners clean the shared kitchens and bathrooms once a week, a roster is set for the residents to take out the rubbish, as well as other rules such as no smoking inside the building, and signing guests in (LT Josai, 2020). There is office space for administration on the ground floor, where employed staff will make this possible. Again, like LT Josai, residents should go through an interviewing process prior to joining the co-living residence. This will decrease the risk of conflict.

Fig. 3.69. Design IV Isometric drawing

EXTERIOR

In order for the building scale to relate with the existing buildings, design languages of the surroundings are studied and the colour, materiality, and scale are adopted. As there are many shades of red in the surrounding buildings, red is used as an accent colour. The tone of the red is deep, as bright colours may appear alarming, and tones which are more natural are preferred in terms of well-being (Stewart-Pollack & Menconi, 2005). The detail of the exterior elements where there are scale contrasts, setbacks and changes in material, and the design of openings are used to integrate to the scale of the street and the denser new architecture. The design of balustrades, slats, doors, and extrusions, break down the large scale of the building.

By using tectonic wooden elements, as well as vegetation, including the communal vegetable gardens, the residents will have natural elements in their view which aids their comfort.

^Fig. 3.69. Design IV elevation drawings
vFig. 3.70.

Design IV elevation drawings Fig. 3.71.^
Fig. 3.72.v

COMMON SPACE ON 3RD FLOOR

Fig. 3.73. Design IV perspective image

DESIGN IV REFLECTION

COMFORT IN HIGH-RISE

Design IV is a much larger scale compared to the previous designs, going up to 300 units in one complex. Due to its size and location, this design considers the wider context more, in its massing, exterior design language, and providing spaces for non-residents on the ground floor. The significance of its analysis is much higher compared to the previous phases, studying the street dynamics, and natural elements such as sun and shade.

The design also goes into much more detail such as materiality, higher consideration of spatial design, and better resolved units. Knowledge retained from the sociology and spatial psychology research influenced the key decisions of the design, such as the atmosphere, proximity of spaces, and openness.

Ideas and findings from the previous phases are carried through and developed, such as the behavioural studies, Japanese influence, and unit design. As density is one of the key-words of this thesis, although the floor area per unit ratio is higher than the previous design to accommodate comfort, the design addresses the challenges and solutions of the densifying context through its large scale, preparing for the densifying future.

PHASE III SUMMARY

Phase III interprets both the large scale, wholistic design aspects, with the detailed small scale.

In terms of the large scale, techniques are used, such as having micro-neighbourhoods and ground spaces to keep the community's health. The connection to context, in order to feel a part of the world which can ease a person's sense of insecurity, is also elaborated in this phase. To do so, the language of the main street, Cuba Street is reciprocated through the design language, functionality, with retail and hospitality spaces on the ground floor as well as the public court yard space which becomes an in-between space.

For the small scale, the details which determine the atmosphere of the space, reflecting design psychology and sociology are implemented. These include colour, amount of light, openness, complexity, view, their overall coherence, and the proximity of each space.

The idea of 'balance between community and individuality' is explored by understanding how design elements enhance the resident's perception of the space. Making sure their personal space has a privacy gradient, providing 'third space' and sociopetal spaces which, while welcoming residents to social interactions, inhibit them from causing disruption and unwanted interactions in the more intimate spaces.

FINDINGS

- 1) In-depth site analysis, and understanding street dynamics is crucial for a large-scale massing process.
- 2) Natural light and ventilation are crucial for comfort, so it is important to effectively mass the building on site, especially when the building footprint is large.
- 3) Offering 'third place (s)' on the ground floor gives more freedom to the residents and connect the building deeper into the surrounding context by allowing public use.
- 4) Providing green space gives good view and comfort to the residents and the public.
- 5) Creating 'ground space' every few floors for high-rise buildings can decrease the sense of isolation of residents living on higher floors.
- 6) By understanding and applying design techniques to create desirable spaces, environmental load can be controlled, redirecting attention away from the sources of stress.
- 7) Offering spaces with different atmospheres gives more freedom and comfort to the residents.

CONCLUSION

CONCLUSION

By understanding what makes a space more socially comfortable to live in, how to aid the well-being of residents through design became evident.

The social and sustainable benefits of co-living, opportunities and their implications for design have been the focus of this research. With diversification, urbanisation, and densification, there is need for the residential buildings to cater more for the needs of a larger range of people, yet spatially becoming smaller. This means having a level of flexibility and the design implications of sharing spaces require careful consideration to avoid inadvertently creating conditions that exacerbate social isolation.

The second part of the title;

"Finding a balance between community and individuality"

is crucial in this thesis. Judd, Dean and Brown (1985) note in terms of loneliness that it is important for residents to know and feel connected with their neighbours enough to depend on them, without feeling intruded on or required to have unwanted interactions.

As loneliness affects a person's health both emotionally and physically, it is important to consider ways of prevention of those experiencing this. Providing shared facilities, sociopetal spaces, and third places, can aid the sense of community and belonging to reduce the risk of loneliness and related health implications.

Loneliness is closely associated with well-being, which is negatively affected by the lack of privacy. A sense of crowding, and the associated lack of control can be very uncomfortable. People need to have time for themselves in order to function well. It is also important for the resident to be able to express who they are, and feel the value of their personal existence. This is why the individuality aspect of the design is equally important.

The 3 research phases gradually increased in scale which allowed opportunity to test and break down each issue, realising design opportunities one step at a time. In phase I, many design ideas, regarding how people behave and occupy a space were studied. In phase II, ideas which surfaced in phase I were further developed, while new aspects such as the Japanese design elements, and in-between spaces informed the design. Phase III expands these ideas, refining and improving the knowledge of psychology and sociology and testing the architectural implications. As this is a high-rise building, new complex issues associated with verticality and density of use were also confronted.

The thesis began with a simple question;

How can the design of urban architecture for people living alone enhance their wellbeing?

To broadly summarise some of the key findings, in order to design a co-living residence that enhance the residents' well-being, the following factors should be taken into consideration;

- 1- Determine which activities are more and less important socially within a design. This helps set and order the program. Order these programs by how social/private they are. When designing the spatial relationships, avoid locating the programs which are on the opposite side of the social and privacy spectrum next to each other. This helps create a privacy gradient. Use 'in-between spaces' to aid this idea.
- 2- Design to allow the residents to have 'choice and control' of the spaces which they are in, or they want to be in. Their private space should be able to be customized, and other spaces should have a level of flexibility of use, or provide a range of activities. This also helps accommodate the diversity of the residents' needs and changes in needs.
- 3- Understand the user effects of spatial characteristics such as; complexity, coherence, legibility, mystery, load, and the presence of nature, as well as colour, lighting and openness. This will provide a space which is comfortable to a range of users and therefore well used.
- 4- For high rise buildings, make sure the upper floors do not feel isolated by providing local 'ground spaces'. Having micro-neighbourhoods helps offer smaller communities within the larger, as people have a maximum capacity of the number of people they can readily keep track of and have a closer relationship to. This will improve the community health of the building.

The issue of loneliness and mental health cannot be controlled through design alone, as many of the contributing factors to well-being are internal to a person's circumstances.

A well-designed environment can however create opportunities for interaction and support from others, and space for retreat when needed. Both of these create opportunities for people to be supported by others at an appropriate level in their day to day life, towards something a little more positive.

THE DESIGN OF
URBAN ARCHITECTURE
FOR PEOPLE LIVING ALONE
CAN
ENHANCE THEIR
WELLBEING.

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