



Life in Medium Density Housing in Tāmaki Makaurau / Auckland Summary

Kathryn Ovenden and Melanie McKelvie • September 2024 • Summary of Technical Report TR2024/6



This document summarises the main findings from a study titled Life in Medium Density Housing in Tāmaki Makaurau / Auckland. The full report is divided into 10 chapters and appendices:

Chapter 1: Introduction
Chapter 2: Legislation and policy context
Chapter 3: Research method and sample
Chapter 4: Indoor spaces for living
Chapter 5: Storage, laundries and bathrooms
Chapter 6: Outdoor living spaces
Chapter 7: Indoor environment
Chapter 8: Carparking and vehicle storage
Chapter 9: Shared facilities
Chapter 10: Discussion and recommendations
Appendices

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Medium density housing in Auckland. Photograph by Ryan Crawford.

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Introduction

Enabling the development of medium density housing (MDH)¹ is an important part of Auckland Council's work to deliver a quality compact urban form, in the face of ongoing population growth, need for more housing, and a changing climate. The population of Tāmaki Makaurau / Auckland is expected to reach 2,230,800 by 2053, an increase of around 520,800 people from 2023.²

Over the last ten years there has been a shift in the types of housing being consented in Auckland from predominantly low-density typologies (i.e. standalone houses) to large numbers of medium and high-density typologies (i.e. apartments, terraced houses and duplexes). For example, in 2023, 62 per cent of new dwellings consented in Auckland were 'townhouses, flats, and units'.³ This relatively recent, and rapid, supply of medium and high-density housing across Auckland is not only increasing housing options for Aucklanders but is also transforming the built environment.

Auckland Council is responsible for the review, approval, and monitoring of residential housing under the Auckland Unitary Plan (AUP) and the Building Act 2004. The former influences the location and design of housing, and the latter influences the design and construction of housing in Auckland. The Auckland Design Manual (ADM) is a companion document to the AUP that provides non-statutory best practice design guidance.

During 2023, Auckland Council's Economic and Social Research and Evaluation team and the Tāmaki Makaurau Design Ope (Auckland Council's urban design unit) undertook a comprehensive mixed method study to investigate how Aucklanders are experiencing living in recently built⁴ MDH. The purpose of the study was to 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 results of this study provide a snapshot of Aucklanders' experience of living in MDH delivered at a time of rapid intensification, under a particular policy and regulatory setting.

The study considered how households used the rooms and spaces in their home, as well as how they experienced aspects such as the size of rooms, temperature of their home, the amount of storage, and perceptions of their privacy. The findings of the study also build on Auckland Council's monitoring of the AUP, which looked at whether it is enabling quality outcomes for residential development.⁵

The results of this study will be shared with everyone in the MDH sector from regulators to developers, to bring about improvements to the future delivery of MDH in Tāmaki Makaurau / Auckland, so that this form of housing better meets the diverse needs of a growing population, including the needs of households with children.

Key findings

Medium density housing is meeting some of the needs of some households. Smaller households of one or two adults were more likely to report that aspects of their home are ‘meeting’ or ‘more than meeting’ their needs, compared to larger households with children. This pattern of more positive responses from smaller households without children is found across many of the aspects considered in this study (e.g. storage, size of spaces, privacy). To better meet the needs of a wider range of households, the study found that greater diversity in MDH is needed.

The average size of homes was found to be smaller than best practice guidelines. Over half of the 110 consented plans analysed as part of this study had internal floor areas smaller than the ADM-recommended minimums (which are smaller than other NZ and Australian best practice guidance considered). The allocation of floor area to different spaces was not always aligned with best practice guidelines. The floor area of living spaces tended to be smaller, while the floor area for bathrooms was greater than ADM recommendations.

The ADM and AUP apply the same minimum unit areas to all housing typologies including standalone houses, duplexes, terraced houses and apartments. This is not a good indicator of usable space, due to differences in circulation requirements - e.g. two and three level homes require stairs and hallways, while single level homes (often apartments) do not.

Storage is inadequate for many households. Over half of all participants reported that they had insufficient storage for general household items (e.g. vacuum), linen, kitchen equipment and food, and occasional items (e.g. suitcases). For example, some kitchens were not fit for purpose, as they did not have a pantry, which resulted in participants adding cupboards to dining spaces or garages. This can restrict the use of the dining space for dining and garage for carparking. The study also found that the functionality of outdoor living spaces as spaces for living activities (e.g. dining, play, socialising) can be reduced when they are used for storage of items that are not able to be accommodated within the home.

Lounges were found to be 10m² smaller than best practice guidance. The arrangement of furniture in lounges can be restricted in terraced houses and duplexes due to a narrow room width, the location of power points, doors and windows, and a need to leave space for people to move around furniture or access other spaces in the home. This is compounded when lounges are also used for storage.

The flow-on effects of insufficient built-in storage and inflexible lounges has a greater impact on larger households, which tend to be those with children. Smaller households can have greater ability to mitigate these effects through using ‘spare bedrooms’⁶ for storage and living activities.

Some households have more bathrooms than they need. Over half of the consented plans for 2- and 3-bedroom homes analysed showed one bathroom and/or WC (a separate toilet) per bedroom, which is one more bathroom or WC than is recommended by the ADM. It was also found that these ‘spare bathrooms’ were often being used for storage or drying laundry.

Upper levels of terraced houses and duplexes are too hot in summer. The combination of large windows, small window openings, solar orientation⁷, reduced natural ventilation and minimal shade provision (e.g. eaves, established trees) are resulting in homes that are too hot in summer.

Participants were dissatisfied with hot temperatures as they cause uncomfortable sleeping conditions and could lead to heat-related health implications. Participants reported making changes to cool their homes such as keeping curtains closed, windows open, purchasing free-standing fans and air conditioning units, or installing ceiling fans, heat pumps and air conditioning units. These changes have a financial cost (installation cost as well as ongoing running costs) as well as taking up space, which prevents other uses (e.g. ducting for air conditioning in wardrobes prevents storage of clothes) and may be contributing to an urban heat island effect.⁸ The occurrence of hot homes may increase as our climate changes and Auckland experiences warmer temperatures.

Nearly half of all participants in terraced houses and duplexes made changes to improve privacy within their home. This included keeping curtains and blinds closed during the day, using furniture to block views and adding film or frosting to windows. This can diminish the positive safety benefits of people overlooking public and semi-public spaces.

Outdoor living spaces are highly valued by participants. However, almost half of those with an outdoor space reported it was not large enough for their needs.

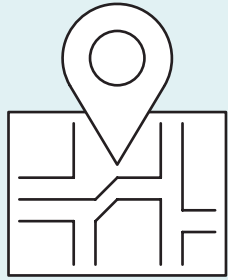
Many households have more cars than off-street parking spaces. Due to a lack of parking spaces within a property, cars are often parked on streets (including illegally on berms and footpaths), at very specific angles and positions on driveways, and in front yards. This results in properties and neighbourhoods that participants reported as being unsafe for pedestrians, a security concern for cars, and as generally unpleasant. Some participants reported needing to use a car as non-car transport modes do not meet their needs.

Only half of households with a garage use it for carparking and garages are important multi-functional spaces. For those households with a garage and at least one car, half used it for purposes other than parking their car including storage, exercise, as a study and for other living activities.

Some households were not able to have friends and whānau visit or do other things that were important to them. Having friends or whānau visit, hosting parties and doing hobbies were important activities for many participants. However, due to a lack of space (including storage for hobby equipment) and visitor carparking many households reported that they were not able to do these activities comfortably, or at all.

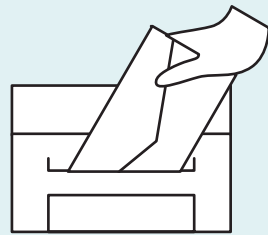
Research method and sample

The study took a mixed method approach that included several phases as shown below



Geospatial analysis of Auckland Council consents and rating data to identify recently built MDH

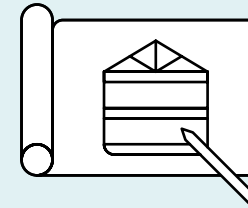
17,789 MDH properties that received a CCC⁹ between November 2016 and September 2022 were identified



8978 households received a postal invite to participate in a 20-minute online survey in early 2023



1337 survey responses were received from 1243 households

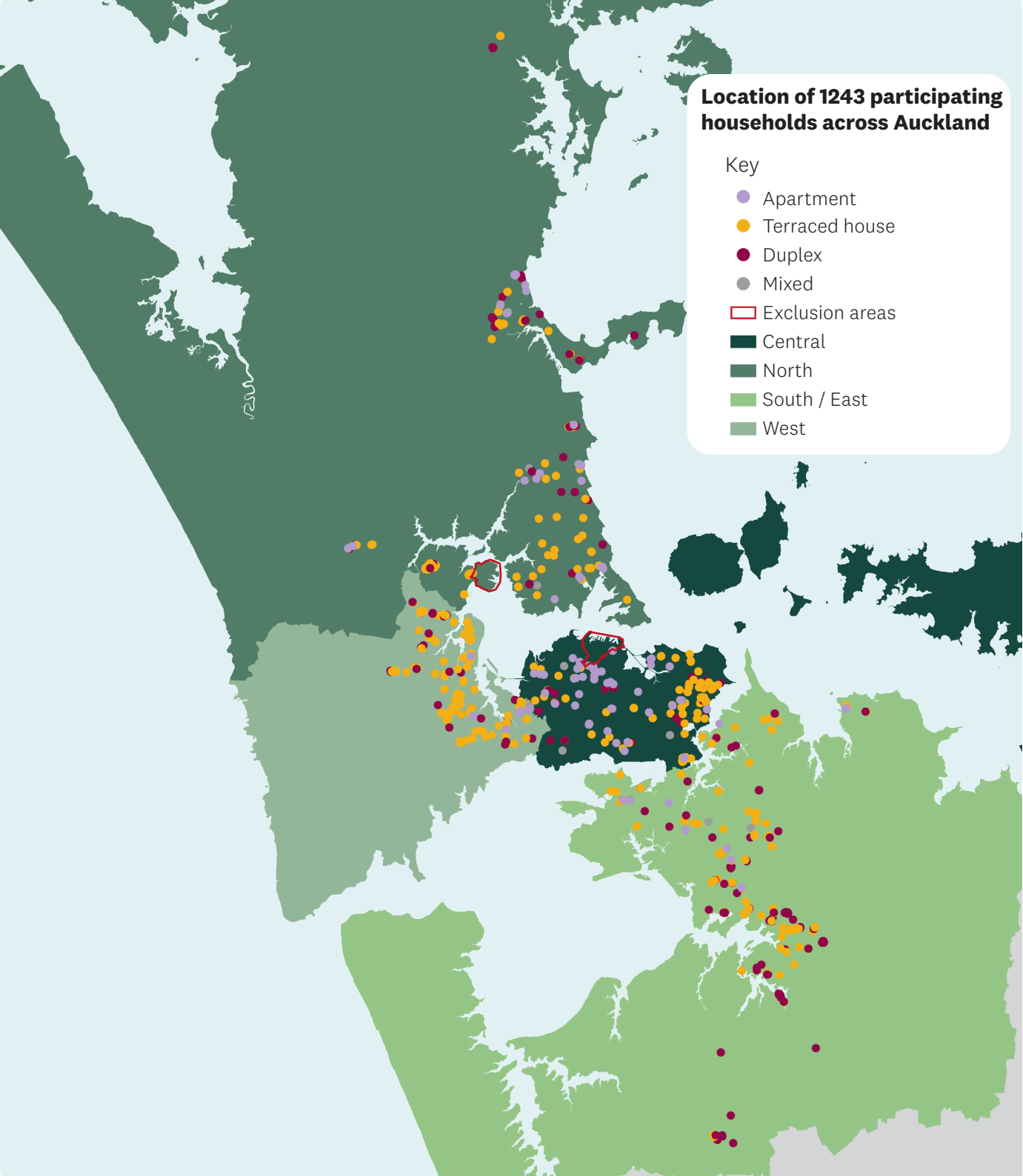


110 consented plans from participating households were analysed against 57 design attributes



20 households and 41 participants took part in 2 hour in-home immersions¹⁰

The study also included a literature review and collation of selected best practice design guidance from New Zealand and Australia.¹¹



Survey responses were received from a total of 1243 properties. As shown in the map participants lived across the Auckland region.

Housing typology was defined by survey participants. ‘Mixed’ is where responses from a property defined their home as different typologies e.g. one response as a terraced house and another as a duplex.

The focus for this study was on properties developed by private developers that are owned privately. Properties owned by Kāinga Ora, other community housing providers, or other organisations (e.g. hotels, retirement villages, aged care providers), were not included.

Properties in Auckland’s city centre or Hobsonville Point precincts were not included in the study (shown on the map as ‘exclusion areas’). The city centre provides for a range of activities, including residential dwellings and is primarily a high-density zone (i.e. apartment buildings seven storeys and over). It is subject to planning rules that were generally established under the Auckland City Council Central Area District Plan, rather than the residential zone standards of the Auckland Unitary Plan. Hobsonville Point is a master planned neighbourhood subject to additional layers of design control (including a dedicated design review panel) and has been studied previously.

Among the 1243 participating households



17%
lived in a duplex



50%
lived in a terraced house



32%
lived in an apartment



22%
were one person
living alone



39%
were two adults
(partners)



15%
had one child and any
number of adults



10%
had two or more
children and any
number of adults



14%
had two or more
adults and no
children

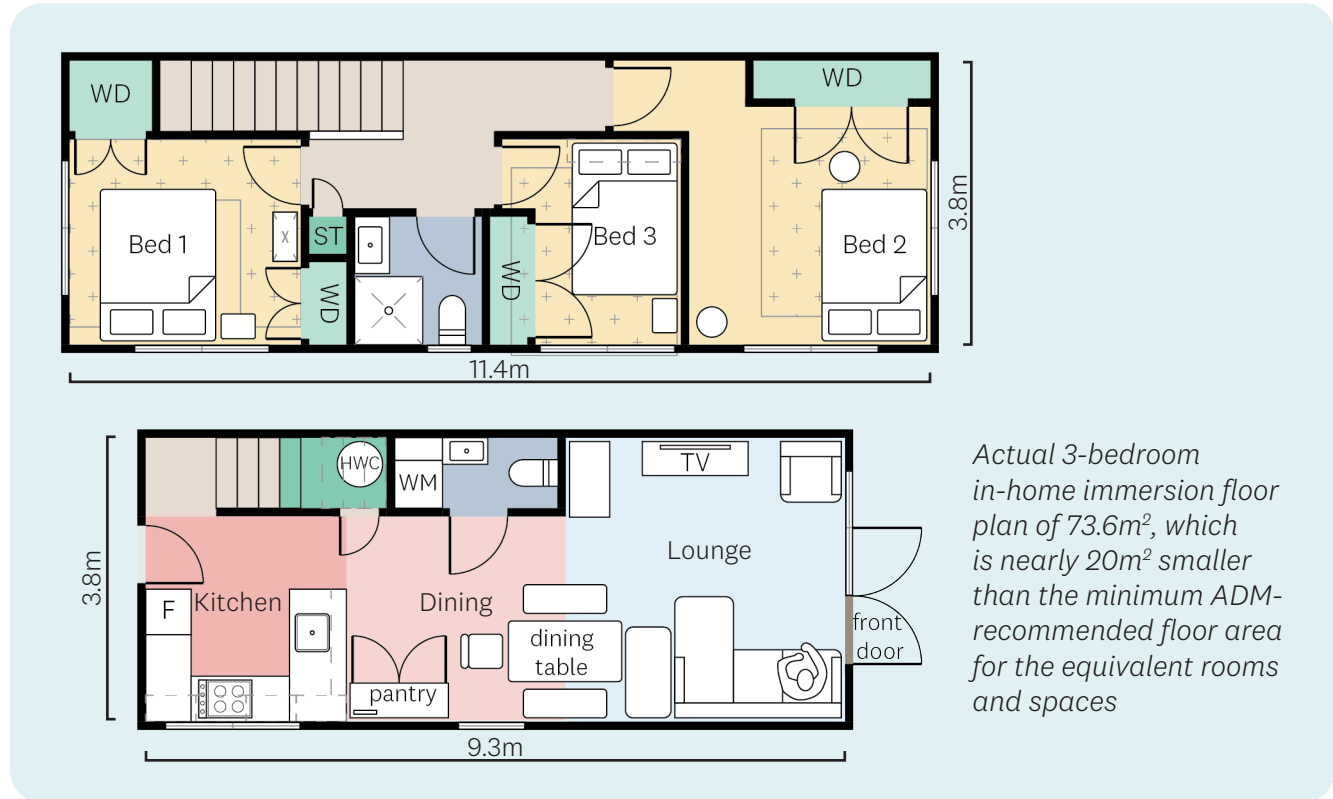
Total floor areas are often smaller than best practice guidelines

The AUP¹² and some best practice guidance, including the ADM, recommend minimum total floor areas for homes to ensure functional spaces for the intended number of people who will live there. The AUP and ADM both have smaller minimum floor areas than other guidance considered in this study. Analysis of 110 consented plans found that over half (57%) of the 2-bedroom homes and two thirds (68%) of 3-bedroom homes were smaller than the ADM-recommended minimum.

This study found that applying the same minimum floor area to all housing typologies may not be appropriate because the space requirements for circulation taken up by staircases and hallways are greater in multi-level homes (i.e. terraced houses and duplexes) than for single level homes (such as apartments). Total floor area is therefore not always a reliable indicator of the usable floor area or functionality of individual spaces.

Analysis of the consented plans of 20 in-home immersion homes showed that circulation space (i.e. stairs and hallways) account for:

- 0-13% of total floor area for single level homes (e.g. apartments) (n=6 dwellings)
- 9-17% of total floor area for two level homes (e.g. terraced houses or duplexes) (n=13 dwellings)



Comparison of actual 3-bedroom immersion floor plan with ADM-recommended net floor areas (m²)

	Kitchen & dining space	Lounge	Bedrooms (x 3)	Wardrobes (x 3)	Bathroom(s)	Laundry	Total of ADM rooms & spaces	Circulation (stairs & hallway)	Storage	Total floor area
Actual 3-bedroom home	15.1	13.8	25.3	3.5	4.3 (x 1)	0.6	62.6	9.7	1.3	73.6
ADM recommended 3-bedroom home	16.2	28	27	3.2	6 (x 2)	0.6	81.7	-	-	81.7

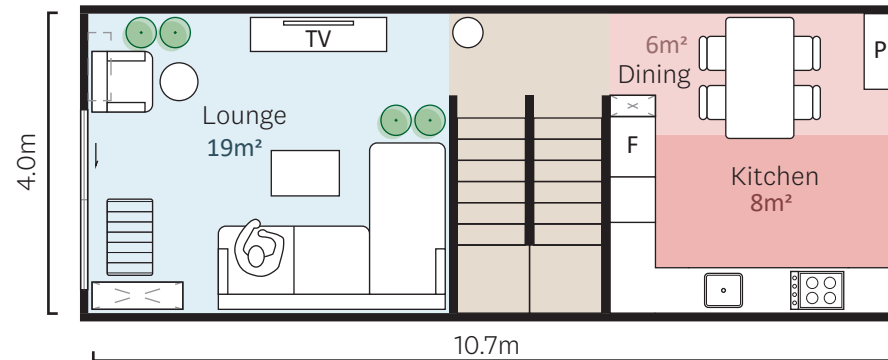
Note: Floor areas have been rounded to 1 decimal place.

More bedrooms does not always mean larger living spaces

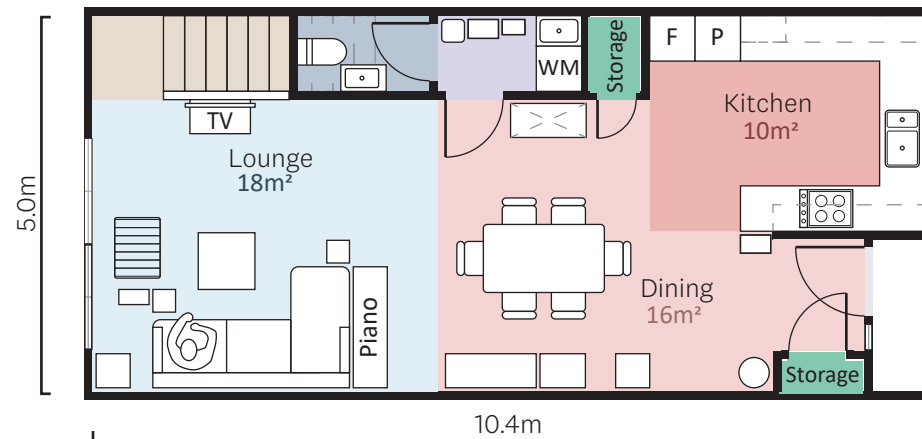
Design guidance for the size and number of spaces in a home is often based on the number of bedrooms as a proxy for household size, as it is assumed that more bedrooms will house more people and will include larger, or more, living spaces. However, analysis of consented plans found that the floor area of kitchen, dining space and lounges combined did not always increase when there were more bedrooms in the home. Moreover, the combined kitchen, dining space and lounges were found to be smaller than ADM guidelines by 7m^2 on average for 2-bedroom homes and 11m^2 on average for 3-bedroom homes.

Most survey participants (89%) reported that their home had a single living space, typically comprising an open plan kitchen, dining space and lounge. One in ten (11%) reported having an additional living space (i.e. a flexi-room¹³) which might be used as a playroom, hobby space, study or media room.

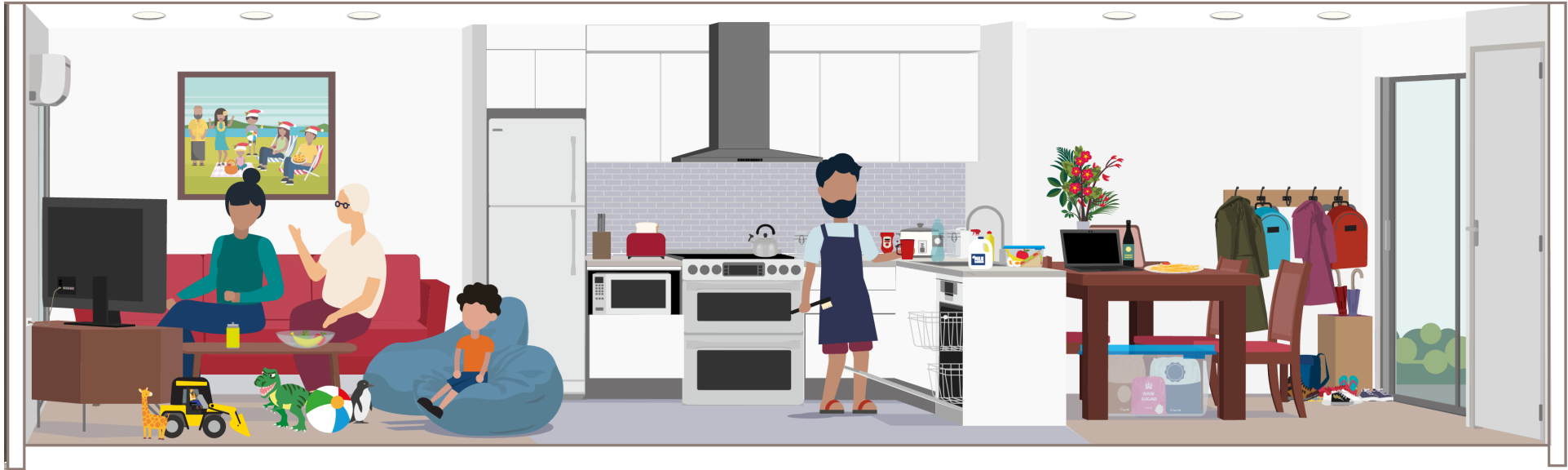
The study found that MDH can lack spaces for households to undertake activities of importance to them. Garages and 'spare bedrooms' are important in accommodating day-to-day activities such as working from home, hobbies, or doing exercise, that cannot be accommodated within the kitchen, dining space or lounge.



Actual 3-bedroom home from in-home immersion with combined kitchen, dining space and lounge area of 33m^2 . The combined kitchen, dining space and lounge floor area was 33m^2 on average for the consented plans analysed.

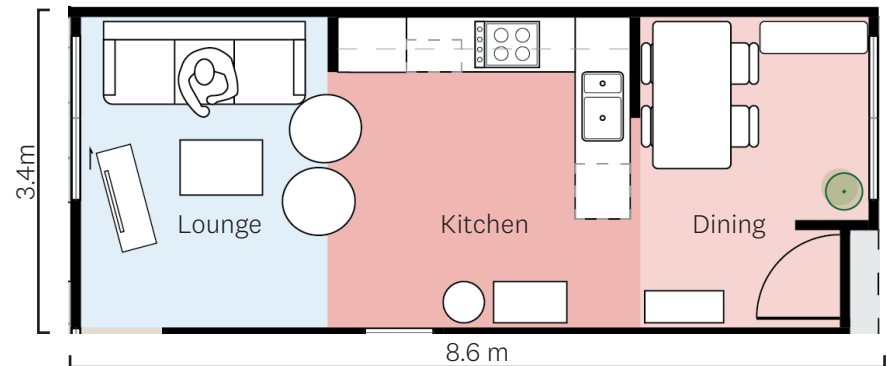


ADM recommended, kitchen, dining space and lounge combined floor area of 44m^2 for a 3-bedroom home. This is an actual 3-bedroom in-home immersion home.



Floor plan of 3-bedroom home, shown above

The cross section above relates to an actual 3-bedroom in-home immersion terraced house. This accurately illustrates the size, layout and uses of spaces by the household, as shown on the accompanying floor plan.



Limited kitchen storage can have flow-on effects

While a sizeable proportion (61%) of participants reported the size of their kitchen met the needs of the household, half (54%) said storage of food and kitchen equipment was inadequate. Where kitchen storage was provided, it was sometimes difficult to access, for example, due to deep and narrow cupboards or half height cupboards under stairs.

Some participants were storing food and kitchen equipment in other spaces such as freestanding pantries and shelves placed in the dining space, lounge or garage. This had a flow-on effect of limiting the functionality of those spaces. For example, a free-standing pantry in the dining space could push the dining table into the lounge, thereby reducing the ability to accommodate lounge seating and other furniture suitable for the entire household.



47%

said they had enough built-in storage for food and kitchen equipment



54%

said they had no or not enough built-in storage for food and kitchen equipment



23%

of consented plans analysed had no pantry

16 out of 20 in-home immersion households found kitchen storage (including food) challenging



Participants added cupboards to their garages and dining spaces to store food and kitchen equipment.

Dining spaces are multi-functional

Dining spaces were commonly used for purposes other than dining by in-home immersion households, and most eating happens in the lounge. Dining tables were often used as an extension of the kitchen bench for food preparation, as a work from home or study space, for hobbies and socialising. Some participants commented that there was not enough space for a dining table or to host friends and whānau for a meal.



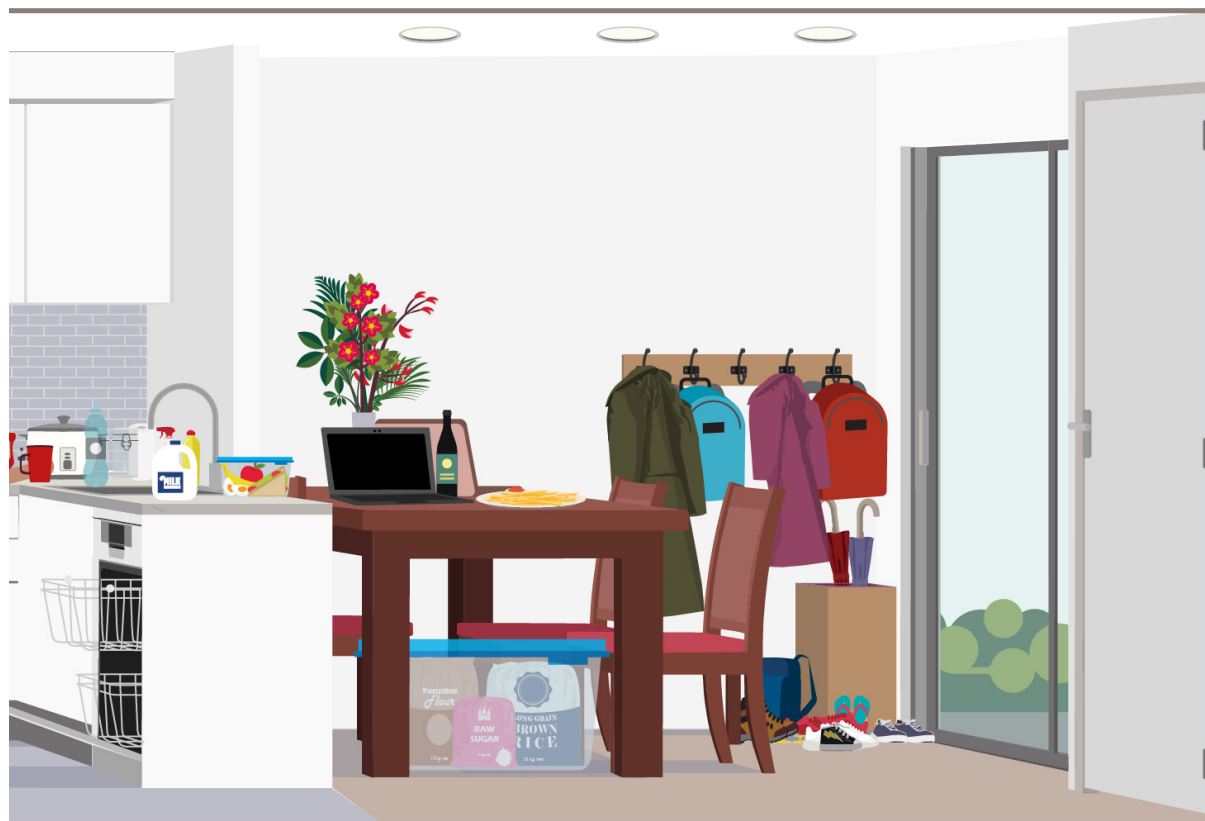
55%

said the size of their dining space meets their needs



41%

said the size of their dining space doesn't meet their needs



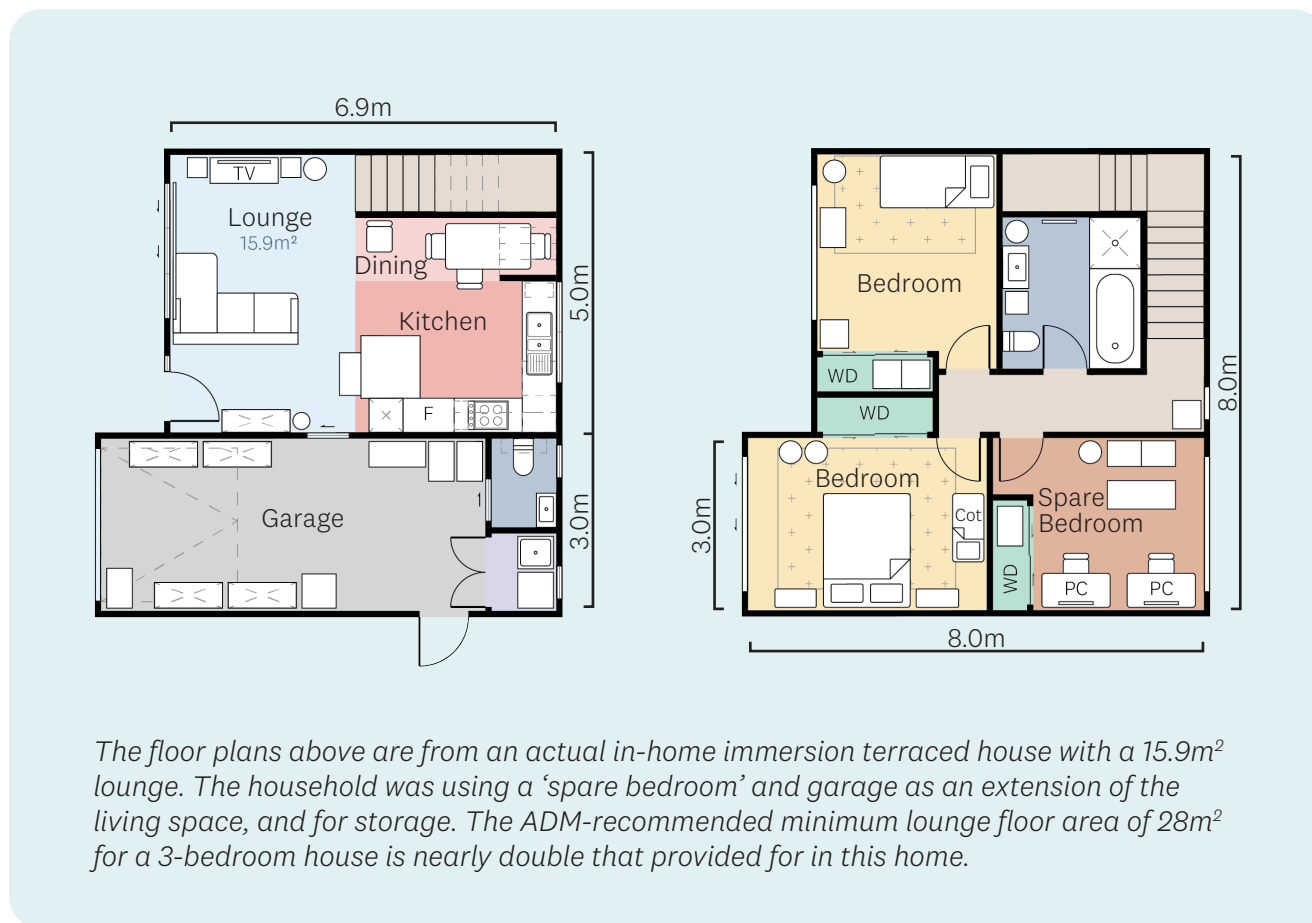
Small lounges means that other spaces, such as 'spare bedrooms' and garages, are needed to compensate

The analysis of consented plans found that on average, lounges were 10m² smaller than the ADM guidance. Lounges in 2-bedroom homes were 13m² on average whereas the ADM recommends 24m², and lounges were 15m² on average in 3-bedroom homes compared with the recommended 28m².

A relationship was found between household composition and how well lounges are meeting the needs of the household.

Lounge size was found to meet the needs of

- 81%** of households who live alone
- 70%** of households living with a partner only
- 66%** of households living with two or more adults and no children
- 54%** of households living with one child
- 47%** of households living with two or more children



The floor plans above are from an actual in-home immersion terraced house with a 15.9m² lounge. The household was using a 'spare bedroom' and garage as an extension of the living space, and for storage. The ADM-recommended minimum lounge floor area of 28m² for a 3-bedroom house is nearly double that provided for in this home.

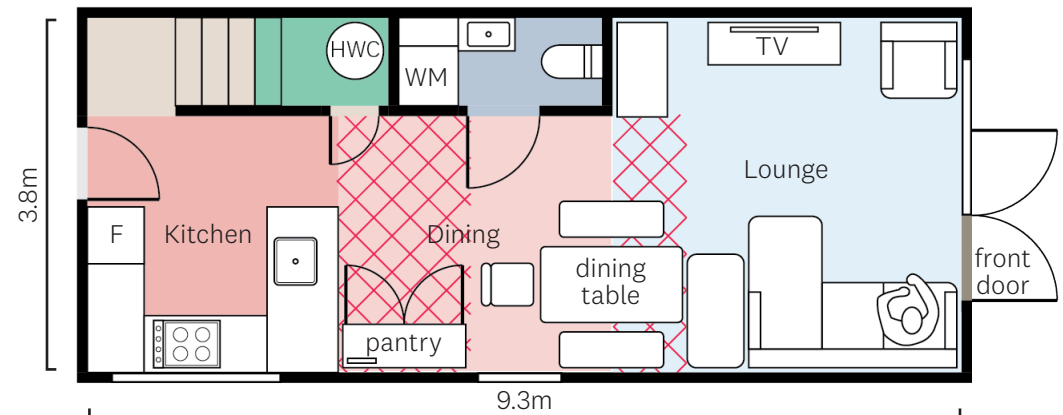
Smaller households tended to have 'spare bedrooms' that could accommodate activities such as working from home, hobbies, and drying laundry. Having an extra space for these activities meant their lounges could be a space just for watching TV, socialising and eating. However, larger households, often with children, have fewer 'spare bedrooms' and can be reliant on their lounge to accommodate a range of activities in addition to watching TV, socialising, and eating, such as play, work, hobbies, and exercise.



Spillover of furniture into the lounge (e.g. free-standing pantries, dining tables), the placement of doors, windows and power points can restrict options for the arrangement of lounge furniture. This can further constrain how these spaces are used.

The floor plan below illustrates how a lack of kitchen storage has resulted in a freestanding pantry being added to the dining space, with the dining table then spilling over into the lounge. This further reduces the flexibility of the spaces for living.

Actual 3-bedroom in-home immersion floor plan



‘Spare bedrooms’ are critical in making the experience of living in MDH functional

‘Spare bedrooms’ provide space for storage and for living activities that cannot be accommodated elsewhere in the home. This can include being used as an office, for crafts, games, hobbies, as playrooms, and for exercise.

In-home immersions illustrated that when households lacked ‘spare bedrooms’, their bedrooms were used as both a space for sleep and for other activities (e.g. working from home, exercise, drying laundry). This competition for space was dissatisfactory.

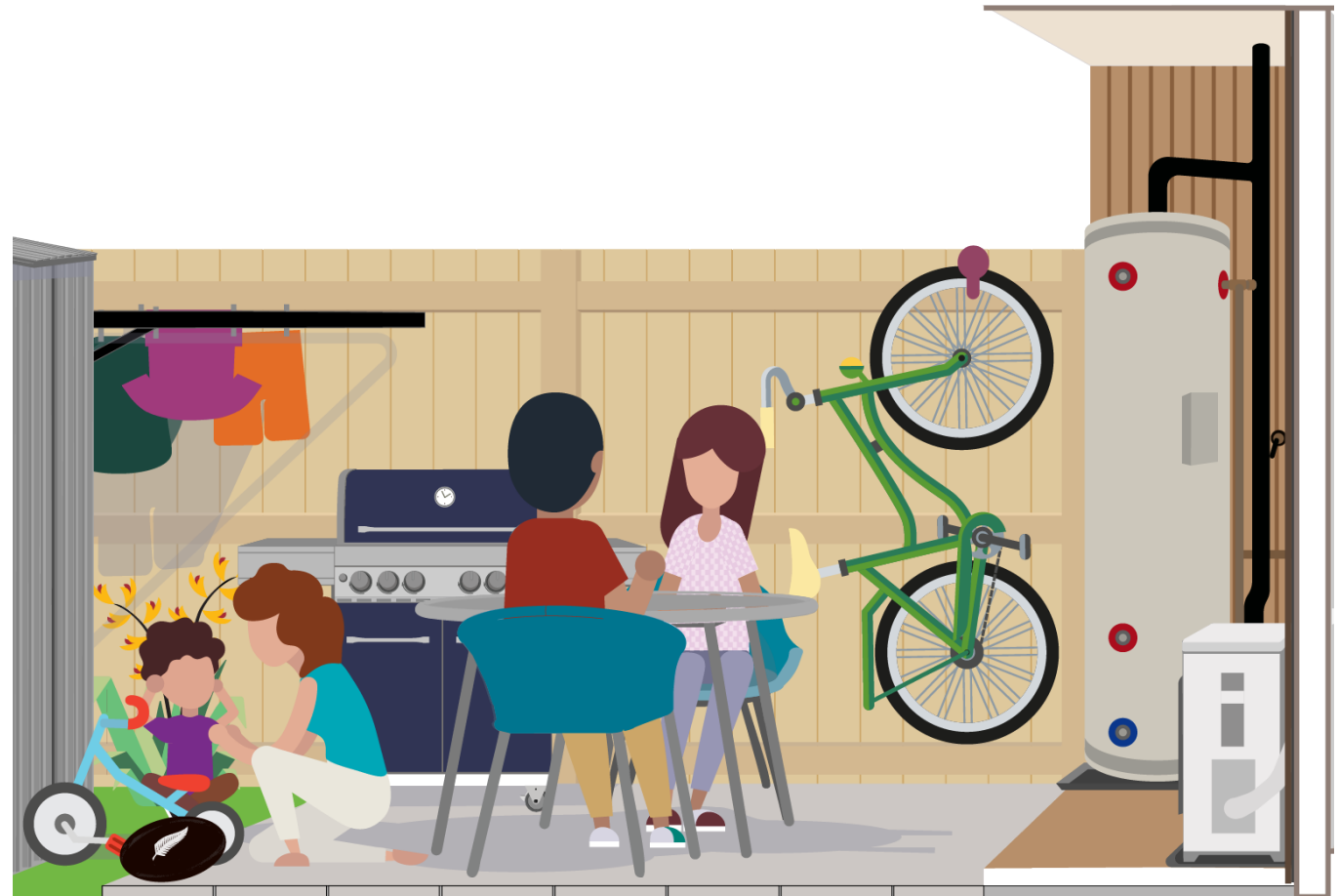


Restrictions on activities undertaken in the home

Having friends or whānau visit, hosting parties and undertaking hobbies were important activities for many participants. However, many also reported that they were not able to easily do these things in their home.

Some reported it was not comfortable to host visitors due to a lack of space, carparking issues, needing to be considerate of noise and neighbours, and wanting a sense of privacy. Some felt it wasn't comfortable to undertake hobbies due to a lack of space (including storage), having to unpack and repack equipment, and needing to be considerate of noise levels (e.g. music).

These restrictions may have implications for individual and whānau wellbeing (social, mental, physical and spiritual) and social connection. They may also result in activities being undertaken elsewhere creating a shift in the demand on communal living spaces, public or third-places.¹⁴



Household requirements for storage impacts almost every space within a home

The ADM-recommended storage volumes of 3m³ for a 2-bedroom home and 4m³ for a 3-bedroom home are respectively up to 5m³ and 6m³ less than other best practice guidance considered in this study.

Analysis of consented plans found the average indoor storage provision for 2-bedroom homes was 2.3m³ and for 3-bedroom homes was 3.0m³ - almost 1m³ less than the ADM-recommended minimum.

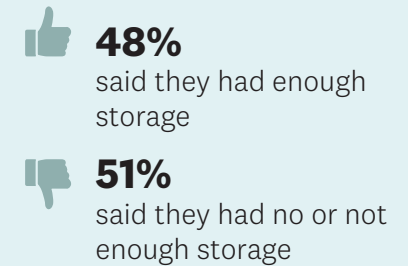
All households need to store basic items such as a vacuum cleaner and linen, as well as other items which may be specific to the household such as sports equipment, suitcases, prams and toys. More than half of participants rated the amount of built-in storage for different items as inadequate for their household and 79% reported adding storage to their home.

Insufficient built-in storage impacts a home's functionality. For example, some in-home immersion participants showed that they do not have enough storage for clothes and shoes in their wardrobes as these were being used for linen and paperwork.



As described earlier, some of the dining spaces and lounges in the in-home immersions contained cupboards that had been added for food and kitchen equipment. In some cases, cars were not able to be parked in the garage due to storage needs, and bathrooms and outdoor living spaces were also used for storage.

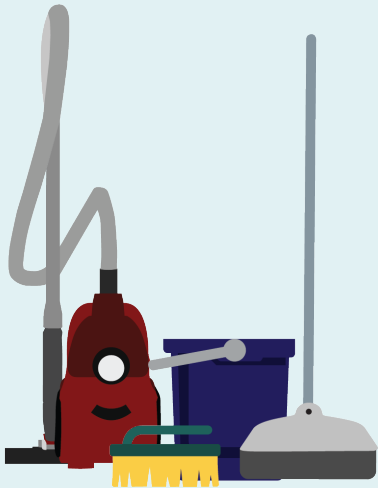
Unused showers and baths were used to store suitcases, linen and boxes. Some outdoor living spaces had storage sheds containing suitcases, business tools and supplies, and other household items. Storage for shoes and bikes were also found in outdoor living spaces.

Linen





Household equipment

-  **37%** said they had enough storage
-  **63%** said they had no or not enough storage





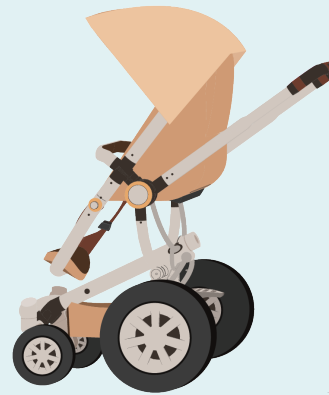
Hobby or sports equipment

-  **26%** said they had enough storage
-  **65%** said they had no or not enough storage
- 9%** said they have no equipment





Young children's items (of those with preschool aged children)

-  **15%** said they had enough storage
-  **85%** said they had no or not enough storage



Occasional use items

-  **32%** said they had enough storage
-  **66%** said they had no or not enough storage



Most homes were reported to have two or three bedrooms

Most homes in this study were reported by survey participants as having two or three bedrooms (40% and 33% respectively). Participants living in apartments reported fewer bedrooms compared with those living in terraced houses and duplexes. No participants living in apartments reported more than three bedrooms.

The ADM recommends a minimum bedroom size of 9m² and consented plan analysis found an average bedroom size of 10m².



A typical 10m² bedroom which is only used for sleeping.

Number of bedrooms



77%

said the number of bedrooms meets their needs



23%

said the number of bedrooms doesn't meet their needs

Households with children were more likely to report that the number of bedrooms 'somewhat meets' or 'does not meet' the needs of the household compared to households only with adults

Size of bedrooms



64%

said the size of bedrooms meets their needs



35%

said the size of bedrooms doesn't meet their needs

Built-in storage for clothes and shoes



51%

said there is enough storage



49%

said there is not enough storage

Homes have more bathrooms than recommended in guidelines

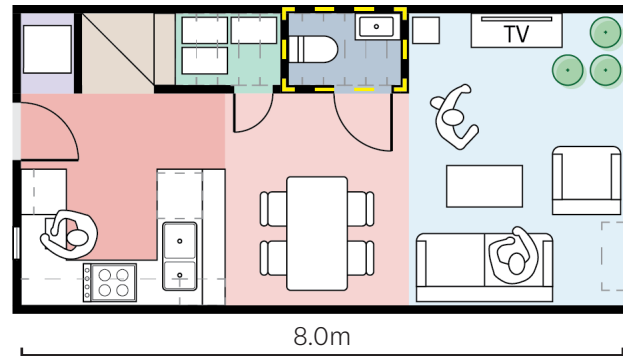
A quarter (23%) of survey participants reported that the number of bathrooms¹⁵ in their home 'more than meets' the needs of their household.

Analysis of consented plans found that over half of the 2- and 3-bedroom homes had the same number of bathrooms and/or WCs¹⁶ as bedrooms, which is one more bathroom and/or WC per bedroom than is recommended by the ADM. This equates to, on average, 3m² more floor area for bathrooms than is recommended.

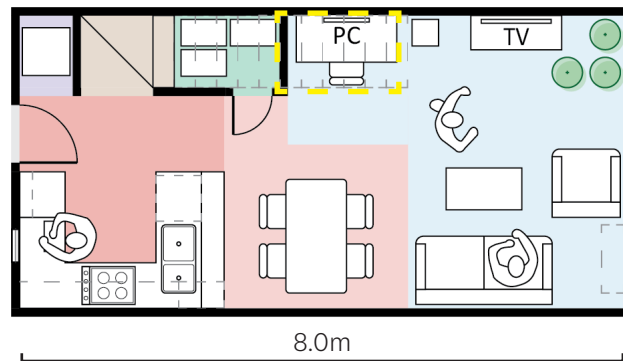
Other national design guidelines considered in this study recommend numbers of fixtures (e.g. toilets and showers). Again, over half of the consented plans analysed had more toilets than recommended, and many 2- or 3-bedroom homes had more showers or baths than recommended.

The in-home immersions found that 'spare bathrooms' were being used for storage or drying laundry, suggesting that this additional bathroom amenity is not beneficial for some households and the floor area may be better allocated to storage or living space.

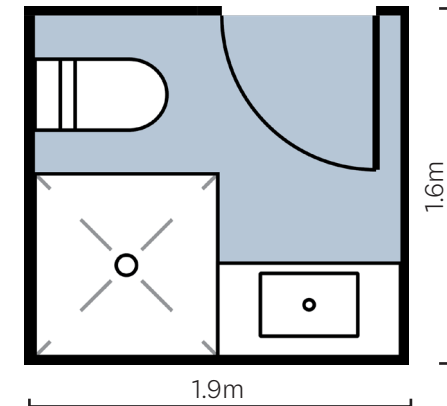
In some MDH, ground floor WCs open directly into dining spaces and lounges. Participants expressed concerns in the in-home immersions around this layout in relation to privacy and hygiene.



The presence of a WC under the stairs, opening into the living area, was reported as being uncomfortable for many participants.



An alternative use of this space as a study nook, storage or additional seating, could improve the functionality of the living area.



A typical 3m² bathroom layout.

- Potential study nook
- Kitchen
- Dining Space
- Lounge
- Circulation
- WC
- Laundry
- Storage

Participants' attempts to increase privacy in their home can have unintentional impacts

The study found that nearly half of households in terraced houses (47%) and duplexes (46%) made changes to increase privacy. Participants used a variety of approaches to increase their sense of privacy inside their homes, including closing blinds or curtains during the day, placing furniture to block possible views into their home, and adding film to windows.

Privacy concerns were identified by in-home immersion participants when windows of kitchens, dining spaces and lounges immediately overlooked a space accessed by others such as a shared driveway, street or

neighbour's outdoor living space, with many households drawing curtains/blinds so that they did not feel like their lives were 'on display'. This concern also arose for some in their bedrooms, often irrespective of the size and location of windows.

However, keeping blinds closed can have the effect of negating the intended community safety benefits of windows providing passive surveillance opportunities for people to overlook public (e.g. street) and semi-public (e.g. shared accessway) spaces.

Made changes to improve privacy

47% of households living in a terraced house

46% of households living in a duplex

29% of households living in an apartment



Many participants made changes to cool their home

Satisfaction with the indoor temperature of their home during summer varied among participants, with those living in duplexes and terraced houses reporting greater dissatisfaction compared to those in apartments.

Changes to improve the temperature inside their home was the most reported type of change by participants. This varied across housing typology with over half of those in duplexes and terraced houses (60% and 54% respectively) making changes compared to over a quarter (27%) of those in apartments. Participants reported purchasing free-standing fans, installing ceiling fans, tinting windows, and installing heat pumps and air conditioning units.

Eight out of 14 in-home immersion households living in terraced houses and duplexes had retrofitted a heat pump or air conditioning unit to the upper storey of their home to cool bedrooms so they could sleep comfortably at night.

MDH can have large windows with small window openings which, while good for sunlight, are also over-heating homes. Participants described opening windows and doors to increase airflow, which also enables sound to travel, impacting privacy. Changes to improve temperature included adding blinds and sun screening to windows which can have the added benefits of increasing visual privacy, but also reducing passive surveillance.

The issue of hot homes is expected to continue as Auckland's climate changes and temperatures increase. This may have heat-related health implications and cooling homes with retrofitted heat pumps or air conditioning units comes at considerable installation expense, as well as a higher ongoing power costs. In addition, these units release warm air into the environment, contributing to urban heat island effects.

Proportion of households who made changes to improve temperature in summer

Duplexes



60%

Terraced houses



54%

Apartments



27%

Outdoor living spaces are highly valued but their size does not meet the needs of many households

The AUP requires a 20m² ground level outdoor living space for all homes at ground level. Analysis of 110 consented plans found that the average size of ground level outdoor living spaces was 37m² – nearly double the AUP minimum.

The AUP requires a 5-8m² outdoor living space in the form of a balcony for homes above ground level (e.g. apartments). Balconies in consented plans analysed ranged in size from 3.7m² to 24.8m², with the average size of balconies for different numbers of bedrooms all being slightly larger than the AUP minimum size.

A significant proportion of survey participants reported, however, that the size of their outdoor living space is not meeting their needs. When describing what they liked about their home, many participants mentioned having an outdoor living space, but many also reported that it was too small, lacked privacy and lacked space for plants.

To overcome these issues some participants had made changes to their outdoor living spaces such as installing low maintenance ground covering (e.g. replacing grass with pavers or artificial turf), adding plants, adding or increasing fence heights and adding sunshade (e.g. pergola).

The functionality and use of outdoor living spaces can be compromised due to a lack of privacy, poor access from indoor living spaces, space consumed by site facilities (e.g. wheelie bins, external heat pump units, hot water cylinders and rainwater tanks) and general household storage (e.g. sheds and lockers).



This illustration shows a typical ground level outdoor living space of 20m² (4m wide x 5m long) required by the AUP.

The size of outdoor living space doesn't meet the needs of

59% of households living with one child

52% of households living with two or more children


51% of households living with two or more adults and no children


39% of households living with a partner only

26% of households living alone

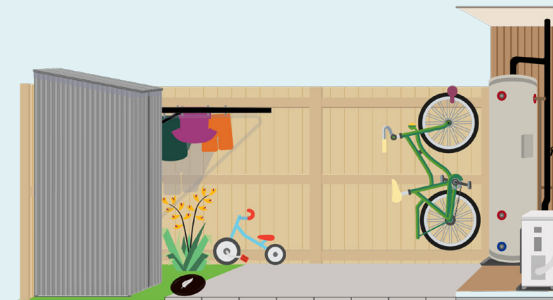
Visual privacy in outdoor living space





 **52%**
said they were satisfied with visual privacy

 **32%**
said they were dissatisfied with visual privacy

Amount of space for plants in ground level outdoor living space





 **63%**
said they were satisfied with the amount of space for plants

 **32%**
said they were dissatisfied with the amount of space for plants

Amount of sound in outdoor living space



 **50%**
said they were satisfied with the amount of sound

 **28%**
said they were dissatisfied with the amount of sound

More cars owned than off-street carparking spaces to park them

Nearly half of all households in the study owned two or more cars, and over half owned more cars than there were off-street carparking spaces at their property.

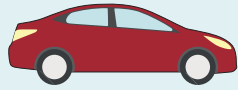
Some participants who lived in a home with a garage said the garage was too small to comfortably fit their car, and as discussed on page 26, garages are often used for storage and other activities. This means in practice that more properties have no usable onsite parking, as garages do not always function as car parks.

A lack of off-street parking is resulting in cars being parked on public roads and shared driveways in unanticipated (and sometimes illegal) ways such as parking on berms, footpaths and blocking driveways.

Carparking was the most frequently mentioned topic when participants described what they disliked about their home. Participants shared concerns about security of their cars when parked on the street, issues of pedestrian safety and a generally unpleasant street environment created by an excess of parked cars.

Some described how a lack of visitor parking limited or prevented them from having friends and whānau visit their home. Others implied that multiple cars were needed in the household as non-car modes of transport such as walking or public transport were not available.

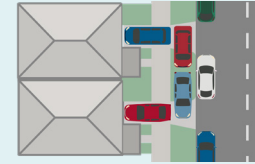




46%
of households said
they had one car



49%
of households said
they had two or more cars

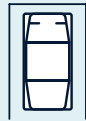


57%
of households had more cars
than off-street carpark

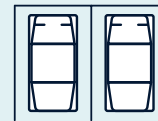
Number of off-street carpark at a property



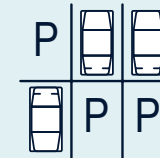
32%
None



46%
One



21%
Two



1%
Three or more



Garages are important multi-functional spaces

Over half (53%) of survey participants living in terraced houses and duplexes reported that their home included a garage. These were used for a variety of purposes other than vehicle storage with only 50 per cent reported to be used to park a car.

Garages, like 'spare bedrooms', can be critical in making the experience of living in a terraced house or duplex functional as they provide space for both storage and living activities.

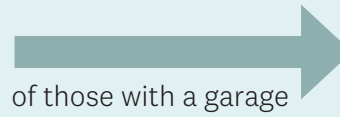
For example, the in-home immersions found that garages were used as a place for fitness (e.g. treadmills), socialising (e.g. teenager hang out space), and for hobbies (e.g. working on motorbikes, playing piano). Garages were used for storage including general household storage, food storage and kitchen equipment, exercise equipment (e.g. treadmills, boxing bags), shoes, clothing, lawn mower, tools, and wheelie bins. Garages were also used for the storage of a range of bikes, including motorbikes, mountain bikes, e-bikes, and children's bikes.

Some garages were also the location for the washing machine/dryer, drying racks and storing baskets of laundry, which was a reported use by 9 per cent of participants. Some reported that access to washing machines can be difficult when a car was parked in the garage.





53% of terraced houses and duplexes had a garage



of those with a garage



50% said they park their car in the garage

50% said they do not park their car in the garage

Other uses of garages



80%
said they use their garage for storage



20%
said they use their garage for gym or fitness



9%
said they use their garage for craft, games or hobbies



5%
said they use their garage as a study/office

What does this mean for future MDH in Auckland?

This study provides a unique insight into the experience of Aucklanders living in MDH. The findings of this study can enable a more considered approach to the design of MDH going forward, so that it can better accommodate a diversity of household needs.

MDH works well for some, but changes are needed to meet the needs of a wider range of households. Participants were modifying spaces in their home, as well as their behaviour, in response to design and space constraints. A more refined design approach to the day-to-day needs of Aucklanders living in MDH would reduce the need for households to modify their new home so that homes contain expected functions, such as food and linen storage, and provide a comfortable environment (e.g. temperature and privacy) as well as improve their ability to do the activities that are important to them.

The practical requirements related to storage and living spaces were an important finding in this study. Overall, limited storage, combined with small inflexible living spaces, and the size and number of living spaces not increasing with the number of bedrooms, seems to be the greatest 'pain point' in the current design of MDH. This has flow-on effects for the use of garages, lounges, dining spaces and bedrooms.

Private outdoor living spaces in MDH may not be of a size that enables households to do the activities they would like to do outdoors. New MDH developments may benefit from the inclusion of communal outdoor living spaces, with the larger size of these spaces enabling social gatherings and more physical activities (e.g. sport, play).

There is a need for a diverse range of MDH to be constructed with regard to numbers of bedrooms, and the inclusion of dedicated spaces that can be used for a range of activities (e.g. study, work from home, hobby, exercise, play space). MDH may better meet Aucklanders' day-to-day needs if it was, for example, to include built-in storage (e.g. for food, linen), have living spaces with layouts that accommodate standard sized furniture, and maximise spaces that can be used in different ways (e.g. provision of flexi-rooms or larger lounges instead of additional bathrooms). Overcoming the issues identified in this study are critical to mitigate poor wellbeing outcomes that can result from households living in homes that cannot accommodate their needs.

Recommendations

It is recommended that the findings from this study are used by everyone in the medium density housing sector, from regulators to developers, to bring about improvements to the future delivery of medium density housing in Tāmaki Makaurau / Auckland, so that this form of housing better meets the diverse needs of a growing population, including the needs of households with children.

It is also recommended that Auckland Council uses these findings to inform an update of the Auckland Design Manual, and in development of future climate, transport and land use policy, including the upcoming Auckland Unitary Plan review.

Endnotes

- 1 Medium density housing is defined in this study as duplexes, terraced houses, and apartment buildings of up to six storeys in height.
- 2 Source: <https://knowledgeauckland.org.nz/publications/auckland-council-population-projections-total-auckland-march-2023/>
- 3 Stats NZ classification.
- 4 Code Compliance Certificate received after Auckland Unitary Plan became operative in part in November 2016, and before September 2022.
- 5 Auckland Council (2022). Auckland Unitary Plan. Resource Management Act 1991, section 35 monitoring: B2.3 quality built environment. Auckland Council technical report, TR2022/11 summary.
- 6 'Spare bedrooms' in this study are rooms that are bedrooms (defined as either a bedroom in consented plans or called a bedroom by participants) and used for something other than sleeping or do not contain a bed.
- 7 The direction windows face in relation to the sun. E.g. north facing windows will receive sun all day and will therefore contribute to heating of a room significantly more than a south facing window.
- 8 The urban heat island effect refers to when a city (or parts of a city) experiences warmer temperatures than nearby rural areas, due to the ability for surfaces in each environment to absorb and hold heat.
- 9 Code Compliance Certificate.
- 10 In-home immersions are a research technique that draws from ethnographic methods of active participant observation and participant-led interviewing.
- 11 Design guidelines considered in this study included:
 - Auckland Design Manual
 - Ministry for the Environment (2023). National Medium Density Design Guide.
 - Ministry of Housing and Urban Development (2023). Public Housing Design Guidance for Community Housing Providers and Developers.
 - Kāinga Ora Homes and Communities (2024). Ngā Paerewa Hoahoa Whare Design Requirement.
 - New South Wales Department of Planning and Environment (2020). Low Rise Housing Diversity Design Guide for complying development.
 - New South Wales Department of Planning and Environment (2015). Apartment Design Guide.
 - The State of Victoria Department of Environment, Land, Water and Planning (2021). Apartment Design Guidelines for Victoria.
- 12 At time of publication the AUP specifies a minimum net floor area of 30m² for studios and 45m² for one or more bedroom dwellings in the Residential Mixed Housing Suburban, Mixed Housing Urban, Terrace Housing and Apartment Building zones and Mixed Use Business zones. As part of central government's 'Going for Housing Growth' programme, changes to the Resource Management Act 1991 and the National Policy Statement on Urban Development (2020) have been identified, to remove the ability for councils to set minimum floor areas and balcony sizes. This will be consulted on in early 2025.
- 13 'Flexi-rooms' in this study are rooms without a wardrobe and are often smaller than a standard bedroom and may not have windows or natural ventilation.
- 14 A 'third place' is a sociological concept of a place outside the home ('first-place') or work place ('second-place') where people spend time with others, such as, a café or community centre.
- 15 A bathroom is defined in this study as a room with a bath and/or a shower. A bathroom may also have a toilet, but not always.
- 16 A 'WC' is defined in this study as a room with a toilet, and without a shower or bath.

Survey responses

In this summary document survey responses have been combined as follows:

'Dissatisfied' combines survey responses of 'somewhat dissatisfied' and 'very dissatisfied'

'Satisfied' combines 'somewhat satisfied' and 'very satisfied'

'No or not enough' combines 'no', 'not enough' and 'only just enough'

'Enough' combines 'enough' and more than 'enough'

'Doesn't meet needs' combines 'does not meet needs at all' and 'somewhat meets needs'

'Meets needs' combines 'meets needs' and 'more than meets needs'

Due to rounding some percentages do not add up to 100%





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