Cooperative Housing to Facilitate Domestic Support

Alisha Moser

Historically family typologies in New Zealand consisted of men dominantly maintaining the financial responsibilities and women maintaining the domestic responsibilities. As society developed and underwent modernisation, traditional gender roles transformed accordingly. In contemporary New Zealand, a full-time domestic occupant in the majority of households is no longer a reality. This research project ‘The 7th Generation’ addresses New Zealand’s current housing market and the relationship it has to contemporary family typologies. Cooperative housing typologies have been researched as a mechanism to provide domestic support in homes without full-time domestic occupants, for the next generation of New Zealanders.

“What has the deepest and most permanent effect upon oneself and one’s way of living is the house in which one lives. The house determines the day-to-day, minute to minute quality, colour, atmosphere, pace of one’s life; it is the framework of what one does, of what one can do, of one’s relations with people.”

Margaret Forster, My life in houses (London: Vintage Books, 2016), V.
Cooperative living: this term is used to describe the broad category of all the forms and variations of communities which have shared resources—primarily concerning architectural spaces or amenities.

Domestic: relating to all circumstances, components and functions which occur in or around the home.

Domestic labour: unpaid labour that occurs in and around the physical confines of the home. It is performed by the occupants of the house and not by external members.

Domestic occupant: someone who has a full-time occupation in their home, and does not perform any paid work, in or outside of their home.

Domestic support: the action of having someone else perform domestic labour for you, this could include any domestic activity such as cooking, cleaning, childcare and laundry.

Dual-income: households which have two incomes from two different full-time working adults.

Family typology: this term is used to describe the broad category of the different variations of families and their members. These could include nuclear, dual-income and single parent.

Full-time: includes at least forty hours a week of dedicated time to paid employment.

Household: encompasses all occupants of a house, whether or not they are related, this includes anyone who lives in that particular house.

Nuclear family: stereotypical nineteenth and twentieth century family including a working father and a stay at home mother with children.

Single Parent: the day-to-day care of a child or children is carried out by one adult only.

Unpaid: when scheduled labour is performed, and no money is paid in return for that labour.

Acknowledgments

Firstly, I would like to thank those who have had faith in me not only over this past year but from beginning to end. I would like to specially thank my supervisor David Turner for your endless knowledge, guidance and support. Thank you, Donna Finlayson, Genealogist at Waipu Museum, for taking an interest in this project and providing valuable information on my family housing study. Thank you, Lachie McLean and Alison Phillips, for sharing your knowledge on our family. Thank you Charles Durrett, from McCamant & Durrett Architects, for your time and interest in my project. Thank you to the other Unitec staff members for driving my research with your opinions and input.

I would like to acknowledge my close friends and family, for your support during both moments of crisis and moments of success—Thank you.

Dedication

This project is dedicated to the four previous generations of Annie, the pioneering women of my family, without your determination and strength I would not be the woman I am today. I thank you, from my heart to yours, and there you will always be.
Figure 3: A Building For People, by Sebastian Mariscal Studio. An example of a contemporary housing scheme in Boston, Massachusetts, USA.
1.0 Introduction
**1.1 Project Background**

The motivation for this project has two components:

1. The first was a fascination with the history of people, the societies they lived in and how they built and interacted with their houses. This became a journey of self-discovery, researching the previous seven generations of my maternal family, and the level they lived at which arrived in New Zealand, and founded the settlement of Whangarei in 1830. I visited their houses, researched their lifestyles and analysed the societies they once lived in. I began to understand how housing might change and evolve for the next generation of New Zealanders.

2. The second component is the current housing crisis in New Zealand. This crisis is complex and affects everyone in different ways. It is not just a housing shortage, but a wider set of societal issues resulting from society attempting to fit itself into a housing pattern designed for family typologies from previous centuries. Detached houses on private pieces of land have become inseparable from the dream of financial success. They control all aspects of domestic and social life, these homes brought family and work together. Detached houses on private pieces of land have become inseparable from the dream of financial success. They control all aspects of domestic and social life, these homes brought family and work together.

**1.2 Project Outline**

The outline of this project is a cooperative housing typology designed to facilitate domestic support for dual-income and single working parents. Programmatically, the housing environment creates a space for twenty-five families with facilities for domestic integration between households. The architectural environment should encourage the local community to become more interested in this alternative domestic environment.

**1.3 Aims and Objectives**

The principal aim for this project is to investigate an alternative cooperative housing environment that specifically facilitates domestic support. The objective is to create architecture that provides dual-income families and single working parents with collaborative facilities for domestic integration between households. The architectural environment should encourage the local community to become more interested in this alternative domestic environment.

**1.4 Architectural Question**

How might cooperative housing strategies facilitate domestic support for dual-income and single working parent families in New Zealand?

**1.5 Scope and Limitations**

It became clear in the early stages of research that there were multiple directions this research could take. This research project, explores the ways in which we live, rather than the ways in which we work.

**1.6 State of Knowledge**


Architectural Historian Dolores Hayden has published several works which focus on the history and architectural solutions to women in the paid labour force. In the Grand Domestic Revolution, and Redesigning the American Dream, Hayden explores the history of housing which aims to provide domestic support for working women and their families. The housing schemes analysed in her publications contain working levels of community in their space design. This became an essential resource to discover the different less common forms of cooperative housing typologies. However, the housing history in Hayden’s publications is highly political, with minimal architectural ideas, although it provided further resources to be researched and used for the Survey of Joining Knowledge. Using the publications by Hayden allowed the research component of this project to overcome the lack of research material specifically about housing designed for facilitating domestic support, and the various forms of cooperative housing.

**1.4 Domestic Support**

Domestic Support requires a person or people to perform domestic tasks for another person or household. The architectural component is the facilities in which the domestic support occurs, which responds to the occupant who uses the spaces to provide the support. Therefore, all instances of domestic support require to some extent architectural collective. The aspects of domestic support that is the project is interested in are the collaborative spaces required. The limitation of studying domestic support is that there is a lack of research material about housing self-discovery, researching the previous seven generations of my maternal family, and the level they lived at which arrived in New Zealand, and founded the settlement of Whangarei in 1830. I visited their houses, researched their lifestyles and analysed the societies they once lived in. I began to understand how housing might change and evolve for the next generation of New Zealanders.

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1.7 Methodology

+ Research through: Maternal Family Housing as a Case Study

My family housing study was an opportunity to be specific with the research and resulting conclusions. In place of basing research on ‘fantasy’ families, I was able to accurately focus on the previous generations of my family and how they built and interacted with their houses, what their occupations were, society during that time, and the way in which they evolved from one generation to the next. This enabled an understanding of the existing housing stock in New Zealand, and what governed the design changes in each successive generation.

+ Research through: Housing Pattern Study

The aim was to understand and be aware of the wider housing context, and the general trends in society. This study illustrated which features are permanent, which features changed throughout New Zealand’s housing evolution, which features are susceptible to change, and which features are resonated with as homes by New Zealanders.

+ Research through: Survey of Existing Knowledge

Research was conducted into three dominate cooperative housing variations, which had the design objective to provide domestic support. These housing variations were categorized based on their political ideology and level of communal integration. Several different components were used to decipher their success and failures. These were levels of domestic support achieved, popularity, long-term use, functionality, and global adaptability.

Theoretical literature was used to identify the social implications of cooperative housing. The literature focused on spatial territories, thresholds, and privacy. Design opportunities and techniques were further analysed to overcome the social implications involved with cooperative housing.

+ Research through: Iterative Design Process

The criteria for the housing design was extracted from the case studies, architectural literature, social theory, and the architectural implications identified. These criteria were formed from the lessons learned, including the successful and unsuccessful.

Through the process of iteration and frequent revision of the lessons learned, the final spatial arrangements and forms were achieved.

Figure 3: Methodology exploration.
2.0 New Zealand Housing & Context
2.1 Development of Contemporary Family Typologies and Domestic Occupancies

In the early 20th century, New Zealand saw significant changes in family structures and domestic roles. The nuclear family, defined as a married couple with their children, became more prevalent after World War I. This change was driven by factors such as urbanisation, industrialisation, and the availability of government-funded housing. The development of state housing, particularly after World War II, provided opportunities for families to move from smaller, less well-equipped homes to larger, more modern dwellings.

With the advent of the welfare state, government policies encouraged the expansion of ownership and occupancy of larger homes. This shift was not only driven by economic changes but also by social and cultural shifts. The ideology of the nuclear family, as a unit that supported the state, was promoted through government policies and the promotion of suburban living.

As society transformed, so did the family unit. The number of single-parent families increased, contributing to the growth of single-parent households. This trend was partly due to changes in social norms and expectations around marriage and family roles. The rise of single-parent households was also influenced by factors such as poverty, unemployment, and the increase in non-marital births. This led to a greater emphasis on the need for affordable housing, which was often provided through state-funded housing programs.

The movement of women into the paid labour force was another significant change. Women were traditionally seen as the primary caregivers and homemakers, but as the economy transformed, so did their roles. By the 1960s, the employment rate of married women in New Zealand had increased significantly, with many women working outside of the home to support their families. This change was not only driven by economic necessity but also by a shift in social expectations and norms.

As a result of these changes, the composition of households in New Zealand became more diverse. The traditional nuclear family, with one income provider and children, was replaced by a variety of family forms, including single-parent households, dual-income families, and blended families. This diversity continued to evolve, driven by economic, social, and cultural changes.

2.2 Development of New Zealand’s Previous Housing Policies

State-sponsored housing was a key element in the early post-war period, with the government playing a central role in the provision of housing for New Zealanders. The State Housing Act of 1937 was a major step in this direction, providing for the construction of state-owned housing. This was a response to the lack of affordable housing options for many New Zealanders, particularly in rural areas.

During the 1950s and 1960s, state housing policies were expanded, with the government providing subsidies and loans to encourage private home ownership. This was part of a broader vision of the state as a provider of social services and a regulator of the economy.

2.3 Housing Study Pattern

As New Zealand experienced rapid population growth and significant changes in housing patterns, the government implemented policies to address the housing needs of its citizens. This included the provision of state-funded housing, the promotion of private home ownership, and the encouragement of diverse housing forms.

The government’s approach to housing was shaped by its dual role as a provider of social services and a regulator of the economy. The government was also influenced by social norms and expectations, which were shaped by the changing roles of women and the growth of the workforce.

As the economy grew and the population increased, the government continued to adapt its housing policies to meet the needs of its citizens. This included the development of new housing models, the promotion of diverse housing forms, and the encouragement of home ownership.

In conclusion, the development of contemporary family typologies and domestic occupancies in New Zealand was shaped by a range of social, economic, and cultural factors. The government played a significant role in shaping these changes through its policies and programs, which were designed to meet the needs of its citizens.
2.4 Housing Pattern Diagram

Figure 7: The floor plans and site boundaries are facing the street front. These are a sample of the houses which were studied as part of the housing pattern study. All houses were visited, the floor plans and site dimensions were generated based on the site visits made.
3.0 Maternal Family Housing as a Case Study
New Zealand houses have much in common, however they are all different in some way, quite individual. Their commonality is the story of a society undergoing change in different places, at different times. Their individuality is the narrative of the people involved.22

A case study of seven generations from my maternal family was undertaken beginning in the colonial period of New Zealand, ending with my mother’s generation. Combining Architectural Historian Martin Hills and Conservation Architect Jeremy Saltman’s criteria for analysing housing, a system was developed to analyse each generation. This study became an exploration of the architectural intent of each house, the occupations of each generation, their roles in society, daily life activities, their relationship with their dwellings and the subsequent changes from one generation to the next.

Domestic support in the home was traditionally a women’s occupation and household daily tasks were considered women’s work. For this reason, the dates of each generation are based on the life span of the dominant women. The development and functioning of each home is slightly more focused on the women’s role, as their transformation primarily led to the formation of dual-income families and single parent households.

The following floor plans have been colour-coded to represent any additions of the houses throughout my family’s occupation. The yellow is the original area, the orange is the first addition and the red is a second addition.

Figure 8: A painting of the Highland Lassie Ship. The second of six ships which arrived in New Zealand from Nova Scotia. The red outline are my family members which are the first and second generation in New Zealand, originally from the Scottish Highlands.

Figure 9: Generations two - six of women in my maternal family studied, the first generation in New Zealand had no women.

Timber Two-Cell & Four-Cell Colonial Georgian Cottage

Figure 10: Paintings of the Nova Scotian Settlers, building their houses and farms in Waipu.

Figure 11: Photo of the Timber Two-Cell & Four-Cell Colonial Georgian Cottage.

Figure 12: Floor plan of the Timber Two-Cell & Four-Cell Colonial Georgian Cottage.

Social Context: The family’s first task was to clear a small space for a hut, which would become the family’s first home. Once the hut was completed, the men cleared land which would become the family’s farm.

Family Typology & Occupants: The family consisted of Donald McLean Senior (first generation in New Zealand), his daughter Isabella (second generation in New Zealand), her husband Murdoch McAulay, and their three daughters and son (seven people in total). Murdoch provided the single income for his family.

Architectural Style of House: Colonial Georgian. This house was minimalist and simple in form. It had a symmetrical front facade, that has a window on either side of the front door. The style spread throughout England colonies where basic shelter was needed for new communities. Characteristic of this style is six-pane double hung sashes, plain lapped weather boards, with minimal decorative moldings.

House Plan: A spatial hierarchy of a public front and private rear influenced the arrangements of rooms and entrances. The front door opens directly into the parlour which serves as a thoroughfare into the other rooms. The two front rooms on the parlour and the best bedroom, other bedrooms are in the middle. The kitchen and dining room are combined, which the smallest bedroom is off, and are at the rear of the cottage. Rules of symmetry apply in both elevation and plan, which decided where the windows, walls, doors and passageways were placed. The wash house and privy are in small separate structures at the rear of the house.

Domestic Services: The colonial oven was an iron box with shelves and a door, built into the fire place. An iron crane was fastened to the side of the fire place suspending pots, camp ovens, kettles and boilers. Boilers containing several gallons were used for washing. Wells were used to collect water, if they were unreliable wooden barrels were used to collect rainwater.

Daily Life: There were no masters or servants, no outside wages and no disputes about hours of work. Murdoch was a farmer in the early years and would work from sunup to sunup. Isabella, with the help of her three daughters (before they were married) harvested wheat with a sickle, dug potatoes and gathered crops. Maize was ground in a hand mill, and turned into flour. There was no running water, fetching and carrying water into the house was a normal part of everyday life. Animal fat was turned into candles and soaps, laundry was on every Monday, boilers containing several gallons of water were used for the manual washing.

Changes & Additions: The two-cell cottage was built by Donald McLean for himself and the younger five of his nine children in 1854 in the first year Waipu was settled. Donald McLean became elderly and was cared for by his youngest daughter and son in law, who built the four-cell cottage in the 1860s and lived there with their four children.

+ Social Context: The family’s first task was to clear a small space for a hut, which would become the family’s first home. Once the hut was completed, the men cleared land which would become the family’s farm. The final step of the family’s settlement was building a permanent house. The men did most of the work themselves, with help from their families.

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22 Salmond, Old New Zealand Houses, 155.
23 McKenzie, The Gael Fares Forth, 80.
24 Salmond, Old New Zealand Houses, 143.
27 Robinson, To the Ends of the Earth, 142.
3.3 Third Generation New Zealand Family (1873-1959)

**Verandahed Bay Timber Villa**

**Social Context:** Waipu was a thriving farming settlement in the 1880s. In the 1890s economic depression, Waipu farming profitability was impacted negatively. Resultantly, some men only resided on their farms with their families, and went elsewhere for work. Their experience in Nova Scotia gave them expert knowledge of timber, and in the 1890s the men became a skilled labour force in the timber industry. Religion foreshadowed daily life, their religious exercises were conducted in the privacy of their own homes.10

**Family Typology & Occupants:** This family consisted of Neil McLeod and Annie McLeod nee McAulay, and their six daughters and three sons (eleven people in total). Neil provided the single income for his family.

**Architectural Style of House:** Verandahed Bay Timber Villa. This housing style has similarities to English country cottages with a central door and windows on either side. Applied timber elements, brackets, lozenges and fretwork were used for decoration at the front of the house only.11

**House Plan:** This house can be described as a “working homestead”12 which has an asymmetrical exterior concealing a chaotic plan.13 There is no central passage as the house is small, and it was not necessary. The doors and walls between each room are used as thresholds. The front bedroom is made larger by extending the bedroom wall beyond the front wall to make a bay window. The kitchen is at the back of the house under a lean-to roof, which also houses the later addition scullery and bathroom. A new addition dining room was added at the back of the house. The original kitchen/dining room which was closer to the front of the house, was used as the formal room when guests visited, it was dignified by a larger than average side window.

**Domestic Services:** The oven was a coal range, which was fitted into a brick chimney, and lined with decorative tiles. Above the range a wire rack was used to warm food and dry clothing. The chimney was built back-to-back between the parlour and kitchen, creating a fireplace in each room. Traditional methods for collecting water were used, water was heated through boiling.

**Daily Life:** Neil worked as a forestry worker and maintained the family farm. The older sons of the house went to work with their father while the youngest was responsible for rearing the farm animals. Annie was a housewife and mother of nine children. She relied on her older daughters to look after the younger children while she cooked and transported lunches to her husband and other foremen workers. The children’s schooling was minimal as they lived over three miles from the nearest school.14

**Changes & Additions:** The Verandahed Bay Timber Villa’s original components were built in 1893 by Neil McLeod and his brothers. Kit set components were shipped from Auckland, the extension was built in 1910. A large food preparation space and dining room were added including a larger scullery and bathroom. The house grew as the family did, they struggled to fit themselves into the original parlour and kitchen. All building of this house was built by members of the family themselves.

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11 *Old New Zealand Houses 1800-1940*, 155.


3.4 Fourth Generation New Zealand Family (1900-1970)

Railway Pre-Cut Bungalow

Figure 16: Photo of the Railway Pre-Cut Bungalow.

Social Context: World War One had ended, the immigration rate began to slow. Women began to work in paid employment before marriage. Gas stoves were common, and domestic machinery began to emerge. The Californian Bungalow was the new housing trend. The casual style of the Bungalow enabled living rooms to face the sun. The restrained style and minimal decoration marked a return to simplicity.

Family Typology & Occupants: The family consisted of Thomas Cotterill and Jessie Cotterill nee McLeod, and their two daughters (four people in total). Thomas provided the single income for his family.

Architectural Style of House: Railway Pre-cut Bungalow. In the 1920s, a factory in Hamilton pre-cut timber for railway houses. The house had a Georgian facade (described in first generation housing) with bungalow period open eaves and a decorative porch. Internally the details are simple, only the gate posts and porches have decorative embellishment.

House Plan: The floor plan of this house resembles that of a villa, while the detailing features are in the bungalow style. This house has a central hallway, with two bedrooms on one side and a parlour at the front on the other side. Behind the door in which separate the private back from the public front of the house is the kitchen/dining with a small bedroom attached. The bathroom, wash house and scullery were originally incorporated into the house plan and are directly accessed from the kitchen/dining area. The bungalow style detailing includes, low ceilings, low fireplace nook, natural wood paneling, built in cabinets, and a porch instead of a verandah.

Domestic Services: A gas califont was used for heating water. One was located above bath and another above the kitchen sink. A gas range was used for cooking, which was in a skid nook. An early refrigerator was used for food storage instead of a scullery, which was powered by electricity and running water. A concrete precast basin was used for the laundry with water heated from the gas califont.

Daily Life: The introduction of many mechanical appliances during the bungalow period released women from a great deal of labour. Electricity made a considerable difference to daily life. Thomas worked an eight-hour day. The two daughters attended school for six hours per day, they were the first generation in their family to receive a full education, and were not responsible for domestic tasks or raising their siblings. Jessie performed domestic tasks using modern conveniences of her time, and could buy most household necessities, the family did not rely on the land for produce.

3.5 Fifth Generation New Zealand Family (1928-)

Quarter Acre 1950s Three Bedroom House

Social Context: The New Zealand house construction rate increased after the Second World War, however in the 1950s there was still 45,370 unfulfilled applications for state houses. Single person households increased as did childbirth rates outside of marriage. Single working men were banned from state housing schemes as they earned the male wage, which was considered a full family wage. A solution to deal with non-nuclear families was to pepper-pot them among the two parent suburban families.

Family Typology & Occupants: The family consisted of Roland Somerville and Annie Somerville nee Cotterill, and their one daughter and two sons (five people in total). Roland provided the dominant income, Annie at different periods provided a subsidiary income.

Architectural Style of House: Quarter acre 1950s, three-bedroom house. The form was compact and stripped away the last remains of ornamentation, bay windows, and verandahs. The roof is hipped and tiled with minimal overhang and eaves. The windows are casements with high sills, walls are brick veneer and weather boards.

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Figure 19: Floor plan of the Quarter Acre 1950s Three Bedroom House.

Figure 20: Photo of the Late Twentieth Century Family House.

Figure 21: Floor plans of the Late Twentieth Century Family House.

- **House Plan:** This house is located near the front of its section, which creates a large backyard. The main entrance is not at the front, but located on the side of the house, creating a side entrance floor plan. The hallway is used as circulation for the front part of the house, while the back uses the rooms themselves as circulation. The living room has large glass doors opening onto the side concrete deck, which creates outdoor-indoor flow. There are no bedrooms adjoining the kitchen as in previous housing typologies. The scullery is merged into the kitchen and the wash house is in the garage. The bathroom and toilet are completely amalgamated into the house.

- **Domestic Services:** Electricity was incorporated into the design of the services in this house. The kitchen has large appliances such as; refrigerator, freezer, and an electric stove top with oven. The bathroom has a shower over a bath with running hot water. A washing machine was housed in the wash house. The fire was used for economic heating, although the house later had wall panel heaters installed in the rooms furthest from the fire.

- **Daily Life:** Roland worked as a warehouse manager and was the dominant income supplier for the family. He worked 9-5 Monday-Friday. Annie worked in an office full-time occupation until she was five months pregnant with their first child. When their youngest child was in high school, Annie returned to work in a part-time position. Annie’s role in society was a combination of the stereotypical housewife and a working woman, she was the first generation of New Zealand women in her family to earn an income.

- **Changes & Additions:** The original L shaped part of the house was built in 1954 by paid builders. In 1960, built in the same style, an entrance patio and large concrete porch were built which closed in the L creating a rectangle. The final extension was made in 1986 adding a formal dining room, conservatory (with spa pool) and a wooden back porch. The house was built with minimal finances and as the family grew and saved more money the house was extended.

- **Social Context:** Divorce and separation rates were at highest they had ever been, and household typologies began to change. The change in typologies resulted in previous methods of constructing large numbers of three-bedroom houses becoming less appropriate.

- **Family Typology & Occupants:** The family consisted of Glenn Moser and Jillian Moser nee Somerville, and their three sons and daughter (six people in total). Glenn provided the constant income for his family, Jillian at different times provided a subsidiary and equal income for the family.

- **Architectural Style of House:** Late Twentieth Century Family House. Originally three bedroom which was extended to five, this house had increased in size from 1950s housing. This late twentieth century house characteristically has open plan living, raftered weather boards, windows were large and timber-framed, corrugated iron roof with PVC gutter and a timber deck.

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*Ferguson, Building the New Zealand Dream, 234.*

*Ferguson, Building the New Zealand Dream, 246.*
House Plan: This house is located nearer the side of the site to provide for vehicle access and parking, the site has a sloped site from the quarter acre section. The layout has living, dining and kitchen in an open plan configuration at the entrance end of the house, and the bedrooms at the other end. A free-standing wood burner was the focal point of the living room. A later addition housed the laundry and a bathroom. The upper deck created a comprehensible indoor-outdoor flow.

Domestic Services: A wall-mounted electric oven is used for cooking which is next to an electric stove top. The laundry has a stainless-steel tub and washing machine. A bathroom is in the laundry which doubles as an air-conditioning unit. Electricity is used for water heating and space heating, as well as for an increasing range of appliances. The bathrooms have free-standing showers with no baths. All these services are operated only on electricity, no manual appliances remain.

Daily Life: Glen had his own plumbing and drainage laying business which provided the family’s constant income. He worked whenever the work was available which included Saturdays and Sundays. Jillian worked full-time in a clothing store until the day before her first child started kindergarten, she worked there part-time. When her youngest child started primary school, Jillian worked full-time. Initially more leisure and nurturing time was achieved, as seen in the fourth generation of the case study; Jessie worked part-time and took care of her children while they attended kindergarten, she worked there part-time. When their children were aged between 9-20 they separated. As for an increasing range of appliances, the bathrooms have free-standing showers with no baths. All these services are operated only on electricity, no manual appliances remain.

Changes & Additions: The original rectangular ground floor was built in the early 1970s. In the 1990s Glen transformed the basement into a loft level as the family grew extra bedrooms were built, enabling each child to have their own bedroom. The final extension was built in 2005 which was an upper-deck area opening into the dining room which was for outdoor living and entertainment.

3.7 Conclusion

Using my family as a case study, the research was able to gain a specific understanding of the consistent framework and patterns of New Zealand family homes, whilst acknowledging that each house and household will have differences. The change in housing was initially gradual in the first three houses studied as society and technology was developing. In the 1950s era the layout of the house held more component which are present in contemporary suburban housing today. The final late twentieth house illustrated the way in which a contemporary family typology lives in housing developed in previous decades for a different family typology.

The case study made it apparent how and why the domestic and working life of women has changed successively across all the generations. In the first & second, and third generation houses studied the women worked in full-time. However, the current time-use survey in New Zealand, in the fifth and six generation studied, where Annie worked part-time and took care of her children while they attended kindergarten, she worked there part-time. When their children were aged between 9-20 they separated. As for an increasing range of appliances, the bathrooms have free-standing showers with no baths. All these services are operated only on electricity, no manual appliances remain.

Figure 22: Advertising which aims to ‘sell’ women to buy at a time when women were available which included Saturdays and Sundays. Jillian worked full-time. However, the current time-use survey in New Zealand, in the fifth and six generation studied, where Annie worked part-time and took care of her children while they attended kindergarten, she worked there part-time. When their children were aged between 9-20 they separated. As for an increasing range of appliances, the bathrooms have free-standing showers with no baths. All these services are operated only on electricity, no manual appliances remain.

The current aspects that have not changed across all houses are the general shape being rectangular or square, the roof form being gable or hip, and family homes, whilst acknowledging that each house and household will have differences. The change in housing was initially gradual in the first three houses studied as society and technology was developing. In the 1950s era the layout of the house held more component which are present in contemporary suburban housing today. The final late twentieth house illustrated the way in which a contemporary family typology lives in housing developed in previous decades for a different family typology.

These conclusions based on the case study. There is always exception to the rules, but in order to make a summary of findings, some generalities must be made. The research was able to gain a specific understanding of the consistent framework and patterns of New Zealand family homes, whilst acknowledging that each house and household will have differences. The change in housing was initially gradual in the first three houses studied as society and technology was developing. In the 1950s era the layout of the house held more component which are present in contemporary suburban housing today. The final late twentieth house illustrated the way in which a contemporary family typology lives in housing developed in previous decades for a different family typology.

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Figure 24 & 25: 'Old' houses in 'modern' suburbs, with contemporary family typologies.

Figure 23: Diagrammatic summary of Maternal Family Case Study.
4.0 Survey of Existing Knowledge
4.1 Domestic Support for Dual-Income Families and Single Working Parents

As women shifted out of the home and into the work force creating dual-income families, and the amount of single working parents increased, the daily functioning in their household changed. The number of households without a full time domestic occupant increased. A domestic occupant is a person providing domestic support through their daily tasks in the household, these tasks are domestic labour. The working definition of domestic labour as suggested by Dolores Hayden, Williams, Charlotte Macdonald, “Strangers of the Hearth,” ed. Barbara L. Brookes, in “Unpaid work undertaken in the household by household members for domestic support through their daily tasks in the household, these tasks are domestic support” includes management of relationships with prescribed medicines, and mental health through providing emotional support. The characteristics creating this definition of domestic labour are the function of women in the home and the type of work that is performed. The time available to perform these tasks is reduced immediately within the founding group, the remaining four were quickly sold when all adults in the household work full-time. The volume of these tasks is increased when the household has children, or other members which cannot needs are personally met. Beyond the house domestic support includes management of relationships with prescribed medicines, and mental health through providing emotional support. These common goals and aspirations vary greatly between housing communities, examples of the varieties include religion, economic, ecological, and social. New Zealand has a variety of cooperative housing typologies, although these communities house less than one percent of the population. The largest established cooperative housing in New Zealand is the West Auckland Cohousing Community Earthsong, which was established in 1995. The community usually has around sixty members who live in thirty-two detached houses. Their main goal and aspiration is sustainability, which governs all architectural design decisions including; materials, solar orientation, power, permaculture and natural forms. They believe strongly in bringing suitable family members into their community and encouraging other people to experience Cohousing. Currently in Dunedin there is a contemporary variant of Cohousing being built, it features twenty-two terraced houses with additional communal spaces. Earthsong’s founder Robin Allison helped form this Cohousing community. The Community is not for profit, but with international interest in a low economic lifestyle. All but four of the apartments were sold immediately within the founding group, the remaining four were quickly sold at auction in 2014. The building is scheduled for completion in 2018. New Zealand has other cooperative living communities which consist of religious, feminist, Christian communities and spiritual communal. These are often less immediately classified as intentional communities. The concept of people which live together in a housing community they created. The concept does not have intentional communities which solely focus on providing domestic support. For this reason a decision not to focus on Earthsong or Dunedin was made, especially as Earthsong is very similar to varying Scandinavian sustainable communities.

4.2 Cooperative Housing in New Zealand

Cooperative housing is a form of Intentional Community: a group of people which live together in a housing community they created. The concept dates back to ancient times, however cooperative housing in its contemporary form originates from the late and after the Industrial Revolution. The occupants in cooperative housing live collectively with common goals and aspirations. These common goals and aspirations vary greatly between housing communities, examples of the varieties include religion, economic, ecological, and social. New Zealand has a variety of cooperative housing typologies, although these communities house less than one percent of the population. The largest established cooperative housing in New Zealand is the West Auckland Cohousing Community Earthsong, which was established in 1995. The community usually has around sixty members who live in thirty-two detached houses. Their main goal and aspiration is sustainability, which governs all architectural design decisions including; materials, solar orientation, power, permaculture and natural forms. They believe strongly in bringing suitable family members into their community and encouraging other people to experience Cohousing. Currently in Dunedin there is a contemporary variant of Cohousing being built, it features twenty-two terraced houses with additional communal spaces. Earthsong’s founder Robin Allison helped form this Cohousing community. The Community is not for profit, but with international interest in a low economic lifestyle. All but four of the apartments were sold immediately within the founding group, the remaining four were quickly sold at auction in 2014. The building is scheduled for completion in 2018. New Zealand has other cooperative living communities which consist of religious, feminist, Christian communities and spiritual communal. These are often less immediately classified as intentional communities. The concept of people which live together in a housing community they created. The concept does not have intentional communities which solely focus on providing domestic support. For this reason a decision not to focus on Earthsong or Dunedin was made, especially as Earthsong is very similar to varying Scandinavian sustainable communities.
4.3 Experimental Forms of Cooperative Housing Which Aimed to Provide Domestic Support

Introduction

This section researches theoretical ideas from which various models of cooperative housing schemes were developed from. These schemes experimented with facilities and methods for people to provide domestic support in. The following theoretical ideas, and housing schemes, are all international, as New Zealand does not have any.

During the Industrial Revolution factory work, housework, and home were all open to restructuring. Questions were raised by activists about the relationships between women and men, households and servants. Many architectural remedies suggested new aspects of urban and industrial life. These included new forms of specialization and division of labour, new technologies, and new concentrations of housing in urban and suburban neighbourhoods.

Dolores Hayden is an Urban Historian and has published several books on historical domestic revolutions and restructuring domestic life in the twenty-first century. Using these books as a framework, three categories were created for the content an Industrial Strategy, a Feminist Strategy and a Neighbourhood Strategy. These strategies each have their own political connotations, occurred between 1870 - 1980, have several architectural variants and are scaled based on their intensity of domestic reform.


The Industrial Strategy is founded on eliminating the traditional women’s domestic realm, and shifting women into paid employment during the Industrial Revolution. The relevance it has specifically to dual-income families and single working parents is that it sought to provide domestic support for working parents, which would minimalise household work through a cooperative housing scheme.

In the late 1880s, August Bebel, a German Marxist, wanted to shift traditional household work into the factory, which would abolish the women’s domestic sphere entirely. Bebel believed future domestic kitchens would be replaced by central institutions, which would prepare all food, (figure 31). He further predicted just as state owned factories would prepare dinners, state owned laundries would wash clothes, provide central heating and state owned bakeries would produce all home baking.

A Bolshevik national housing policy began in 1918 which campaigned for the transformation of the home, this was supported by Vladimir Lenin and Alexandra Kollontai. Lenin believed there was a need for housing with collective services to involve women in industrial production. Soviet architects pursued German Marxist Bebel’s ideas for housing reformulation through organising collective services run by the state. Architecturally they proposed minimal one-person spaces, rooms calculated by size rather than quality, spaces which were designed for folding beds, and recreational family spaces were made communal to ensure cooking and eating was collective, (figure 34). Often upper class nineteenth century apartments were re-commissioned and each family was allocated one room, the original bathroom, kitchen, dining and circulation spaces were shared by all the families collectively(figures 32 and 33), this housing typology became known as the Kommunalka.


Hayden, *Redesigning the American Dream*., 88-91.

Figure 31: A Russian State owned kitchen factory, which women prepared all the food for wages, (industrial production) instead of unpaid labour in their homes.

Figure 32: A Russian communal kitchen of a upper class nineteenth century apartment. It has been re-commissioned for one family to occupy each room and share the original service facilities. The typology is commonly known as a Kommunalka.

Figure 33: Floor plan of a Kommunalka.

Figure 34: Purpose built Moscow minimum space apartments (Narkomfin Building), with individual kitchens and bathrooms in their living and bedroom areas.
Similarly, the Austrian Social Democrats in 1926–1930 sought to transform Vienna into a socialised community through a network of communal factories. Rather than fostering women and shifting them into industrial factories, the focus was on simplifying their work to create more nurturing time for children and husbands.27 These housing blocks were derived from the traditional perimeter block and had communal laundries, bathhouses, showering, swimming pools, kindergartens, child-care facilities, clinics, libraries, workshops, meeting rooms and theaters, (figure 35). The general architectural model for this Industrial Strategy was an apartment block between four–eight stories occupying one or several city blocks. These blocks were serviced by paid workers, and were owned and operated by the Government,28 (figures 36 and 37). Bebel, Lenin, Kollontai, and the Austrian Social Democrats had successfully addressed current public issues when creating these housing schemes. However, they were never widely popular or accepted for several reasons. These reasons included the lack of unified planning concepts, our third building techniques, lack of innovative spatial organisation,29 the rent and service costs were beyond the means of most working-class families, and the lack of variety in unit types and sizes. Perhaps the most significant issue was that in Austria after the First World War and in the United Soviet Socialist Republic after the Bolshevik Revolution, both countries suffered major housing shortages, which forced multiple households to live collectively in single family apartments. This was therefore the social context for collective living to be continued, desirable or revolutionary.30

In conclusion, transforming the Industrial Strategy into New Zealand would offer multiple implications and opportunities. The dominant implications is the Government’s requirement to own, operate, and service the housing. The issues of price and variety are not issues in New Zealand, however, communal facilities can be combined with other schemes to produce housing attractive in New Zealand for dual-income families and single working parents to provide domestic support.

The design implications include the physical building typology which is an economy, although this could be seen as an opportunity for further exploration. This housing typology is not present in New Zealand. The opportunity would be to use the cooperative design ideology of the Industrial Strategy and integrate it into the New Zealand housing context. Overall the Industrial Strategy is radical with complete abolishment of private services in dwellings. However, components can be combined with other schemes to produce housing attractive in New Zealand for dual-income families and single working parents to provide domestic support.

3.3 The Neighbourhood Strategy – Minimum Reformulation of Housing

“The concept of ‘neighbourhoods’ to fit contemporary lifestyles. Tired of the isolation and the inconveniences of traditional single-family houses and apartment buildings, they built housing that combines the advantages of community living.”

The Neighbourhood Strategy was founded on a community housing concept and the Austrian Social Democrats had successfully addressed current public issues when creating these housing schemes. However, communal facilities were beyond the means of most working-class families, and the lack of variety in unit types and sizes. Perhaps the most significant issue was that in Austria after the First World War and in the United Soviet Socialist Republic after the Bolshevik Revolution, both countries suffered major housing shortages, which forced multiple households to live collectively in single family apartments. This was therefore the social context for collective living to be continued, desirable or revolutionary.

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Figure 35: Photograph inside an Austrian Social Democratic communal laundry.

Figure 37: Ariel view of Austrian Industrial Strategy apartment block modelled on the Quadrangle.

Figure 36: Ariel diagram of Austrian Industrial Strategy apartment block illustrating repetitive forms.

Figure 38: Site plan of a Garden City Quadrangle.

Figure 39: Plan view of a Garden City Quadrangle internal courtyard.

Figure 40: Plan elevation of a Garden City Quadrangle apartment block modelled on the Quadrangle.

Figure 41: Photograph of a Garden City Quadrangle communal laundry.
In conclusion, transitioning the Neighbourhood Strategy into New Zealand would offer multiple implications and opportunities. As explored by Hayden, Garden City Quotations and Coliving the communalities were living in groups of approximately thirty households with a central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

In Denmark, most common facilities are centrally located for use by the whole development. In the Netherlands, clusters of eight high-rise buildings usually share a living, kitchen, dining area, as a result, common facilities for the whole complex are typically smaller. Both Denmark and the Netherlands typically share a living, kitchen, dining area, as a result, common facilities for the families are located in the central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

The general framework for Cohousing is living in groups of thirty households with a central open space, central dining and child care facilities. Original Cohousing communities de-emphasized the common house, and individual residences were large and secluded. Modern Cohousing developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

In Sweden, the Institutional Approach to Coliving is more developed than in other Nordic countries, where domestic duties are more central to the domestic sphere for wages, working mothers to live with their families in private kitchen-less houses or apartments connected to central kitchens, dining rooms and day care centers. The implication of the Neighbourhood Strategy is that New Zealand’s history of single working parents to receive domestic support via the common house, and individual residences were large and secluded. Modern Cohousing developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

In conclusion, transitioning the Neighbourhood Strategy into New Zealand would offer multiple implications and opportunities. As explored by Hayden, Garden City Quotations and Coliving the communalities were living in groups of approximately thirty households with a central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

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In conclusion, transitioning the Neighbourhood Strategy into New Zealand would offer multiple implications and opportunities. As explored by Hayden, Garden City Quotations and Coliving the communalities were living in groups of approximately thirty households with a central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

In conclusion, transitioning the Neighbourhood Strategy into New Zealand would offer multiple implications and opportunities. As explored by Hayden, Garden City Quotations and Coliving the communalities were living in groups of approximately thirty households with a central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

In conclusion, transitioning the Neighbourhood Strategy into New Zealand would offer multiple implications and opportunities. As explored by Hayden, Garden City Quotations and Coliving the communalities were living in groups of approximately thirty households with a central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.

In conclusion, transitioning the Neighbourhood Strategy into New Zealand would offer multiple implications and opportunities. As explored by Hayden, Garden City Quotations and Coliving the communalities were living in groups of approximately thirty households with a central open space, central dining and child care facilities. Coliving communities de-emphasized the common house, and individual residences were large and secluded. Modern Coliving developments cluster their dwellings closer together than the earlier communities, and the shared facilities have increased in size.
4.4 Social Aspects of Cooperative Housing

Cooperative living alters the way people use the physical environment in face-to-face interaction and how they use the environment to shape social interaction with others. Typical housing schemes include spaces for both private and social activities, providing shared and personal spaces for the occupants. In cooperative living, these spaces have the potential to be redefined based on their level of collectivity. The relationship between public, intermediate and private spaces has been researched to identify ways to redefine or maintain them.

In conclusion, transitioning the Feminist Strategy into New Zealand would offer components of both a minimal and radical reformulation housing scheme. Gilman explored the suburban home ideology which consisted of a range of balanced meals, which could be eaten in private residences or designed without kitchens.

In urban town centres, cooked food delivery services. The community dining clubs were diverse in form. Generally, they included a dozen or several dozen families which would club together and hire a cook or several cooks with assistants. The families would rent or build a kitchen and dining room. In urban town centres, cooked food delivery services were more common. These cooked food delivery services attempted to offer a range of balanced meals, which could be eaten in private residences that were designed without kitchens. In conclusion, transitioning the Feminist Strategy into New Zealand would offer components of both a minimal and radical reformulation housing scheme. Gilman explored the suburban home ideology which consisted of a range of balanced meals, which could be eaten in private residences or designed without kitchens.

Small-town suffragists, city planners and specialists in the higher education of women attempted to put Gilman’s ideas into action. These were most commonly in the form of community dining clubs and cooked food delivery services. The community dining clubs were diverse in form. Generally, they included a dozen or several dozen families which would club together and hire a cook or several cooks with assistants. The families would rent or build a kitchen and dining room. In urban town centres, cooked food delivery services were more common. These cooked food delivery services attempted to offer a range of balanced meals, which could be eaten in private residences that were designed without kitchens.

In conclusion, transitioning the Feminist Strategy into New Zealand would offer components of both a minimal and radical reformulation housing scheme. Gilman explored the suburban home ideology which consisted of a range of balanced meals, which could be eaten in private residences or designed without kitchens.

Irwin Altman states that privacy is a central monitoring process by which an individual or collective makes themselves more or less accessible and open to others. Territories can be broken down into three categories; Primary Territories, Secondary Territories and Public Territories. Primary Territories are owned and used exclusively by individuals or groups, and are clearly identified as theirs by them. Secondary Territories are less exclusive; users often vary over time and the area is not always or solely identified as belonging to a single set of users. They are the bridge between total control of space and no control of space. Public Territories have a temporary quality and almost anyone has free access and territory rights. Altman discusses that secondary and public zones can be more difficult to recognize than primary. He suggests that it is essential to recognize that different levels of territories are viewed correctly by users and visitors. It is important to recognize that if the relationship between public, secondary and private spaces are ignored or under addressed in a cooperative housing scheme, occupants will struggle against the environment to achieve what they believe to be an appropriate level of privacy.

In cooperative housing privacy is an essential social component of the architectural scheme. Domestic support gained through collective methods (cooperative housework, childcare, cooking structure) requires the breakdown of what is often deemed private activities into social interactions. Altmann’s Spatial Territories and Alexander’s Intimacy Gradient have the potential to define these social interactions, and maintain the desired levels of privacy per activity. It is important to recognize that if the relationship between public, secondary and private spaces are ignored or under addressed in a cooperative housing scheme, occupants will struggle against the environment to achieve what they believe to be an appropriate level of privacy.

In conclusion, transitioning the Feminist Strategy into New Zealand would offer components of both a minimal and radical reformulation housing scheme. Gilman explored the suburban home ideology which consisted of a range of balanced meals, which could be eaten in private residences or designed without kitchens.
4.5 Conclusion

A contemporary version of the Industrial Strategy has the greatest potential to architecturally achieve the highest levels of domestic support, through its radical level of architectural intervention. Although the housing of the Industrial Strategy over time has diminished, proved to be the least popular, and is no longer being constructed. The Neighbourhood Strategy has the least potential to achieve domestic support architecturally, as the architectural intervention is minimal. Although the housing of the Neighbourhood Strategy continues to develop, is spreading globally, and is still currently being constructed.

As a result of this research, it became apparent that there is a possibility to combine the high level of domestic support in the Industrial Strategy with the popular architecture of the Neighbourhood Strategy. These two schemes could be mediated using Irwin’s Spatial Territories and Alexander’s Intimacy Gradient, to create a range in the architectural intervention of the individual housing units. This would allow the occupants to choose how much domestic support is achieved and control their desired levels of privacy, independence and individuality in a cooperative housing community.
5.0 Precedents Analysis
5.1 Introduction

The selection of precedents was influenced by three different types of reasoning. The first type was based on the successful and unsuccessful components of the Housing Pattern Study, the Maternal Family Housing Study, the Industrial Strategy, the Neighbourhood Strategy, and the Feminist Strategy. The second type of reasoning was based on selecting housing schemes which were architecturally aware of the social implications of cooperative living. Lastly, schemes were selected which are sympathetic to New Zealand's housing history and context.

5.2 Familiar Components of New Zealand Housing

The common aspects that have not changed across all houses are the general shape consisting of rectangles or squares, the roof form being gable or hipped, materials are brick or timber, houses being single detached on private pieces of land, and the allocated functions within the house (figure 49). These consistencies represent what New Zealanders are familiar with, and resonate with as 'home'.

Building new and different contemporary housing typologies can often lead to rejection. Modernist state owned housing blocks and high-density apartments with no open space have been rejected in New Zealand, and have not been built since the late twentieth century. These typologies removed all familiar components and retained no characteristics of New Zealand's housing. Through the combination of existing housing features and new forms, this design will have the potential to be adapted to New Zealand's housing and culture.

5.3 Residential Care Home: Rosegger Nursing Home

Architects: Dietger Wissounig Architekten
Location: Graz, Austria
Completion Year: 2014

This scheme was selected as it is a specialised and individualist contemporary form of cooperative housing. It challenges the social implications of cooperative living, and has architectural features which have the potential to be sympathetic to New Zealand's housing and context.

Rosegger Nursing Home has a high level of communal space, and resolutely has a highly controlled architectural environment. The residents themselves do not provide the domestic support: the care workers use the collective facilities to provide it, (figure 50). The residents live in this care home because they require high levels of domestic support that cannot be achieved in their private homes. The facility contains eight asymmetrical internal decking areas, creating eight separate areas - four per level, containing thirteen residents in each area, a shared kitchen and dining room for each area (fig. 50), (fig. 52). The use of material, the low rise form, a sprawling floor plan, and medium density create a relatability of this building to New Zealand's architectural context.

Analysis of the floor plan and spatial layout:

The individual areas (four per level) are grouped around the kitchen and dining area in each corner, (figure 53). The private rooms are on the perimeter of the plan, which open directly onto and are clustered around the kitchen and dining rooms, (figure 54). The way in which the rooms open directly onto the shared service spaces illustrates what is considered to be the appropriate level of privacy and independence in this housing facility. The level of privacy and independence for each resident is extended only to the resident's personal rooms only. The circulation space between each of the rooms in the building is therefore used as a secondary territory between the public and private areas, (figures 52 and 55). There is no transition area between the residents' rooms and the adjoining kitchen and dining areas.


Figure 49: Common aspects that have not changed across all houses.

Figure 50: Photos illustrating the materiality, long timber spans, and one of eight shared common spaces.

Figure 51: Ground floor plan.
There is no variation in the design and treatment of the private rooms, which all have identical facilities. This design decision implies a disregard for the possibility that people’s needs have the potential to be individualistic. However, through equal treatment of all private rooms an overall sense of equality amongst the residents is created. This removes the possibility of the architectural design influencing a spatial or social hierarchy.

The four communities per floor level are physically connected through the circulation routes and roof terraces. This connection expresses the idea that although the areas are separate and distinct, they can be accessed and used by any of the occupants, and are not limited only to those occupants which have the adjoining rooms. These areas are further visually connected for those occupants which are physically immobile, (figure 56). The visual connection allows them to participate in the activities of the different areas, even when they are not physically present.

The architectural form is modelled from the local traditional housing. The street front elevations are of a similar scale to the neighbouring properties (figures 57, 60 and 61). The housing complex is separated into three parts: the common house and two adjacent blocks of private units. These private units are connected by a covered atrium creating an internal street. This street connects both the residential blocks together further unifying the community.

The access point to each unit is through a shared atrium area. This ensures that the central atrium is activated and utilised. This design decision makes it difficult for individuals to enter and exit privately without observation. Each unit does however, have a small private terrace, which is on the perimeter of each apartment that faces the street, (figure 58).

There is no variation in the design and treatment of the private rooms, which all have identical facilities. This design decision implies a disregard for the possibility that people’s needs have the potential to be individualistic. However, through equal treatment of all private rooms an overall sense of equality amongst the residents is created. This removes the possibility of the architectural design influencing a spatial or social hierarchy.

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The units are vertically stacked, one directly on top of the other, (figure 59). There is no variation in the units which are above or below each other, creating simple economical forms. The floor plans of each unit are similar, with either the kitchen and dining facing the shared internal atrium or the kitchen and a bedroom. The positioning of the kitchen and dining between the public territory and private territory at back of the units, suggests it is intended to be the transitional zone - the secondary territory. As a result, the living areas are at the back and are places of private socialisation in each unit (figure 62). The placement of the kitchens at the front entrances proposes that they are intended to become a place of social interaction with other households. Bedrooms should be quiet places allowing people to sleep. Adjoining bedrooms with the central atrium implies that the space is expected to be reasonably quiet and private.

Analysis of the common facilities:

The common house for this thirty-one-unit complex is approximately the size of three apartments. When common spaces are too large they become deactivated, and if they are too small they become crowded and over-intense. The ratio used in this community is ten-one: for every ten apartments the built common area has the floor area equivalent to one apartment. This ratio could be translated to other cooperative living communities to ensure that common spaces are an appropriate scale.

There is one shared kitchen, which is closed off, spatially economical, and not open plan. Socialisation in the kitchen, therefore is not encouraged through the architecture. The common house is not open plan, the separate functions are enclosed in various rooms (figure 63). Spatially separating different functions creates niches, consequently, the same occupants will usually gravitate to the same niches and socialise within the same groups of people. In elevation, the common house is the least dominant element, but detached and not connected to the main circulation (figure 64). This design decision suggests the common house was designed as a place in which one can withdraw from their own unit and physically remove themselves from their immediate family.
5.5 High Density Social Housing: Odhams Walk

Architects: Greater London Council Architects Department
Location: London, England
Completion Year: 1979

This scheme was selected as it is a multi-award winning social housing complex, which had the design intent of finding an architectural compromise between traditional English housing and high density social housing. The form challenges traditional housing, while the planning- ideology is similar to that of the traditional English house.

Odhams Walk is a mixed-use development of 102 apartments above a platform of parking and commercial tenancies. There are seventy-three apartments on the lower two levels arranged around internal courtyards and private terraces. Elevated open corridors create access to twenty-nine ninth-floor apartments.

Analysis of the apartments and spatial layout:

In the 1970s the Greater London Council believed that the people living in social housing should have equal access to high quality housing as did people in private housing. Therefore, each apartment should have external access and a private balcony, (figure 65) this became the driving force of the layout and spatial arrangements.

Each resident has their own spatially private balcony located at the front of each apartment. A clear identifiable intimacy gradient is present in the public to private transition. The transition is in a horizontal line, the public zone is the internal courtyard, the balcony is the semi-private space and the apartment is the private space. This system of transitioning is simple, effective, and visually identifiable to all visitors and occupants, (figure 66). Several smaller circulation routes were used instead of one circulation core. Using several small circulation routes achieved external access to every apartment, and conveys a visually sophisticated circulation system. The balcony space in front of the private apartments is private, but is visually connected to the neighbouring apartments. A neighbourhood watch is created as the upper levels overlook the lower level internal courtyards. This strong visual connection strengthens the sense of a community.

Analysis of the architectural form:

The building complex mass is not generated from a pattern system or structural grid, but from the arrangement and maximisation of each individual apartment. At ground level, the forms are simple rectangular masses with voids between for circulation (figure 68). The forms on the upper levels shift to allow external entrances and balconies for every apartment (figure 67). The elevated open corridors and shifting forms result in a complex spatial arrangement. A simple facade, unified building material, and simple openings allow the building to appear solid and sophisticated. All the forms are generated from squares and rectangles, Odhams Walk illustrates how the clever use of simple geometry does not produce monotony.

Figure 65: Apartment floor plan identifying private patio and external access without corridors.

Figure 66: the public zone is the internal courtyard, the balcony is the semi-private space and the apartment is the private space.

Figure 67:forms on the upper levels are shifting to allow external entrances and balconies for every apartment below.

Figure 68:The massing and forms.
5.6 Design Direction – Conclusions from Research

The design direction was based on two main components. The first includes what was learned in the previous chapters of research. The second was based on what would be applicable for New Zealand.

5.6.1 Design Brief

The design needs to include or be aware of the following issues:

- **Medium-Density**: Medium-density housing characteristically creates spatial relationships between public, shared and private spaces, whilst allowing independent and private dwellings. Low-density housing is detached, the spaces between dwellings do not have any spatial connection. High-density housing characteristically is apartments which are physically connected, and all intermediate space is shared. Medium density is between both housing extremes and provides an opportunity for spatial experiments between detached and shared, and public and private external space.

- **Diversity in Households**: Diversity facilitates flexibility in schedules, accounts for shared spaces, and availability of people. Diversity also increases the likelihood of people being present all the time, which activates the community and provides spatial surveillance.

### Domestic Service Areas Designed to be places of Social Interactions

To encourage cooperative behaviour and shared activities (kitchens, laundries, workshops) will be designed for multiple users at any given time. These spaces will be large, and designed with the intent that they are places for social interaction to occur. Domestic support has the potential to be enhanced through this method: for example, adults can perform daily chores (cooking) while children play in the same space allowing them to be supervised and interacted with at the same time.

- **Twenty-six – thirty-two households**: Successful European Cohousing Communities have between twenty and thirty-six households. This figure proves to create the ideal number of people to share domestic tasks. When there are too many people, they become strangers, and no proper relationships are formed. When there are too few people, and when domestic tasks are shared it becomes laborious for the people that do contribute. A slightly smaller household range has been selected for this project as European Cohousing households average two people per dwelling. This project includes larger apartment sizes and will average three – four people per dwelling.

5.6.2 Design Direction - Conclusions from Research

- **Two, three and four-bedroom dwellings**: One-bedroom units will not be included in this housing complex. This project is orientated around families which need domestic support. Individual adults, have no one dependant on them in the home, and resolutely require less domestic support. A decision was made to focus primarily on families with children for this reason. The average New Zealand household size is currently decreasing. For that reason, four-bedroom dwellings are the largest size to be included. The apartment size will allow larger families to live in the housing complex, which coincidentally contributes to increased household diversity.

- **External access and private balcony in every dwelling**: Access through corridors is characteristic of apartment blocks and high-density housing. External access and private balconies or green spaces are features associated with low-density housing. External access gives the occupants a feeling of their own individual space. Private external areas allow individuals to privately recluse outside, without being forced into communal space.

- **Prioritise pedestrian circulation over motor vehicle**: This housing complex focuses on housing for families, and will have a high ratio of children to adults. The ground level therefore should be pedestrian orientated. Pedestrian orientated sites have the potential to be landscaped and used as social spaces, which will further utilise the ground level, and ensure it is not just used for circulation.

- **Public – private transitions, and spatial gradients**: For shared spaces to be used as intended, it is essential that there is a clear understanding by all users about how the space is intended to be used. Additionally, personal privacy has the potential to be increased when space gradually transitions from public to private.

- **A variation in how cooperative or individual the dwellings are**: A variation provides each household with the ability to decide on the level of domestic support they wish to achieve, and resultantly how connected they are with common facilities and their preferred level of privacy. Additionally, a range of connectedness allows choices for families which will contribute to diversity among households.

- **Visual or physical connection between separate areas of the housing complex**: This facilitates an increased understanding of which shared spaces belong to the community and which spaces are private. It further increases the overall sense of community through connectedness and surveillance.
6.0 Site Selection & Analysis
6.1 Introduction

The site is located in Mount Eden, a Central Auckland Suburb, approximately a twelve minute drive from Auckland’s City Based District. It is a suburban site, located in close proximity to the local town centre. The existing site consists of 1960s single low-rise flats, a McDonalds building and an open carpark. This project proposes to remove two buildings and car park, and will accept the existing site boundaries.

6.2 Site Selection Criteria

This site has been chosen for the following reasons:

- **Socio-demographic profile of the area:** Mount Eden is a working-class suburb, and the current family typologies include dual-income families and single working parents. The selected site is positioned amongst targeted households.

- **Existing suburban fabric:** This project is proposing that the new housing scheme is an alternative to existing housing models, and not a replacement. Therefore, an existing suburban example was selected for the context and not greenfield development.

- **Mixed building heights:** The site is in a suburban area, close to the local town centre three-storey buildings. These building heights provide the potential for a multi-storey housing development to be constructed, which would not be considered contextually inappropriate.

- **The area is undergoing redevelopment:** Light rail has been proposed for the adjacent Dominion Road including multiple light rail stops. A large apartment complex is in the early stages of construction, opposite the site on Balmoral Road. An adjacent shopping complex on Dominion Road has proposed to be redeveloped to a twelve-storey mixed use complex. One kilometre along Dominion Road is the largest proposed apartment building in the area, currently undergoing building consent.

- **Contextual traditional New Zealand families and housing forms:** Modern housing in a traditional New Zealand suburb has the potential to challenge societal normalities. Although contextual consideration is necessary, the new housing complex has the potential to set new height, density and architectural form standards for the area. These new standards further have the potential to illustrate progressive changes in the contemporary built environment, and in family typologies.

- **Two street fronts:** Physical expression of the built fabric has double the societal impact with two uninterrupted frontages. Additionally, street front boundaries provide increased opportunities for community integration, and interaction with the new alternative housing typology.

- **Site size:** The selected site is the approximate size required to achieve medium-density housing, which contains between twenty-six and thirty-two households.

- **Close proximity to amenities:** Motor vehicles will not be prioritised on this site. The potential to use public transport as the singular mode of transportation is realistic. Local schools, shops, supermarkets, and parks are within a five minute walking radius.
Figure 70: This figure ground diagram enabled a negative and positive space comparison, and site occupation study. The surrounding residential properties have between 60 - 70 percent site occupation.

Existing Site

Proposed Site Changes
6.3 Site Analysis

Contextual Aerial Diagram

Figure 71: The site in its Mount Eden suburban context.

Site Plan

Figure 70: The approximate density calculations aided the site selection process to ensure it was an appropriate size for medium-density based on 26-32 dwellings.

Site Boundary Exploration

Figure 73: The site has four unique boundaries: the north is a main busy road, the east is a local town centre, the south is a suburban street and the west are suburban residential properties.
Vehicle and Pedestrian Urban Analysis

Figure 74: It became apparent from this diagram that the vehicle access should be from the south side of the site, as turning right from the main road would further increase the traffic congestion and is an unrealistic expectation for the proposed residents. As seen in Figure 71 there is an underutilised park on the northeast corner of the site, this has potential to be re-developed and used to create a community orientated pedestrian access. Due to the distribution of pedestrian activity and vehicle congestion it will be likely that the vehicle access and pedestrian access will be separate.

Boundary Treatment Analysis

Figure 75: The red line is the footpath, the blue areas are private and public spaces. This diagram identifies how far back the buildings are set from the footpath on their properties.
7.0 Design Process & Development
7.1 Introduction

Following on from the methodology description in section 1.7 Methodology, an iterative design process was used and developed for the architectural design response. Conclusions and research material provided guidelines/rules for the design, especially sections 4.5 Conclusion of the Survey of Existing Knowledge, and 5.6 Design Direction. Different design concepts were created and developed then evaluated against the guidelines/rules as a way of determining completion or the need for further development. This process continued until the final spatial arrangements and forms were achieved.

7.2 Initial Site Massing and Circulation

Four initial design concepts were formed based on fulfilling the guidelines/rules for the design, and experimenting with the lessons learned from: the Industrial Strategy, Feminist Strategy, Neighbourhood Strategy and precedent studies. After the site selection and analysis general circulation patterns for the site were surveyed on a large scale, which included considerations for pedestrian and vehicle access.

The initial circulation responses were sketched, developed into mass forms, broken down into smaller forms, and experimented with different design approaches to the general housing form. The red areas are the private areas, the orange areas are semi-private, and the yellow areas are shared or the least private part of the overall housing complex.

+ Initial mass one: The design response for this concept was formed around the idea of potentially allowing the general public to use the site as an access route between the main streets, and the side street. This would effectively encourage the community to experience this alternative housing scheme. The forms that were generated are a combination of low flat surfaces for roof occupation, as seen in Odhams Walk precedent, traditional hip and gable roof forms as seen in the Canadian Cohousing Precedent, and the New Zealand vernacular house.

+ Initial mass two: The second form and circulation took inspiration from the perimeter block seen in the Industrial Strategy. These perimeter blocks were organised around shared courtyard spaces, which could potentially contain the shared and socialised domestic services, not to dissimilar from a Cohousing spatial arrangement. The shared spaces are mostly located on the upper levels and roof space, this was common in the Russian Kommunalka (section 4.3.1).

+ Initial mass three: This concept considered prioritising motor vehicles on the ground level and raising the external pedestrian area to the second level. The mass itself is in one large block, which has been broken down into smaller forms, including the roof as occupiable floor area. The masses are long and flat, the upper levels overlook the lower levels. These overlooking floor levels would create visual connections between each level, similar to the internal terraces on the Rosegger Nursing Home. The use of external stairs could potentially unify all the levels of the scheme for an increased sense of community.

+ Initial mass four: This mass experimented with a dense form, and is similar to terrace housing, with houses in rows sharing the same access point or lane. As a result of the denser form, a large open external space was achieved which could be activated through shared facilities such as children's playground or a workshop. This form was experimenting with New Zealand's traditional housing form but in a higher density. These rows of housing are all connected to a yellow block (shared space) and would potentially function in a similar system to the Feminist Strategy.
7.3 Domestic Support Design Concept

After the initial four mass concepts were created, they were evaluated against the guidelines/rules for the design. Each concept proved to have successful and less successful components. The next logical step was to break down the designs and figure out how they would spatially function in regards to facilitating domestic support. The Survey of Existing Knowledge illustrated that the housing schemes which had the least domestic and spatial independence (the Industrial Strategy) achieved the highest levels of domestic support. However, the Industrial Strategy proved to be the least popular over time in comparison to the minimum intervention option - the Neighbourhood Strategy, (figure 78). (Refer section 4.3 for an in-depth description).

A potential variation of a successful domestic support housing strategy would be to create a compromise between the radical and minimum extremes. This compromise would be to allow the occupants to choose their level of connectedness and desired level of domestic support. Although the residents would need to understand that the more connected they are to shared spaces, the more their standards of privacy and independence would potentially decrease. Case by case the occupants could choose where they want to position their dwelling or purchase their dwelling on the connectedness & domestic support/privacy & independence spectrum. In the long term the occupants would not struggle against their environment to achieve desired levels of privacy or domestic integration, that they consider acceptable. In order to distinguish which spaces are shared, semi-private and completely private, in relation to the thresholds they share with the private units (of the private units were directly attached to shared spaces or semi-private) Altman's spatial territories and Alexander's intimacy gradient could be implemented into the planning of entrances, exits and circulation strategies.

In accordance with the thought process and research connections figure 79 was designed as the first domestic support concept. This sketch is representative of one variation of how the spatial arrangement could work. The central yellow zone is the complexity shared and thus least private area, which was intended to contain common domestic service facilities such as kitchens, dining, laundry and childcare facilities. The orange zones break the threshold from direct transition of public to private, these zones were intended to include recreation spaces, entrances and exits to private dwellings, meeting places and washing lines. The red zone was intended to be the individual dwellings themselves. The housing scheme itself was intended to have all components/housing blocks physically connected so this increases the potential for domestic support, and a stronger sense of one unified community.

The left side of the diagram has the private areas attached directly to the shared areas; less privacy would be achieved but there is increased potential to gain higher levels of domestic support through integration and shared activities. For example, a proportion of the units could open directly onto a laundry/nursery, enabling the occupants to do their laundry while maintaining close proximity to their apartment for observation of their children. This connection of a service space used by many and directly connected to several households has the potential to socialise domestic work. This shared laundry could become a place for the adults to socialise while getting domestic tasks done and observing their children. This sketch plan could change on each level with units grouped closer to the shared spaces or further apart.
7.4 Three-Dimensional Domestic Support Concept

Using the forms that were generated in the four initial masses, further design explorations were made using three-dimensional forms and layouts using the domestic support concept generated in figure 79.

The first drawing (figure 80) is a rough sketch section, which responds to the domestic support concept using a central service core where the shared amenities would be located, including the main circulation. The circulation was included in the service core as it would increase the use of the shared spaces, and further activate the space as members of the housing community would be frequently entering and exiting. The sketch section was translated into potential elevations (figure 81). The elevations considered different materiality options and physical expressions of the shared spaces. The materials used were a modern interpretation, of the contextual materials to the immediate area and to New Zealand's housing. Modern versions of the original materials were considered as this housing scheme is for the next generation, modernisation of the building materials could potentially symbolise contemporary housing/futurisation. The elevation in figure 81 explored the possibility of having spaces/private units spanning out from the centre of the service core as a radical expression of the cooperative living programmes.

Figure 82 is the working model which was generated after the section and elevation exploration. The mass includes a central service core with a proportion of the units on the first and second level directly attached to the central shared space/service core. On the third level the units are set further back from the central space, and on the fourth level the units are completely detached from the central space. A vertical gradient has been used as a method to distinguish between units that are directly attached to shared spaces and units which are attached to semi-private areas.
Figure 83: Developed three-dimensional model of the domestic support concept.

Figure 84: The final rendition of this housing scheme in plan on ground level.

Figure 83 is an image of a further developed form of the idea. To increase the unity of the approximate twenty-five households in the housing scheme, each floor level has voids, which opens up the central space and creates one unified spatial volume.

As the form further developed, the issues with the idea became apparent. In plan attaching several individual units to one central space, created a very large central space if corridors, or narrow passages were to be avoided as attachment points.

Figure 83 is the final rendition of this housing scheme in plan on ground level. The street front responds to the commercial zone, potentially having public services along the street edge as no domestic privacy could be achieved along that facade (high public pedestrian volume). A passage through the site encourages community integration and experience of the housing scheme. The private units are stacked horizontally and vertically along each side and are connected to each other and the central space in the middle. When this housing model was evaluated against the original design requirements in section 4.6.1 Design Brief it appeared to contain at least some consideration of every component. However, the design lacked a unique quality: all the spaces were quite general. Further development of the spaces was limited due to the intent to ensure they remained connected, to the central space. One of the design approach conclusions included twenty-six – thirty-two households a figure which proves to create the ideal number of people to share domestic tasks, for this reason the design had been determined to include all households attached to the same central space. A conclusion was made that while the design principles were correct and the mass was effective, the design was not successful in plan.
7.5 Domestic Support Design Concept Development

As a result of the conclusion that the scheme was least successful in plan, further experimenting with the initial domestic support concept in plan was conducted. The primary response was to experiment with vertical attachment to shared service spaces, instead of horizontal, (figure 84). Vertical attachment to shared spaces would allow cooperative domestic interaction at different levels throughout the building. If the units were multi-storied, attachment at different points has the potential to further increase domestic support and a sense of one unified community. On the upper levels the units are slightly smaller in size, setting back the units would create and increase the courtyard space above for potential social shared interaction, and access to shared service facilities. For example, on the lower level the private units could be attached to a shared communal service space such as a laundry and children’s play area, and on the upper level the units could be attached to a shared dining and kitchen area (figure 83). In order to control the size of the shared space, instead of attempting to connect all the private units to one large shared space, the units will be clustered around one of potentially several smaller shared areas. These smaller shared areas are intended to be connected together on ground floor level, and second level via external courtyards, and internal circulation. These courtyards on the lower level will ensure that the internal spaces are no deeper than twelve meters from the façade to ensure they are naturally lit and passively ventilated, and where the spaces are deeper than twelve meters courtyards will be placed (figure 86). Additionally, by limiting the size of the shared central space it will become better utilised, especially as overly large spaces become underutilised and uneconomical.
7.6 Private Housing Component Development

After developing the domestic support concept and discovering the best approach for the individual apartments was a two-storied model, the next logical step was to develop the shape and sizes in more detail.

As a result of analysing Odham's Walk, it seemed that one reason for the housing scheme's popularity was the shapes and forms of the apartments themselves. The apartments and spaces shift forms in a controlled systematic way. The forms use negative and positive spaces to create niches, which are either physically private or semi-private transitional areas. These transitional areas that the niches create successfully architecturally Altman's Spatial Territories, and Alexander's Intimacy Gradient (sections 4.4 and 5.5).

Using this understanding, the initial apartment experimentation used the ideas of niches while remaining within the confines of the forms that New Zealand's square and rectangular houses can create (figure 88). A proportion of the niches that were created were intended to be private terraces, and others were intended to be semi-private transitional spaces, between shared communal areas and private apartments. After this initial form experimentation, the individual apartments were broken down into the previously selected four, three and two bedroom variations (section 5.6). Using the apartment shapes and sizes that had been tested, the apartments were arranged in a clustered orientation on site around the shared spaces, allowing the designed apartment niches to form semi-private transitional areas (figures 89 and 91).
Initially the apartments were intended to be separate on the upper level of the two-storey domestic support approach. The separation creates a raised courtyard space and creates the illusion of a detached dwellings (figure 87), representing traditional New Zealand housing. The size of the site began to limit whether it was actually possible to separate the apartments or not, while complying with the approximate twenty-five household’s module. The apartments were still partially attached and had begun to decrease in size to accommodate the detachment.

Figure 92 is a working ground floor plan, the yellow space is the shared area and the red areas are the private apartments. The decision was made to place no apartments on the south side as they would be south facing single aspect apartments, additionally the apartments are grouped in twos and threes to minimise the amount of single aspect dwellings. There is a limited number of private apartments on the ground floor level as adding more would decrease the quality of the shared spaces and passive lighting.

Figure 93 is a working second level floor plan. A proportion of the private units (red) are two-storeys from the floor below, and the remaining proportion are single storey. The orange space is an external semi private circulation courtyard area. Figure 94 is the mass that was achieved through this planning strategy.

The site was increasingly becoming size restrictive, and was not allowing the design to continue in the desired direction to achieve the full potential of domestic support. A final decision was made to change the site for this reason. Withstanding the initial site analysis and reason for site selection in the chosen area, a new neighbouring site was selected. The site analysis in section 6.3 is for the new site which was chosen, and is the final site which is used. Up until this point in the design process the earlier site was being used, for the full set of analysis drawings for the first site refer to the appendix.
7.7 Developed Design

The nature of the brief became clear through the design process developed while working with the 1st site: what relationships between the separate but unified components of housing would satisfy and meet concepts of privacy and community in an extended NZ form, and what spatial relationship works for the connection to the neighbourhood (ref). These issues were defined in the course of several iterations on the first site, and made the planning of the second site straightforward.

After the site change, it became apparent that the design difficulties were still a result of connecting all the apartments together via the shared space. Although the initial connection has been decreased to smaller shared areas connected together on the ground floor level and second level via external courtyards and internal circulation, the connection was still creating a common area which was too large. As a result of this realisation and the earlier domestic support concept development smaller modules with their own service core were developed. These modules were designed for approximately twelve apartments per service core, (figure 96). The module was designed with many iterations and developed slowly with the intent to have several on one site to form an overall housing community.

Figure 96: Smaller modules with their own service core were developed for approximately twelve apartments per service core.

The last module of figure 96 includes ten two-storied apartments. On the lower level they have external private access with the potential to have private terraces. In the centre on the lower level the apartments are clustered around a shared common space which is intended to become the shared socialised laundry which encompasses kitchen facilities especially for children. Directly above that central clustered space is the service core which will contain the shared kitchen, dining and main circulation. The configuration achieved: a visually dominant service core, with private two-storey apartments connected to the centre on the first and second level, the earlier courtyard idea has been implemented on the upper levels with a proportion of the apartments set back appearing to be detached, with the possibility of adding additional apartments completely separate from the shared space on an additional level. The density achieved at this scale is medium and the apartments remain a considerable size ranging from 60m² – 200m².

The developed module was experimented with on site, (figure 97). The square shape of the module resulted in two modules not fitting well side by side due to the rectangular shape of the site. Numerous renditions of the general shape and layout were considered once the module was on site, (figure 97). In figures 98 and 99 a potential final mass and circulation was achieved. The design outcome answers and considered the original guidelines/design rules from sections 4.6 and 5.6.

The developed module was experimented with on site.
Ground level courtyard space, circulation and shared outdoor area, including access to the main circulation in the service core.

Service core approximate size, scale, and materiality. Approximately fifteen households will use this space.

Second level raised courtyard space, which the apartments open out onto (refer to figure 104). The two separate blocks are connected by second level bridges, allowing all occupants to use access all of the shared space.

Figure 98: Three dimensional view of the housing mass, explaining design decisions.

Figure 99: Ariel site view of the housing mass, in the sites contextual setting.

Figure 100: Street level perspective of the site. The main pedestrian entrance is visible, including the existing under utilised park.

Figure 101: Street level perspective of the site.
On the right side is the apartment and on the left side is the shared service space, with a semi-private threshold between the two extremes. Children are safe to play on this level unsupervised, as it is raised above the ground. The shared service space and semi-private courtyard act as an additional surveillance mechanism.

On the right side is a private apartment, and on the left side is the ground floor of the shared service space, which connects to approximately ten other households. The kitchenette has been placed on the threshold of the apartment and shared space, the bedrooms have been placed on the other side of the apartment.

This is the central staircase, there are two in the housing complex one in each service core. A socialized laundry, and children’s area can be seen on the lower levels. The upper level is the common shared kitchen and dining.
the building mass is in line with the residential housing set back.

Figure 104: Ground level courtyard perspective.

The mass is built-up to the street edge, in the same manner as the shops.

The residential masses reach their highest point of three-storied behind the shops, which are twelve metres high.

The building is close to this boundary, as it is a vehicle thoroughfare and will not be built up in the future.

Main pedestrian access into the housing complex, through the underutilised park.

A shared swimming pool has been placed here, as a way of setting the building back from the residential properties.

The building is no more than two storeys on the residential boundary.

A shared swimming pool has been placed here, as a way of setting the building back from the residential properties.

The building is no more than two storeys on the residential boundary.

Figure 103: An explanatory site diagram.
8.0 Conclusion
The architectural question for this project has been “How might cooperative housing strategies facilitate domestic support for dual-income and single working parent families in New Zealand?” The intention was to design a cooperative housing typology which facilitates domestic support for dual-income and single-working parents.

The cooperative housing typology proposed is in complete contrast to typical housing in New Zealand. Current New Zealand housing originated from a time when women were not traditionally in the paid labour force, they resided in domestic occupations. As women shifted out of the home and into the workforce the daily functioning in their homes changed. The number of households without a full-time domestic occupant increased, but in 2017 we are still residing in these housing typologies from periods when society consisted of predominantly nuclear family households. The proposed housing demonstrates an architecture that provides the opportunity for contemporary family typologies to rely on both their built environment and a housing community to provide domestic support, through architectural facilities. This domestic support has become essential due to the modern relationship of raising a family, and the necessity for both genders to work in full-time paid occupations.

This cooperative typology has focused on several key features which are not only intended to facilitate domestic support but are intended to offer a unique perspective and approach to housing design and research. Firstly, the domestic service areas such as kitchen, dining and laundry were redesignated as places of social interaction. This was due to the intent to alleviate and remove the traditional isolation of these domestic spaces and socialise the domestic work, which was once considered ‘women’s’. The second key feature is the ability for the occupants to choose what level of domestic support is achieved, and then to control their desired levels of privacy, independence and individuality.

The Survey of Existing Knowledge identified several failed attempts at past cooperative housing attempts where the lack of success was largely due to the lack of choice for the occupants. They were unable to choose their desired level of domestic support and as a result struggled against their domestic environments, to achieve what they consider adequate levels of privacy. Lastly, using New Zealand's traditional housing features the scheme attempts to be relatable to all New Zealanders, acknowledge the country's domestic identity, and to be contextually sympathetic to the features we New Zealanders resonate with in the architecture of ‘home’.

Further research should investigate the potential of cooperative living as a housing typology in New Zealand. While New Zealand does have some form of communal living, it is not a recognised housing typology. In Scandinavia, Cohousing is a common form of residential suburban housing. The United States of America currently has over 130 contemporary Cohousing communities. Canada has recently constructed 14 Cohousing communities. While Cohousing itself is growing in popularity and scale, there is potential to further develop additional variations of cooperative living. These variations could speak directly to the community’s needs – retirement, culture, religion, sustainability, and domestic support for working parents. Through a collaboration of cooperative housing typologies, the idea of responding directly to New Zealand’s traditional housing forms and context could be developed further and can aid the growth of a new contemporary housing typology for New Zealand.
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Page 42 Figure 35 Photograph inside an Austrian Social Democratic communal hall.

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Page 43 Figure 38 Site plan of a Garden City Quadrangle and a floor plan of the cooperative common house.

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Page 44 Figure 42 Swedish "Klämstads" (collective house), an institutional approach with paid service workers.

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Page 45 Figure 44 Gilmina's Feminist Apartment Hotel exterior sketch.

Page 45 Figure 45 Gilmina's Feminist Apartment Hotel floor plan. There are four apartments without kitchens on each floor. Each has two rooms and a bath, which Gilmina defined as the minimum necessary for one adult. Connecting doors suggest the possibility of couples inhabiting adjacent apartments.

Page 45 Figure 46 Diagram of the spatial hierarchy of the floor plan, the red zones are the private areas while the orange area is the circulation-territorial territory, and the yellow are the shared kitchen and dining room.

Page 45 Figure 47 Archibald's Spatial Territories diagram with an applied colour gradient.

Page 47 Figure 50 Photograph of the exterior, illustrating the form, scale, and materiality.

Page 47 Figure 51 Ground floor plan.

Page 51 Figure 52 Diagram of the spatial hierarchy of the floor plan, the red zones are the private areas while the orange area is the circulation-territorial territory, and the yellow are the shared kitchen and dining room.

Page 51 Figure 53 The complex is divided into four different spatial communities per floor.

Page 52 Figure 54 The individual communities are grouped around the shared kitchen, dining, and recreation area.

Page 54 Figure 55 Circulation as transitional space from public to private.

Page 54 Figure 56 Balconies and corridors with large glass windows create a visual connection between the four separate areas/communities on each level, reducing the isolation.

Page 55 Figure 57 Photograph of the interior, illustrating the form, scale, and materiality.

Page 55 Figure 58 Ground floor plan of the entire housing complex.

Page 56 Figure 60 The interior floor plans are based on the local Canadian traditional housing forms.

Page 61 Figure 61 The Co-housing typology has achieved a similar scale to the surrounding houses.

Page 62 Figure 62 Positioning of the kitchen and dining between the public territory and private territory at back of the units, is intended to be the transitional zone.

Page 63 Figure 63 Floor plan of the common house, red are the enclosed spaces, and yellow is the circulation.

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Elevation, illustrating the scale and
densified form of the common house.
McCamant & Durrett Associates personal
Figure 72: 

Property at the project site should be from the south side of the site, as north facing buildings are shaded from the midday sun. A well-planned site would be shaded to have a more comfortable outdoor space for residential and visitors. Pedestrian access will be located on the north side of the site, near the southeast corner of the site. Most of the pedestrian activity is located near the site entrance as seen in Figure 71. There is a designated pedestrian street on the north-east corner of the site. This has potential to be redeveloped and used to create a community oriented access to the site for pedestrians only. Moreover, the distribution of pedestrian activity and traffic congestion will likely be the vehicle access and pedestrian access and will be improved to make complete pedestrian access.

The area is in Mount Eden suburban context.

The approximate density calculations aided in creating a site selection process as an appropriate size for median density based on 25-32 dwellings.

Elevation, illustrating the scale and
densified form of the common house.
Figure 73: 

Preliminary diagrammatic domestic
support concept sketch.

A section sketch of the service core idea.

An example of an experimental elevation of
the site above, including physical expression
of the programmatic and modernism of
contextual materials.

The working model which was generated
after the section and elevation exploration.

Developed three-dimensional model of the domestic support and service core.

The final selection of this housing scheme
progression on ground level.

Vertical attachment of the private units to
shared and semi-private spaces to achieve
different levels of domestic interaction at
different levels.

On the lower levels the spaces are no more
than twelve metres deep to ensure they are
natural light and passively ventilated,
without reducing the separation of
residents in the surrounding area.

Vertical attachment to shared spaces would allow
cooperative domestic interaction at
different levels throughout the building.

Working second level floor plan.
A proportion of the private units (red) are
walkways, breaking down the
margins into different forms and elevations
of fold and circulation
concept.

The strength and weaknesses of the radical
Industrial Strategy and the Minimum
Neighbourhood Strategy.

A section sketch of the service core idea.

Figure 71: 

Figure 74: 

Figure 75: 

Figure 76: 

Figure 77: 

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10 Appendices
10.1 Examination

This section shows the final examination drawings and presentation material. The following design work is the architectural conclusion to this research project.
My family's journey from Nova Scotia to the settlement of Waipu, the origin of this project.

Site and Ground Floor Plan (facing north)
The final design includes 22 apartments, and 22 apartments types, no apartment is the same as all the walls and spaces were pushed and pulled to fit around the middle service core, creating niches, and transition spaces. Every apartment has an external private terrace with an entrance/exit. These apartments could be further pushed and pulled in shape for other sites.
The second level of the two-story apartments from the ground floor and the first level of the apartments which start on the second floor.
Ground Level Axonometric plan
Second Level Axonometric plan
Third Level Axonometric plan
Fourth Level Axonometric plan
My family’s housing evolution across seven generations

Ariel View of Housing Community, in Balmoral, Auckland, New Zealand
Street Level Perspective
This perspective illustrates the access to the housing community from the park and Balmoral Road. The front building on the right is the public laundromat which additionally includes an indoor children’s playground, recreational space for teenagers, a cafe and bar. Combining these amenities in a public facility introduces the local resident to the lifestyle of this housing community.

Ground Level Courtyard Perspective
This ground level perspective of the housing complex was taken from the north entrance behind Balmoral Road. The community vegetable garden can be seen, as well as an external entrance/exit to a private apartment on the left-hand side of the perspective on the ground level. The raised pathway connects both sides of the housing community together, as all external space is shared.
Service Core Fourth Level Perspective
This perspective illustrates the fourth floor of the housing scheme. The service cores were elevated above the housing community for maximum aesthetic impact in the community. This level is the only quiet recreational space in the service core. It is the smallest floor which overlooks the floors below, facilitating a visual and acoustic connection while being physically separated. This creates an ideal place for adults to retreat or children whilst still remaining within a supervisory distance.

Service Core Ground Level Perspective
This perspective illustrates the busiest part of the housing community. In the foreground the socialised laundromat and children’s area can be seen. These functions were placed together as they are both noisy activities. In the background the access to the private apartments can be seen, these thresholds spaces are kitchens within the apartments with large partition walls that have the option of being fully, partially or completely closed. The upper mezzanine level is the dining floor, which can additionally be used for recreational activities which need tables and chairs. On the left hand side where the glass wall is, is the external raised courtyard, the ground floor apartments which are two storeys open out onto that courtyard at their upper level.
South Elevation of Housing Community

This elevation focused on maintaining a domestic scale relationship with the surrounding houses while taking advantage of the larger scale shopping centre buildings on the right hand side. The pool was placed on the left hand side of the site along with the car access as a way of setting the housing community off from the residential houses whilst using the site productively. This ensured consideration for the surrounding properties and not overshadowing them blocking out their sunlight. The buildings along the street facade framed the entrance to the housing community whilst making it clear to the community it is private property. Smaller forms were used to mimic the surrounding houses. The building itself was set back from the site boundary the same distance as the residential houses, ensuring the street edge was not disturbed.
North Elevation of Housing Community

This elevation focused on creating a striking frontage to the busy main road. For this reason, the laundry tower of the housing community was placed directly between the two service cores, and the entrance was located directly in front of it. The entrance was framed by two mirrored housing forms consisting of modernised local shapes and materials. The building was set back the average distance between the shops on the left corner and the residential houses on the right, as a mediator between commercial and residential.
Long Section of Housing Community

This section illustrates how the raised courtyard system works, the central circulation system through the service cores, and the variation between apartments.
Cross Section of Housing community

This section illustrates how the apartments relate to the service core on both levels, how floors levels sit in relation to each other and the spaces in between the buildings.
These scaled-up partial sections illustrate different angles of several of the main design concepts. The socialisation of domestic work to facilitate domestic support can be seen in these sections. Kitchens in the private apartments were used as the transitional spaces between the shared service core and private apartments. The two-storey courtyard design is present in these sections which illustrates the private apartments physically connecting to different shared/socialised domestic spaces.
The first site that was initially selected was chosen for two specific reasons. Firstly, it shared a boundary with a small private school that did not have a Dominion Road street front. The School was largely blocked on three boundaries, creating a thoroughfare through to the school would provide community integration of the proposed housing scheme. The second specific reason for this site selection was due to the existing presence of a 1925 two-storied Transitional Villa, blocked in behind the shops. As a result of researching New Zealand’s housing, there was design potential for integrating this piece of New Zealand’s housing history into the new proposed housing scheme.

Ultimately, as explained in the document, the site had become too small and began to restrict the proposed housing scheme’s full design potential. These two features no longer were a strong enough reason to stay using a design restrictive site.

The following images are the site exploration and analysis that were carried out on the site. I have included them as they are the reason why when the new site was selected it remained in the identical immediate area. The old site boundary changes a little but from drawing to drawing, as there was a lot of consideration into how the site could be made bigger.
Strengths and Weakness Analysis.

Opportunity, and Threats Analysis.
Figure Ground Analysis

Vehicle and pedestrian urban analysis.

Boundary treatment analysis.
Full name of author: Alisha Kate Moser

ORCID number (Optional): .................................................................

Full title of thesis/dissertation/research project (the work):
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Practice Pathway: Architecture

Degree: Master of Architecture Prof.

Year of presentation: 2017

Principal Supervisor: David Tumer

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This Thesis/Dissertation/Research Project entitled: The 3 Generation

is submitted in partial fulfillment for the requirements for the Unitec Degree of

Cooperative Tertiary Re-Training Domestic Support

The Candidate:

Hilena Moser

Associate Supervisor:

Date: 11/10/2017

Student number: 1413760
Candidate: Alisia Mose

Declaration

Date: 11/10/2017

CANDIDATE'S DECLARATION

Research Ethics Committee Approval Number:

Requirements set for this project by the Unitec Research Ethics Committee, Research Ethics Committee Policy and Procedures, and has fulfilled any

Unitec Regulations and Policies.

The contribution of supervisors and others to this work was consistent with the

This Thesis/Dissertation/Research Project represents my own work.

I confirm that:

Associate Supervisor: Jane Smith
Principal Supervisor: David Turner

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Declaration