Medium Density Housing in Tāmaki Makaurau / Auckland: Making it Work

Trudie Cain, Jane Horan and Kathryn Ovenden

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Medium density housing in Auckland. Photograph by Ryan Crawford

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This report complements the main report, titled *Life in Medium Density Housing in Tāmaki Makaurau / Auckland* (Ovenden & McKelvie, 2024), Auckland Council technical report, TR2024/6. The main report is available on Knowledge Auckland: https://knowledgeauckland.org.nz/publications/life-in-medium-density-housing-in-tamaki-makaurau-auckland/.

Executive summary

The population of Tāmaki Makaurau / Auckland is expected to reach 2,230,800 by 2053, an increase of around 520,800 people from 2023 (Auckland Council, 2023a). Auckland has an ongoing need for more housing as the population continues to grow. Auckland Council's Future Development Strategy (Auckland Council, 2023b) outlines the need for a quality compact urban form to enable development in the right locations while also being adaptive to climate change.

Increasing housing density is a vital lever to support the delivery of housing that meets the needs of the city's growing and diversifying population,[1] respond to concerns about housing affordability and potentially enhance the quality of urban life (Bryson & Allen, 2017).

Over the last 10 years there has been a shift in the types of housing being consented in Auckland, from predominantly low-density housing typologies (i.e. standalone houses) to large numbers of medium- and high-density typologies (i.e. apartments, terraced houses and duplexes). This trend is anticipated to continue and is transforming the built environment.

The 'Life in Medium Density Housing in Tāmaki Makaurau / Auckland' study

Despite the growth in Medium Density Housing, hereafter MDH,[2] there is a considerable gap in knowledge about the experiences of those who live in such housing. In 2023, Auckland Council's Social and Economic Research and Evaluation team (SERE), alongside the Tāmaki Makaurau Design Ope (TMDO), conducted a mixed method study of the everyday experiences of people living in MDH (the 'Life in MDH' study). The purpose of the study was to better understand whether MDH is meeting the day-to-day needs of households living in it, what is working well and what could be improved.

The study methods comprised:

- geospatial analysis of Auckland Council rating and consents data to identify recently built MDH
- an online survey of 1337 people who lived in 1243 medium density homes
- an analysis of design attributes from the consented plans of 110 medium density homes, and
- in-home immersions with 20 households, designed to generate deeper insights into participants' everyday experiences.

The results of this multi-stage study are presented in a comprehensive report titled *Life in Medium Density Housing in Tāmaki Makaurau / Auckland*, published in September 2024 ('the main report').[3]

The findings presented in this report focus on additional analysis from the in-home immersions and are designed to complement the main report mentioned above.

Broad findings and conclusions from the Life in MDH study

The Life in MDH study shows that MDH is meeting some of the needs of some households, with smaller households (comprising one or two adults) more likely than larger households (often with children, sometimes multigenerational) to report that aspects of their home were meeting their needs.

[1] E.g. ageing population, increasing numbers of single-person households, smaller family sizes, later family formation and multigenerational households.
[2] For this study, we adopted a typology-based definition of MDH. This determines 'low density' as including standalone dwellings, and 'high density' as including apartments over seven storeys, with medium density being everything in between (e.g. 2-4 storey terraced houses, 2-3 storey duplexes, 2-6 storey apartments).
[3] Ovenden, K. & McKelvie, M (2024).

The participants identified several aspects of their homes as failing to fully meet their needs. These included small and/or inflexible living spaces that could not accommodate the number of people the home was designed for; a critical lack of storage, including kitchen storage and other everyday items; overheating in second and third floors due to design elements such as large windows with limited openings, inadequate natural ventilation, and minimal shade; and limited off-street parking and/or garages.

These limitations resulted in multiple flow-on effects. Examples include household members having trouble finding furniture that fit the available space and having to be flexible in how they used living areas for household activities. Poor storage led to households storing kitchen-related items in living areas which, in turn, reduced the functionality of those areas. With regard to the issue of overheating, household members attempted to combat heat by using fans, air conditioning, and keeping their curtains closed, which led to increased energy costs (and potentially contributes to the urban heat island effect). An effect of limited parking facilities was the parking of vehicles on streets, berms, and footpaths, creating safety concerns for pedestrians and an unpleasant street environment.

This report

This report presents the findings from *additional* thematic analysis on the in-home immersions, the fourth stage of the study that was designed to generate deeper insights into participants' decision to live in MDH and their everyday experiences of living there.

While the main report focused primarily on MDH design elements and the way they shaped participants' everyday lives, this report focuses on the work carried out by participants to mitigate those design elements. It discusses how participants draw on their financial resources, their social networks and their understanding of design and space in the home to help make their homes work better for them.

The results are presented in four sections, the first being 'pathways to home ownership'. The following three sections – 'constraints of living spaces', 'navigating household, social and community relationships', and 'privacy' – each reflect a predominant theme that emerged throughout the in-home immersions: that it takes work to make MDH work for the people who live there.

Key themes from each section and the specific work required are briefly summarised below.

Theme 1: Pathways to home ownership

The in-home immersions showed that MDH offered participants a pathway into home ownership. The decision to purchase a medium density house, however, was often an exercise in compromise. Participants had to adjust their expectations regarding the kind of house they wanted to buy (many would have preferred a standalone house but could not afford it), as well as the overall size, number of bedrooms and location.

Participants were generally pleased to "get on the property ladder" and valued the low maintenance and modern features of a relatively new MDH. However, many viewed their home as a financial stepping stone towards a standalone house. This perspective was especially prevalent among families anticipating future changes, such as expanding their households, or those who were seeking better investment opportunities.

Theme 2: Constraints of living spaces

As discussed in detail in Chapter 4 of the main report, the average size of homes was smaller than best practice guidelines. Some living areas were also awkwardly shaped and/or had poorly positioned power points, doors and windows, which limited the utility of the space. Relatedly, storage, especially kitchen storage, was inadequate for all households.

Participants demonstrated considerable resourcefulness, however, in responding to spatial limitations. This report discusses how participants drew on their economic, social and cultural capital (see Bourdieu, 1984) to make their homes work for them. In brief, these concepts are as follows:

1. Economic Capital: Financial resources enabled some households to invest in custom solutions and renovations to help increase the functionality of their homes.
2. Social Capital: Social networks were used by some participants to access others' skills and knowledge that could increase the performance and functionality of their homes.
3. Cultural Capital: Understanding design aesthetics and spatial functionality helped some participants make informed adjustments to their homes that supported how they wanted to live.

Not everyone has these forms of capital available to them or has the inclination to do this work. This raises questions about the extent to which new housing typologies are at risk of introducing new forms of inequity for Aucklanders. Those who have the personal and financial means can modify their homes to mitigate limitations but those who do not are perpetually constrained by those design limitations.

Theme 3: Navigating household, social and community relationships

Spatial constraints meant it was difficult for household members to find space to be together with others in the home (e.g. sharing a meal or watching television together) and it was also difficult to find space to be alone. The limited available space had to be negotiated with some activities (e.g. study) or people (e.g. children) prioritised over others.

Several participants felt unable to entertain whānau and friends because of inadequate space and/or poor indoor-outdoor flow, even though hosting visitors was important for them. This issue was compounded for larger or multigenerational households.

Building a sense of community with neighbours was important to some participants. Several reported that shared outdoor spaces helped foster a neighbourly connection and enhanced their well-being. Social media groups also promoted social encounters and a sense of community for some participants. The success of both shared physical spaces and online group spaces depended on effective design and management.

Theme 4: Privacy

The design of MDH gave rise to privacy concerns for many households. A significant proportion of participants (especially those who lived in terraced houses and duplexes) made changes to their homes to improve levels of visual privacy (to see and be seen by others) and acoustic privacy (being heard and being able to hear others).

Participants employed various adaptation strategies to help mitigate their privacy concerns. This included adjusting their expectations of visual and acoustic privacy; adjusting their behaviour (e.g. closing blinds) to enhance levels of privacy; and modifying their home (installing frosted glass, installing air conditioning so open windows are no longer required) to increase levels of privacy. While helpful, these practices often came with trade-offs such as compromised light, airflow, and personal comfort. Balancing privacy with a comfortable living environment remains a significant challenge in MDH settings.

Conclusion and recommendations

The focus on the efforts of household members in this report is not intended to mitigate the responsibility of the designers and providers of MDH to provide homes that are fit for the needs of those who live in them. Household members made their homes work better for them *despite* the design challenges they faced. It is hoped that this analysis underscores the need for the housing industry to respond to households' needs by designing and building medium density homes that are fit for purpose.

The resilience and resourcefulness of households in adapting their homes demonstrate the potential for MDH, but also underscores the need for ongoing refinement and improvement.

The findings are recommended to be used by all stakeholders in the MDH sector, such as developers, design professionals and the Auckland Council group. This will bring about improvements to the future delivery of MDH in Auckland, so that MDH can best meet the diverse needs of a growing population.

The main report concludes with several recommendations for Auckland Council, and the analysis presented in this report supports these recommendations. These include:

- Updating design guidance in the Auckland Design Manual (ADM) to reflect the changing design approach to MDH under national legislation and to address issues identified in this study such as providing separate guidance for different MDH typologies, addressing overheating, and privacy needs.
- Findings and recommendations of this research are taken into consideration when the Auckland Unitary Plan (AUP) review commences in 2026. This includes incorporation of relevant ADM design guidance set out above, through policies, standards, matters of discretion and assessment criteria.
- Auckland Council consider the broader benefits and impacts of MDH at a neighbourhood scale within public policies including the effects of new developments on microclimates, integration of land use and transport, and consideration of carparking in public spaces.
- Consideration be given to repeating the approach of this study within the next five years to continue to capture the lived experiences of MDH households.

It is recommended that Auckland Council works with central government and other agencies to improve the lived experiences of MDH households. Enacting these recommendations will require a coordinated commitment between Auckland Council, including CCOs, and the development sector.

Contents

1 Introduction

The population of Tāmaki Makaurau / Auckland is expected to reach 2,230,800 by 2053, an increase of around 520,800 people from 2023 (Auckland Council, 2023a). Auckland has an ongoing need for more housing as the population continues to grow. Auckland Council's Future Development Strategy (Auckland Council, 2023b) outlines the need for a quality compact urban form to enable development in the right locations while also being adaptive to climate change.

Increasing housing density is a vital lever to support the delivery of housing that meets the needs of the city's growing and diversifying population (e.g. ageing population, increasing numbers of single-person households, smaller family sizes, later family formation and multigenerational households), respond to concerns about housing affordability, and potentially enhance the quality of urban life (Bryson & Allen, 2017).

Over the past 10 years there has been a shift in the types of housing being consented in Auckland, from predominantly low-density housing typologies (i.e. standalone houses) to large numbers of medium- and high-density typologies (i.e. apartments, terraced houses and duplexes). This trend is anticipated to continue and is transforming the built environment.

1.1 What is known about life in Medium Density Housing – in Auckland and beyond?

The rapid increase in the proportion of consents for Medium Density Housing (hereafter, MDH) and coinciding decrease in consents for standalone houses marks a significant shift in how Aucklanders might experience everyday life at home. Given the assertion that MDH will positively impact housing affordability and/or quality of life (Bryson & Allen, 2017), one might expect a body of evidence in support of such claims. There is, however, a significant knowledge gap regarding the impact of MDH. The question remains:

> to what extent does MDH provide living environments that are functional, meet people's everyday needs and supports their wellbeing?

Although limited, some studies of MDH have been carried out in New Zealand. For example, prior attitudinal studies of people living in MDH (see Bryson, 2017; Nuth, 2020; Opit et al., 2020) focused on general perceptions of people regarding MDH, whether as residents or non-residents. Together, these studies show that acceptance of MDH as a viable housing form in New Zealand is increasing, however, concerns surrounding MDH developments persist (Allen, 2016). Concerns include MDH not accommodating the needs of 'kiwi families' and becoming 'slums' as a result of only attracting short-term occupants (Opit et al., 2020). These negative perceptions are reflected in media articles about housing intensification (for example: 1 News, 2023; Hassan, 2016; Killick, 2022).

Other Auckland-based studies include specific geographic locations such as post-occupancy evaluations and surveys carried out at Hobsonville Point (Haarhoff et al., 2019) and Stonefields (Mein et al., 2012), as well as a series of reports by BRANZ on the liveability of MDH in New Zealand (Allen et al., 2020; Allen & O'Donnell, 2020a; 2020b; 2020c). These high-level studies conclude that MDH residents' satisfaction with their home is high and equally as liveable as a standalone house, but that there are opportunities to improve. Studies of liveability, however, typically focus on the neighbourhood (in contrast to the dwellings) by including indicators such as sense of place, safety, and walkability (Boarin et al., 2018), limiting their applicability to experiences inside the home.

In New Zealand, standalone houses continue to be reported as the preferred housing typology while interest in higher-density living is increasing (Bryson, 2017; Gjerde & Kiddle, 2022; Opit et al., 2020). For example, Yeoman and Akehurst's (2015) *Housing We'd Choose* 'discrete choice experiment' study found that while detached dwellings (i.e. standalone houses) were the preferred choice of just over

half (52 per cent) of all respondents, 25 per cent of respondents selected an attached dwelling (a joined unit), 15 per cent selected a low-rise apartment and eight per cent selected a high-rise apartment. Regarding location in the context of housing intensification, proximity to urban amenities such as transport networks and green spaces motivates people to live there, rather than location per se (Carrol et al., 2011).

There is some international evidence that housing providers, planners and architects think MDH is ill-suited to the needs of families with dependent children (Andrews et al., 2019; Carroll et al., 2011; Tucker et al., 2021). Research in Australia also showed that children living in higher-density housing typologies can face prejudice for living in an 'inappropriate' form of housing (Kent et al., 2024; Kerr et al., 2021; Raynor, 2018). These narratives of unsuitability persist despite some local evidence to show that households with children can have positive experiences living in MDH, including a "supportive social environment" (Opit et al., 2021). These positive experiences run counter to conventional expectations of MDH for families with children.

The available research is limited, often contradictory, and fails to fully account for the everyday lived experiences of people who live in MDH.

1.2 The Life in MDH study

In 2023, Auckland Council's Social and Economic Research and Evaluation team, in partnership with Auckland Council's Urban Design Unit (known as the Tāmaki Makaurau Design Ope (TMDO)), carried out research that aimed to contribute to this gap in knowledge. The study explored the experiences of people who lived in MDH.[4] Auckland Council wanted to better understand the extent to which MDH provides living environments that are functional, meet people's everyday needs and supports their wellbeing. More specifically, the purpose of the study was to understand whether MDH is meeting the everyday needs of households, including what is working well and what could be improved, how people use the available space and rooms in their home, and how they experienced aspects such as temperature of their home, the amount of storage provided, and perceptions of their privacy.

The study was large in scale and comprised a mix of four research methods, including:

1. geospatial analysis of Auckland Council rating and consents data to identify recently built MDH
2. an online survey of 1337 people who lived in 1243 medium density homes
3. an analysis of design attributes from the consented plans of 110 MDH homes, and
4. in-home immersions with 20 households, designed to generate deeper insights into participants' everyday experiences.

Detailed results of the study can be found in the main report, '*Life in Medium Density Housing in Tāmaki Makaurau / Auckland*' (Ovenden & McKelvie, 2024).

1.2.1 Summary insights from the Life in MDH study

The study found that MDH is meeting some of the needs of some households. Smaller households (comprising one or two adults) were more likely than larger households (comprising households with children, sometimes multigenerational) to report that aspects of their home were meeting their needs.

One of the most significant issues identified by participants was insufficient storage space. Over half of the study participants reported lacking adequate storage for essential household items. This

[4] For this study, a typology-based definition was adopted. This determines 'low density' as including standalone houses, and 'high density' as including apartments over 7 storeys, with medium density being everything in between (e.g. 1-4 storey terraced houses, 1-3 storey duplexes, 2-6 storey apartments) (Bryson & Allen, 2017).

prompted many residents to convert other spaces, such as garages, dining areas, and even bathrooms, into storage areas, hindering the intended use and functionality of those spaces.

The study found that the average size of MDH was smaller than recommended best practice guidelines. In particular, living areas were significantly smaller, leading to challenges in furniture arrangement and limiting space for activities. This was exacerbated by the lack of storage, as residents often had to store kitchen-related items and/or seldom-used items (that would ordinarily be stored away) in living areas.

Participants who lived in terraced houses or duplexes also reported dissatisfaction with the temperature of their home on upper levels, especially in summer. Overheating resulted from MDH design elements such as large windows with limited openings, inadequate natural ventilation, and minimal shade. To combat the heat, residents resorted to using fans, air conditioning, and keeping curtains closed, leading to increased energy costs and potentially contributing to the urban heat island effect.

The study also revealed a significant discrepancy between car ownership and available off-street parking in MDH developments. This issue led to residents parking on streets, berms, and footpaths, creating safety concerns for pedestrians and an unpleasant street environment. The lack of visitor parking also limited residents' ability to have guests. Only half of households with a garage used it for carparking, and garages often became important multi-functional spaces, for storage, exercise and other living activities.

The main report includes several recommendations for Auckland Council to enhance the delivery and quality of MDH developments in Auckland. These are outlined again in Section 7 of this report.

1.3 This report

The main report presents a comprehensive exploration of the findings of the Life in MDH study. This report complements the main report by discussing the results from additional analysis on the in-home immersions, the fourth stage of the study that was designed to generate deeper insights into participants' decision to live in MDH and their everyday experiences of living there.

While the main report focused primarily on MDH design elements and the way they shaped participants' everyday lives, the findings discussed in this report focus on the work carried out by participants to mitigate those design elements. This report shows that participants draw on their financial resources, their social networks and their understanding of design and space in the home to help make their homes work better for them.

The results of both the main report and the analysis presented here, will contribute to monitoring by Auckland Council to gauge whether the Auckland Unitary Plan is enabling quality outcomes, as intended (Auckland Council, 2022). The results will also be shared with the housing sector (e.g. regulators and developers) to improve future delivery of MDH in Auckland to meet the diverse needs of a growing population.

1.3.1 Structure of this report

Section 1 provides context for the increase of MDH in Auckland and reviews a small selection of relevant local and international literature on MDH. Section 2 presents the research methodology of the 'in-home immersion' stage of this study. It also describes the housing typologies of participating households and household compositions.

Sections 3 to 6 comprise the study findings. Section 3 provides commentary on participants' pathways to home ownership and the compromises that frequently underpin the decisions people make when choosing where to purchase a home. Section 4 examines the tensions between MDH

design and the way people want to live. It draws attention to participants' efforts in making their homes more suitable to their lifestyles and overcoming MDH design limitations.

Section 5 shifts attention to the social encounters of MDH household members. It considers three scales of relationship: interactions between members of the household; socialising at home with friends and family; and building neighbourly connections.

Section 6 is dedicated to household members' concerns with privacy, one of the most pressing challenges faced by participants. The section describes those challenges and considers how household members try to resolve them by drawing on their own resources.

Section 7 provides concluding comments.

2 Method

This study employs an 'in home immersion' method to explore people's experiences of living in MDH. An 'in-home immersion' is a research method that is designed to capture the everyday lived experiences of participants. The method draws from qualitative, ethnographic research methods of participant observation (Pink, 2021). The researcher spends time 'hanging out' with participants to move beyond surface level insights, generating rich and deep data about their lives. The researchers were interested in talking with, listening to, and observing participants as they showed us around their home, and shared how they live in, and use, different spaces.

The following section describes how participants were recruited into this stage of the study and the method employed.

2.1 Recruitment and sample

Participants for the in-home immersion stage of the study were recruited from the pool of survey participants from the main study who had indicated they were interested in taking part in further research. Prospective participants were invited by email and screener survey (see Appendix 1) to participate in in-home immersions.

Twenty households were recruited.[5] The sample was carefully chosen to ensure a mix of housing typologies, household compositions, and satisfaction with aspects of their home, as reported in the survey. Of the 20 participating households, six lived in apartments, 12 lived in terraced housing and two lived in a duplex. With one exception (#T18), the terraced houses and duplexes were all 2-storey. All participants owned their home, with or without a mortgage.

Five households comprised one person living alone, four comprised a couple, and nine comprised a family with children, two of which were multigenerational households. Two households comprised non-related adults. See Table 1 below for a summary of participating households, including housing typology, number of rooms, and household composition.

Table 1: Property characteristics and household composition of in-home immersions

Household #	Typology	Number of bedrooms	Number of bathrooms	Carparking	Household
A1	Ground floor walk-up apartment	1 bedroom, 1 guest bedroom	1	Outdoor carpark (1 car)	1 adult
A2	3rd floor walk-up apartment	3 bedrooms	2	No carpark (2 cars parked on street)	2 adults, 2 children (2 parents and 2 teenagers)
A3	3rd floor apartment	1 bedroom, 1 flexi-room (study)	2	No carpark (1 car parked in nearby carpark)	1 adult
A4	5th floor apartment	1 bedroom, 1 spare bedroom (study)	1	No carpark (no car)	2 adults (couple)

[5] Twenty participating households was considered appropriate, given the in-depth nature of the research methodology and the goal to better understand MDH household members' everyday lived experiences.

Household #	Typology	Number of bedrooms	Number of bathrooms	Carparking	Household
A5	3rd floor walk-up apartment	2 bedrooms, 1 spare bedroom (study/ storage)	1	Outdoor carpark (1 car)	2 adults, 2 children
A6	2nd floor walk-up apartment	1 bedroom, 1 spare bedroom (study/ storage)	2	Outdoor carpark (1 car)	2 adults, toddler
T7	2-storey terraced house	1 bedroom, 1 guest bedroom	1	Car pad (1 car)	1 adult
T8	2-storey terraced house	1 bedroom, 1 spare bedroom (laundry), 1 flexi-room (study)	2	Outdoor carpark (1 car)	1 adult
T9	2-storey terraced house	3 bedrooms	2	Single garage (car parked on driveway)	4 adults (teenager, 2 parents, grandparent)
T10	2-storey terraced house	2 bedrooms, 1 flexi-room (teenager space)	2	1 car pad (2 cars)	3 adults, 2 children (primary school child, teenager, 2 parents, grandparent)
T11	2-storey terraced house	2 bedrooms, 1 spare bedroom (study/laundry), 2 bathrooms	2	Car pad (2 cars, 2nd car parked on garden path)	2 adults (couple)
T12	2-storey terraced house	2 bedrooms, 1 spare bedroom (study)	2	Car pad	2 adults (couple)
T13	2-storey terraced house	2 bedrooms, 1 spare bedroom (hobby), 1 flexi-room (teenager space)	3	Single garage (car parked on street)	2 adults, 1 child (2 parents and teenager)
T14	2-storey terraced house with standalone garage and minor dwelling	Main house: 3 bedrooms	3	Double garage (1 car parked in garage, 3 cars parked on street)	5 adults (2 parents, 2 adult children, 1 teenager)
		Minor dwelling: 1 bedroom	1		
T15	2-storey terraced house	3 bedrooms	2	Outdoor carpark (3 cars, 2 parked on street)	4 adults (couple and 2 flatmates)
T16	2-storey terraced house	2 bedrooms, 1 spare bedroom (study)	3	Car pad (2 cars, 1 street parking)	2 adults (couple)
T17	2-storey terraced house	2 bedrooms, 2 spare bedrooms (study, exercise/media room)	4	Single garage (1 car parked in garage)	3 adults (2 parents and adult child)

Household #	Typology	Number of bedrooms	Number of bathrooms	Carparking	Household
T18	3-storey terraced house	2 bedrooms, 1 flexi-room	3	Single garage (2 cars, 1 parked on driveway)	2 adults (flatmates)
D19	2-storey duplex	2 bedrooms, 1 spare bedroom (study)	2	Single garage (car parked on driveway)	2 adults, toddler
D20	2-storey duplex	1 bedroom, 1 spare bedroom (hobby/laundry, 1 flexi-room (study)	3	Car pad and front lawn parking (1 car)	1 adult

Three households (#T11, #T14, and #A6) were in the same housing development, although they all had different household compositions and housing typologies.

All members of the participating household who wished to participate were able to do so. In some cases, every household member took part while in others a single person represented the household.

All the participating households were owner-occupied, in recognition that homeowners have greater autonomy than renters to make changes to their home.

Eight of the households were from suburbs in the south of the city, four from the west, one from the eastern suburbs, three from the north, and four from the Auckland isthmus.

A diversity of ethnic groups was represented in the sample: Chinese New Zealand, Filipino New Zealand, New Zealand Indian, New Zealand Malaysian and British, as well as Māori, Pacific and Pākehā New Zealand.

2.2 In-home immersions

The in-home immersions were carried out between October and December 2023. Prior to visiting a household, the research team (comprising a researcher and research assistant) reviewed the consented plans to familiarise themselves with the development and the home itself (e.g. number and location of bedrooms) (see floor plans, Appendix 2). Design details for each home were considered against best practice guidance and used to inform conversations with participants.

The research team arrived ahead of the scheduled time to make observations of the neighbourhood such as on-street carparking or typologies of neighbouring houses. The in-home immersion began with an initial conversation with participating household members about who lives in the home, how long they had lived there, where they lived before, and their decision to live there.

Following this, participants were asked to show the research team around their home and talk about the different spaces within it. For each space, they were asked how it was used, what modifications had been made, and what they liked and disliked. Environmental aspects of spaces such as temperature, privacy and airflow, were also discussed, as well as questions about the storage of food, clothes and other miscellaneous items such as surfboards and suitcases. They shared spaces that are usually kept private, such as bedrooms and ensuites, and the inside of cupboards and pantries. They also talked about how they work in their homes (e.g. how they cook, clean and do laundry) and how they relax (e.g. how they socialise, do hobbies, and share meals). The in-home immersion also involved going outside the home to be shown carparking, rubbish bin rooms, mailboxes, and other shared facilities like communal outdoor living spaces, and their systems for managing these shared spaces.

Overall, the in-home immersions provided personal stories that helped contextualise household members' experiences of their homes and gave an intimate glimpse of their domestic lives. A discussion guide (Appendix 3) directed the conversation, although it was primarily led by participants and the observations of the researchers. The visit ended in the home where participants gave concluding remarks and described their aspirations for their home in the future.

Each in-home immersions took up to two hours. Several types of data were collected during the visit:

- Photographs were taken throughout the home tour to illustrate how spaces were used;
- The conversation was audio recorded and later transcribed; and
- Consented plans were annotated to include furniture and measurements.

2.3 Analysis and presentation of results

Transcriptions of the in-home immersions were analysed thematically, identifying dominant themes that emerged across participating households. NVivo, a software system designed to help manage large sets of qualitative data, was used to help organise themes.

Although several ways of analysing the data was considered (by room type, for example), this report pays particular attention to the tensions experienced by participants as they juggled competing desires and needs in the context of MDH. This focus was borne from the data rather than predetermined.

Throughout this report, and as shown in Table 1, participants are referred to by a unique identifying code (e.g. #A1). The first letter of each code is either A, T or D, indicating whether the home is an apartment, terraced house or duplex. Verbatim quotes and photographs of participants' homes are used. All photographs have been reviewed by participants and edited to protect participant confidentiality (e.g. pixilating license plates, photos on walls). They are used with permission (see consent form, Appendix 4). Floor plans accompany quotes and/or photographs, to provide additional context, where necessary (see floor plans, Appendix 2).[6]

The in-home immersions stage of the study was reviewed by the Aotearoa Research Ethics Committee in October 2023 (reference 2023_47).

Participants received a koha in acknowledgement of their contribution to this research.

[6] Floor plans are not to scale.

3 Pathways to home ownership – an exercise in compromise

The dream of home ownership in New Zealand has historical, economic, and cultural significance (Howden-Chapman, 2015). Post-World War II, it became the foundational basis of policies and strategies for national welfare provision (Murphy & Rehm, 2016) and a national narrative established home ownership as a normative, aspirational goal (Levy et al., 2023; Opit et al., 2020) and a marker of respectable family life (Ferguson, 1994). It has since become one of the cornerstones of the New Zealand economy (Eaqub & Eaqub, 2015; Eaqub, 2014; Piketty, 2014).

This narrative prevails, despite a national housing crisis that precludes many groups from entering the property market (Howden-Chapman, 2015). In the Auckland context, housing stock and housing affordability have arguably reached crisis point (Auckland Council, 2018), as mean house prices soar beyond $1 million (Infometrics, 2024).[7] MDH in Auckland, especially over the last decade, is viewed by many as a response to the city's housing crisis (Gjerde & Kiddle, 2019).

As reported in Section 2, all the participating households in this study owned their homes, with or without a mortgage. Most of them were first home buyers, with a small number of exceptions. One participant had co-owned the standalone house they had lived in previously, one had owned a house elsewhere in New Zealand, and two households owned, or used to own, homes in their country of origin. Although participants' pathways to home ownership in Auckland were diverse, a common theme was the various compromises they made to realise their goal of becoming home-owners.

3.1 MDH puts home ownership within reach

When asked about pathways to their current home, participants often described a complex interplay of what they wanted, needed, and could afford. In almost all cases, this led to significant compromises when deciding to purchase their home. Perhaps unsurprisingly given high housing costs in Auckland, affordability underpinned many participants' decisions about what and where to buy:

> *I don't think we necessarily had a list of what we were looking for, it was our first property so it was more where we could afford to buy* (#T18)

> *We got what we could afford … we did try [to buy house] number three first. We couldn't afford it* (#T9)

Financial drivers resulted in several participants compromising on the overall size and number of bedrooms in their home as well as the proximity to neighbours:

> *The houses are just very close … there should be more space in between* (#T14)

Everyone we spoke with was living in a smaller home than their previous one, regardless of whether they had rented or owned it. Although some participants were surprised at how small the home felt, they had anticipated a period of adjustment. One participant, for example, lived in a 3-bedroom duplex with her partner and 18-month-old baby. She had "definitely started to notice how small it is" but had expected this to be the case:

> *I think overall it's a beginner home, a first home … We understood [when we bought it] there were a lot of limitations. We knew that there was gonna be struggles with storage and space*

[7] Source: https://rep.infometrics.co.nz/auckland/living-standards/house-values?compare=new-zealand

and stuff like that, so we knew that there was gonna be hassles that we were going to have to deal with … but it 'does what it says on the tin' (#D19)

Having clear expectations in advance of moving in helped to assuage, if not reconcile, participants' concerns about buying a home smaller than they would like. Household #T17, comprising a couple and their adult daughter, had come to live in Auckland from a provincial town, where housing costs were significantly cheaper. Their decision to buy the home they did, reflected a clear economic imperative:

> *It was purely, we had a price range, we wanted to be under a million dollars … in [previous town they lived in] everything was big, so it was definitely a culture shock coming here, and going 'actually we've got to condense'. We started out renting a slightly bigger house … I called it apartment living almost. So, we'd got a year and a half under our belt on how that worked, so coming here to this home was just another progression. We probably wouldn't even have looked at these [terraced houses] initially … would we have preferred to go into a standalone house? Oh look, absolutely, we just couldn't afford anything like that* (#T17)

Although they would have liked to purchase a larger standalone house, this was out of reach in the Auckland context. But the provision of a smaller, 2-storey terraced house made home ownership financially possible for them, and their previous experience of more compact living helped them to make the adjustment.

Household #T9 also found their 2-storey terraced house a "bit small" for their needs. Although the home had three double bedrooms and two bathrooms, the living spaces, and the kitchen especially, were very compact (see #T9 floor plan, Appendix 2) and, in their case, were expected to accommodate a multi-generational household (couple, teenager and their grandparent) with competing interests and needs. While the living spaces (i.e., kitchen, dining space and lounge) were small, one household member maintained that the benefits of getting on the "property ladder" made up for the lack of space. Pride in owning their own property was palpable (she has a triptych of coloured, annotated, and framed house plans on the lounge wall) and appeared to far outweigh any concerns about the small size of living areas:

> *We consider ourselves lucky to own a home in Auckland … we are still like, 'oh, whose house is this?' So we still sort of joke about it and like 'it's our house!' Yeah! Just knowing that it's ours. And yeah, I think that's probably the top for us, it's, you know, a bit small, but otherwise, it's ours, that's our main thing. Because, you know, going back to it being such a big deal for us. And not having the thought of, you know, having inspections or wondering if we could put holes in the wall … So that sense of ownership feels nice. We're all very comfortable here. For the most part we enjoy, you know, the space, I think the only thing is it's smaller than what we'd like, but it's not a big issue* (#T9)

Freedom from the restrictions of the rental market was cited by several participants as a considerable benefit of home ownership, providing flexibility to do what you want to your home:

> *It's a 'we want to get onto the property of ladder' kind of thing, a 'sick of renting, wanting our own space' kind of thing, 'finding what we could afford versus what we wanted'* (#D19)

Despite compromising on the size of their homes, many participants reported they had a mortgage which placed them under significant financial pressure. The financial burden of sizeable mortgages was often in tension with the pleasure they felt at owning their own home, as illustrated in the following:

> *I will say half, half [pleased]. The happy side is that I own it, it's my own house and it's good to like to have your own property. And then it's also part of the investment as well for later on. Bad side is the mortgage is really heavy. Yeah. Especially with all the inflation going on and the interest rate going higher* (#T7)

Two participating households (#T7 and #T15) rented out spare rooms in their homes, in part for the financial benefits:

> *Obviously, there's financial benefit with having flatmates. But I love our flatmates* (#T15)

The couple who lived in household #T15 had two flatmates who each occupied one of the two 'spare' bedrooms. Their compromise was motivated by their long-term investment plan. They had purchased the home they lived in, had a share in a 3-storey terraced house in the same complex, and had purchased another property elsewhere in Auckland that they rented out. The home they lived in had three bedrooms, one of which they occupied. Two single flatmates occupied the other two bedrooms, one of which they referred to as the "Harry Potter room" because a double bed took up most of the space and the wardrobe doors could barely open (see #T15 floor plan, Appendix 2).

While overall there were myriad pathways to home ownership for participants, its importance was clear. Owning their own properties brought clarity to how participants made sense of their homes, even those features that were less than satisfactory. A series of compromises regarding what they wanted to purchase in the first instance and how they wanted to live in their homes anchored many of their experiences. These compromises often motivated participants to adapt their thinking about their property, what they were willing to put up with and how they might adapt the property itself to make it work better for them (discussed throughout the report). It seems that the culture of home ownership in New Zealand has far from dissipated.

3.2 Efforts to compromise had some surprising positive outcomes

Compromising on such a significant purchase might appear, at first glance, as a trade-off with no apparent benefits. However, participants often talked about the unforeseen benefits of purchasing their home. For example, household #T12 never expected to be able to live in a brand-new home in a convenient location:

> *We were not ever considering medium density or townhouses [but] the market was obviously skyrocketing and it was like 'okay, so we could get like an absolutely terrible house in like a rugged street, like falling apart, it might need more work, or we can buy a house like this which is in a location that we love, near the beach, in a really beautiful spot, not that far from where we need to be' … we came here and it was like 'oh my gosh, like who needs to have a quarter acre section if you just walk out the door and there is a huge park?' … the location is insane, we realised after buying it, we are on the motorway in five minutes. I'm in [name of beach] in 20 minutes which is like so crazy … and it's about a 15-minute walk to [name of their local beach]* (#T12)

Others were also thrilled to own a new house:

> *To come back to a nice new house was actually, was lovely* (#D20)
>
> *I like nice and new! I don't really like the idea of the old normal form of standalone that like was creaking and leaking, so I was very excited that it was a new build. I'd never lived in a new build, never lived in a new home. So personally, I was very, very excited. Very, very happy to move in here* (#T15)
>
> *I love that it's new* (#T13)
>
> *I think I was pleasantly surprised to get new, because it was very nice to move in and everything just be brand new and like low maintenance, so we don't have to spend weekends doing jobs … that was probably the nicest part actually, was getting to move into a brand-new home* (#T18)

Although the aesthetic and low maintenance of a new home was valued by participants, it was often the "warranty associated with it" (#T15), the expectation that the quality of workmanship met required standards, and the knowledge the property would be warm and dry that was considered most beneficial:

> *For a first home after we had just got married, this was all we could afford. We could either afford a tiny little 60 metre squared unit in [more affluent suburb], which was probably like a 1920s house or something, like real run down, two beddie, or we could afford a brand new three-bedroom 10-year Master Build townhouse with two carparks* (#T11)

> *I liked the idea of buying brand new, like moving into a brand-new house … Just because there's nothing, there's no defects with it, and it was gonna be new, so therefore warm* (#T16)

Desiring a warm, dry, well-insulated home was a prominent theme among all the participants:

> *We've not really had to do much with it in terms of maintenance, and it's warm, it's dry. It's the warmest, driest house I've ever lived in, right back from childhood, like the double glazing and everything, the soundproofing as well from the outside, from the neighbours, has just been absolutely fantastic* (#D19)

> *I love the double pane glass, it provides quiet, it provides warmth. We don't have to run a lot of heating in the winter, because it is a warm home* (#T13)

3.3 MDH is viewed as a 'transitional' rather than 'forever' home

While some participants considered their current home as their "forever home", several viewed it as a transitional financial stepping stone that would eventually lead them to a standalone house. For example, household #T9 (a multigenerational household of five) felt their home was sufficient to meet their needs, but they did not expect to stay there forever:

> *For the time being [its good], it's definitely not the forever home. But it's been good for like, what we've needed. It's got everything we need* (#T9)

Others felt they would eventually outgrow their homes, as their life circumstances changed.[8] One couple had already committed to moving on, having just sold their home the week prior to the in-home immersion. While they valued the home at the time of moving in, their needs had changed over time, and they were contemplating starting a family:

> *Size wise it suited us as a couple … But I think the longer we lived here, we're realising I guess, the next step was, because we were thinking about having kids, so the school zoning here is not great* (#T11)

In some cases, the desire for a standalone house was because of a perception that it could better support the way they wanted to live. Others, however, were more concerned with owning property as an investment strategy and (rightly or wrongly) considered a standalone house a more viable financial investment. Household #T15 (a couple with two single rent-paying flatmates) is a good example:

> *I mean, just for investment purposes, I guess I would have ideally liked a standalone home just because they are easier to move on and pass on because this is a transitory state for us, I suppose* (#T15)

[8] Participants were at different stages in their tenure, which impacted their commitment to their home. While some had recently moved in and were highly motivated to personalise or make changes to their property, others had recently decided to sell because they no longer liked their home and/or they wanted something bigger or "better". People were also at different life stages, and some participants had moved into a new stage of life since they moved into their home (e.g. a baby or two had joined the household).

3.4 Conclusion

The cultural norm of home ownership remains prominent in the Auckland context. Although a diversity of pathways to home ownership emerged, many participants talked about their homes as transitory stepping stones that were never fully expected to meet their needs. This was especially the case for couples whose life circumstances changed after having or anticipating children. But participants who were looking to move on from their home were not doing so because of an inherent dislike of MDH, but rather because of the limited availability of larger and/or well designed (and affordable) MDH that could meet their (sometimes changing) day-to-day needs.

This signals that while MDH might be an important lever for increasing the availability of housing, limitations in size and design might inadvertently result in a higher 'turnover' of MDH than would otherwise be expected. Although there is limited research in this area, 'neighbourhood churn' (where there is high turnover of occupants) could result in neighbourhoods that lack a sense of community and social cohesion. To mitigate this risk, a wider range of MDH could be considered within neighbourhoods so that households can move to homes that better meet their needs while staying in the same neighbourhood to maintain important social connections.

4 Constraints of living spaces – tensions and resolutions

Sir Winston Churchill famously declared in a 1943 speech to the House of Commons that "we shape our buildings; thereafter they shape us" (Churchill, October 28, 1943). Applied to the current context, the design of MDH shapes how people experience and adapt to their homes (Cooper-Marcus & Sarkissian, 2023). This section explores the extent to which MDH design can facilitate or complicate the daily lives of households. It focuses on the tension that emerges between house design and the various ways that household members want to live in their homes.

The section is organised in four parts. Section 4.1 outlines the extent to which MDH design can enable or hinder a high quality of life, while section 4.2 considers the extent to which house design can compete with cultural values. Together, these two sections identify the significant limitations of MDH for those who live there. Section 4.3 shifts from the limitations of design to the 'work' participants did to mitigate the limitations of their homes and ensure it better met their needs. Underscoring participants' work is a combination of economic, social, and/or cultural capital that is leveraged, consciously or not, to perform the work of overcoming design limitations. The final part (section 4.4) considers kitchen storage as an example of design constraints and the work participants undertook to overcome these constraints and make their home work for them.

4.1 MDH design can support or hinder households' lifestyles

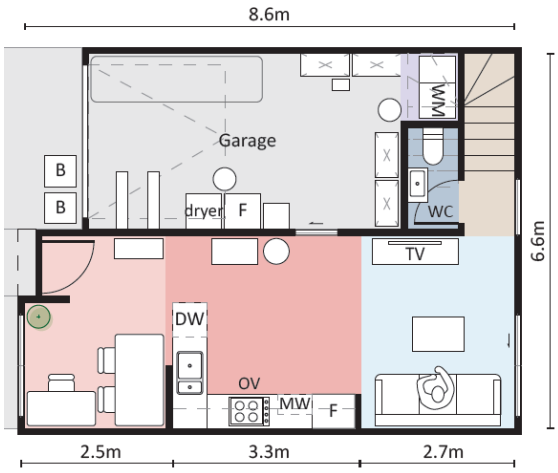
The in-home immersions showed that MDH design often hindered how households wanted to live and resulted in household members needing to do 'work' to overcome design limitations. Concerns about the size and shape of floor spaces, and the location of power points, doors and windows were prominent among participants.

The main study report (Ovenden & McKelvie, 2024) mentions several MDH analysed as smaller than best practice design guidelines.[9] For example, household #T13, a 2-storey, 3-bedroom terraced house with a garage had a lounge of just 9.1m^2, whereas the Auckland Design Manual (n.d.) recommends a lounge of 28m^2 for 3-bedroom homes. The couple who lives there with their secondary school aged child have few options for positioning furniture. As illustrated in Figure 1, the lounge can only accommodate one couch, which is positioned opposite the television. Notably, the television hangs off the wall and there is no other place to put it, not least because of the position of power points. They said:

> *So, does [the lounge] work for us? Yeah, apart from not having a seat for [name of daughter] … Yep, we don't have a seat for [her]. So, on the odd occasion we want to do like a movie that we all watch, we have a beanbag that we can bring down and she'll sit on that. If she sits in the middle [of the couch], it all becomes uncomfortable for everybody* (#T13)

[9] See Chapter 4: Indoor spaces for living in Life in Medium Density Housing in Tāmaki Makaurau / Auckland for more information.

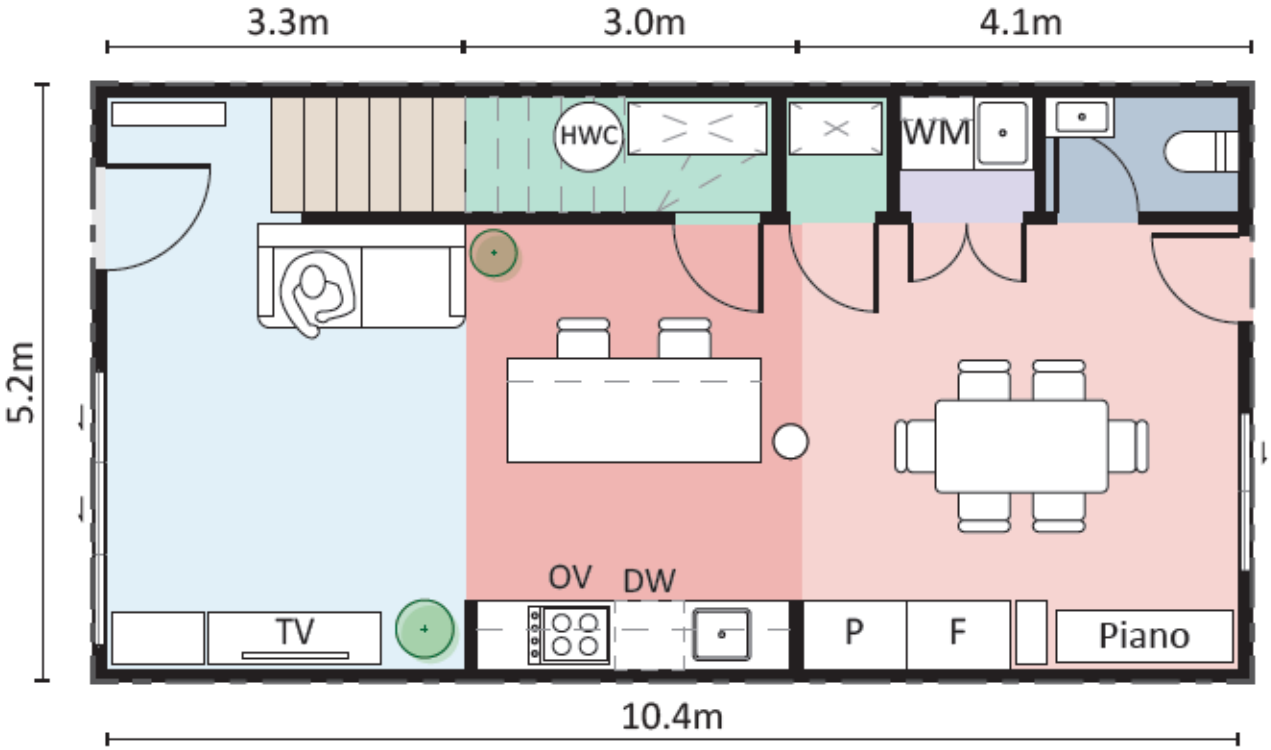
Figure 1: Small and narrow lounge; floor plan[10] (#T13)



Another household observed that the ratio within the living area was out of balance. The couple who lived in household #T11 were happy with the overall size of their home but felt the dining space was disproportionate to the size of the lounge (Figure 2):

> *It's just more the function of it and the design … And in terms of like your ratio with the living space plus the dining as well, I find this space [dining] is a lot bigger here which doesn't really make any sense* (#T11)

Figure 2: Floor plan (#T11)



They gained 'extra' dining space at the expense of their lounge. Like household #T13, they could only accommodate one couch, in their case, a 2-seater, despite their 2-storey terraced house having three double bedrooms. They, too, only had one place for the television, because the stairwell intruded into

[10] All images were produced as part of the study. Floor plans in the body of the report not to scale. See Appendix 2 for more detailed floor plans, including keys to each space.

the lounge which reduced the available wall space. The small size of the lounge was exacerbated by too few and poorly positioned power points:

> *The power thingy and the switches are there [indicating the wall] so you can't really do it any other way, it's just awkward* (#T11)

In summary, the limits of the room (e.g. size, shape, lack of wall space and power points) challenged the extent to which they could carry out their recreational activities, including watching television together.

To some extent they felt misled by the developers:

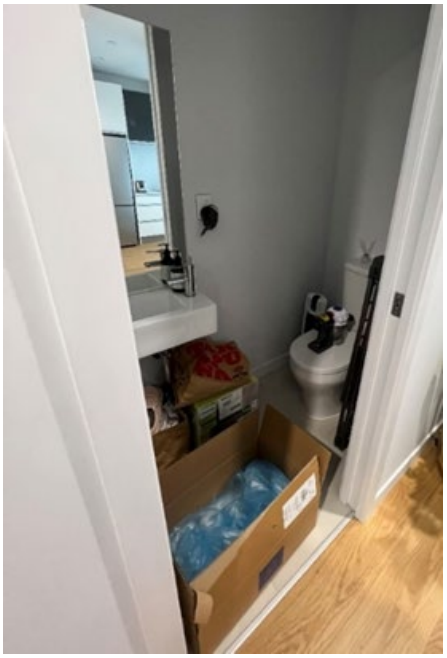
> *When you go into showrooms [when you are buying these sorts of homes] often, there's things that you don't think about … there was no television … when we moved in, we were like … 'okay, well we have limited choices, either [it goes] here or here, it doesn't fit anywhere else' … when they staged it, it was exactly the same layout as ours, they had the couch this way and they had a lovely little décor table with some fancy vases and stuff … they never put a TV in with staging, cos it makes the house look small obviously, but like where are you going to put things?* (#T11)

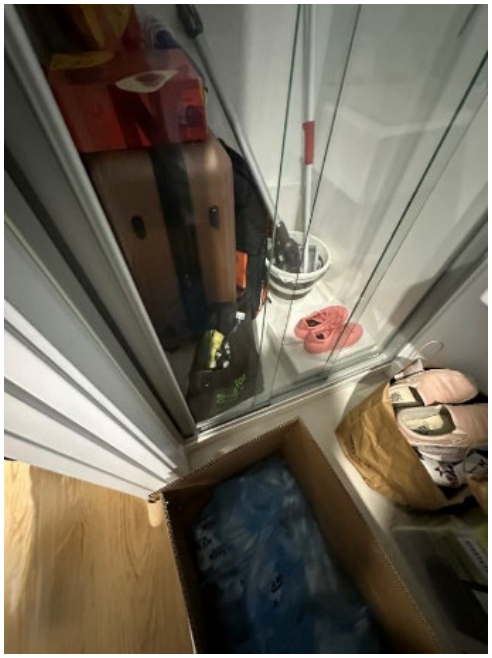
These examples illustrate how too small, or awkwardly shaped living spaces, can hinder how people are able to live in their homes. One property was such a hindrance that the participant (who lived alone) was looking to move (#A3). She lived in a 62m^2 apartment (1-bedroom, 2-bathroom plus flexi-room,[11] adjacent to the lounge) set around a stairwell in an apartment building. This resulted in a series of hallways that produced what she described as "wasted" spaces, particularly the provision of a second bathroom:

> *A fake bedroom and a waste of space bathroom* (#A3)

The participant thought the second bathroom was so unnecessary that she used the shower as a vital storage area for her recycling, suitcases, and vacuum cleaner parts and the floor of the bathroom for miscellaneous items including spare toilet paper (Figure 3).

Figure 3: Second bathrooms being used for storage; floor plan (#A3)





[11] A flexi-room is a room shown on the approved plans as a study or other non-bedroom space.

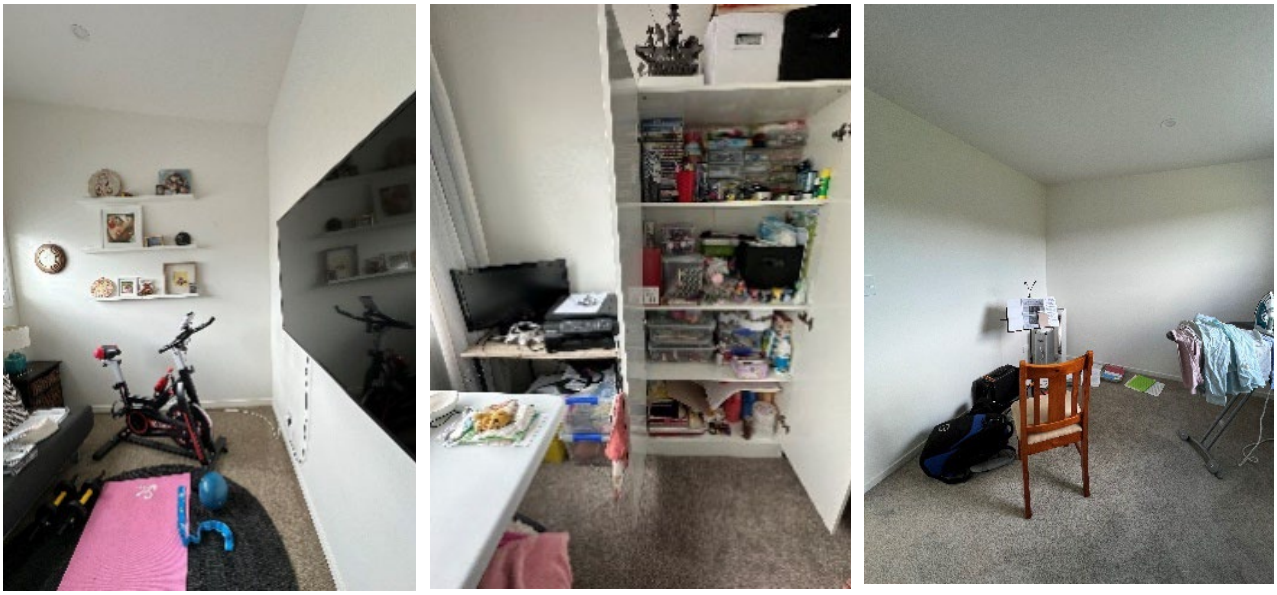
The reassignment of second bathrooms as storage and laundry spaces by participants suggests that MDH design fails to fully account for the way people need to live in their homes. Reallocating the floor area of these spare bathrooms into storage or living spaces may result in homes that better meet the needs of the households.[12]

Several households had at least one spare bedroom and/or a garage which was critical to making their home functional.[13] Spare bedrooms and garages were important as they compensated for limited space for activities (e.g. socialising, play, working from home, drying laundry) in open plan kitchen, dining areas and lounges. When households were lacking a spare bedroom or garage, other activities had to be undertaken in lounges and bedrooms, which was deemed unsatisfactory. This included drying laundry or working from home in bedrooms, or requiring other members of the household to leave the lounge so that this could be used as a quiet space to study.

A couple and their adult daughter who lived in household #T17, for example, were able to convert their two spare bedrooms into a home office and a home gym, complete with an exercycle and large screen television. Another home occupied by a couple and their teenage child (#T13) used their spare bedroom as a 'hobby room' for arts and crafts. The single occupant of household #D20 (2-bedroom, plus flexi-room) used his spare bedroom for hobbies, including music practice and photographic equipment. In sum, in the absence of appropriate living areas, spare bedrooms became proxy living spaces, accommodating household members' recreation, leisure and hobby interests.

[12] See Chapter 5: Storage, laundries and bathrooms in Life in Medium Density Housing in Tāmaki Makaurau / Auckland for more information on spare bathrooms.
[13] See Chapter 4: Indoor living spaces in Life in Medium Density Housing in Tāmaki Makaurau / Auckland for more information on spare bedrooms and the uses of garages.

Figure 4: Spare bedrooms used for a range of activities (#T17, #T13, #D20)

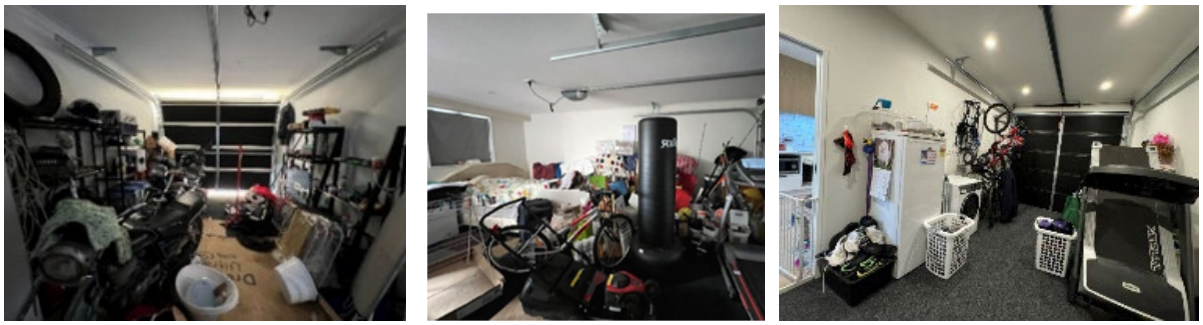


The study found that garages were important for storage of a wide range of items including suitcases, bikes, cleaning equipment and clothing, as well as kitchen equipment and food. They were also used as an area to socialise, for exercise (e.g. running on treadmill), and for drying laundry. Garages were infrequently used for carparking with only two households using their garages to park a car. The following quotes and photographs are illustrative of the diverse storage and uses of garages:

> *It's like got everything in it! … we use it for everything … we use it for our bikes, and obviously the dryer and the freezer … all of this stuff is [daughter's] childhood type stuff … and our trolley for our groceries. And all of [daughter's] soccer balls. The clothing racks obviously get used a lot so we put our work bags out here so they're out of the way … once that other stuff goes [daughter] wants the treadmill in action … so we have got quite inventive about how to do things … that [auxillary storage space] becomes the pantry and the baking supplies … And then all your plastics and extra stuff. All ya baking stuff. But again, it's simple things like installing hooks on everything. So, you know, the dog leads and the bags can go up there. You know what I mean, you get inventive of how to have things available … That's all our shoes* (#T13)

> *We've got two paddleboards and an electric bike and other spades and bits and pieces that are all just sitting down there, but if you were to put a car in there, where do you then put all of that stuff? … I think if you're a family, with kids' toys, bikes, scooters, prams … where does all that stuff go? Like you'll see out on those [other terraces around them] with kids' balconies, a lot of them end up putting that stuff out there* (#T18)

Figure 5: Garages are a vital storage space (Left #D19, middle #T14, right #T13)

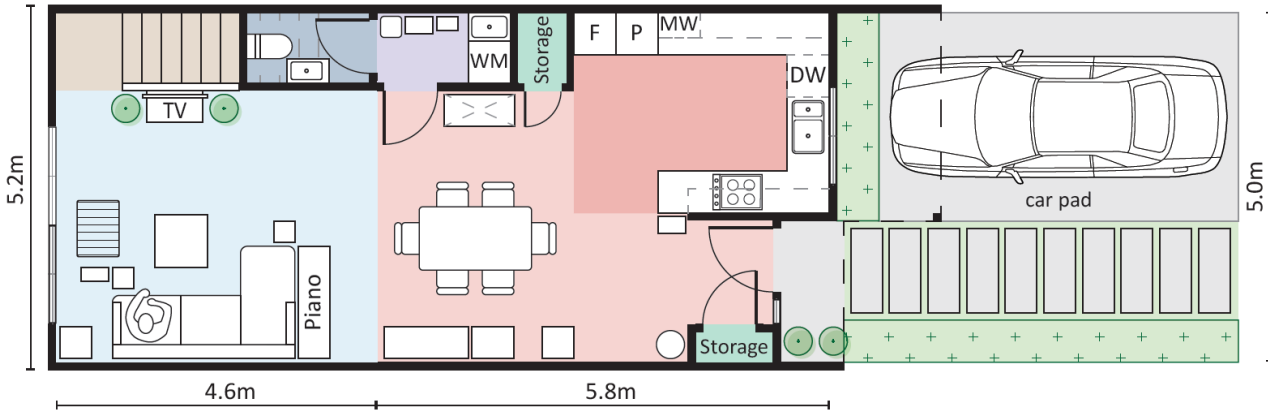


As these examples demonstrate, there are various aspects in the design of MDH that do not meet the needs of most households well. A reallocation of floor area to increase the relative area for living along with careful consideration of layout regarding power points, doors and windows is likely to improve the experiences of those who live in MDH.

Not surprisingly, living areas with greater width have a positive impact on the functionality of living spaces. The 2-storey terraced house that participant #T16 lived in, is a good example. At 5.2m wide, the living area was one metre wider than other participants' homes (on average). The extra width enabled more storage cupboards in the kitchen, a hall cupboard for coats and other items, and a hot water cupboard that they also used for linen. Most importantly, however, it allowed them greater flexibility for their furniture, including a bookcase and piano, and the provision of space to walk around the dining table (Figure 6).[14]

Figure 6: Extra width in living areas enables flexibility when positioning furniture (#T16)

[14] Despite the width of their living areas, the couple replaced their square dining room table with a rectangular one to afford them to "free up more room … because they felt it was a bit restrictive".



4.2 House design can compete with cultural values and practices

Several participants raised concerns about aspects of their home that clashed with their cultural norms and practices, particularly as it relates to the placement of WCs (defined as a room with a toilet, and without a shower or bath). Several households had WCs that opened directly into the lounge or dining space:[15]

> *I would never encourage guests to use that loo because it's right here … there's just something about it … it's so close to the living area, I guess. It just feels different to what I might ordinarily associate with what happens in one place, and I guess living happens in another … Why's it here? It's really hard to say but I suspect that they're trying to add value to the property … two and a half bathrooms is better than two* (#D20)

The participant's unwillingness to name what happens in the WC ("what I might ordinarily associate with what happens in one place") reveals something about the level of discomfort that people have about bodily practices, especially when occurring near other kinds of spaces for living. Social and cultural norms dictate that bodily functions are meant to be managed, contained and separated and the proximity of toilet and dining spaces renders them "matter out of place" (Douglas, 1966).

Household #T14 raised additional concerns about their WC opening into the dining area. The space was used for eating which made them uncomfortable, but the family also had a religious shrine in one corner. They found the presence of the toilet so close to where religious practices were performed deeply problematic:

> *That's a toilet … No good … it's facing the shrine and that's not ideal. So, I think the Chinese Feng Shui … So, it's not really good for it because this is facing the table and shrine … so, that's why we shut the door … the position is not good* (#T14)

The co-location of food and laundry items was also cited as culturally unsettling by some. Household #T9, for example, had a kitchen with limited bench space and storage cupboards. Their pantry also contained the hot water cylinder (Figure 7):

> *The pantry is there, it is half pantry, half hot water cupboard, which I haven't seen before. It was the most weirdest thing when looking at the plans! … [the biggest problem with it is] The warmth! So, we're careful not to put things in the pantry, like for example, mayo. We can't even put eggs in there, they live above the fridge. Because it's very warm in there. And even just*

[15] The Compliance Document for New Zealand Building Code Glause G1 Personal Hygiene states that in household units at least one door shall be provided between a soil fixture (e.g. toilet) and a kitchen or place for food storage. Source: https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g1-personal-hygiene/asvm/G1-personal-hygiene-2nd-edition-amendment-6.pdf. In contrast, from the 1950s to 1990s local councils required kitchens to be separated from toilets by two doors (source: https://teara.govt.nz/en/washing-cleaning-and-personal-hygiene/page-4).

sometimes, I want to put some damp clothes in there [to dry], but we try not to because it just, I don't know, it just feels weird. Like next to the food! (#T9)

The "weirdness" stems, once again, from what is culturally perceived to be an improper relationship between two things, in this case, laundry-related items (e.g. the hot water cylinder and damp clothes) and food.

Figure 7: Co-location of laundry and food in the hot water cupboard (#T9)

It is perhaps not unexpected that people baulk about a toilet or laundry being close to food spaces because, placed together, they breach what might be considered universal cultural norms (Gramigna, 2013).

But several participants also shared their concern about other kinds of cultural breaches, which they related to their ethnic culture. For example, the participant in household #T10 did not like having an adjoining lounge and dining area because she felt that each space represented distinct activities that were culturally important to her:

> *I would love to have a delineation between the dining area and the living room … for us Filipinos that delineation is important because the dining room and the living area are pretty much two separate areas of the house. To us, it should not be incorporated in the way it is here, because these have different purposes and functions for us, you see. So, the living area is where … people can just relax, maybe watch TV or you know, have a chat [and] the dining area's … more of that time to nourish yourself and really enjoy just having the meal … It's family space* (#T10)

Similarly, the "flow" in the home was important for many participants, but for some it was a cultural imperative. Household #T14 had arranged and rearranged their furniture several times since they moved in, but they were still unsatisfied and concerned with the lack of Feng Shui:[16]

[16] Feng Shui is a Chinese philosophy that governs the arrangement and orientation of spaces in relation to the flow of energy (chi) in a building.

So, we've actually rearranged several times, and then we thought it's so narrow for people, for guests to walk past, and for us to move. So that's why we've moved it to this side … for Feng Shui though, it's too enclosed. We want it to be flowing, it's not flowing enough (#T14)

Doors leading from the lounge to a small concrete patio at the front of the house provided good Feng Shui when the house was unfurnished. However, the family of five were compelled to position couches in front of these doors, to accommodate all household members to sit together and watch television, a decision that blocked the Feng Shui (Figure 8).

Figure 8: Couches in front of windows, blocking Feng Shui; floor plan (#T14)

4.3 It takes work to make the home work

Sections 4.1 and 4.2 outlined some of the limitations of MDH. Some participants, however, had the capacity to work around design flaws and mitigate (but never fully resolve) those limitations, making their homes better able to accommodate their needs.

Participants demonstrated what sociologist Pierre Bourdieu (1984) described as economic, social and/or cultural capital. According to Bourdieu, these different forms of capital each serve as a form of currency that affords people the capacity to successfully negotiate their worlds:

- Economic capital refers to economic resources, including money, assets and property
- Social capital refers to social networks that can be leveraged (intentionally or not) for personal gain
- Cultural capital refers to the characteristics of a person, including their level of education and qualifications, style of speech and dress, and cognisance of social norms[17] and values.

These forms of capital are not utilised in isolation. People might draw on multiple forms of capital as they make decisions to enhance their lives, including ensuring the liveability of their homes. As participants explored different ways to make their homes work for them and their households, they demonstrated various forms of capital.

Those with the financial means used their economic capital to invest in design solutions that enhanced the performance of their homes and mitigated their design concerns. For example, household #T17 (a couple living in a 4-bedroom home) had a small pocket of outdoor space off their dining room. They invested heavily in this area, transforming it into an outdoor living space complete with decking, landscaping to create visual privacy, a shade sail, spa pool and BBQ nook (Figure 9). The return on their investment came in the form of an extended living area, a better connection between the inside and outside, and a home that better served their needs:

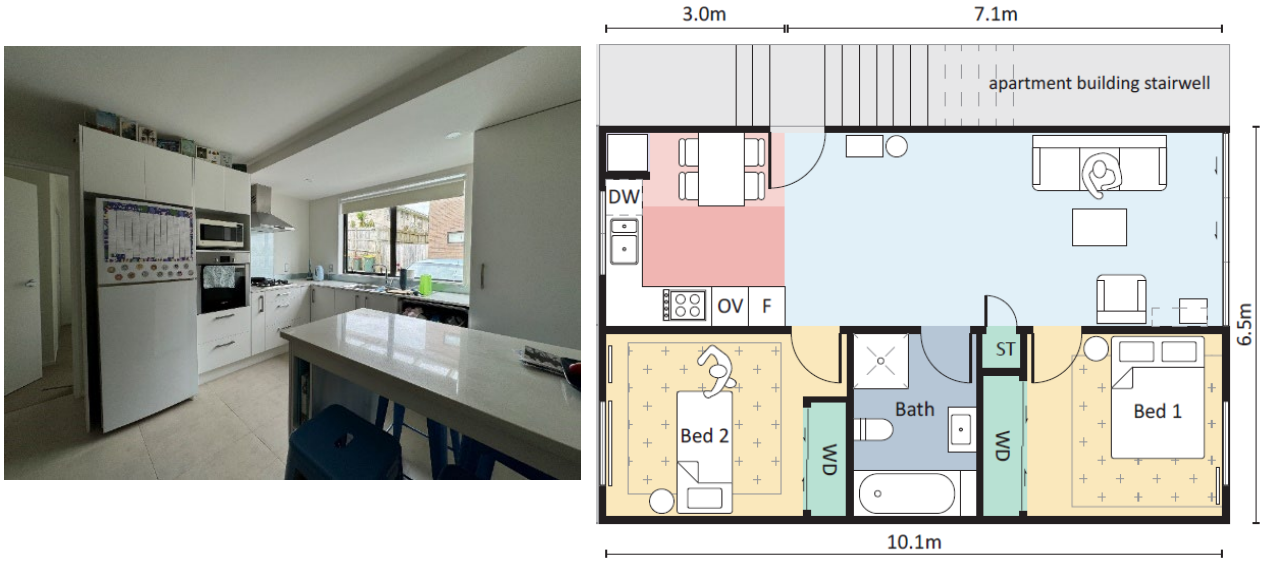
> *You cook on the BBQ in there, so the BBQ becomes an extension of the kitchen and this [the outdoor living space] becomes an extension of the lounge. So, in the summer we'll be out here cos you can sit here and watch the TV, if you wanted to! But we wouldn't, but yeah! And because we've now lit it up and we've got the shade, you can be here all afternoon* (#T17)

Figure 9: Outdoor space, illustrating substantial financial investment (#T17)

[17] 'Social norms' describes societal expectations of behaviours and thoughts, in contrast to cultural norms which describes the practices and customs of a cultural group.

Customisation of kitchens was another example of economic capital being used to ensure homes were better suited to the households' needs. For example, the sole resident of household #A1 installed a custom-made island bench in her short L-shaped kitchen. The island served a dual purpose as both bench space for food preparation and a dining table (Figure 10). The island bench dramatically increased the utility of the kitchen: it provided space for food preparation; it was where she worked from home during COVID lockdowns; the built-in shelves stored her cookbooks; and it had a set of four stools so she can eat and entertain friends when she had dinner parties. The multi-purpose island bench also eliminated the need for a separate dining table, which served to 'extend' the lounge and generate a feeling of spaciousness.

Figure 10: Customised island bench in foreground; floor plan (#A1)



These two examples illustrate a considerable financial investment.

It was more common, however, for participants to purchase new furniture to improve the performance of their property. Several participants complained about the non-standard design features of their home that required bespoke or difficult-to-find furniture to fill them:

> *Like we've just put this cupboard in [beside door to garage] … but the gap between this and the wall is 59 centimetres and the standard size of cupboards that you can buy standard is 60, so it's just a centimetre off but it took me weeks of Googling to find something that wasn't gonna cost the earth that actually fit in that space. This inconsistency is kind of throughout the whole house, the spaces for furniture and things are not quite standard. And yeah with a child we're not going to be spending heaps and heaps of money but we need to make it work* (#D19)

The participants in household #D19 were not alone in complaining about awkward spaces that did not accommodate standard furniture. Several participants talked about the challenge of finding and purchasing new pieces of furniture to better fill the space and make it more conducive to everyday life. The owner of household #D20, for example, bought his home 'off the plans' and struggled to visualise how to make the lounge work when he first moved in. He arranged his furniture in a way to support conversation, but the position of the television in one corner and the WC under the stairs which intruded into the lounge, creating an alcove, made this awkward. It took him expense, time and considerable effort to make the area work for him as he needed. His first task was to contract an electrician to move a power point to afford him greater flexibility regarding the position of his television. The second was to locate a suitable lounge suite that would afford him the feel and practicality he was looking for, given the small size and awkwardness of the area (Figure 11):

I knew this space [lounge] was going to be quite a challenge to fill, based on the plans, but I had a struggle. I had to search a little bit to find a couch that was going to fit (#D20)

Figure 11: Awkward spaces make it challenging to find the 'right' furniture; floor plan (#D20)

Investing in outdoor spaces, kitchen islands and new furniture are all examples of using economic capital to make the space work better for the household. These examples, however, all demand more than financial investment. In addition to economic capital, each example also calls on the homeowners' cultural capital – their familiarity with, and adherence to, dominant social norms and values.

Cultural capital cannot be bought. It is acquired over time, shaping a person's character and way of thinking (Bourdieu, 1984). In the context of this study, these examples illustrate, as far as cultural capital is concerned, that households were able to understand the value of space in their homes and apply the knowledge of latest design aesthetics to improvise and improve it. A segment on storage solutions follows later in this section.

In the context of limited floor area, generating the 'feeling' of space was important to several participants and another expression of cultural capital. For some, this was achieved by having fewer or smaller pieces of furniture in the living areas which helped to create 'empty' spaces that make

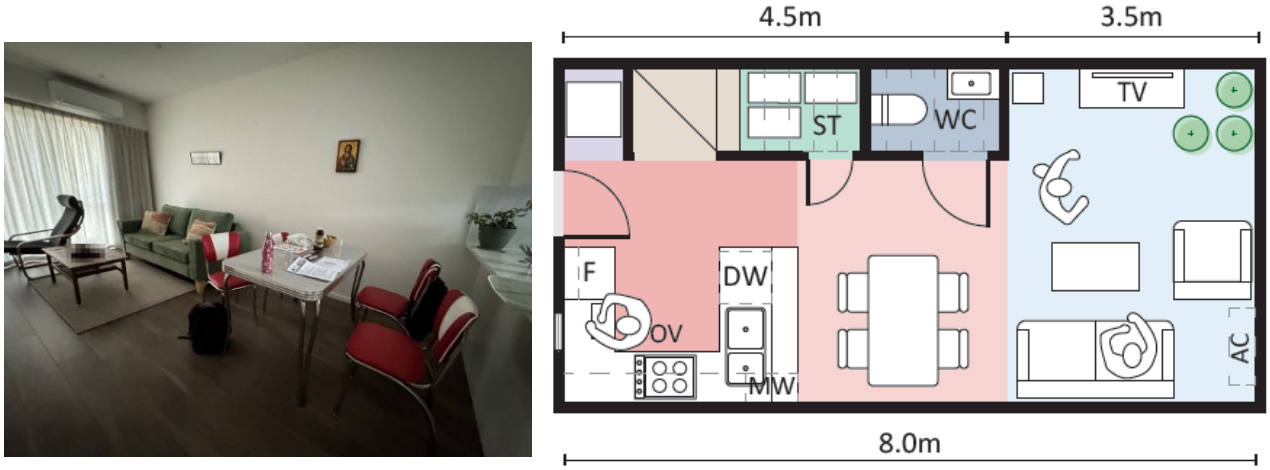
moving in and through the home easier.[18] Others purchased new pieces after they moved in and better understood their space limitations:

> *I think once we bought this sofa as well, it's kind of opened things up a bit cos we had too much furniture in here for a long time, so once we dialled that back it actually did help quite a bit* (#D19)

Other households thought carefully about how they positioned their furniture, creating a feeling of space and potential movement through the home, despite the limited floor area. One principle put forward by household #T8 was to avoid "squishing" furniture against the wall because it made the room feel even smaller. Her U-shaped kitchen and island bench created room for her retro-style Formica table and chairs, that was proudly set out from the wall by around 30cm (Figure 12):

> *I just didn't want it squashed against the wall. It's like you've got to have a bit of movement around the table. Maybe most people can't fit through, but I don't want things squashed against the wall because then it feels as if you're squishing everything into the house* (#T8)

Figure 12: Generating a feeling of space with carefully chosen and sparsely positioned furniture; floor plan (#T8)



Every decision she made about positioning furniture in her home was about retaining a feeling of space and creating a visual sightline. The lounge comprised a couch, low coffee table, 1950s modernist occasional chair, TV cabinet with a TV, and a set of shelves with displayed objects. Art works on the wall and floor coverings were used to demarcate the kitchen, dining area and lounge. The simplicity of furnishings made it possible to stand at her front entrance and look through the length of her living area (lounge, dining, kitchen) to the clearly visible outdoor living area. The participant used her cultural capital to organise the space available in a way that was conducive to her lifestyle, preferred aesthetic and personal values.

Others also adopted a minimal approach to furniture and furnishings when they moved into their respective homes. For example, the owner of household #A1 loved books but chose not to have any bookcases in her home. She explained:

> *Yeah, so I don't like to have books. One thing I like about living in a small place is that it really makes you think about how everything is expensive in terms of space, and I think that's a really good challenge. So, these are all library books … I get all my books each week from the library, and I just own a few cookbooks* (#A1)

Her positive reframing of the small area as something to be appreciated is echoed by the couple who live in their home with two flatmates (#T15). Despite the relative narrowness of their home, the four adults lived comfortably together because there was a nuanced negotiation of the area and careful

[18] Miller (2021) contends that empty spaces are indicative of homeowners' control over their environment and circumstances and enable creativity.

consideration paid to finding the right furniture to economise space, and to encourage sociality with the flatmates. Like households #T8 and #A1, they were also committed to living in an "uncluttered" way that generated a feeling of spaciousness:

> *The bonus of a small house for me is that I can't accumulate too much clutter. Like there's just no space … there is always a way obviously, but I just, there's only so much you can hide, right? And people just have stuff all over their houses. And I feel like I don't like clutter, so I just try to minimize as much as I can* (#T15)

The couple worked hard to make the area work for them. They bought off the plans and spent the months in the lead up to moving in working out how to arrange shared living areas. They were fortunate in that their relationship with the developers – their social capital – meant they were permitted early access to the property:

> *So, we were privy to early access … so we got to come in quite a few times. And they let us measure everything, months in advance months, months in advance. So, we started stocking up because our old house had a garage, right … so we pre-bought, I just didn't want to move into a house that didn't have anything … we moved in 10 days before Christmas. Okay, so I didn't want to have no blinds so everything was really pre-organized. And we measured up everything. So, by day three, we had like everything already in order* (#T15)

Once they moved in, they continued to tweak the living areas to make it work. They talked about how they started with one table, but had recently made the following changes:

> *We did have a different dining room set up until about maybe six, eight weeks ago. We had like a white circular table, but that one kind of makes it bit more sense, we can tuck it away a bit, and fit six comfortably around it* (#T15)

Household #T15 illustrates a combination of economic, social and cultural capital. Not only could they afford to purchase new furniture (economic capital),[19] but they also had early access to the property to help them plan (social capital), and they possessed the cultural capital to understand how best to arrange their furniture to accommodate four non-related adults living in proximity.

The purchase of smaller, better proportioned and well-fitting furniture for small living spaces revealed interesting things about the way people adjust to living in MDH. Household #T16, for example, had gone through two iterations of a dining table since they moved in. They also replaced their lounge suite, choosing one that fits the space well, allowing for greater sociality and space underneath for storing their gym equipment:

> *This table is a bit narrower, it's 120 by 120. The last one took up a decent space, so we've only had this for a couple of months … We used to have a square table, and we decided that for the space that we had, we'd be better to have one that wasn't as wide but longer just to free up this area because I felt it was a bit restrictive … it works a lot better now* (#T16)

> *The original [couch] we bought with us, it just stuck out just a bit too far. And it's surprising, that extra ten centimetres just makes everything feel a bit more restrictive. So, we are opening it up where we can* (#T16)

Household #T12 is also an example of a combination of economic, social and cultural capital. The household were very considered in how they arranged furniture to create a contiguous space between their home's interior and exterior. The house design, however, challenged their intended aesthetic, with a stairwell diminishing the available wall space, thereby creating a wasted disruptive corner. They asked a family member to make a bespoke TV cabinet that fitted into the otherwise unusable space (Figure 13) which also happened to be the only place where a power point was

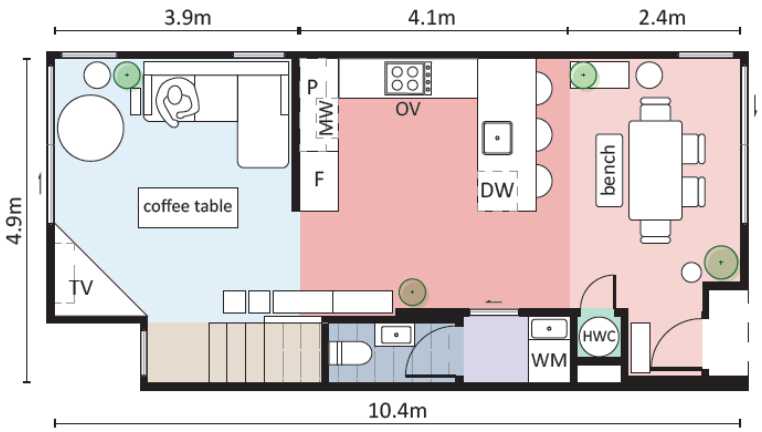
[19] The couple also purchased a free-standing pantry to augment their kitchen storage. This is discussed in the following section.

located. The household explained how they reconfigured the furniture to maximise the available space:

> *It was not the best design. We always had to reshuffle our couch to make [the space] open again when we had people. So we realised that the dream was to have a corner cabinet to utilise this corner … Which no one makes, that we like anyway. So, [name of one of the couple]'s dad actually built this for us, so then we could actually open up our lounge … Asset to the team! So that was probably one of the best things we've ever done for our house* (#T12)

The addition of the corner storage unit not only opened up the room, but also made it more workable and useable and improved the flow of the living area. Thus, it required the work from the household and their family; a combination of their economic, cultural and social capital.

Figure 13: Bespoke corner unit designed to maximise space and flow; floor plan (T#12)



4.4 Kitchen storage limitations as an example of the work required to make the home work

Participants commonly reported concern and frustration about the size, functionality and/or storage capacity of their kitchen.[20] In fact, storage presented a challenge for 16 of the 20 participating in-home immersion households.

> *The storage in the kitchen is awful. It's really bad* (#T13)

> *My biggest gripe with this place is the lack of storage, the 'no pantry' thing. We're forever having to find new ways of storing everything or chucking things out if things get too much* (#A6)

> *You can't buy too much because there's nowhere to put it unless you're happy to see it literally pile up somewhere … and then you've got to dig through stuff to remember what you've got anyway* (#A3)

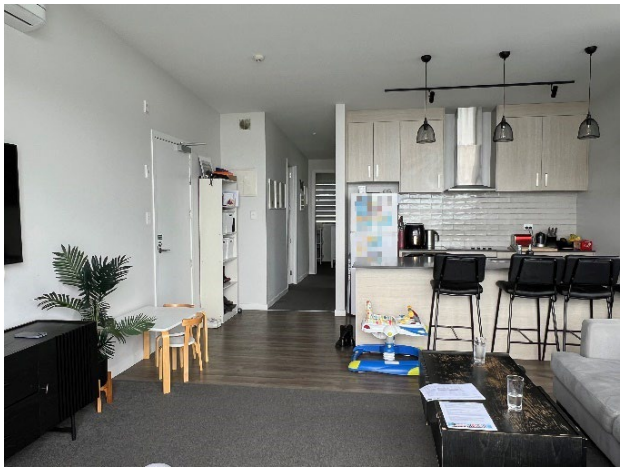
[20] One family regretted buying their home and were due to move, at least in part due to the size of the kitchen and the lack of bench space to prepare food.

Food access isn't a problem, food storage is (#T17)

Not having a pantry was especially challenging. Household #A5 used their under-bench cupboards for kitchen appliances and crockery, and food was stored in two high cupboards over the hob (Figure 14). Although they could reach with some difficulty, they were exasperated by the lack of food storage:[21]

> *I've got no storage space, so everything just kind of gets shoved in. Like, look at this. The food is like ridiculous* (#A5)

Figure 14: Food stored in cupboards above the kitchen hob; floor plan (#A5)



Even those participants who had a designated pantry or appropriately located cupboards reported that they were not fully functional. Household #D20, for example, lived in a home with a very narrow, floor to ceiling cupboard with fixed shelves. Although it was intended to be a pantry, it was very difficult to retrieve anything except what was stored directly at the front (Figure 15):

> *I have a pantry in here but I do find that it's quite full and so if there's something that I need it's sort of a juggling act to maybe get something from the back* (#D20)

Other cupboards in their kitchen also housed plumbing or ducting, making them overly shallow:

> *Probably a little bit disappointed with some of the kitchen storage options and just how that works for me … there's the plumbing stack in the back and it sort of makes the cupboards quite shallow, so I guess I don't have a pantry per se … storing the plates and things, there's not a convenient place for that … there's actually no details about those fixtures [on house plans]* (#D20)

[21] Although they did not mention it, the cupboard's position also raises safety concerns.

Figure 15: Tall, narrow pantry and cupboard with limited capacity (#D20)

Household #T17 had a similarly sized floor-to-ceiling pantry but with pull-out drawers. Although a considerable improvement on fixed shelving, it was still too narrow to be fully functional, considering the number of household members the home was designed for:

> *We underestimated how much space there was for food storage … The pantry is quite tiny … a four-bedroom home, you would have thought the storage would have been better* (#T17)

The in-home immersions showed that kitchen space and storage limitations were exacerbated for some households. The family who lived at household #A2, for example, frequently made two curries plus roti at the same time, which involved several steps and many ingredients. When cooking, they were often forced to use the coffee table in the lounge to prepare roti and had few spaces for hot pans.[22]

Kitchen storage was also challenging for household #T14, a family of five (2 adults, 2 adult children and one dependent child). They used one half of their pantry for spices, grains and pulses (Figure 16), had a supplementary shelf unit for a large variety of Chinese teas, and used their bench top for tea-making equipment. They wanted to follow Feng Shui principles as much as they could. This meant they kept rice in a large bucket under the benchtop because it was considered culturally inappropriate to enclose it in a cupboard:

> *So that's rice … we wouldn't put it in the cupboard because it's not the tradition … This is already a container itself, we want it to always be full, always full. We don't want to contain it [by putting it in a cupboard]* (#T14)

[22] Household #A2 also pay $280 per month for a storage unit, which houses their "kids' study table, my swing table, my parents' table and other furniture, and my spare utensils for guests. The special utensils. I've also put our extra clothes there as well".

Figure 16: Pantry, complementary cupboard, bench top to store food, plus rice and tea-making equipment (#T14)

4.4.1 Solution-focused households

Participants worked hard to find solutions to their kitchen size, design and functionality challenges. As discussed in Section 4.1, those who had garages frequently used them to store food and kitchen items that could not be accommodated in the kitchen. Participants also demonstrated considerable resourcefulness and creativity, utilising myriad storage solutions to maximise wall space, cupboard and ceiling heights (e.g. Figure 17).

Figure 17: Examples of smart kitchen storage solutions (#D19, #T11, #T7)

The design of 2-storey MDH often results in a ‘space under the stairs’ that is allocated on the plans as either a WC (as discussed above) or a pantry. Several participants who purchased their homes ‘off the plans’ expected a fully functioning pantry when they moved in. Instead, they were provided with a cupboard under the stairs with no fitted shelves. These spaces had no utility as a pantry till they invested in shelving and/or storage solutions that allowed storage for food and/or kitchen appliances.

Household #T8 (a woman who lives alone) and #T10 (a multigenerational family of five) illustrate the challenge and the work involved in generating a solution. Each household installed shelving and/or mobile drawer units to make their kitchens work for them (Figure 18).

Figure 18: Repurposed pantries under the stairs (#T8, #T10)

Household #T8 stored most of her food and produce on a fixed shelf and in two mobile drawer units. Although the wheels might suggest easy movement, one unit was inaccessible due to the position of the fixed shelf. Notably, additional goods such as wine, UHT milk, and coconut water were also stored on the floor, next to the cleaning tools (mops and sweepers).

> *I kind of looked at the plans and I went yeah [all good] … I would measure things out but, I didn't have a sense of the actual layout of the kitchen … some of the cupboards are so high up that you can only put stuff in there that you're never gonna use and … this is like my pantry where I put my food and everything is in wheelie trolleys … I think of it as good exercise crouching down, I do squats when I have to pull things out* (#T8)

While the sole occupant of household #T8 was able to contain all her food items in the 'pantry', household #T10 found it more challenging:

> *It would be nice if there's a space for the pantry … the pantry is more to do with the items that are the ingredients that we'll be using for cooking, whereas this is more to do with the dry goods, the kids snacks* (#T10)

In each case, the space under the stairs could only function as a pantry because of the ingenuity of the household in generating workable solutions.

Another solution adopted by participants was the purchase of freestanding furniture to accommodate kitchen items (food and/or crockery) that could not otherwise fit (Figure 19). Household #T15, for example, purchased a cheap cabinet to function as a pantry for food and crockery. The style and materials were a perfect complement to their kitchen aesthetic:

> *There is a shortage of space … And to be honest if it wasn't for [the cabinet] we would be stuffed, believe it or not, this has nothing to do with the house. I found this on Trademe for $10 and I found the exact same handles online too. Now doesn't that look part of the kitchen? Impressive eh, it's unbelievable, so we love it … we keep our food here* (#T15)

Similarly, #A6 repurposed a tall double-door cabinet as a temporary (now permanent) pantry when they first moved into their home. Since then, they also purchased a mobile island bench and sourced appropriately sized baskets to fit into the under-bench shelves.

Household #D20 purchased a hutch buffet to store food in the lower closed cupboards and crockery and glasses on the open shelves (Figure 19). The cabinet was located on the piece of wall between his kitchen and the front entrance and adjacent to the dining room. It proved a useful workaround; given that he was easily able to access dining plates to use at the table.

Figure 19: Examples of freestanding furniture (#T15, #A6, #D20)

Other households purchased bespoke furniture to accommodate their kitchen storage requirements. Household #T18, for example, initially purchased a standard cabinet from a hardware store. However, after two years, they found the original kitchen cabinet makers and paid them to install kitchen shelves and make a pantry cupboard using the same kitchen materials (Figure 20):

> *[The cabinet maker] really didn't want to come and do it cos it was too small a job for him, but I eventually wore him down … I said we need one made cos there's no pantry in here and he's like 'yes, I know, we've done multiple changes for other units'. He said his company tried to get the developers to [put in pantries] but they had a very fixed budget of what they wanted to spend and this is what we got … no pantry* (#T18)

Household #A3 also improved the utility of their kitchen by extending their kitchen bench and creating a new cupboard to store food, crockery and other kitchen goods. They went to considerable expense – economic capital – to have a custom-made extension using the same materials as the

original bench (Figure 20). This provided more bench space as well as additional storage underneath for a microwave and food items.

Figure 20: Bespoke furniture to accommodate their kitchen storage requirements (#T18; #A3)

4.4.2 Unsatisfactory and insufficient outcomes

Participants demonstrated considerable resourcefulness as they generated solutions to their kitchen storage challenges. However, the solutions at times were insufficient or had unintended consequences. Storing food and other kitchen items in the garage decreased the utility of the garage and typically meant households were unable to park their cars there. In the case of modified pantries discussed above, pantries were not fully functional. Makeshift shelving failed to fully maximise the available space, and the location of the cupboard (under the stairs) beyond the designated kitchen area created a disconnect during food preparation.

Despite extensive pantry modifications, the multigenerational family of five found the space insufficient, prompting them to seek additional places to store food well beyond the kitchen. They distributed their food in several other fixed and non-fixed cupboards: dry goods and snacks were kept in a cupboard on the dining-area side of the kitchen bench; other dry goods were stored in storage baskets in a tall unit in an alcove adjacent to the television, relatively distant from the kitchen; and snacks for the children, along with canned goods and other food items were kept in a two-drawer unit beside the television (Figure 21).

Figure 21: 'Pantry' plus additional food storage in cupboards, shelves and drawers (#T10)

4.5 Conclusion

This section illustrated the design and functional limitations of MDH design alongside the efforts undertaken by participants to adapt their homes in ways that better met their needs. Participants demonstrated various forms of capital — economic, social, and cultural — to adapt their homes. Economic capital enabled some to invest in improvements such as custom furniture and enhanced outdoor spaces, while cultural capital influenced households to organise spaces to create a sense of openness and alignment with their personal or cultural values. Social capital also played a role, as relationships with developers and access to property early on allowed for better planning and adjustments.

Those with economic, cultural and/or social capital were able to mitigate some of the limitations of their house design by extending, modifying, and purchasing design solutions that made spaces better meet their needs while affording them greater ease of living. These forms of capital, however, are not available equally to everyone. Not all participants have the economic resources to make modifications to their home, the knowledge to understand what would make spaces work better, and/or available support networks to assist them in such improvements. This raises questions regarding the extent to which new housing typologies may inadvertently generate further inequities for Aucklanders.

Undoubtedly, the tension between design constraints and participants' adaptive strategies illustrates the resilience and ingenuity of households to make their homes work despite those constraints. Therefore, it must be noted that current MDH design may be failing to fully meet households' spatial needs. It is thus incumbent upon the housing industry to respond to the diverse and evolving needs of households through fit for purpose housing provision.

5 Navigating household, social and community relationships

Home is often regarded as more than just a physical space; it is the place where relationships with family, flatmates, friends and neighbours are enacted and negotiated (Cain et al., 2017). For many people, the home offers a backdrop for myriad interactions that shape our lives.

This section focuses on the role of MDH in supporting and/or hindering those interactions. It is organised in four parts. The first part focuses on the people who live together in the home and explores how household members find ways of being together and ways of being alone, especially given the spatially constrained context. The second part focuses on socialising and considers how participants entertained their friends and whānau in their homes. The third part considers the extent to which participants feel a sense of community with their neighbours, while the final part considers online spaces as a particular site in which social interactions can occur.

5.1 Finding space to be alone is challenging

Section 4 discussed how participants navigated the small and, at times, awkward floor plan of their homes. Examples illustrated the challenges faced by households to be together with other household members when living areas did not allow so (e.g. the lounge for household #T13 shown in Figure 1). While this was difficult for most participants, it was especially challenging for larger and multigenerational families expected to navigate competing needs and interests. Having already considered how spatial configurations in MDH impacted quality time spent together, this section explores how household members found time for solitary activities.

Finding space for solitude seems challenging in the context of a spatially constrained MDH home. For example, household #T10 comprised a couple who lived together in a 2-bedroom plus flexi-room, terraced house with their two children and their grandmother. The 14 year old daughter shared a bedroom with her grandmother. In addition to sleeping, the room doubled as a clothes drying and ironing space (Figure 22). The eight year old son was sleeping in his parents' room. In addition to being a bedroom, the room was used as a work place to complete business accounts with office papers, linen and other items all stored together, mostly in two tallboys positioned in front of the windows. Finding space in the home to be alone or have a degree of privacy seemed nearly impossible.

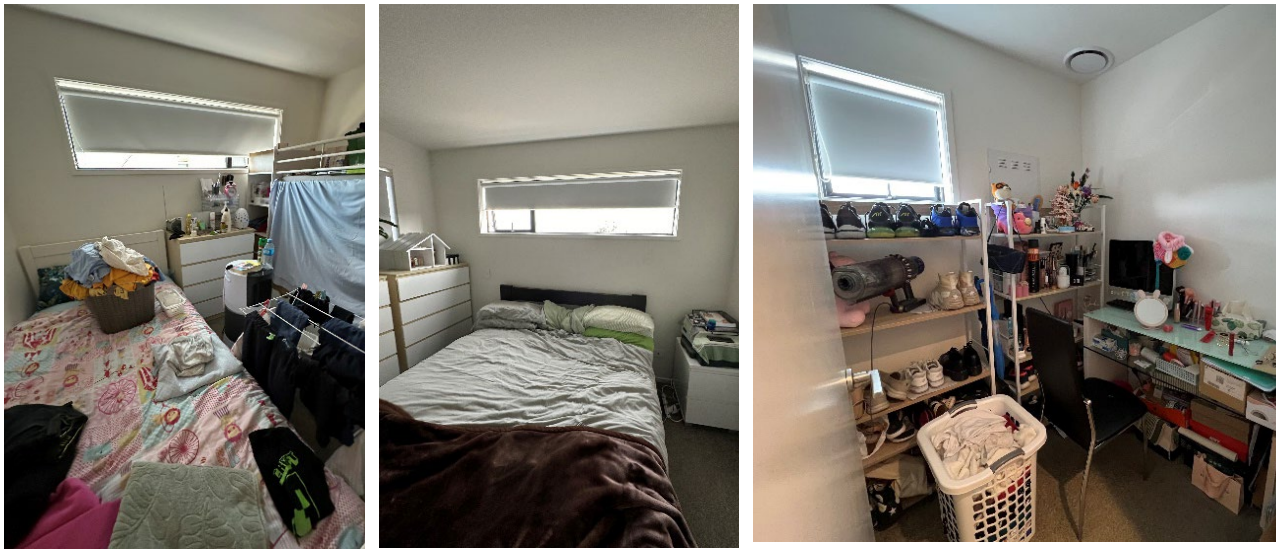
Despite the daughter being allocated the flexi-room as her "office" where she could do her homework, art and makeup, and store some of her clothes, the extra space was not enough. She wanted her own bedroom and therefore requested her parents to move to a different house. Her mother told us:

> *She's the one who openly expressed, 'Mum, can we please relocate? Can you please find another place that we can live in, so I can have my own room'. Because she is growing up … we are looking into it, but I'm not keen on having to go somewhere farther because of the traffic. It's such an expensive place here in Auckland. $1.5 million! Oh my God, and then with the interest rate, it's not the right time to make a purchase* (#T10)

The mother of the household seemed caught between the daughter's privacy and space needs, and the family's inability to afford a larger, less awkwardly configured property that could better accommodate their needs:

If you asked me whether this type of unit, or this kind of build, would be ideal for a family, so I would say from experience, if you have one child, it is ok. But if you have got two or more, I don't think it's ideal, because obviously, especially with kids, they need to have that sense of space, and the ability to move around. And even though we have got a nearby park, kids really want to move around within that home environment (#T10)

Figure 22: Densely packed living in 2 bedrooms plus flexi-room (#T10)



The above example illustrates a dense living situation, concentrated in a small space. Other households illustrated a sequential way of living, meaning that spaces in the home were used for one activity at one point in time, and then rearranged for another activity later. They were multipurpose spaces in that they could accommodate solitary activities (such as exercise) as well as group activities (such as board games or watching television together), but these activities could not happen concurrently.

One household member from household #T12, for example, used their lounge for pilates each morning, moving furniture out of the way to accommodate it. Another example is household #T9, where one of the members of the household was studying towards a postgraduate qualification. When her study needs had to be prioritised, she had exclusive use of the lounge, while everyone in the household was expected to disappear to their bedrooms and the teen, to the garage where he could game or watch television. These examples illustrate the limits of MDH: as one person claims space, others in the home are effectively displaced, albeit momentarily.

One of the key challenges is that MDH does not always flex in response to households' lifestyle changes. For example, the arrival of children often changed homeowners' needs and expectations of their homes. Household #A5 first moved into their home as a couple but since then had two children. The children's arrival has impacted the way they value their home now. They used to appreciate an elevated view of the Sky Tower, but now, living on the third storey without a lift and having small children to carry or help up the stairs has diminished the joy they had previously experienced. The research team asked how they manage the stairs now:

> *I normally do kids first, and then, depending on what they're doing, if they're fine to just like, relax, then I'll do a couple of trips to get the groceries … But otherwise, if they're not good, and they need feeding or putting to bed or whatever, the groceries stay in the car until everyone's settled or asleep or something. So, they stay in the car until they melt and then we get them later* (#A5)

The living area, once appreciated for its view, now functioned as a multipurpose space accommodating play, relaxation, dining and sometimes sleeping. Their lounge had become a space for "everything" where they concentrated all their household activities and attempted to compensate for the limited space overall:

> *This is the everything big space … This is the play space, the relaxing space, the TV space, the eating space. Feeding space for kids space and eating for adult people space. Sometimes sleeping space [for the kids and the adults] … So, once the kids arrived, [this space became] all kids' stuff in here, so books and toys and everything … some Friday nights we like to watch a movie here, and my three-year-old son likes to bring his mattress out here, so every Friday night he sleeps in the lounge* (#A5)

Household #D19 (a couple with an 18-month-old) shared a similar story. Their property had worked well for them as a couple, but the arrival of their child had transformed their lounge. At one time, it had been dominated by the PS4 that was plugged into the large screen TV, but it has not been used since their child was born. The lounge is now first and foremost about their child and her safety, complete with two sets of gates for containment and a collection of toys (Figure 23):

> *A lot of her play is in this space. It's a lot easier when you're doing stuff around the house for her to be down here … that's why we adapted it by putting down the soft matting and the rug down over it and stuff like that, cos hardwood floors and a baby's heads do not mix very well* (#D19)

Figure 23: Living areas are reallocated as children's play spaces (#D19)

In spite of fully allocating the lounge to their daughter, the couple reported that the space was rapidly getting 'smaller' as their child grew:

> *I think as she's gotten bigger, you kind of realise just how small this space is and yeah, so it's definitely been … an interesting challenge trying to make it fun and exciting, especially on rainy days without everybody going stir crazy cos it's such a small space … I would love this space and the house to be bigger. I think for a couple it was pretty good. As soon as we introduced [name of daughter] into the mix and she started moving and we gradually started accumulating toys things have changed* (#D19)

MDH presents significant challenges for households, particularly larger households who require more space or who experience changes in their living circumstances. The need for flexibility and

adaptability in housing design is clear. While residents demonstrate considerable resourcefulness in managing their living areas, the fundamental limitations of MDH often result in compromised living conditions. To better support diverse and evolving household needs, housing designs must offer greater flexibility and capacity to adapt to the changing dynamics of evolving lifestyles.

5.2 Socialising at home can be challenging

For many people, their private home was also a shared space, in which others, including friends and family, were invited in to socialise. We often heard, however, that socialising and entertaining was challenging due to the size of living areas.

5.2.1 Having visitors can be uncomfortable

Participants shared a range of responses about how they socialised and entertained at home. Several chose not to have friends and family over because their home lacked space and what was often described as "flow" between the inside and outside of the home:

> *I don't have people over very often, to be honest. Like certainly not for like meetings and stuff. We might have drinks but it's not somewhere that I like to invite people to. Has the space stopped me? I think a little bit because it's just not, it doesn't feel too flowy, do you know what I mean?* (#A3)

While some households felt their home was too small and lacked flow, others felt their home was configured awkwardly for guests. For example, household #A6 liked the idea of having family and friends over, but they had very limited space to prepare and serve food, even for a small group. Socialising in this space was made harder because their outdoor living area (a balcony which housed the BBQ and a small table and chairs) was only accessible from the master bedroom. This effectively rendered the balcony unusable unless the household felt comfortable with guests accessing their bedroom (Figure 24).

Figure 24: Floor plan, deck off master bedroom (#A6)

The small size of homes and the lack of ready access to outdoor spaces was especially problematic for larger extended families. Household #T9, for example, had a large extended family and enjoyed having them over for shared meals. They found it challenging to have their family visit because there was so little space to accommodate them. Impinging on the garage by effectively making it an extension of the lounge for the dedicated use by the younger members of the extended family, was the only way they could make it happen.

> *We've got beanbag chairs as well, which normally sit in the garage. That's where they [son, nieces and nephews] stay. But they come out here as well. We've got a lot of kids, nieces and nephews in our wider families, our extended family. So yeah, so we make use of the beanbags and the chairs [from the dining table] as well out there. But again, like I said earlier, the weather plays a big part. Like if it's cold … So yeah, ideally, we can spread out to the rest of the house, even if it's spilling into the garage. The older boys like to because there's another TV in there and they can do the PlayStation kind of thing. So, yeah, and then having the door open like this, it just free-flows. So that's only if it's nice* (#T9)

While they have established a workaround for them and their extended families, they also made clear that their solution was not always reliable given it was dependent on good weather.

5.2.2 House design can support socialising … with some effort

A small number of participants felt their home was conducive to socialising and entertaining. Household #T12 is a good example. They felt their home possesses what is commonly described as good indoor-outdoor flow; the space between the living area and the outdoor area was contiguous, separated only by an extra-wide ranch slider. This arrangement, and a large outdoor dining table, allowed them to entertain up to 12 guests at a time.

The household was innovative and studied in the way they had arranged furniture and décor. They had also personalised the exterior living space, adding a table, fairy lights overhead, artificial turf and plantings to create an outdoor space conducive to entertaining. Their home also had a frame over the inverter unit for their heat pump which made the area more aesthetically pleasing and acted as another tabletop when they were having BBQs.

Similarly, household #T9 used furniture to transform their indoor and outdoor space into an entertainment area. One of the first things they did after moving in was to extend the deck area, adding around 3m^2 of decking, thereby creating a usable space that served as an extension of the interior living spaces. Although not a large house, they also added bamboo to their fence to provide more privacy and create an enclosed entertainment space. The addition of rounded paving and extra planting also softened the wall's hard surface. They had table and chairs on their deck for guests and a separate smaller table and chairs under the overhang of the upper storey where they sat for breakfast.

Other households accommodated guests by moving furniture around and bringing in additional seating, sometimes repurposing furniture such as footstools as additional chairs. Several participants had also purchased special furniture to better accommodate family and friends:

> *This [dining table] is just for like family dinners and that kind of thing … so we actually started out with [an] old desk that we would have bought from, I don't know, Warehouse Stationery sort of thing, as our dining table when we moved in, which was a lot smaller. And then we realised we wanted something bigger for family gatherings. So yeah, we found this at Freedom* (#T12)

Housing design, especially the relationship between indoors and outdoors, supported the way these participants wanted to socialise and entertain. However, while thoughtful modifications can improve the functionality of a space for hosting guests, it relies on household members having the economic,

cultural, and social capital to do these modifications. MDH design should have considered and incorporated additional guest requirements in its design from the onset.

5.3 MDH can help build a sense of community

Shared spaces in MDH can provide opportunities for household members to build a sense of community. In the context of MDH, shared spaces include communal outdoor living spaces within the design development, as well as shared driveways, accessways and rubbish rooms. Shared spaces can become so-called 'bump spaces' where residents can 'bump into' each other and potentially develop connections, if not relationships, with the wider community (Banwell & Kingham, 2023). This can happen formally through organised activities in communal outdoor living spaces or informally in shared service areas.

This study showed that shared spaces in MDH complexes provide residents important avenues for developing a sense of community.[23] Several participating households lived in a complex with a shared or communal outdoor living area. Overall, participants who had such an area valued the space, even if they did not use it themselves.[24]

> *There's regular community get togethers where they'll have like a coffee van and stuff come and bring your dog along and all that kind of stuff. We don't go to those … they're doing a Christmas thing. Christmas coffee morning was a bouncy castle and stuff* (#T16)

Most said that they used these shared spaces infrequently and were taking a while to work out how best to use them. This might explain why the absence of communal spaces in housing developments was not seen as an issue by participants, quite simply because they did not realise the potential of chance encounters to foster social connections.

Design observations for adjoining properties in a terraced housing development typically avoid a firm demarcation between houses through visual barriers in the form of shrubs or trees, brick walls, or a wooden fence. This retains street appeal with an unintended benefit that it creates openness between houses which can promote a potential bump space between neighbours and contribute to neighbourly social interactions. Participants sometimes commented on the benefits of such an open space between properties:

> *Our neighbours have thought about putting a fence in there recently … we said we're happy for them to do that and then that would maybe mean you feel a bit more private in this space [but] it's quite cool. Like we do feel like it's a cool sense of community, seeing people* (#T12)

The shared communal gardens, a feature of the complex in which household #A4 lived, provides another example of a possible bump space, offering household members opportunities to get to know their neighbours. The apartment was in a 5-storey 'lifestyle' apartment block.[25] The complex had communal spaces for household members that were routinely used, including an area with vegetable gardens and worm farm tended by those who lived in the building. Household #A4 valued the sense of community the building enabled:

> *The whole reason why we bought it … is that because a lot of people moved in together [at the same time] … And they seem to like, kind of hanging out with each other … so that's quite cool … the whole reason we bought this place, was our friends seem to like hanging out with the neighbours, so that's cool* (#A4)

[23] These kinds of spaces were often found in larger housing developments and encourage different communities or neighbourly interactions within the development to form.
[24] See Chapter 9: Shared facilities in Life in Medium Density Housing in Tāmaki Makaurau / Auckland for more information.
[25] The building was designed to be environmentally and socially sustainable.

One household member of household #T16 also enjoyed the communal spaces her complex had to offer, especially the shared garden. The participant was a gardener and took responsibility for managing the shared 'pocket gardens':

> *And there are community garden beds as well. Yeah, so it pays for the plants … I'm like, the kind of main person who's looking after the garden beds … with the community garden thing that I'm running, it's like just volunteers to weed it, and like we recently just ripped everything out and started from scratch and planted everything in there. But anyone can come and use the produce. But it's like a group of volunteers who are maintaining it* (#T16)

Figure 25: Shared garden space in a 'lifestyle' apartment (#T16)

There were a range of views among participants regarding their desire to get to know their neighbours, from being close friends with neighbours to not wanting to have anything to do with them. For those who valued a relationship with their neighbours, being part of an MDH development enabled them to do so:

> *There are some changing faces, but there are some staples, and they're all really friendly. So, it's just even if they see us, we just say hello, you know, how's it going?* (#T15)

Household #T12 also unexpectedly found a community of people in the terraced block they lived in:

> *We've built really good relationships with all our neighbours … we are all at a similar phase of life. Like we didn't really expect that, so we didn't know what kind of neighbours we'd have and we're like so stoked with the community that we've got here. Like we went to an improv show last week with our neighbours, we're having pizza with some other neighbours this weekend* (#T12)

One of the reasons they found it easy to make connections with neighbours was because everyone was at a similar life stage:

> *I would buy another terraced home for sure … having neighbours who are at a similar phase of life to us and are really friendly and helpful and it's a cool community* (#T12)

Residents can develop a sense of community through neighbourly connections, including chance encounters with their neighbours.

While on the surface these encounters might appear rather 'thin' and indicative of a "weak tie" (Granovetter, 1973), they remain important. Such encounters illustrate a sense of familiarity, even if no formal relationship is developed. Described by Milgram (1972) as the "familiar stranger", these ad hoc encounters can foster a sense of community, connection and a feeling of familiarity through supporting social interactions and promoting a sense of belonging, even if friendship is not forthcoming.

5.4 Online spaces can build a sense of community, but they don't work for everyone

While not a central purpose of the study, it was interesting to note the role played by social media in generating (or not) a sense of community. The couple who lived in household #T12, for example, were pleasantly surprised by the neighbourly interactions that took place on a shared Facebook group:

> *The Facebook group for this community is awesome, like people are always putting up things like 'I've got this baby stroller, I don't need it anymore' and someone's like 'I will be there in five' and they snap it up. So, there's a lot of like community stuff … I'm surprised at how much I enjoy the intensification lifestyle perhaps. It feels like less isolation. I've enjoyed that (#T12)*

A similar sentiment was shared by the couple who lived in household #T16:

> *I saw [a post on the community page] recently where someone was like 'I'm getting my exterior windows cleaned. Does anyone else want to too, so we can … do it for a cheaper rate for bulk. That's not uncommon to see stuff like that* (#T16)

Shared Facebook pages could also foster a sense of security for participants. Household #T7, for example, had moved to an unfamiliar area and had preconceived ideas about neighbourhood security. Online community groups helped people get to know their neighbours, especially when administered well:

> *Positive of living here is that it's quite a peaceful neighbourhood. At first, I felt like [name of suburb] was quite south, so in terms of the security issue, what I had heard before was that it's not too good. But actually, I've found that it's not too bad … so everybody moved in at basically a similar time, right. And then we feel a sense of security, because we set up our community group on the WhatsApp and also Facebook as well. And then when new a neighbour comes in, there's a guy on that side, he's the one who has set those up, so the administrator, and he will go visit a new neighbour and then add them and then any issues are recorded and discussed in the group* (#T7)

The participant was also pleasantly surprised by informal neighbourly connections that developed. For example, the community WhatsApp group helped her find a suitably skilled person to install shelves and during the extreme weather events of January 2023, group members assisted her when faced with the threat of flooding. While no water came into her home, the solidarity and support this participant experienced was of great comfort.

Social media, however, was not positive for everyone. Some participants described social media sites as a place for complaining, whether it was about what they perceived as poor service and amenities, or to report a neighbour's below par behaviour.

> *We do have a Facebook group but I don't belong to it, which makes me sound really bad … the group started when the place was being developed and … there was a few problems with the sunset clause … so, things got a bit like, I don't know, just negative and I just can't be bothered with that … if there's anything major, it needs to be emailed to everyone, like Facebook is not an official form of communication* (#T8)

While some participants only knew their neighbours in passing or interacted with them via the Body Corporate, Residents' Association or social media groups, several participants were pleasantly surprised at how much they enjoyed their local community.

5.5 Conclusion

The findings presented in this section illustrate that MDH often struggles to accommodate the varied and changing needs of households, such as finding space to practice hobbies, entertaining guests or fostering social encounters with neighbours. While sole occupants can negotiate their requirements with relative ease, larger or multigenerational households are challenged by limited space and/or agility to repurpose spaces to better accommodate their needs. Moreover, the challenge of finding privacy and solitude in a confined environment is exacerbated by the inflexible nature of most MDH designs, underscoring the need for greater adaptability in housing solutions.

Socialising and entertaining within MDH poses its own set of challenges, primarily due to the spatial limitations and awkward design features. Many participants reported difficulties in hosting gatherings or entertaining guests, as their homes either lacked adequate space or had poorly designed indoor-outdoor flow. However, some households managed to overcome these limitations through innovative design and furniture arrangements. These strategic modifications show that while MDH can be restrictive, adjustments can significantly improve functionality. Nonetheless, these solutions largely depend on households' economic and cultural capital, rather than inherent design benefits of MDH.

The potential for MDH to foster a sense of neighbourly community is mixed. While shared spaces can enhance social interactions and provide recreational opportunities, their effectiveness varies. Some residents value these spaces for their ability to build connections and provide a sense of belonging. But poorly designed or underutilised shared spaces can fail to support meaningful community engagement. The examples of communal spaces from this study highlight the importance of not only designing these areas thoughtfully but also encouraging their active use to realize their full potential.

The role of social media in community building within MDH is also complex. While some residents find social media groups useful for fostering a sense of security and connection, others view these platforms as venues for complaints rather than constructive interaction. The mixed responses to social media underscore its limitations as a tool for building genuine community ties, emphasising the need for more effective offline strategies to foster neighbourly relationships.

The experiences of residents in MDH reveal a nuanced picture of urban living where design constraints intersect with personal and community needs. There are potential benefits of well-designed and utilised shared spaces, but there is also potential for MDH design that is more adaptable to changing household dynamics and that better support both privacy and social connectivity. The insights from this study call for a re-evaluation of MDH design principles to ensure that these spaces not only accommodate the practical needs of households but also enhance their overall quality of life and sense of community.

6 Privacy – modifying self and home

Home is a site of refuge from the outside world, providing a sense of security and safety (Dupuis & Thorns, 1998). It is arguably a private place where people can escape the public sphere and be themselves (Cain et al., 2017). But MDH has challenged social expectations of privacy at home, and proximity to neighbours means it is more likely (and expected) that a sense of privacy will be disrupted (Gjerde & Kiddle, 2022; also see Ovenden & McKelvie, 2024). This section is concerned with privacy, a value that remains important to people (Richards, 2022). This study found that more than any other parameter, attaining and maintaining privacy was of greatest concern for participants, and they had to work hard to acquire it.

The section is presented in two parts. The first part outlines the range of privacy concerns discussed by participants, in particular, their concerns about seeing and being seen, hearing and being overheard, and the permeation of cooking smells. The second part describes how participants maximised their privacy. This included modifying their mindset about privacy, changing their behaviours while at home, and making structural changes to the home. These solutions demonstrate what is involved for participants as they attempt to mitigate their privacy concerns.

6.1 Visual, acoustic, and olfactory privacy

Perceptions of visual privacy are highly subjective. When asked about their sense of privacy inside their homes, some participants expressed little concern:

> *I don't really think about it too much and it's nice to kind of wave at the neighbours and stuff. I do like kind of vaguely knowing my neighbours* (#A1)

> *No, I just never really thought about it to be honest … I mean I sit in relative darkness so I don't think anyone can see a lot of me. I guess, if I'm on the balcony with the lights on, for sure, and like you see people, like they look up here as they're driving past but I don't think they're like zeroed in on me, like you just approach a big apartment building and you're like 'oh, that's interesting'* (#A3)

Most participants, however, expressed concerns about others being able to see them while they were inside their homes:

> *It's more my husband, he doesn't like to be seen. So, I would normally lift [the kitchen blind] up especially when I'm cooking because I wanted to you know, let the air out from the kitchen and I also don't want the house to get really smelly so I open it, but my husband doesn't like the thought of that, you know, people could just see in* (#T10)

> *I am always mindful, because if I'm standing there and whatnot, if either of us are, people [in the house in front of us] can see us from their driveway* (#T9)

> *Like, you can see everything when all the shades are up, especially at night when all the lights are on as well. [Name of partner] doesn't think so but I have stood out there and had a look … like I can see in, even when we have the day ones down and say it's night time and you have the lights on, I can still see* (#A6)

Housing design could significantly impact participants' sense of being observed. For example, household #T8 considered themselves fortunate because they felt the design of their home allowed them greater privacy, especially when compared with others in their immediate surrounds. They loved the way their deck area was enclaved by the fencing and adjacent native bush reserve. Together, these elements created a sense of privacy:

> *It's nice my deck, eh? So, it opens out … I love that, it's because of the native trees and you can hear the birds and I feel as if I've got privacy and it's just really nice. I find it really calming … I really like the colour green and nature and being close to it and it's like I'm in a townhouse, I'm close to people but I still have that little bit of privacy* (#T8)

Another example is the couple who lived in a 2-storey, 3-bedroom terraced house (#T12) who expressed their appreciation of the extra high fence in their back outside living area:

> *It feels super private. One of the things we really like about this, having this higher fence cos I think it's higher for us than other people, so like this is really nice … cos we can't see other people really, we do feel quite private in here. It feels like a little New York rooftop bar kind of vibe* (#T12)

In their case, the contours of the land and necessary retaining wall, enclosed their outdoor living space, which they experienced as greater visual privacy. They had added to this by introducing outdoor furniture and soft planting, as well as installing festoon lights, all of which contributed to the sense of a private space conducive to socialising (Figure 26).

Figure 26: Back yard with extra high fencing to create an enclosed private courtyard (#T12)

Visual privacy was not the only concern of participants. They were also concerned about acoustic privacy – the ability to be heard and the ability to overhear when inside and outside their homes, a concern that is reflected in Australian studies of higher density living (Kerr et al., 2018).

Most, but not all, of the participating homes had good noise proofing systems in place such as double-glazing and wall insulation:

> *The favourite part of the house for me is easily just the insulation and sound deadening and how quiet it is in here compared to how the world is loud out there … like we are on a flight path and there is a train line really close to us, and we don't hear anything … you can kind of hear through the door but apart from that it's really quiet* (#D19)

> *My biggest fear was like 'oh my gosh, like are we going to hear noises through the walls?' Cos I'm like extremely neurotic when it comes to sound disturbances, and I was like we haven't heard a single noise from the neighbours and they said the same thing, like after a year of living here, they're like 'no we haven't heard you once'. So that's amazing* (#T12)

But not everyone was as fortunate. Several participants complained about different kinds of noises emanating from neighbours' properties. The noise from music was of particular concern:

> *[Having conversations outside] doesn't really bother me … It's more the noise that bothers me, like if any of these people in the houses around us had music on I would not want to sit outside because that would just put me off. But the thought of like people looking out the window and seeing me sitting outside that doesn't bother me* (#T16)

> *I hear those neighbours out there. Like, if I had my windows open, and they had music blasting because their garage opens up directly in our direction. Like you can hear cars start up at 6.30, 7am and that type of stuff, if you have your windows open* (#T15)

> *I'm okay with going and knocking on [neighbour's] door, so I knocked on his door at 3:30 in the morning because they had blaring music, and he goes 'Yes?'. I said 'It's 3:30' and he goes 'And?'. I say 'It's 3:30'. He goes 'oh, sorry'. So it was ok, everyone's nice* (#T8)

Although the participant claimed that "everyone's nice", the neighbourly exchange described does not sound pleasant, especially given it occurred at 3.30 in the morning. Interestingly, the participant immediately went on to explain her own motivation to be quiet, to not disturb her neighbours:

> *But I'm quite mindful of trying to be quiet, and to think of others, and that's I think the thing that Aucklanders and New Zealanders in general have to get used to, is living closer together* (#T8)

A similar sentiment – neighbours needed to be cognisant of each other and monitor their own noise – was also expressed by the occupants of households #T15 and #T16:

> *If we do have drinks and it goes you know past 10 o'clock we just feel a bit bad about it. You know, noise escaping a little bit … Yeah, so we are conscious of it. We will very rarely stay out beyond 10.30, we will usually move inside. I'm a bit of a 'treat how you like to be treated' guy, and I guess if it was the neighbours bowling onto 1 in the morning, I wouldn't actively complain, but I'd be a bit, 'sort it out!' So I certainly wouldn't do it* (#T15)

> *You can't have a subwoofer or bass playing because the person next door will just hear the booming bass. It just goes through the walls … like I've been in their house while the music's been going to sort of get a gauge of it, and like the regular music is quite loud, but you can't even hear that from here but you can just hear the bass right through the wall. So it was a good conversation with them and learning and educating us on what the issues were with that* (#T16)

In some cases mentioned above, participants talked to neighbours directly. Participants were more likely, however, to manage and regulate their own behaviour to help mitigate excessive noise from their neighbours. The participant who lived in a third level apartment, for example, (#A3), kept the high window in her bedroom closed and slept with ear plugs to help lessen sound travelling through the walls from her neighbours. Sound travelling between open windows of the terraced houses on their block was also reported by household #T12:

> *We didn't anticipate how loud or how much sound would travel between the two blocks … [we got] ducted air conditioning installed upstairs [because] our neighbours had their windows open at all times during the night, and we'd hear everything. Like two a.m. they're like pillow talking and I'm like in my head, 'oh my gosh, do you guys not realise it's two fricking a.m.' … I'd wake up and I'd be like wanting to yell at them, but of course social courtesy, so you just wouldn't. But it's like 'you guys, I can literally hear every word you're saying right now, like your 2:00am conversation, like what is happening' … But we learnt. The next summer we got fans … Yeah, which was helpful-ish … and then the next summer we got air conditioning and now it's like our windows can just stay closed* (#T12)

Hearing the everyday – and night – noises of neighbours became part of life for most participants.

While it was frustrating, they typically engaged in practices that would make the noise tolerable, including installing air conditioning units to avoid opening windows. These levels of self-regulation also extended to managing their own noise levels, as alluded to above. This often impacted their use of private outdoor space. Household #T17 for example had installed a spa pool in a separate outdoor living area on the side of their home at the end of a shared accessway. One household member talked about the acoustics of this spa pool area:

> *If we're in here and you're chatting, I know they can hear us at the front gate. I know because I have checked it out* (#T17)

Although this knowledge did not deter them from using the space, they still regulated how loudly they spoke and were cognisant of neighbours when using the spa pool. Another couple who raised concerns about the way sound travelled when they were in their outdoor living space was household #T12. They discussed the possibility for their or their guests' conversation being overheard by their neighbours:

> *In the outdoor space, sound travels really easily in that level proximity. So, like when you're having a picnic with your family and then you've got that slightly racist older uncle there, you're like 'shit I hope he doesn't say anything!' So it's that kind of thing where voices carry and so it's kind of like every conversation you have outdoors, you've got to expect that your neighbours might hear it. So for example, my mum came over and then she's like 'Oh what have the neighbours done with this?' and it's like 'Mum! Shut up, they can hear that!' So, it's innocent stuff but if it's about the neighbours, they can hear you and it's never anything bad but it's just like you don't really want your neighbours to hear that you're discussing them! ... so that makes you feel a little bit self-conscious or you know, if we wanted to have a deep and meaningful conversation about whatever, personal issue in our life, it's like 'ooh, let's go close the windows real quick' cos you don't want people to hear that* (#T12)

Although smell is not discussed as frequently as visual and acoustic breaches of privacy, a small number of participants raised concerns about the cooking smells emanating from surrounding fast-food businesses or houses:

> *Sometimes you just get the smell from the Burger King ... just in general, like when you go out really, so I don't open this window much* (#A5)

Household #T18 was also cognisant of their own cooking smells permeating their neighbour's property. Their concerns led to them "get[ting] into the roof" to check the performance of extraction fans and consult with tradespeople about the fans' position and operation:

> *The unit actually sits somewhere up here cos I've tried to get into the roof to look at it but I think it is extracting well. I have concerns about where they've placed the extractors on the outside because their kitchen extractor is like right there as is ours. So, if they're extracting stuff, often you can kind of smell it* (#T18)

6.2 Learning to live in proximity to others

The shift towards higher-density living has resulted in the distinction between what is deemed private and public becoming much more fluid (Sim, 2019). Proximity to neighbours results in tensions around acoustic and visual privacy, as well as the threat of smells permeating across property boundaries. But participants were open to accommodating new ways of living in MDH to help mitigate these tensions. They were willing to negotiate privacy concerns directly with their neighbours and they also wanted to be good neighbours so were open to regulating their own behaviour and that of the wider household.

Three strategies emerged as participants talked about their response to visual and acoustic privacy concerns: an adjustment of their thinking about what it means to be private; modifying their

behaviour to mitigate privacy breaches; and modifying the home itself to generate greater privacy. These are discussed below.

6.2.1 A change in mindset can help people adjust to concerns about privacy

Many participants reported their initial discomfort at the lack of privacy in their homes. However, several also reported recalibrating their ideas about what privacy means in the context of MDH or adjusting their perception of the extent to which they were visible in the first instance. For example, household #T12 were consciously trying to remind themselves that they were not especially visible from the front of their home and that social norms dictate that passers-by were unlikely to intentionally look in:

> *We've been trying to be more conscious of privacy stuff, like I think if we want privacy, like you can't see in at all during the day if they're like that [indicates drawn sheer curtains on the front sliding doors] that's full privacy … I just realised that socially you don't really feel comfortable looking into someone's house. Like you'll walk past and you'll just glance but you're not going to like stare. So I try to like, be more conscious recently to be like 'no, we live opposite a park, not even a house, so we should enjoy that and not feel like someone walking past might look in at any moment.' Like who cares? They're not actually going to look in, and when you're outside the windows are still a bit reflective so you don't really look inside internally anyway. So we try and live more like this cos it's nicer for the mind* (#T12)

'Getting to know the neighbours' also helped to adjust people's mindset about privacy. Several participants appeared less concerned about privacy when they knew their neighbours. It seemed that the familiarity of a neighbourly connection lessened their sense of exposure.

> *Because we're a cul-de-sac, we don't get any through traffic. So, there's not really privacy issues. We know everyone around the area* (#T16)

And when we asked household #T17 about any concerns they might have regarding acoustic or visual privacy, they didn't answer the question directly. Instead, they explained how well they knew their neighbours:

> *So, we'd certainly say we're friends with everybody in our block … certainly next door we see more often because obviously they're so close to us, their garage opens next to ours, and we would hear it if we're in our garage but I don't believe we'd hear it hear if we were inside, either that or we've got used to it. And in the bedroom upstairs, we never hear it at all. So, there's a massive concrete wall between us, so we can't hear what's happening in the other house, so that's pretty solid* (#T17)

6.2.2 Modifying behaviour

One of the most prominent ways that participants amplified their sense of privacy was to modify their behaviour. Drawing the blinds or curtains was a common and simple response to the perceived threat of prying eyes, that also at times provided additional benefit of temperature control (Figure 27):

> *Yeah, the sheers are always there, cos we can see outside but the sheers make it quite hard to see inside … But we had to install the curtains ourselves, like it didn't come with anything. So initially we didn't have sheers, we just installed these darker curtains and then like literally when we were at home, like people could walk past and see in, and we're like 'okay that's a bit weird' and then we just like put some sheers in* (#T11)

> *It's really about temperature control and I guess a bit of privacy as well. You don't really want people staring in your kitchen window while you're making your porridge* (#D20)

Figure 27: Sheer curtains and blinds create privacy (#T11 and #D20)

Household #T10 put privacy film on some of their windows, and installed blinds in the kitchen and bedrooms. The blinds in the daughter and grandmother's bedroom were kept nearly closed on an already high and tinted window as they believed "there will be no privacy at all. Because you're pretty much facing the other unit" (Figure 28). Despite the tinted window, the proximity to the neighbours made them very conscious of the possibility for people looking in:

> *I guess just sort of like the thought, so it's psychological. It's right across from those other units and my Mum and my daughter, they don't want people to see in* (#T10)

Figure 28: Three-quarter closed blinds in bedroom and flexi-room (#T10)

However, not all households were able or willing to install new blinds or light blocking curtains on all their windows. The grandmother's room in household #T9, for example, had curtains that were pulled into the middle of the curtain rail, to create a sense of privacy from the neighbouring duplexes. She was hoping to install net curtains to mitigate her privacy (Figure 29):

Yeah, my Mum keeps the curtains like that. She likes her room, she would probably also say that she is still waiting for curtains, so I still have to get her some curtains for her! She wants nets as well … it's the visibility thing, and definitely for Mum, about privacy. She keeps the curtains like that so she can sort of block some of the viewers, so the view of the neighbours (#T9)

Figure 29: Curtains left hanging in centre of curtain rail to generate a feeling of greater privacy (#T9)

For the most part, people were concerned about being observed as they carried out their everyday lives. At least one household also raised concerns about the potential for being judged at how they kept their homes by onlookers. Household #T12 explained that they sometimes closed the blinds to their bedroom window (located upstairs at the front of the house), depending on how "messy" they had left their bedroom:

> *It depends on how messy the room is whether we draw the blinds, so if we've got laundry on the bed, we might close it … When the bed's not made and stuff, I will always keep those sheers across* (#T12)

Goffman (1959) argued that people feel compelled to manage the way they present themselves to the public; everyday life is a front-stage performance, in which we present ourselves to others in the way we wish to be perceived. Arguably, home is the private space where we can be ourselves, including making as much mess as we like. MDH, however, can challenge perceived norms of what constitutes public and private. This can, in turn, compel people to continually manage the way they present to others, even while in the privacy of their own homes.

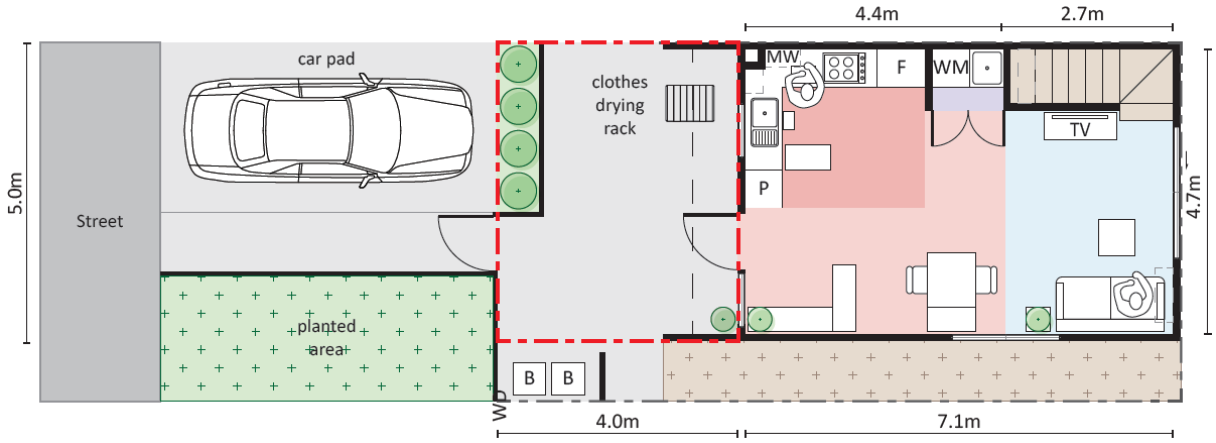
6.2.3 Modifying the home to create greater privacy

Participant satisfaction with the amount of visual and acoustic privacy was the result of both design elements that create visual barriers between public and private spaces (e.g. curtains, landscaping, outlook), and perceptions of how much visible separation from public view is 'enough'. Learning to live with ongoing issues of privacy was a concern for all participants, many of whom made modifications to their homes to add further visual barriers.

Several participants reported making modifications to their properties to improve or generate a sense of privacy while inside their homes. For example, household #T7 did not like the large expanse

of glazing in her front door and adjacent windows when she first moved in because she experienced the high degree of visibility as a lack of privacy. One of the first jobs she carried out was to replace the clear glass with frosted glass. She also placed a bookcase as a screen between the front door and her dining table. Again, these measures mitigated the extent to which she was visible to others when her front door was open (Figure 30). As discussed in Section 4, these changes reflect the participant's ability to draw on her economic and cultural capital to identify the need and make the required modifications.

Figure 30: Frosted glass front door with sheer curtain and furniture positioned to aid privacy; floor plan (#T7)



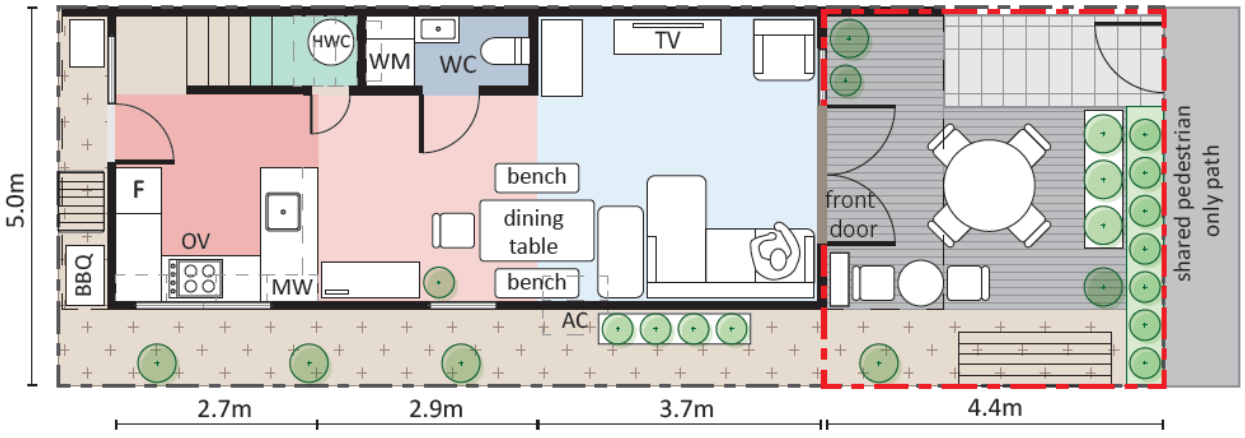
Other participants were more concerned about levels of privacy when using their outdoor living spaces. Households #T12 and #T17, for example, both discussed their attempts to use landscaping as a privacy buffer, planting additional trees, shrubs and plants that would eventually screen others' views into their homes. The neighbour of household #T17 (the end terrace house down a shared accessway in a block of four) had also planted bamboo along their common boundary, which had eventually grown tall enough to create a sense of privacy for both dwellings. Both households valued the enclosed outdoor living areas this created (Figure 31).

Figure 31: Landscaping as a privacy buffer (Households #T12 and #T17)

In a similar vein, household #T15 had taken significant measures to renovate the outdoor living area in the front of their home, a space that adjoins a pedestrian-only accessway that serves 14 other homes. They had extended the deck area to increase space utility by putting up a bamboo screen for privacy, while waiting for the plants to grow (Figure 32).

> *So yeah, so privacy's definitely a downside of living here, because we've had to put the bamboo things up. Which I don't even know if we are allowed to do as part of our Resident's Association. But we're just waiting for these plants to grow up just so we have a little bit more privacy … the reality is that if you sat down, you actually can't see much* (#T15)

Figure 32: Floor plan, bamboo screening attached to existing fence (1.6m in height) to improve privacy (#T15)



6.2.4 There are losses and gains from behavioural change

Acquiring more privacy by modifying how they chose to live in their homes often came at a cost. For example, replacing clear glass with frosted glass (#T7, discussed above) resulted in a loss of light, as did shutting blinds and curtains to enhance privacy. Household #D19 kept their kitchen window permanently three-quarters closed (Figure 33). Their explanation stated:

> *That's a privacy thing … So, when they're in their outdoor space, because it's also raised a little bit, they can see directly into our kitchen … so we are never in here without that blind down. I don't remember the last time I've opened it actually. [Opening] it definitely makes things lighter in here which is lovely and while I wish I could have it open more, it is just purely from a not-feeling-like-you're-living-in-a-fish-bowl perspective* (#D19)

Figure 33: Permanently three-quarter closed blind showing neighbour's balcony and outdoor living space looking directly into the kitchen (#D19; blind opened for photograph)

They shared a similar sentiment regarding airflow in the master bedroom, which had sliding doors and large, north-facing windows out onto a balcony. Although they enjoyed the space, the large window generated considerable heat, so they preferred to leave the doors open slightly to allow cool breeze in. Instead, they prioritised semi closing the blind to acquire privacy:

> *Usually, we have the blind about halfway down, just for privacy. Like right now I have it a bit open just to get the wind coming through while we're not in here, but if we we're in here, we'd have that down … there's kind of always people between there [indicating the neighbour's kitchen] and the balcony over there. It's a privacy thing* (#D19)

Maintaining a comfortable temperature and airflow inside the home was challenging when households did not want to be interrupted by neighbours' noise and/or did not want to be overheard by their neighbours. Participants often had to weigh up the desire for privacy against their desire for a cool home:

> *We often shut the doors because you can hear the screaming kids from the neighbours, and in summertime when it's hot, it's annoying* (#T16)

> *We don't know for sure, but I think people can hear us as well if they are out there [indicating neighbours' backyards and shared accessway]. So, if we were having a conversation or whatever in here, and you feel like 'oh, they can hear us' … yeah, so they can hear us. Because if we can hear them, they can hear us. Yeah, it's a privacy thing … so what do we do in the summer*

because of the heat? … Be private or be cool. It's not our favourite issue and it's definitely on our minds. It's just something we have to be mindful of. It's not a fake issue. But yeah, it's definitely on our minds (#T9)

Ultimately, there were losses and gains when attempting to negotiate privacy concerns: drawing the curtains or pulling the blinds down resulted in a loss of light and airflow and shutting doors resulted in poor temperature regulation.[26]

In addition to personal losses, these behavioural changes potentially result in losses to the neighbourhood. MDH design anticipates increased neighbourhood safety and security because of the integration of CPTED principles.[27] But closing curtains and blinds reduces the number of "eyes on the street" (Jacobs, 1992), potentially creating opportunities for anti-social behaviour.

6.3 Conclusion

Although perceptions of privacy are subjective, expectations of privacy in the home endures. Participants were concerned with visual privacy and the prospect they could be observed both inside their homes and while using their outdoor spaces. But acoustic privacy was especially concerning. Participants did not like being able to hear their neighbours, and worried that they could be heard by their neighbours. This was not only because of a perceived intrusion on their privacy but also out of concern for their neighbours.

Several adaptations or strategies were employed to manage privacy concerns. This included adjusting expectations of privacy; adjusting everyday practices to mitigate privacy concerns; and modifying homes to create visual barriers and sound buffers. Regulating their own behaviour and the associated noise was also an important strategy for mitigating their concern to support a socially cohesive community and neighbourly connections. These strategies improved privacy but often came at the expense of compromised light, airflow and personal comfort; thus, balancing privacy with maintaining a comfortable living environment proved a continual challenge.

Overall, acquiring and maintaining privacy in MDH requires a multifaceted approach, requiring a combination of mindset shifts, physical modifications, and behavioural adjustments to navigate the complexities of living in proximity with others. Drawing on personal resources to help mitigate privacy concerns gives rise to a broader question about the role of MDH design: to what extent should MDH design and specifications be able to resolve, or at least mitigate, the privacy challenges of household members? Herein lies an opportunity for the housing industry to adopt a creative and responsive stance when considering both site layout and house design to help mitigate privacy concerns.

[26] See Chapter 7: Indoor environment in Life in Medium Density Housing in Tāmaki Makaurau / Auckland for more information.

[27] Crime Prevention Through Environmental Design (CPTED) is an internationally recognised tool that makes communities safer through neighbourhood planning, development and maintenance. It helps to deter criminal activity, reduces the fear of crime, and increases the perception of safety. It achieves this through a combination of natural surveillance, access control, natural boundaries and ongoing maintenance and management of shared spaces (see Auckland Council, https://www.aucklandcouncil.govt.nz/report-problem/Pages/community-safety-support.aspx).

7 Conclusion

Auckland faces a considerable challenge in meeting the housing needs of its expanding and diversifying population. The emphasis on MDH as a strategy for urban growth and affordability is both a response to the housing crisis and a reflection of changing societal needs. The implementation of MDH, however, is not without its complexities and challenges.

The MDH study, including the additional analysis presented here, has provided a unique insight into the experiences of Aucklanders living in MDH. The study has shown that aspects of MDH design fails to meet the needs of many households. Living areas are often smaller than recommended guidelines, lounges are often awkwardly shaped with too few or poorly positioned power points, and storage is limited, resulting in kitchen items overflowing into garages and other living areas. The adverse effect of these design limitations reduces the functionality of living spaces and restricts household members' ability or willingness to spend time together in their living areas. These challenges are exacerbated by additional concerns about poor ventilation and overheating in summer.

Undoubtedly, MDH design poses considerable challenges for households (see the main report for further discussion of design limitations). The additional analysis presented in this report, however, extends the focus beyond those design limitations towards household members' actions and behavioural changes. The analysis shows that household members must *work* to make their homes work for them, *despite* those limitations. They draw on their economic resources to buy bespoke furniture or make modifications to their home to maximise the available space. They draw on their social networks with skilled friends and family to help implement some of those changes. And they draw on their knowledge to make a house adapt to their household's needs and how they want to live there.

In sum, they draw on their economic, social and cultural capital to modify their homes, their expectations, and their practices. But not everyone has these forms of capital available to them or has the inclination to perform the required work. This raises questions about the extent to which MDH potentially gives rise to new forms of inequity. Those who have the personal and financial means can modify their homes to mitigate limitations but those who do not are perpetually constrained by those design limitations.

The focus on the efforts of household members in this report is not intended to mitigate the responsibility of the designers and providers of MDH to provide homes that meet the needs of those who live in them. To reiterate, household members made their homes work better for them *despite* the design challenges they faced. It is hoped that this analysis underscores the need for the housing industry to respond to households' needs by designing and building MDH that is fit for purpose.

The study's findings support several recommendations for Auckland Council to enhance the delivery and quality of MDH developments in Auckland. By focusing on design and policy improvements and working together with all stakeholders in the MDH sector including design professionals and developers, Auckland Council can better respond to the diverse needs of a growing population. The provision of a range of MDH design options within neighbourhoods could also respond to the evolving needs of households, help reduce neighbourhood churn and foster neighbourhood stability and cohesion.

Several recommendations are made for Auckland Council in the main study report. The results presented in this report support these recommendations. These include:

- Updating design guidance in the Auckland Design Manual (ADM) to reflect the changing design approach to MDH under national legislation and to address issues identified in this

study such as providing separate guidance for different MDH typologies, addressing overheating, and privacy needs.
- Findings and recommendations of this research are taken into consideration when the Auckland Unitary Plan (AUP) review commences in 2026. This includes incorporation of relevant ADM design guidance set out above, through policies, standards, matters of discretion and assessment criteria.
- Auckland Council consider the broader benefits and impacts of MDH at a neighbourhood scale within public policies including the effects of new developments on microclimates, integration of land use and transport, and consideration of carparking in public spaces.
- Consideration be given to repeating the approach of this study within the next five years to continue to capture the lived experiences of MDH households.

It is recommended that Auckland Council works with central government and other agencies to improve the lived experiences of MDH households. Enacting these recommendations will require a coordinated commitment between Auckland Council, including CCOs, and the development sector. The findings of this study highlight that MDH design and implementation requires careful consideration. The resilience and resourcefulness of households in adapting their homes demonstrate the potential for MDH, but also underscores the need for ongoing refinement and improvement. As Auckland's population continues to grow, the insights from this study can contribute to shaping a housing future that is both sustainable and responsive to the needs of its diverse population.

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Appendices

Appendix 1: Email and Screener survey for life in MDH case studies

Kia ora [participant first name],

A few months ago, you took part in a survey from Auckland Council about living in your home – thank you again for your participation. At the end of the survey, you told us that you would be interested in taking part in further research about your home.

We are getting in touch now because we would like to interview people, in their own homes, about what it's like to live there. Please fill out this easy form to let us know if you're interested – click here.

Or, copy and paste this link into your browser:
https://aucklandcouncil.syd1.qualtrics.com/jfe/form/SV_09gwY4rHhMgGzu6

What you need to know:

- We would like to talk to you, and anyone else who lives in your home, about what it's like living in your home (your likes and dislikes, how you use different rooms).
- During our conversation, we would like you to take us on a tour of your home and show us how you use different rooms.
- We would also like to take some photos of different parts of your home, which we will do in a way that doesn't identify your household or the location of your home.
- We think our conversation will take about 2 hours, and we would come to your home at a time that is convenient for you.
- Everything you tell us is confidential. We'll record our conversation so we can listen back later, but only our research team will have access to the recording. We'll write a research report based on what people tell us about their homes, which will not identify you or your household in any way.

To say thank you for doing the interview, we would like to give your household a $150 Prezzy card.

If you have any questions, please reply to this email.

Ngā mihi nui,

Auckland Council Housing Research team
Research & Evaluation Unit (RIMU) | Te Rangahau me te Arotake
Te Kaunihera o Tāmaki Makaurau | Auckland Council, Level 16, 135 Albert Street, Auckland 1010

Kia ora

Thank you for your interest in participating in an interview about your home, we really appreciate it!

Please complete the details in the form below. We are looking to invite a range of households to participate in interviews, so we will use the information you provide us with to invite participation from a diverse range of households. By completing this form, you are not committing to participate in an interview.

If you have any questions, please get in touch at housingresearch@aucklandcouncil.govt.nz or call our researchers on 027 233 0781.

Questions

What is your name?

First name	
Last name	

What is your home address?

What is your email address?

What is your phone number?

Who lives in your household? *Select all that apply*

I live on my own	SR
Partner	
Parent(s)	
Babies aged under 12 months	
Pre-school aged children	
Primary school-aged children	
Secondary school-aged children	
Adult children	
Other adult(s) e.g. flatmates, boarders, cousins, siblings, friends	
Someone else, please describe	

How long have you lived in your home?

Participating in an interview involves two researchers coming to your home for about two hours. We will have a conversation about your home and how you live in it. We would like you to take us on a tour of your home, so you can explain to us what you like/don't like about your home. We are interested to learn about details of your home and would like you to show us all of your home including bathrooms, bedrooms, garages, inside cupboards, and outside areas.

Would you be comfortable participating in this interview?

Yes	
No	

As part of the tour of your home we would like to take some photographs. These photographs will document design features of your home and how these make living in your home easier or harder. These photos and the data that we would collect with them, would be used to discuss how people experience living in medium density housing. We will make sure the photos do not include you or other members of your household, or features that could identify you and where you live. Are you okay with photographs being taken inside and around your home?

Yes	
No	

We welcome all members of your household to participate in the interview, including any children who might like to show us around their rooms. Please describe which (if any) members of your household would like to participate:

Our researchers want to make sure we are respectful of you and any pets in your home. Are there any cats or dogs in your home?

Yes	
No	

Interviews will be happening in October and November 2023. When would you be available to participate in an interview? *Please select all that apply*

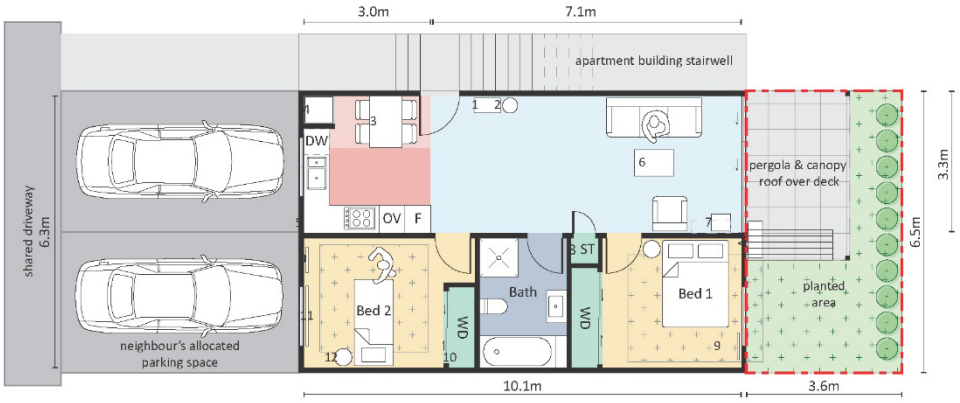
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Morning (9am – midday)							
Afternoon (1pm – 5pm)							
Evening (5pm – 9pm)							

Is there anything else you would like to tell us about yourself or your household? (E.g. preferred pronouns, accessibility considerations, or different languages spoken in the household.)

Thank you for completing this form! We will be in touch!

Appendix 2: Floor plans

#A1, Ground floor apartment



Lounge - 22.8m²
Kitchen - 6.1m²
Dining - 2.7m²
Bedroom 1 - 9.7m²
Bedroom 2 - 10.4m²
Storage - 0.4m²
Wardrobe - 2.5m²
Laundry - 0.5m²
Bath - 6.1m²
Total Floor Area - 61.2m²
Outdoor Living Space - 23.4m²

circulation space for beds
boundary line
planted area
pebble / bark / mulch
concrete
paving
building overhang
washing line
F — fridge
MW — microwave
OV — oven
WM — washing machine with shelves above
AC — external air con / heat pump unit

1. side table & shoes
2. storage basket for shoes
3. island kitchen bench on wheels
4. washing machine with shelves above for cleaning products / tableware / pantry items
5. kettle
6. coffee table
7. side table
8. storage / vacuum cleaner & ironing board
9. mirror
10. suitcases stored in wardrobe
11. privacy blind to full-height glazing
12. bedside table

#A2, 3rd floor apartment

Lounge - 12.4m²	
Kitchen - 10.7m²	
Dining - 5.9m²	
Bedroom 1 - 9.1m²	
Bedroom 2 - 9.1m²	
Bedroom 3 - 9.1m²	
Storage - 1.9m²	
Wardrobes - 2.9m²	
Laundry + HWC - 1.3m²	
Bath + WC - 6.1m²	
Circulation - 10.2m²	
Total Net Floor Area - 78.7m²	
Balcony - 9.7m²	

	circulation space for beds
F	fridge
P	pantry
MW	microwave
OV	oven
WM	washing machine with laundry basket above
f	fan
HWC	hot water cylinder

1. shoe rack
2. key rack
3. wall panel heater
4. dish rack
5. freezer
6. floor mat for dining
7. floor lamp
8. spare washing machine & dryer with mattress & linen stacked on top
9. tall items / vacuum cleaner / cleaning products / tools
10. heated towel rail
11. storage shelves for toiletries
12. garden tools / laundry drying rack
13. outdoor table & foldable chairs
14. coffee table
15. chair
16. bedside table

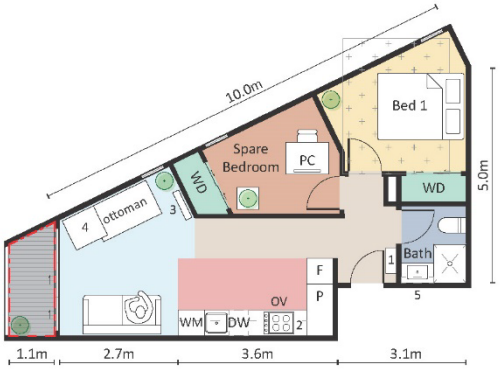
#A3, 3rd floor apartment

Lounge - 11.5m²	
Kitchen - 6.6m²	
Bedroom 1 - 10.1m²	
Flexi Room - 7.0m²	
Wardrobes - 0.9m²	
Laundry - 0.7m²	
Bath + WC - 7.2m²	
Circulation - 4.7m²	
Total Net Floor Area - 48.7m²	
Sun Room - 6.5m²	

	circulation space for beds
F	fridge
DW	dishwasher
MW	microwave
WM	dryer on top of washing machine
L	laundry basket
f	fan
PC	computer

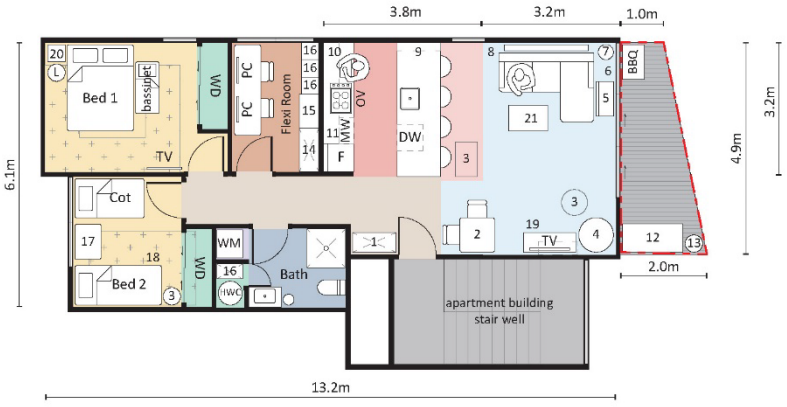
1. shoes
2. suitcase stored in shower
3. cardboard box for recycling
4. heated towel rail & laundry drying rack
5. mirror
6. toaster
7. kettle
8. under bench cabinets and shelves for kitchen & pantry items
9. coffee table
10. floor lamp
11. glass panel sliding door
12. roller blinds
13. buffet for general storage
14. outdoor bar table and stools
15. laundry drying rack
16. adjustable louvre panel
17. bedside table

#A4, 5th floor apartment



Lounge - 10.1m²		circulation space for beds	1.	shoe rack
Kitchen - 8.7m²		overhead cupboard	2.	kettle
Bedroom 1 - 8.1m²	F	fridge	3.	heater
Spare Bedroom - 6.1m²	P	pantry	4.	side table
Wardrobe - 1.8m²	DW	dishwasher	5.	mirror cabinet
Laundry - 0.4m²	MW	microwave		
Bath - 2.7m²	OV	oven		
Circulation - 3.0m²	WM	washing machine		
Total Net Floor Area - 40.9m²	L	laundry basket		
Balcony - 2.5m²	f	fan		
	PC	computer		

#A5, 3rd floor apartment



Lounge - 17.0m²	circulation space for beds	1.	storage shelves / shoe rack
Kitchen - 8.3m²	overhead cupboard	2.	childrens table and chairs
Dining - 2.9m²	F fridge	3.	childrens toys
Bedroom 1 - 11.1m²	DW dishwasher	4.	bean bag
Bedroom 2 - 7.6m²	MW microwave	5.	childrens couch
Flexi Room - 6.0m²	OV oven	6.	robot vacuum
Storage + HWC - 0.6m²	WM washing machine	7.	floor lamp
Wardrobes - 2.3m²	(L) laundry basket	8.	items stored behind couch
Laundry - 0.5m²	(f) fan	9.	wall mounted display shelves
Bath - 4.1m²	(b) bin	10.	toaster / knife set / chopping board
Circulation - 7.9m²	HWC hot water cylinder	11.	air fryer / kettle / cooking utensils
Total Net Floor Area - 68.3m²	PC computer	12.	outdoor storage box with tools
Balcony - 7.4m²		13.	childrens basketball hoop
		14.	full-height wardrobe / storage boxes above for general storage
		15.	lowboy
		16.	storage shelves for linen / toiletry / cleaning products
		17.	baby change table with shelves for nursery items
		18.	childrens toys stored under bed & cot
		19.	childrens toys stored in TV cabinet
		20.	bedside table
		21.	coffee table

#A6, 2nd floor apartment

Lounge - 14.3m²	
Kitchen - 14.0m²	
Bedroom 1 - 9.8m²	
Spare Bedroom- 9.2m²	
Storage - 0.5m²	
Wardrobes - 3.4m²	
Laundry - 0.6m²	
Baths - 7.6m²	
Total Net Floor Area - 59.4m²	
Balcony - 6.1m²	

	circulation space for beds
	boundary line
	building overhang
	overhead cupboard
	full height shelving
F	fridge
MW	microwave
OV	oven
DW	dishwasher
WM	washing machine
L	laundry basket
f	fan
b	bin
AC	external air con / heat pump unit
HWC	hot water cylinder

1.	coffee machine & kettle
2.	vacuum cleaner
3.	baby seat
4.	baby toys
5.	side tables
6.	office side cabinet with printer
7.	bookshelf
8.	baby toys / picture frames
9.	lowboy
10.	bar stools
11.	dehumidifier
12.	laundry bin / shower seat
13.	freestanding cupboard for pantry items
14.	side table with drawers
15.	bedside table
16.	baby seat
17.	stool

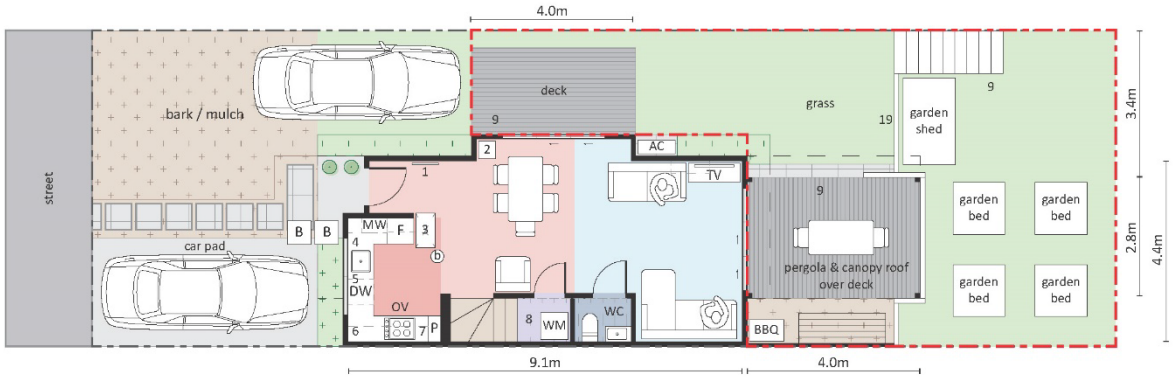
#D19 Duplex

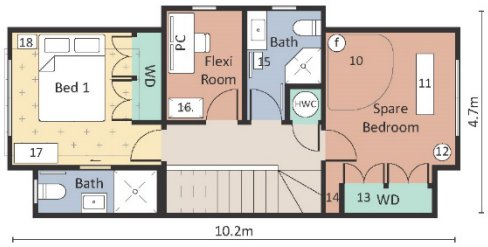
Lounge - 15.9m²	
Kitchen - 9.4m²	
Dining - 3.8m²	
Bedroom 1 - 12.7m²	
Bedroom 2 - 11.2m²	
Spare Bedroom - 9.8m²	
Wardrobes - 3.6m²	
Laundry - 1.6m²	
Bath + WC - 8.2m²	
Circulation - 14.6m²	
Garage - 20.5m²	
Total Net Floor Area - 111.3m²	
Outdoor Living Space - 21.7m²	

	circulation space for beds
	boundary line
	grass
	concrete
	balcony
	overhead cupboard
	full height shelving
B	120-litre rubbish / recycle bins
F	fridge
DW	dishwasher
MW	microwave
OV	oven
L	laundry basket
f	fan
b	bin
PC	computer
AC	external air con / heat pump unit

1. coat & shoe rack with storage shelves
2. roller blind to full-height glazing
3. childrens toys
4. home audio system
5. baby stroller
6. storage shelves for general items
7. trolley storage for nursery items
8. wall mounted spice rack & compost bin underneath
9. breakfast bench & toaster
10. wall mounted storage rack / kettle / food processor & mixer
11. baby high chair
12. safety gate
13. motorbikes
14. general storage
15. workbench
16. storage boxes
17. freezer
18. self-installed retractable clothesline
19. dryer on top of washing machine
20. childrens toys & clothing
21. childrens clothing in storage boxes & storage drawers
22. racing simulator
23. side table
24. sewing machine equipment / books / storage boxes
25. storage shelves for toiletries
26. bedside table
27. outdoor water spigot / hose

#D20 Duplex



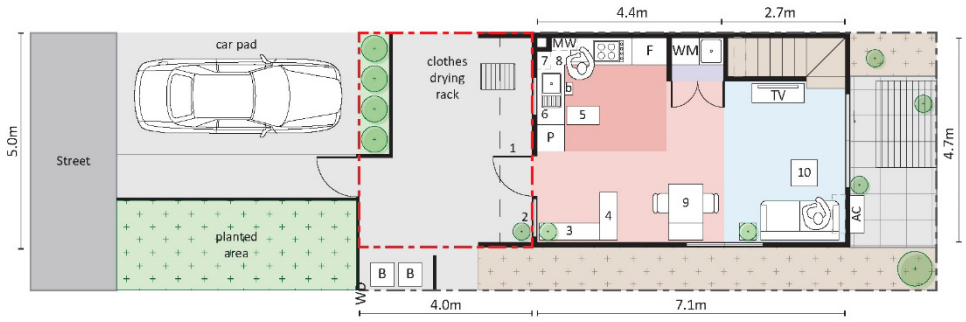


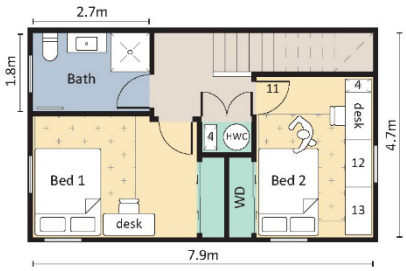
- Lounge - 15.3m²
- Kitchen - 6.2m²
- Dining - 12.8m²
- Bedroom 1 - 9.1m²
- Flexi - 10.4m²
- Study - 4.4m²
- HWC - 0.5m²
- Wardrobes - 2.4m²
- Laundry - 1.2m²
- Baths + WC - 7.7m²
- Circulation - 8.9m²
- **Total Net Floor Area - 78.9m²**
- Outdoor Living Space - 60m²

- circulation space for beds
- boundary line
- planted area
- decking
- concrete
- paving
- building overhang
- washing line
- overhead cupboard
- full height shelving
- B — 120-litre rubbish / recycle bins
- F — fridge
- P — pantry
- DW — dishwasher
- MW — microwave
- OV — oven
- WM — washing machine
- (f) — fan
- (b) — bin
- HWC — hot water cylinder
- PC — computer
- AC — external air con / heat pump unit

1. wall mounted coat rack
2. shoe rack
3. sideboard for tableware
4. toaster
5. compost bin
6. coffee machine & kettle
7. cooking utensils
8. cleaning products & empty jars
9. seedlings and gardening tools
10. music instruments
11. ironing board
12. vacuum cleaner
13. wardrobe used for general storage / suitcase / backpack & outdoor equipment
14. spare mattress & large items
15. dehumidifier & clothes drying rack
16. storage shelves for books / printer & audio system
17. tallboy
18. bedside table
19. bicycle

#T7 Terraced house





Lounge - 10.2m²	circulation space for beds	1.	sheer curtain on front door
Kitchen - 7.9m²	boundary line	2.	frosted glass film on glazing
Dining - 11.3m²	planted area	3.	shoe rack
Bedroom 1 - 10.5m²	pebble / bark / mulch	4.	tall storage shelves
Bedroom 2 - 10.0m²	concrete	5.	trolley storage for kitchen items
Storage + HWC - 0.8m²	paving	6.	rice cooker
Wardrobes - 1.9m²	building overhang	7.	wall mounted shelves for pantry items
Laundry - 1.2m²	washing line	8.	kettle
Bath - 4.9m²	overhead cupboard	9.	foldable table with storage
Circulation - 9.5m²	full height shelving	10.	coffee table
Total Net Floor Area - 68.2m²	B — 120-litre rubbish / recycle bins	11.	over the door clothes hooks
Outdoor Living Space - 20m²	F — fridge	12.	lowboy
	P — pantry	13.	tallboy
	MW — microwave		
	OV — oven		
	WM — washing machine with shelves above		
	b — bin		
	HWC — hot water cylinder		
	PC — computer		
	AC — external air con / heat pump unit		

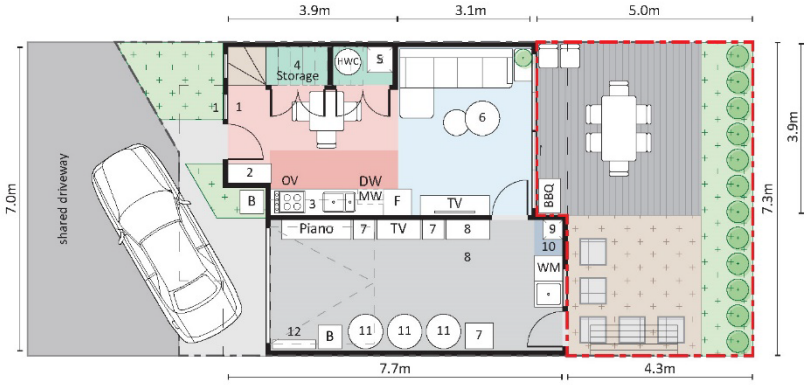
#T8, Terraced house

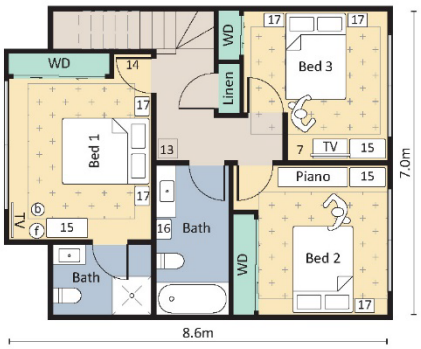
Lounge - 11.0m²	
Kitchen - 7.6m²	
Dining - 6.8m²	
Bedroom 1 - 9.6m²	
Spare Bedroom - 9.1m²	
Flexi Room - 3.5m²	
Storage - 2.6m²	
Wardrobes - 2.1m²	
Laundry - 0.7m²	
Bath + WC - 4.4m²	
Circulation - 9.2m²	
Total Net Floor Area - 66.6m²	
Outdoor Living Space - 19.5m²	

	circulation space for beds
	boundary line
	planted area
	decking
	paving
	building overhang
	washing line
	overhead cupboard
F	fridge
DW	dishwasher
MW	microwave
OV	oven
WM	washing machine
L	laundry basket
HWC	hot water cylinder
PC	computer
AC	external air con / heat pump unit

1.	dryer on top of washing machine
2.	compost bin
3.	chopping boards / toaster / kettle
4.	half-height storage shelves for pantry items
5.	trolley storage for pantry items
6.	coffee table
7.	display shelves
8.	ironing board & vacuum cleaner
9.	half-height storage shelves for linen
10.	shoe rack in wardrobe
11.	stool
12.	clothes drying rack
13.	suitcase / fan / exercise equipment / paper work / clothes & cosmetics
14.	garden shed with suitcase / gardening equipment & other general storage
15.	bedside table

#T9, Terraced house



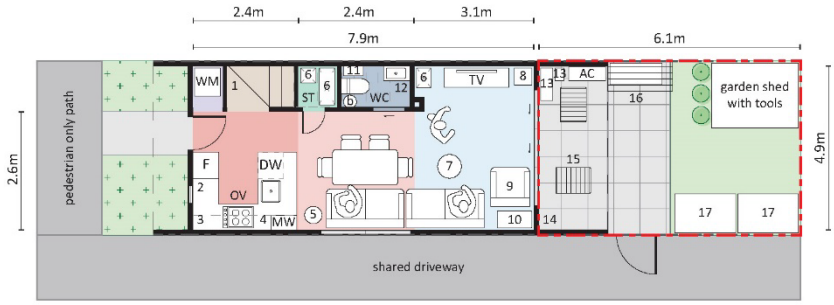


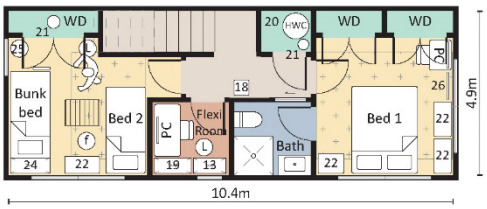
Lounge - 11.9m²	
Kitchen - 4.6m²	
Dining - 6.3m²	
Bedroom 1 - 12.7m²	
Bedroom 2 - 10.9m²	
Bedroom 3 - 10.4m²	
Storage - 3.0m²	
Wardrobes - 2.7m²	
Laundry - 1.3m²	
Baths - 9.5m²	
Circulation - 9.1m²	
Garage - 19.1m²	
Total Net Floor Area - 101.5m²	
Outdoor Living Space - 33.9m²	

	circulation space for beds
	boundary line
	planted area
	pebble / bark / mulch
	decking
	concrete
	paving
	building overhang
	washing line
	overhead cupboard
B	120-litre rubbish / recycle bins
F	fridge
DW	dishwasher
MW	microwave
OV	oven
WM	washing machine
L	laundry basket
f	fan
b	bin
HWC	hot water cylinder

1.	frosted glazing
2.	console table
3.	kettle
4.	cooking pots
5.	pantry storage
6.	coffee table
7.	storage boxes / general storage
8.	shoe rack / shoes
9.	full-height cupboard
10.	ladders & vacuum cleaner
11.	bean bags
12.	bike
13.	suitcases & heater
14.	wall mounted coat rack behind door
15.	tallboy
16.	storage shelves for toiletry
17.	bedside table

#T10, Terraced house





- Lounge - 10.5m²
- Kitchen - 6.7m²
- Dining - 7.3m²
- Bedroom 1 - 10.1m²
- Bedroom 2 - 10.4m²
- Flexi Room - 3.0m²
- Storage - 2.0m²
- Wardrobes - 2.6m²
- Laundry - 0.7m²
- Bath + WC - 4.5m²
- Circulation - 7.8m²
- **Total Net Floor Area - 65.6m²**
- Outdoor Living Space - 30m²

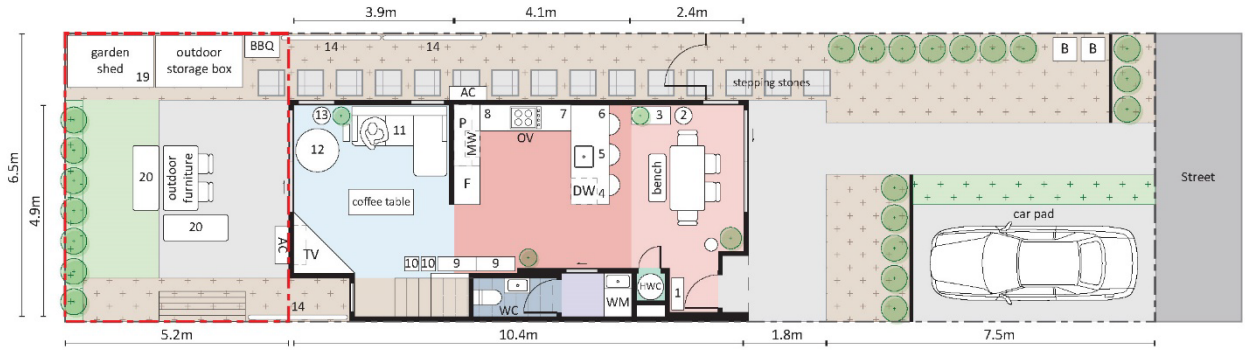
- circulation space for beds
- boundary line
- artificial turf
- planted area
- concrete
- paving
- building overhang
- washing line / clothes drying rack
- overhead cupboard
- F — fridge
- DW — dishwasher
- MW — microwave
- OV — oven
- WM — washing machine
- (L) — laundry basket
- (f) — fan
- (b) — bin
- HWC — hot water cylinder
- PC — computer

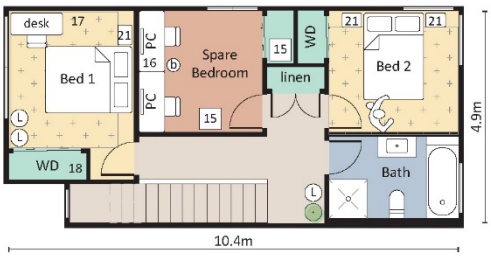
1. shoes & slippers
2. spice rack & kettle
3. mini oven
4. rice cooker & toaster
5. water dispenser / bottles
6. storage shelves for pantry items & snacks
7. storage ottoman for childrens toys
8. storage drawers for pantry items
9. massage chair
10. storage box
11. storage shelves for cleaning products
12. cleaning products stored under hand wash basin
13. shoe rack / shoe organizer
14. ladder / childrens basketball hoop
15. clothes drying rack
16. outdoor storage box under washing line
17. outdoor storage box for work related items
18. storage shelves for toiletry
19. storage shelves for general storage & cosmetics
20. linen & suitcase
21. air con ducting
22. tallboy
23. side table & printer
24. bunk bed, integrated shelves
25. coat rack & ironing board
26. mirror

#T11, Terraced house

Lounge - 13.8m²		circulation space for beds	1.	shoe rack
Kitchen - 11.4m²		boundary line	2.	bookshelf / display shelf
Dining - 14.7m²		planted area	3.	coffee machine & kettle
Bedroom 1 - 11.6m²		pebble / bark / mulch	4.	dish rack & cooking utensils
Bedroom 2 - 7.9m²		deck	5.	compost bin
Study - 10.7m²		concrete	6.	vacuum cleaner
Storage - 3.6m²		paving	7.	dog feeder
Wardrobes - 3.8m²		building overhang	8.	storage shelves for general storage
Laundry - 1.2m²		washing line	9.	storage rack on the back of door for pet food
Bath + WC - 7.1m²		overhead cupboard	10.	full height standing mirror
Circulation - 8.8m²	B	120-litre rubbish / recycle bins	11.	tallboy
Total Net Floor Area - 94.6m²	P	pantry	12.	bathtub used for cleaning items storage
Deck - 10.7m²	F	fridge	13.	dog couch
Outdoor Living Space - 46.8m²	DW	dishwasher	14.	general storage / vacuum cleaner
	MW	microwave	15.	laundry drying rack
	OV	oven	16.	wheelbarrow & external air con / heat pump unit stored under raised deck
	WM	washing machine with shelves above for cleaning products	17.	bedside table
	L	laundry basket		
	b	bin		
	HWC	hot water cylinder		
	PC	computer		

#T12, Terraced house





Lounge - 14.4m²		circulation space for beds	1.	shoe rack
Kitchen - 15.7m²		boundary line	2.	side table for drinks
Dining - 10.7m²		artificial turf	3.	sideboard
Bedroom 1 - 9.9m²		planted area	4.	dish rack
Bedroom 2 - 8.4m²		pebble / bark / mulch	5.	compost bin
Spare Bedroom - 8.0m²		concrete	6.	kettle & fruits
Storage - 0.6m²		building overhang	7.	knife set & spices rack
Wardrobes - 3.0m²		washing line	8.	toaster & cooking utensils
Laundry - 1.6m²		overhead cupboard	9.	bookshelf / display shelf
Bath + WC - 7.4m²		full height shelving	10.	storage stool with tools and art supplies
Circulation - 13.7m²	B	120-litre rubbish / recycle bins	11.	sofa bed with linen storage
Total Net Floor Area - 93.4m²	F	fridge	12.	armchair
Outdoor Living Space - 34.4m²	P	pantry	13.	floor lamp
	MW	microwave	14.	surfboard hung on fence
	OV	oven	15.	storage drawers general storage
	WM	dryer on top of washing machine	16.	printer
	b	bin	17.	tallboy
	HWC	hot water cylinder	18.	suitcase & storage boxes stored in wardrobe
	PC	computer	19.	garden shed with extra mattresses / outdoor camping chair & surfboard
	AC	external air con / heat pump unit	20.	outdoor couch
			21.	bedside table

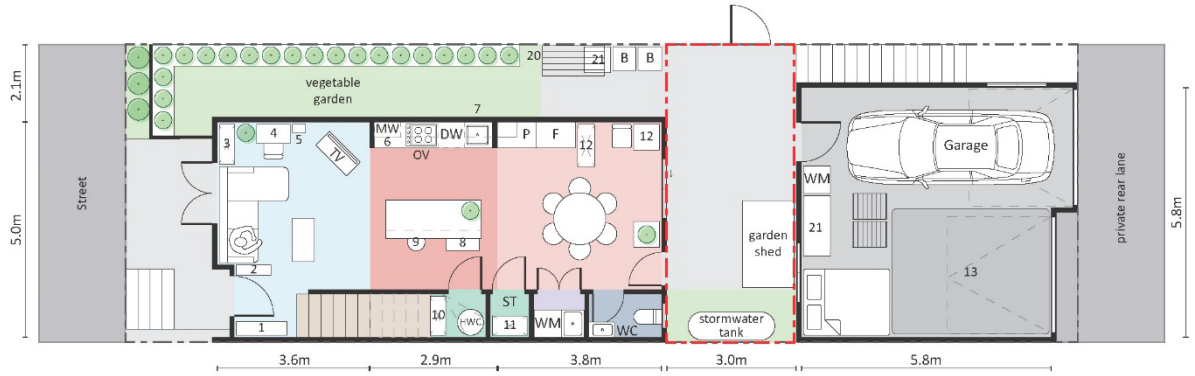
#T13, Terraced house

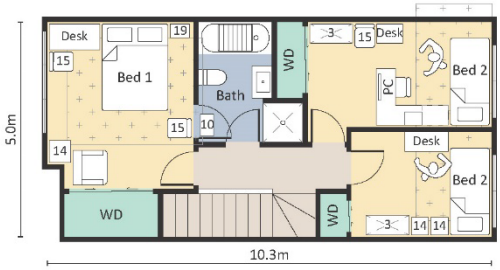
Lounge - 9.1m²	
Kitchen - 11.5m²	
Dining - 8.1m²	
Bedroom 1 - 8.9m²	
Bedroom 2 - 9.3m²	
Spare Room - 7.2m²	
Flexi Room - 5.0m²	
Storage + HWC - 2.2m²	
Wardrobes - 3.5m²	
Laundry - 1.2m²	
Baths + WC - 9.0m²	
Circulation - 14.1m²	
Garage - 16.9m²	
Total Net Floor Area - 105.0m²	
Outdoor Living Space - 23.1m²	

	circulation space for beds
	boundary line
	grass
	concrete
	paving
	building overhang
	washing line
	overhead cupboard
B	120-litre rubbish / recycle bins
F	fridge
DW	dishwasher
MW	microwave
OV	oven
WM	washing machine with shelves above for cleaning products
L	laundry basket
b	bin
HWC	hot water cylinder
AC	external air con / heat pump unit

1.	console table
2.	lego figures display cabinet
3.	cat toys / cat tower / equipment
4.	work / hobby desk
5.	knife set
6.	cooking utensils
7.	coffee table
8.	storage cabinet for pantry items
9.	storage cabinet for kitchen items & appliances
10.	storage shelves for cleaning products
11.	storage shelves for general storage
12.	storage bin for shoes
13.	bikes
14.	general storage / sport gear / treadmill
15.	storage boxes / linen / vacuum cleaner
16.	single mattress
17.	bean bag
18.	monitor & printer
19.	storage cabinet & storage drawers for hobby / crafts
20.	tallboy
21.	bedside table

#T14, Terraced house

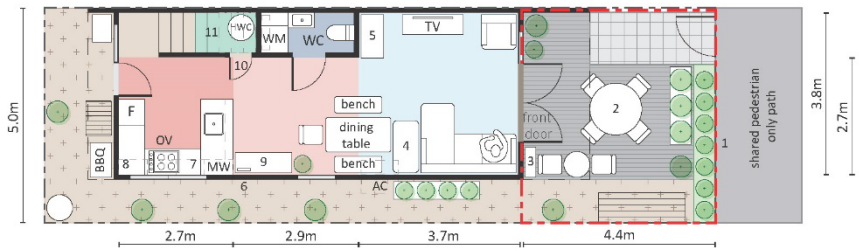


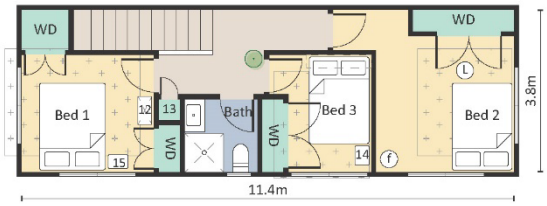


principal dwelling	Lounge - 15.1m²		circulation space for beds
	Kitchen - 11.4m²		boundary line
	Dining - 14.7m²		grass
	Bedroom 1 - 12.9m²		concrete
	Bedroom 2 - 10.7m²		washing line / clothes drying rack
	Bedroom 3 - 7.9m²		overhead cupboard
	Storage + HWCs - 2.2m²	B	120-litre rubbish / recycle bins
	Wardrobes - 3.8m²	F	fridge
	Laundry - 1.2m²	P	pantry
	Baths + WC - 7.1m²	DW	dishwasher
	Circulation - 10.2m²	MW	microwave
	Garage - 34.8m²	OV	oven
	Total Net Floor Area - 132.0m²	WM	washing machine
	Outdoor Living Space - 21.3m²	HWC	hot water cylinder
		PC	computer
minor dwelling	Lounge - 9.9m²	AC	external air con / heat pump unit
	Kitchen - 5.2m²		
	Dining - 4.3m²		
	Bedroom 1 - 9.2m²		
	Wardrobes - 0.6m²		
	HWC - 0.4m²		
	Baths - 3.8m²		
	Total Net Floor Area - 33.4m²		

1.	console table
2.	shoe rack
3.	bookshelf
4.	desk with shelves above
5.	half-height storage shelves for general storage
6.	rice cooker & kettle
7.	wall mounted dish rack
8.	trolley storage for pantry items
9.	stackable stools
10.	storage shelves for kitchen items & appliances
11.	storage shelves for general storage
12.	ancestor worship / offering table
13.	boxing bag / threadmill / general storage
14.	side table
15.	chair
16.	coat rack
17.	trolley storage for toiletries
18.	storage shelves for clothes
19.	bedside table
20.	gardening tools / soil bags
21.	table
22.	work desk with general storage underneath

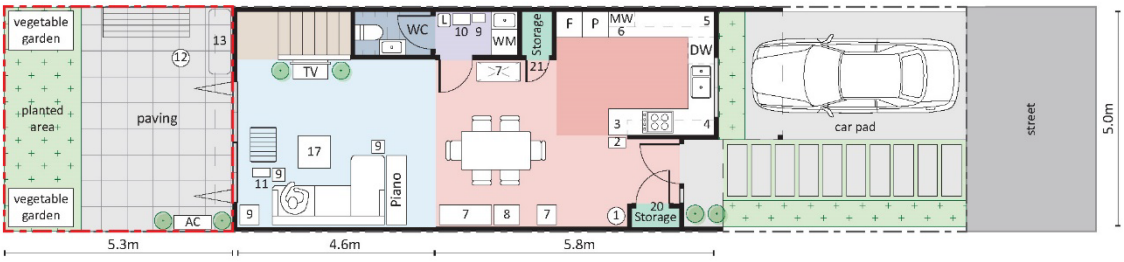
#T15, Terraced house

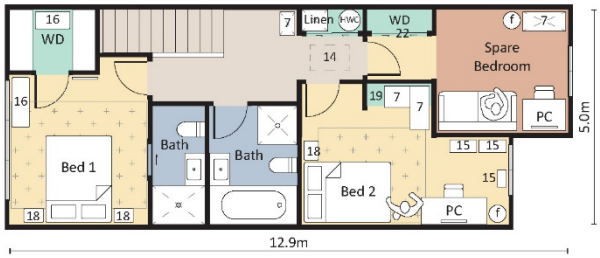




Lounge - 13.8m²	circulation space for beds	1.	bamboo privacy screen added to existing fence
Kitchen - 7.2m²	boundary line	2.	outdoor furniture with umbrella
Dining - 7.9m²	bark / mulch	3.	shoe rack
Bedroom 1 - 11.4m²	decking	4.	ottoman
Bedroom 2 - 8.3m²	concrete	5.	storage box for exercise equipment & general storage
Bedroom 3 - 5.6m²	paving	6.	wine rack
Storage + HWC - 1.3m²	building overhang	7.	kettle & toaster
Wardrobes - 3.5m²	washing line	8.	rice cooker / blender / spice rack
Laundry - 0.6m²	overhead cupboard	9.	pantry cupboard added by resident
Bath + WC - 4.3m²	F fridge	10.	wall hooks on the back of door for jackets and hats
Circulation - 9.7m²	MW microwave	11.	general storage / vacuum cleaner
Total Net Floor Area - 73.6m²	OV oven	12.	storage shelf for plants & cosmetics
Outdoor Living Space - 22.0m²	WM washing machine with shelves above for cleaning products	13.	linen cupboard
	L laundry basket	14.	storage shelf for general storage wall mounted shelves for perfume
	b bin	15.	bedside table
	HWC hot water cylinder		
	AC external air con / heat pump unit		

#T16, Terraced house



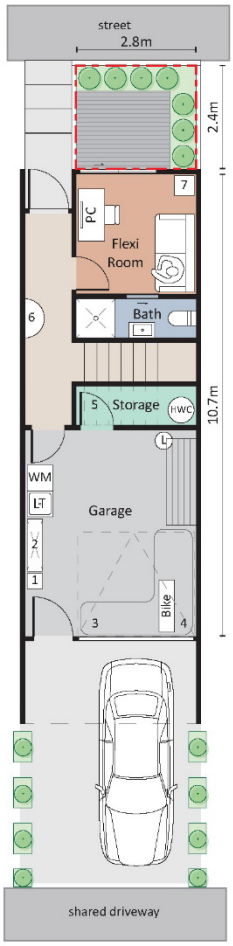


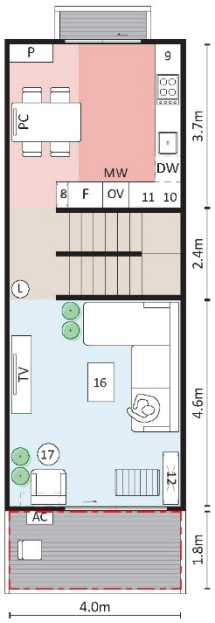
Lounge - 17.6m²	circulation space for beds	1.	coat rack
Kitchen - 10.4m²	boundary line	2.	shoe rack
Dining - 16.0m²	planted area	3.	drop off zone & key rack / fruits
Bedroom 1 - 11.4m²	pebble / bark / mulch	4.	coffee machine & compost bin
Bedroom 2 - 13.2m²	concrete	5.	kettle & toaster / spice rack
Spare Bedroom - 10.3m²	paving	6.	cook book
Storage - 2.6m²	building overhang	7.	bookshelf / display shelf
Wardrobes - 2.8m²	washing line / clothes drying rack	8.	storage box
Laundry - 1.9m²	overhead cupboard	9.	cat toys / cat tower / equipment
Bath + WC - 10.6m²	full height shelving	10.	storage shelves for cleaning products
Circulation - 12.7m²	F fridge	11.	dehumidifier
Total Net Floor Area - 109.5m²	P pantry	12.	outdoor umbrella
Outdoor Living Space - 27.5m²	MW microwave	13.	garden tools
	OV oven	14.	ceiling hatch & attic storage
	WM washing machine with shelves above	15.	music instruments
	(L) laundry basket	16.	tallboy
	(f) fan	17.	coffee table
	(b) bin	18.	bedside table
	AC external air con / heat pump unit	19.	wardrobe turned into open storage
	HWC hot water cylinder	20.	vacuum cleaner / camping gear
		21.	cleaning and gardening items / drying rack
		22.	general storage

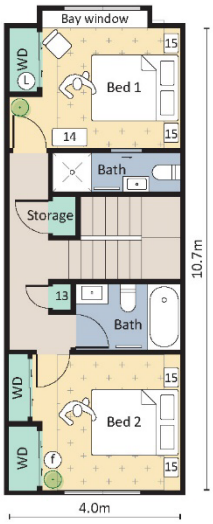
#T17, Terraced house

Lounge - 23.9m²		circulation space for beds	1.	bookshelf	18.	coffee table
Kitchen - 11.6m²		boundary line	2.	coffee machine	19.	dryer with shelves above
Dining - 8.8m²		decking	3.	kettle	20.	mirror behind the sofa
Bedroom 1 - 11.8m²		concrete	4.	wine cabinet	21.	lowboy
Bedroom 2 - 9.8m²		building overhang	5.	floor lamp	22.	side table
Spare Bedroom 1 - 8.5m²		overhead cupboard	6.	outdoor clothes rack stand	23.	makeup vanity table
Spare Bedroom 2 - 9.5m²		full height shelving	7.	heated towel rail		
Storage - 1.8m²		washing line / clothes drying rack	8.	low storage shelves		
Wardrobes - 4.9m²	F.	fridge	9.	garden tools		
Laundry - 1.7m²	P.	pantry	10.	full height storage cabinets with kitchen utensils		
Baths + WCs - 10.4m²	DW.	dishwasher	11.	general large item storage / boxes / travel bags / pets crates		
Circulation - 12.7m²	MW.	microwave	12.	fitness bike & yoga equipment		
Garage - 27.0m²	OV.	oven	13.	storage box		
Total Net Floor Area - 142.4m²	WM.	washing machine	14.	tallboy		
Outdoor Living Space - 54.8m²	LT.	laundry tub	15.	shoe rack		
	L.	laundry basket	16.	bedside table		
	AC.	air conditioning unit	17.	ottoman		
	f.	fan				

#T18, Terraced house







Lounge - 18.9m²	
Kitchen - 9.3m²	
Dining - 5.8m²	
Bedroom 1 - 9.8m²	
Bedroom 2 - 10.4m²	
Flexi Room - 7.7m²	
Storage - 3.2m²	
Wardrobes - 2.6m²	
Laundry - 0.8m²	
Baths + WC - 8.8m²	
Circulation - 25.3m²	
Garage - 18.1m²	
Total Net Floor Area - 120.7m²	
Outdoor Living Space - 6.7m²	
Balcony - 7.2m²	

	circulation space for beds
	boundary line
	decking
	concrete
	building overhang
	overhead cupboard
	full height shelving
	washing line / clothes drying rack
F.	fridge
P.	pantry
DW.	dishwasher
MW.	microwave
OV.	oven
WM.	washing machine
LT.	laundry tub
L.	laundry basket
AC.	air conditioning unit
f.	fan

1.	shoe storage cabinet
2.	outdoor clothes rack stand
3.	garden tools
4.	outdoor equipment
5.	tall items / ironing board / suitcase / vacuum cleaner
6.	console table
7.	storage box with books
8.	open shelves storing books and decorative items
9.	coffee machine
10.	toaster
11.	kettle
12.	bookshelf
13.	linen cupboard
14.	tallboy
15.	bedside table
16.	coffee table
17.	ottoman

Appendix 3: In-home immersion discussion guide

Preliminary discussion about household and home

- Tell us a little bit about your household: Length of time here? Living before? Why move? Why here?
- What were your expectations for this home met once you had lived here for a while?

Home tour general questions

Let's start with favourite space/space you spend the most time in – tell us about how come

this space etc.

Interior spaces

Tell us about the kinds of things you do in this space: list and talk through…

- How do you do X in this space? [cooking/hobby/rubbish sorting/working from home/playing with kids]
- What do you like about this space? Dislike about the space?
    - What kinds of activities would you like to do, but are unable to do? Changes made?
    - What would make this space better?
- Tell us about the storage in this room – does it meet your needs? Why/why not?
- Tell us about what it is like to do [relevant social/work/leisure activity/utility process]. Talk
- us through how you do this…
- Have you used this space for something different in the past?
    - How have you changed what you do here? (COVID) Changed furniture around?
    - Why?
- Tell us about the design features of this space and how they work for you and what you do
- in this space.
    - Light switches, power points, bench space; door openings
- Tell us about how you have used things to make this home.
- Tell us about the noise and privacy aspects of this space.
- Atmospheric question as relevant to the space: warm/light/ventilated/view/changes
- with seasons
- I notice XXX; tell us about that.

Utility systems questions

- Tell us about your system for cleaning/rubbish/cooking/arriving home/hanging with kids and/or partner.
- Specific question about storage according to space: Where do you keep…?
    - Are there any important or additional items you are unable to store?
- Home maintenance
  Socialising
- Access: How do you get things in and out of your home? (e.g. groceries, a new bed, etc.)

Exterior spaces

- Show us your outdoor space/s.
    - What about your outdoor spaces works well? What would make it better? (plants, furniture, safety aspects, etc.)

    - Seasonal sunlight/privacy/noise/maintenance of outdoor space.
    - Have you done anything to make it more private/quieter/a better place to be?
    - What activities are you able to do here? Like to do but can't?
- Show us the spaces you share with your neighbours/are communal spaces.
    - What are they, and how do you and your neighbours use them?
    - How often do you see your neighbours here?
    - What works well about sharing these spaces? Challenges? Improvements?
    - Maintenance of shared spaces? Who pays and how?
    - Breezeways around building/complex – how do these impact the environment in your home?
    - Mail systems and access for couriers?
- Show us where you store your car/bikes.
        - What about this carparking/bike storage works well? What would make it better?
        - For on-street parking: How far is your on-street parking from your home? Amount of parking available for household? For visitors? How well does this work? Distance from parking.
- For complex/apartment: How safe do you feel pedestrians are here? Why?
- Emergency situations? – How did this work?

Wrap up

• Is there anything else you would like to tell us about your experience of living in your home that we haven't talked about?

• Magic Wand?

Appendix 4: Information sheet and consent form

PARTICIPANT INFORMATION SHEET

Auckland Council

Auckland Council Housing Research

What's the research about?

This study is led by RIMU (the Research and Evaluation Unit at Auckland Council). It explores the experiences of Aucklanders living in their homes.

This research has been assessed and approved by the Aotearoa Research Ethics Committee (AREC23_47).

Who's being invited to take part?

You are being invited because you completed the Auckland Housing survey, and you indicated you would like to participate in future research.

What are you asking me to do?

Two of our researchers would like to come to your home to interview you and other interested members of your household (this might include any children in your home). Everything that you share with us will be confidential.

We will ask you to take us on a tour of your home and show us how you use different rooms. We would also like to take some photos of different parts of your home that show how you do ordinary things like household tasks and hobbies. We won't take any photos that might show things that can identify you and your household.

What will you ask me?

We'll ask you about your experiences of living in your home, including what you like or dislike about it, the way you use different spaces, and about any changes you've made to your home to make things work better for you.

Before we talk, we ask all participants to sign a consent form. If you have children under 16 in your home and they would like to take part, we will ask their parent/caregiver to sign an assent form on their behalf. We do this to make sure everyone understands what it means to take part in this study. You can pause or withdraw from the interview at any time.

We will also ask if we can audio-record our interview.

How long will it take?

Our interview will take around 2 hours.

Where will we talk?

We'll talk to you (and other members of your household, if they are interested) in your home. That way you can show us around your home.

Do I have to answer all the questions?

No, just tell us if there are any questions you don't want to answer.

After our interview, if you and your household change your mind about being involved in this research, please let us know. Because of our schedule, if you want to withdraw, please do so within a week after we talk. We have a koha that we will give you at the end of the two-hour interview, if you then decide to withdraw from the project, you still get to keep the koha.

What will happen with the information I give you?

After we talk, we'll transcribe our interview. We'll store and protect all your information safely so no one except our research team can access it. We will also send you copies of all the photographs we take, and you can tell us if there are any you would prefer are deleted and not used in our research outputs.

The information you give us, including photos, will be combined with others and written into, and used in research outputs. You won't be identified in any of these outputs, and we'll change any details that could otherwise identify you.

The technical report we will write will be publicly available on www.knowledgeauckland.org.nz. The findings will be used by Auckland Council to provide guidance on how homes are designed. If you're interested, we can send you a copy of the technical report once it's published.

There is a possibility that the information you give us could be included in the Auckland Design Manual as a case study (www.aucklanddesignmanual.co.nz). If you want your home to be considered for this, you can opt in by ticking the box on the Consent Form. Any use of your information in this way will require a separate consent process so the research team will come back to you for permission if this becomes a possibility.

What if I still have any questions?

Please ask us any questions you have.

For more information email Dr Jane Horan at **housingresearch@aucklandcouncil.govt.nz** or call **027 233 0781 or 027 243 0096**

If you have any questions or concerns about the conduct of this research, please contact the Manager of AREC, Dr Keely Blanch, on manager@aotearoaresearchethics.org

CONSENT FORM

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Auckland Council Housing Research

This study explores the experiences of Aucklanders living in their home

I know that:

- I can ask questions about this study at any time
- I can change my mind about taking part by telling my interviewer
- I can take a break or choose not to answer any questions I don't want to
- My participation in this study and everything I say will be kept private
- I can ask the research team to delete any notes, recordings, and images from the interview, or I can withdraw completely from the study up to 1 week from today. I will keep the koha if this has been given to me at the end of the interview even if I withdraw.
- The research team will take some photos of my home, which might be used in their research outputs.
- There is a possibility that the information from this project might be used in other ways, including case studies in the Auckland Design Manual. This is a separate consent process, so the research team will come back to me if I opt into wanting to be considered for this.
- Information will be stored securely for 5 years, after which it will be destroyed
- My responses will be combined with the responses of others in research outputs. The technical report that we will write will be publicly available on www.knowledgeauckland.org.nz
- My name and any other identifying features of my home won't be used in the research outputs

Please tick if you agree:

- ☐ I have read the Participant Information Sheet (or a researcher has explained it to me) and have had an opportunity to ask questions
- ☐ I agree to take part in this study
- ☐ I agree to having this interview audio-recorded
- ☐ I agree to the interviewers taking photos of my home
- ☐ I would like my home to be considered for inclusion in the Auckland Design Manual as a case study. I understand that if I agree, the research team can get in touch with me to talk about this more at a later date.

Name and signature:

Date:

This research has been assessed and approved by the Aotearoa Research Ethics Committee (AREC23_47).

If you have any questions or concerns about the conduct of this research, please contact the Manager of AREC, Dr Keely Blanch, on manager@aotearoaresearchethics.org

Find out more: research@aucklandcouncil.govt.nz
or visit knowledgeauckland.org.nz and
aucklandcouncil.govt.nz

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