Life in Medium Density Housing
in Tāmaki Makaurau / Auckland

Chapter 4

Indoor spaces for living

Kathryn Ovenden and Melanie McKelvie

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Overview of the Life in Medium Density Housing in Tāmaki Makaurau / Auckland report

The *Life in Medium Density Housing in Tāmaki Makaurau / Auckland* study was undertaken by Auckland Council's Economic and Social Research and Evaluation team and Tāmaki Makaurau Design Ope (TMDO) in 2023.The primary purpose of the research was to investigate how Aucklanders are experiencing living in recently built medium density housing (MDH).

The results of this research will support everyone involved in the delivery of housing in Auckland (including Auckland Council, central government, developers) to improve future MDH, and ultimately the wellbeing of Aucklanders, through consenting processes, design guidance and land use planning. It will also enable better informed choices by Aucklanders looking to live in MDH.

This study involved a number of methods including a rapid literature review, geospatial analysis to identify recently developed MDH across the Auckland region, an online survey of 1337 participants living in MDH, analysis of the consented plans of 110 properties whose residents participated in the survey, and 20 in-depth in-home immersions which collectively provides a comprehensive view of how people experience their MDH.

This report is divided into 10 chapters and 13 appendices:

Main report:

- Chapter 1: Introduction
- Chapter 2: Legislation and policy context
- Chapter 3: Research method and sample
- Chapter 4: Indoor spaces for living
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- Chapter 6: Outdoor living spaces
- Chapter 7: Indoor environment
- Chapter 8: Carparking and vehicle storage
- Chapter 9: Shared facilities
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- 6: Standalone houses excluded from the sample
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- 8: In-home immersion screener survey
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Each chapter is provided as a separate PDF and can be accessed on the Knowledge Auckland website. A summary report with key findings is also available on the Knowledge Auckland website.

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Introduction to this chapter

Generally speaking, homes can be divided into spaces where people live and spaces where people sleep. 'Living' spaces are where people cook, eat, socialise, undertake hobbies, work and play. Many medium density homes in Auckland are characterised by an open plan area that has 'zones' for a lounge, kitchen and dining space. Some homes have additional spaces intended for living, such as family or rumpus rooms, a study or a media room (these are often in the form of a flexi-room).

Section 1 presents results for spaces that are intended for living, such as kitchens, dining spaces and lounges. The critical function of garages and 'spare bedrooms' in the homes that have them is also explored in this section.

Section 2 presents results related to bedrooms, and Section 3 addresses the overall size of homes.

Each section begins by describing regulations and best practice guidance, followed by results from the research. Survey results are generally discussed first, followed by findings from the analysis of 110 consented plans and the 20 in-home immersions (refer to Chapter 3 for more detail on the research methods and sample). The order in which research results are discussed varies, with Section 1 following this approach, and the following sections organised slightly differently.

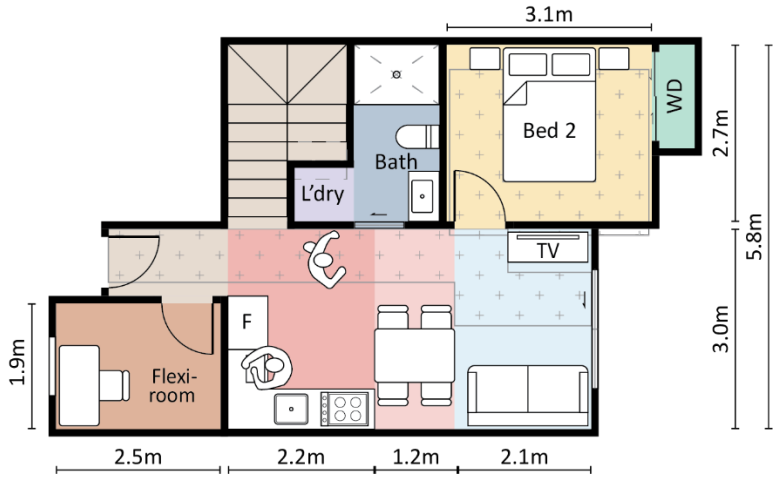
Section 4 is a summary, drawing together the research results presented in this chapter.

1 Indoor spaces intended for ‘living’

Spaces inside a home that are intended for ‘living’ include kitchens, dining spaces, lounges and any additional spaces such as flexi-rooms or studies.[1] Garages, while not intended to be living spaces, are found to act as important spaces for living, storage and household tasks such as laundry.

Open plan living spaces that include a kitchen, dining space and lounge are common in New Zealand homes. However, not all homes have one open plan living space. Kitchens, dining spaces and lounges can be physically separated by walls and doors. The two floor plans below illustrate the difference between an open plan kitchen, lounge, dining space (Figure 1) and a home that has these spaces separated by walls (Figure 2). Both open plan and separated layouts are defined as one living space in this study.

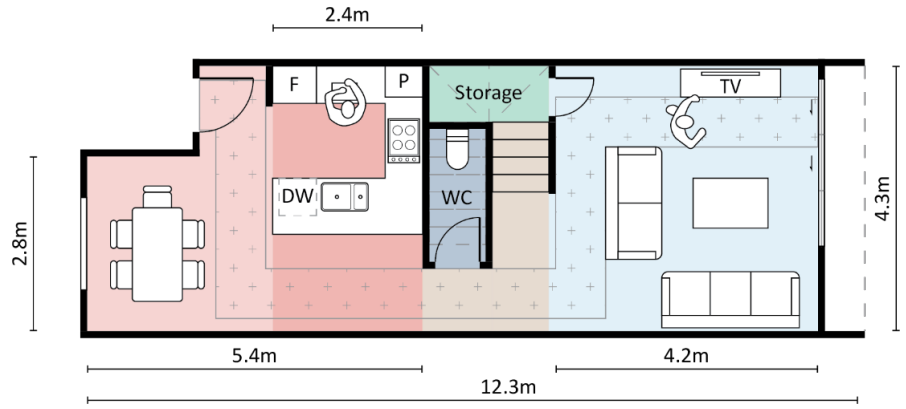
Figure 1: Example of an open floor plan where the kitchen, dining space and lounge are in one space



Note: The lounge area (blue) is not physically separated from the kitchen (red) and dining space (pink). This home also includes a flexi-room. This flexi-room would be classified as a secondary living space that could be used for a range of activities including computer work (as a study/office), for hobbies, for storage or for play.

[1] In this report, the term ‘lounge’ is used instead of ‘living room’ to distinguish this space from other spaces in the home where living activities can occur, such as spare bedrooms, flexi-rooms, family rooms, garages, etc.

Figure 2: Example of a floor plan that has the kitchen and dining space separate from the lounge



Note: The lounge area (blue) is physically separated from the kitchen (red) and dining space (pink) by the stairs (brown) and associated walls.

1.1 Regulations and best practice guidance

There is variation in guidance and regulations within New Zealand and Australia on indoor spaces for living depending on whether and how these spaces are combined. Combined kitchen, dining and lounge spaces guidance is considered first. This is followed by guidance related to kitchens (which are sometimes combined with dining spaces), dining spaces (which are sometimes combined with lounges), and lounges. As an alternative to space size, some guidelines focus on functional requirements of spaces such as the length of a kitchen bench (see Section 1.1.2 on kitchens).

Guidelines for sizes of rooms or spaces in a home are often determined by the number of bedrooms as this is used as a proxy for the number of people in a household. Consequently, the recommended size of spaces tends to increase with the number of bedrooms.

The Auckland Unitary Plan (AUP) does not specify minimum room sizes, so is excluded from this section. It is worth noting, however, that the AUP includes policies, standards and assessment criteria to "ensure that dwellings are functional and of a sufficient size to provide for the day to day needs of residents, based on the number of occupants the dwelling is designed to accommodate".[2]

Likewise, Section 35 monitoring of the AUP did not undertake analysis of internal rooms and spaces, and so is not included in this section.

1.1.1 Kitchen, dining and lounges

Open plan spaces that include a kitchen, dining space and lounge are common in medium density housing (MDH). Best practice guidance varies on how these spaces are defined and therefore how guidance is applied, as outlined below.

Auckland Design Manual (ADM) and best practice guidance

The table below sets out best practice guidance for the total combined living spaces in a home, where relevant. The *Auckland Design Manual* (ADM) specifies a 'target occupancy' of two people per bedroom.[3] The Ministry of Housing and Urban Development's *Public Housing Design Guidance* and

[2] E.g. AUP Mixed Housing Urban Policy H5.3(5)(a) and Minimum Unit Size H5.6.16 Purpose Statement.
[3] *Auckland Design Manual*. Terraced Housing Design. Section 7.6.1. Living and Dining Spaces.

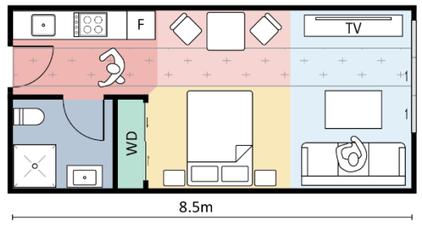
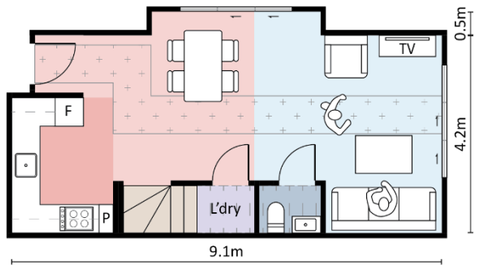
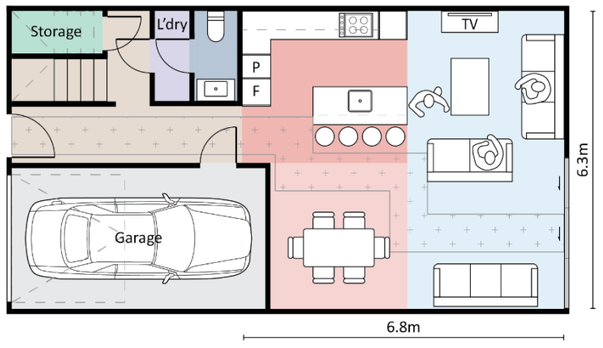
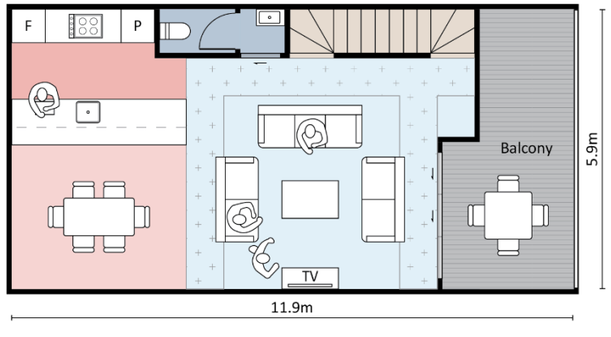
Kāinga Ora *Ngā Paerewa Hoahoa Whare Design Requirements* (hereafter referred to as the Kāinga Ora Design Requirements) also assume an occupancy of two people per bedroom. [4, 5]

The ADM uses a net internal floor area measure (exclusive of internal and external walls), which corresponds to usable floor area. However, the Kāinga Ora Design Requirements and the Ministry's Public Housing Design Guidance both use gross floor area (inclusive of walls), but exclusive of halls, entry lobbies and corridors. It is therefore difficult to make a direct comparison between the figures (Table 1).

Australian guidelines take a different approach, providing minimum widths and dimensions only for lounge and dining spaces (exclusive of kitchens) and so is excluded from Table 1; see Table 4 for Australian guidelines on lounges and dining spaces.

[4] Ministry of Housing and Urban Development (2023). *Public Housing Design Guidance for Community Housing Providers and Developers*.
[5] Kāinga Ora Homes and Communities (2024). *Ngā Paerewa Hoahoa Whare Design Requirements for Public Housing*.

Table 1: Recommended minimum floor areas for kitchen, dining, and lounge floor areas

Number of bedrooms and intended occupancy	**Example floor plans to illustrate minimum recommended net ADM floor area for kitchen, dining and lounge** (These example floor plans are included in effort to assist the reader in visualising the ADM's minimum recommended floor areas and room widths)	**Auckland Design Manual (minimum net floor area and minimum width)**	**Public Housing Design Guidance (minimum gross floor area)**	**Kāinga Ora Ngā Paerewa Hoahoa Whare Design Requirements (minimum gross floor area)**
Studio 1-person occupancy	 Lounge - 9.8m² Kitchen - 5.6m² Dining - 4.2m² Total Net Kitchen, Dining & Lounge Space - 19.6m²	16.1m² and 3.8m	N/A	N/A
1 bedroom 2-person occupancy	 Lounge - 15.7m² Kitchen - 6.1m² Dining - 12.4m² Total Net Kitchen, Dining & Lounge Space - 34.2m²	30.8m² and 3.8m	27m²	27m² (excluding halls, entry lobbies and corridors)
2 bedrooms 4-person occupancy	 Lounge - 21.0m² Kitchen - 11.3m² Dining - 8.9m² Total Net Kitchen, Dining & Lounge Space - 41.2m²	37.2m² and 3.8m	36m²	36m² (excluding halls, entry lobbies and corridors)
3 bedrooms 6-person occupancy	 Lounge - 27.4m² Kitchen - 10.0m² Dining - 11.3m² Total Net Kitchen, Dining & Lounge Space - 48.7m²	44.2m² and 3.8m	46m²	46m² (excluding halls, entry lobbies and corridors)

Note: 'Net' floor area is defined in the AUP as the floor space between the finished surfaces of internal walls between rooms and excludes the width of walls, balconies or decks, parking and garages. 'Gross' floor area is defined as the sum of the area of all floors measured from the exterior faces of the exterior walls, or from the centre line of walls separating two activities, but excluding carparking and voids. 'Studio' describes a home in which the bed is in the same space as the kitchen, lounge and dining areas; i.e. there is no separate bedroom.

Sources:

- *Auckland Design Manual*, R6: Residential Design Element Unit Layout and Room Sizes.
- Ministry of Housing and Urban Development. (2022). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Table 2.
- Kāinga Ora Homes and Communities (2024). *Ngā Paerewa Hoahoa Whare Design Requirement* (Version 1.1), Table B2.1-1.

1.1.2 Kitchens

Kitchens should provide sufficient space for cooking, cleaning, food preparation and storage. Where dining is included within a kitchen (e.g. a breakfast bar), adequate bench space should also be provided.

Auckland Design Manual (ADM) and best practice guidance

The ADM recommends minimum combined kitchen and dining room sizes based on the number of bedrooms (and therefore anticipated number of occupants) (Table 2).

Table 2: ADM recommended minimum kitchen and dining space requirements

Number of bedrooms	Auckland Design Manual (net floor area)
Studio	5.1m^2
1 bedroom	10.8m^2
2 bedrooms	13.2m^2
3 bedrooms	16.2m^2

Note: 'Studio' describes a home in which the bed is in the same space as the kitchen, lounge and dining areas; i.e. there is no separate bedroom.

Source: *Auckland Design Manual*. R6: Residential Design Element Unit Layout and Room Sizes.

An alternative approach to floor area taken in other New Zealand guidelines is a minimum kitchen bench length and other storage requirements. For example, the Ministry of Housing and Urban Development's Public Housing Design Guidance provides detailed guidance on kitchen space requirements for each element of a kitchen relative to the number of bedrooms,[6] (Table 3).

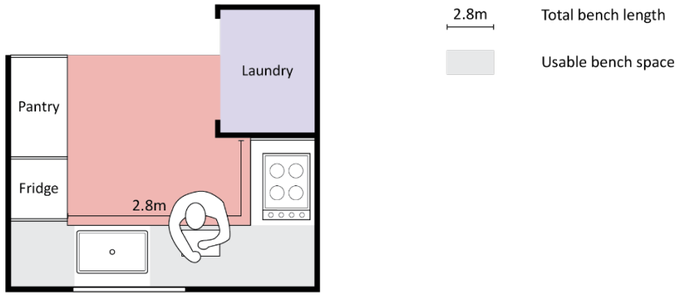
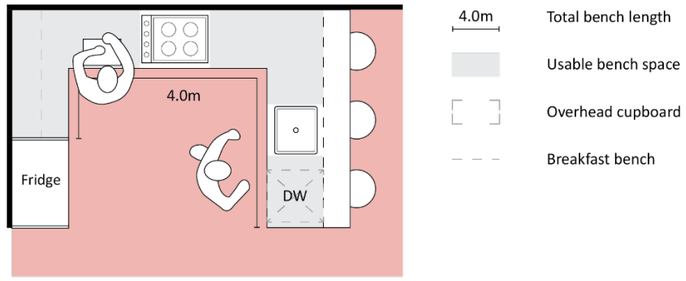
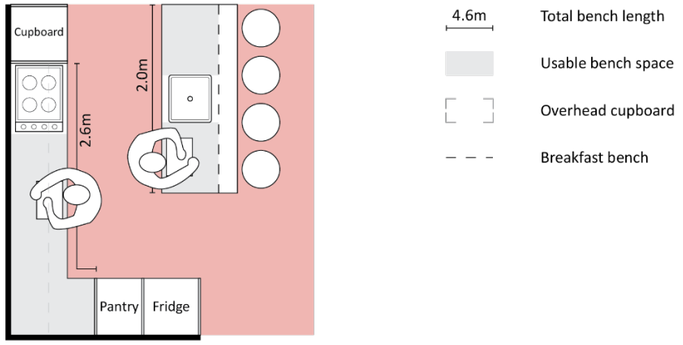
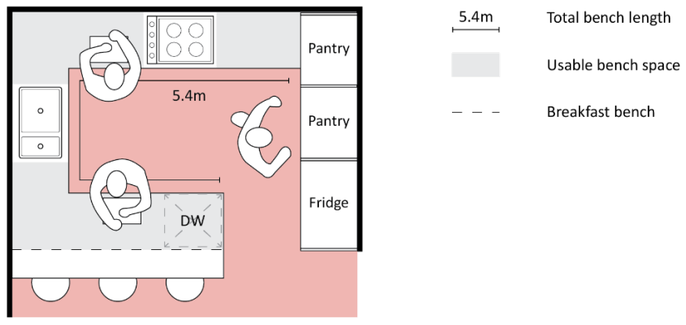
The Design Requirements have similar standards to the Public Housing Design Guidance. Technical guidance for kitchen design also includes:

- 1.2m clearance between benches/appliances and main thoroughfare
- provide an external window and natural ventilation and daylight
- fridge space is dimensionally appropriate for the unit size
- minimum pantry height of 2m and depth of 0.6m
- provide a location for refuse and recycling.

The two NSW guidelines considered in this study do not specify minimum kitchen metrics. The Victoria Apartment Design Guidelines requires an assessment as to the useability, functionality and amenity of kitchen, dining and living areas .[7]

[6] Ministry of Housing and Urban Development (2022). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Section 4.4, Table 3.
[7] State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines,* Section 3 – Dwelling Amenity.

Table 3: MHUD Public Housing Design Guidance for Kitchens

Number of bedrooms	Example kitchen plans to illustrate total bench lengths	Total bench length	Pantry (width)	Drawers	Fridge
1 bedroom		2.65m	0.45m	1 bank	750mm (W) x 700mm (D) x 2000mm (H)
2 bedrooms		2.65m	0.45m	1 bank	
3 bedrooms		4.05m	0.6m	2 banks	
4 bedrooms		4.65m	0.6m	2 banks	750mm (W) x 850mm (D) x 2000mm (H)
5 bedrooms		5.4m	0.9m	2 banks	

Source: Ministry of Housing and Urban Development (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Kitchens, Table 3.

Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

- limited kitchen functionality, including pantry storage and bench space for the intended number of occupants
- provision of a pantry space is not common, with only limited cupboard or drawer space to accommodate crockery, pots/pans, cutlery and food
- AUP requirements for passive surveillance or 'eyes' overlooking the street or communal accessways means that provision of a window from the kitchen can reduce opportunities for wall-mounted storage cupboards or large appliances such as fridges, particularly for narrow (~4m wide) terraced dwellings.

The images below illustrate some of these issues. Figure 3 and Figure 4 show the same kitchen layout in two properties. There is no space in this kitchen layout for a fridge and cabinetry does not include a pantry. Figure 3 shows a fridge and cabinet in what is intended to be the dining area and Figure 4 shows kitchen cabinets have been added to accommodate a fridge and create a pantry.

Figure 3: Kitchen example A

Figure 4: Kitchen example B

Source: TMDO, Auckland Council

Figure 5 shows a similar kitchen layout, for a 4-bedroom terraced house; again there is no space for a fridge or pantry. There are two under-bench corner cupboards intended for crockery, pots and pans, and one cupboard either side of the rangehood. There are no drawers, including no drawer for cutlery. The design of the street-facing window limits the inclusion of wall-mounted cupboards. Alternative window arrangements, such as sidelight windows or horizontal windows can provide for both passive surveillance opportunities and wall-mounted storage.

Figure 5: Kitchen without space for a fridge, a pantry or any drawers

Source: TMDO, Auckland Council.

1.1.3 Dining

Dining spaces should be able to seat the number of intended occupants at a table and allow circulation space around chairs (including when in use). More informal dining arrangements, such as eating at the kitchen bench or a breakfast bar, are also possible.

Auckland Design Manual (ADM) and best practice guidance

The ADM recommends a minimum combined kitchen and dining room space based on the number of bedrooms and therefore intended number of occupants, as set out in Table 2 above. A similar approach is taken in the Public Housing Design Guidance, which recommends that dwellings provide for a dining space that can seat the number of occupants at a table (assuming up to two people per bedroom). The Apartment Design Guidelines for Victoria require that dining areas provide for functional arrangements appropriate to the apartment size and number of bedrooms.

The NSW Apartment Design Guide provides guidance for lounge or combined dining and lounge areas, which is a different approach to the ADM which combines kitchen and dining. The NSW Guide recommends a minimum lounge or combined dining and lounge width of 3.6m for 1-bedroom apartments and 4m for 2- and 3-bedroom apartments. The NSW Low Rise Housing Design Guidance also combines dining with a lounge and recommends a minimum of 24m^2 for 1- and 2-bedroom dwellings, and 28m^2 for dwellings with 3 or more bedrooms.

The ADM also provides guidance on typical dining table, chair and circulation space requirements.[8]

[8] *Auckland Design Manual*, Terraced Housing Design. The Building, Section 7.6.1.

Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

- Dining spaces are a transitional space between the kitchen and lounge area, often compromising the functionality of each space, and the movement between them.
- Space provided for dining tables is often not of sufficient size to accommodate the intended occupancy or visitors.
- Dining tables are often placed against a wall or storage cupboard, or within kitchen circulation and preparation space, with inadequate circulation space or space to sit comfortably at the table.

1.1.4 Lounges

Lounges should accommodate seating for the intended number of occupants in the dwelling and visitors.

Auckland Design Manual (ADM) and best practice guidance

The ADM recommends a minimum lounge size based on the number of bedrooms and therefore anticipated occupancy. To allow easy movement through rooms, the minimum width of lounges and dining spaces, including circulation space, is recommended to be no less than 3.8m. Circulation space of at least 800mm is recommended around furniture and fittings.

A similar approach is adopted in the NSW and Victoria design guides (Table 4). The minimum recommended lounge sizes are relatively consistent between the ADM and NSW *Low Rise Housing Diversity Guide*, with the latter also including a minimum dimension of 4m. However, the NSW guidelines apply to both a lounge and a lounge and dining space combined. The NSW Apartment Design Guide provides only a minimum width for either a lounge or lounge and dining space combined (no floor area recommendation).

The Victoria Apartment Design Guide has a smaller floor area for lounges than the ADM, but also recommends a minimum room dimension.

The Public Housing Design Guidance and Kāinga Ora Design Requirements recommend a minimum combined floor area for kitchens, dining spaces and lounges (described previously in Table 1). The Public Housing Design Guidance also recommends that the space is sufficient to accommodate lounge seating for the number of occupants in the dwelling, assuming two occupants per bedroom.

Table 4: Minimum recommended lounge floor area and width, ADM and Australian examples

Number of bedrooms	**Auckland Design Manual** (net area for lounge only and minimum width)	**NSW Apartment Design Guide** (lounge or combined lounge and dining space minimum width)	**NSW Low Rise Housing Diversity Design Guide** (combined lounge and dining space net area and minimum dimensions)	**Victoria Apartment Design Guide** (net area for lounge only and minimum dimensions)
Studio	11m² and 3.8m	3.6m for studio and 1-bedroom apartments 4m for 2- and 3-bedroom apartments	N/A	10m² and 3.3m
1 bedroom	20m² and 3.8m		24m² and 4m	10m² and 3.3m
2 bedrooms	24m² and 3.8m		24m² and 4m	12m² and 3.6m
3 bedrooms	28m² and 3.8m		28m² and 4m	12m² and 3.6m

Sources:

- *Auckland Design Manual,* R6: Residential Design Element Unit Layout and Room Sizes.
- New South Wales Department of Planning and Environment (2015). *Apartment Design Guide*, Part 4 Designing the Building, Section 4D.
- New South Wales Department of Planning and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Section 2.3K Terrace Dwelling Size and Layout, Design criteria 76 and 77.
- State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines for Victoria*. Section 3 – Dwelling Amenity. Table D8.

Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

- Lounges can also function as transitional spaces such as the front entrance to the dwelling, but with no additional space for shoes/jackets/bags, etc.
- Lounge spaces are typically sized to accommodate a couch and TV cabinet, often meaning that there is insufficient space for all occupants to sit in the lounge or accommodate visitors. Couches are also often placed against ranch sliders or windows, blocking outlook and/or access to outdoor living spaces.
- A second living space in the form of a flexi-room on the first or ground floor is often recommended for 3+ bedroom homes, so that there are additional spaces for living for occupants.
- Combined kitchen, dining and lounge spaces typically do not increase proportionately with the number of bedrooms and therefore anticipated number of occupants. Additional bedrooms are being 'stacked' on upper levels of terraced houses with no corresponding increase in living spaces.

1.2 Survey results: Number and sizes of spaces for living

This section presents the results from the survey concerning indoor spaces for living. The first section describes the number of spaces for living in a home. A kitchen, lounge and dining space comprise one 'living space' in this study. Additional living spaces are flexi-rooms which can serve a range of functions, such as a study, hobby space, media room or playroom.

Kitchens are covered in Section 1.2.2, followed by dining spaces in Section 1.2.3, and finally lounges and flexi-rooms in Section 1.2.4.

1.2.1 Number of spaces for living

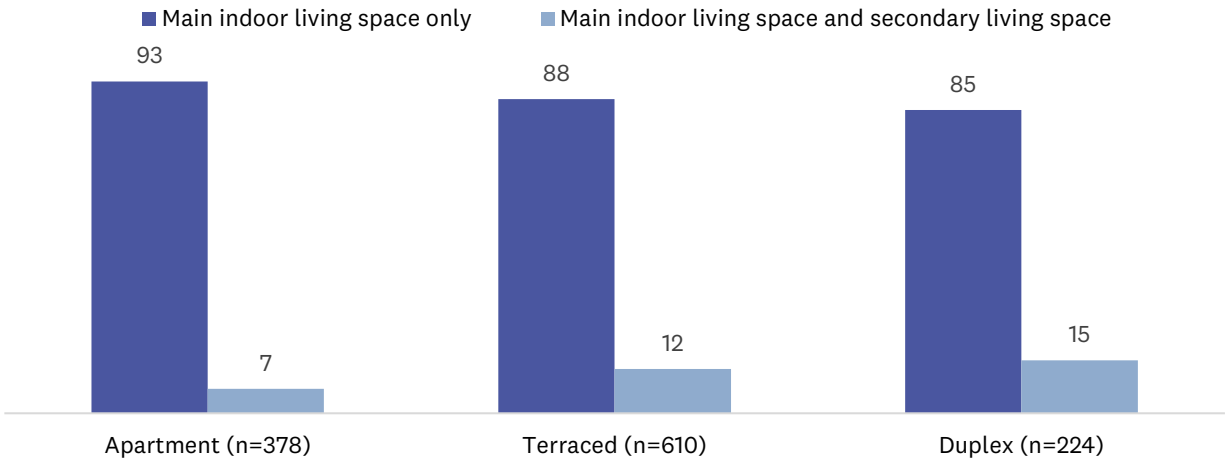
The survey participants were asked to indicate the types of spaces and rooms that were part of their home, including the presence of a 'main indoor living space' (the question wording suggested that this might include a lounge, dining and kitchen), as well as any second or third indoor living spaces (i.e. flexi-rooms).[9]

Participants who reported only having a main living space are interpreted to have one kitchen, lounge and dining space in their home. Those who reported having a secondary living space are interpreted as having one or more flexi-rooms.

Most of the properties in the survey (89 %) were reported as only having a main living space. Eleven per cent of properties were reported to have a second living space (i.e. flexi-room), and three homes had a third living space.

As Figure 6 below shows, the majority of apartments (93%) were reported to have only a main indoor living space (i.e. kitchen, dining and lounge) and seven per cent to have a second living space (i.e. flexi-room). Terraced houses (12%) and duplexes (15%) were more likely than apartments (7%) to have a second living space.

Figure 6: Main and secondary indoor living spaces, by typology (%)

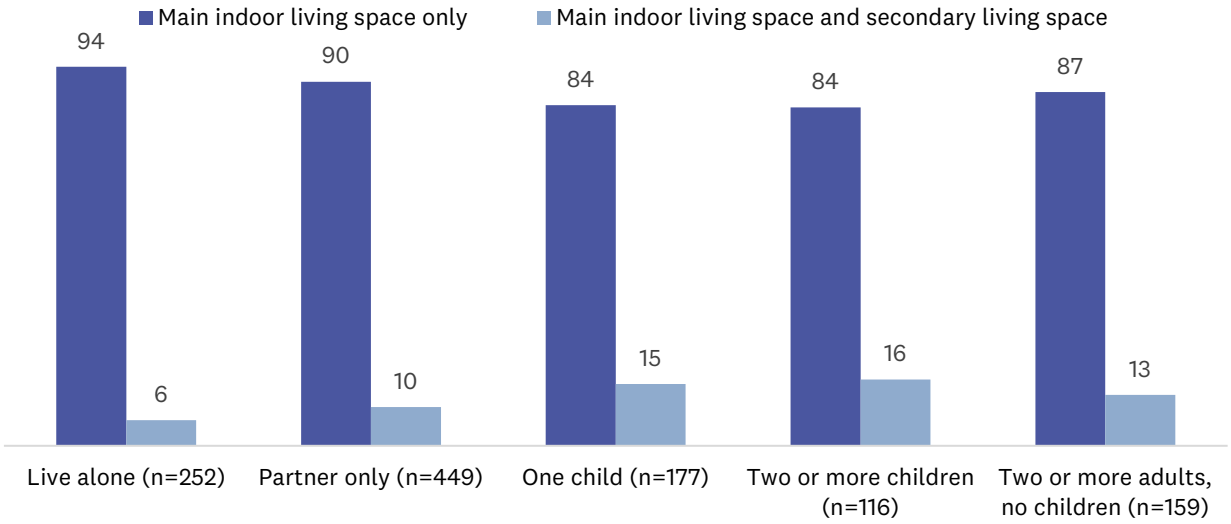


Note: Due to very small numbers, results for third indoor living spaces are not shown in the chart.

[9] Note: It is possible that spaces in a home reported to be second or third indoor living spaces may originally have been nominated on consented plans as bedrooms, garages or study spaces, but are used as extra 'living spaces' by participants.

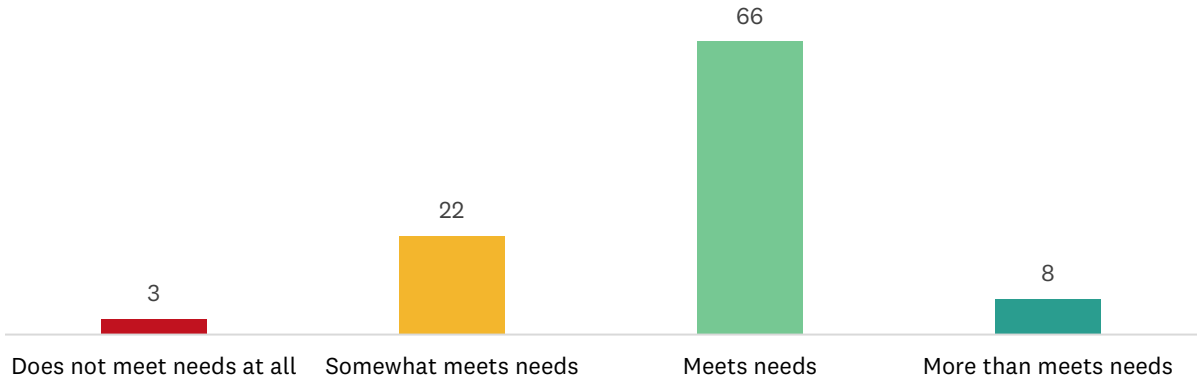
There were minimal differences in results by household composition. Households with children were more likely to live in a property that had a main and a secondary living space (one child, 15%; two or more children, 16%) compared with those who live alone (6%) (Figure 7).

Figure 7: Main and secondary indoor living spaces, by household composition (%)



Participants were asked to rate how well the number of indoor living spaces meets the needs of the household. As Figure 8 shows, two-thirds (66%) reported the number of spaces meets the needs of the household while 22 per cent said it 'somewhat' meets their needs. No significant differences in satisfaction were found across different numbers of living spaces in the home.

Figure 8: Participant ratings of how well the number of indoor living spaces meets the needs of the household (n=1335) (%)



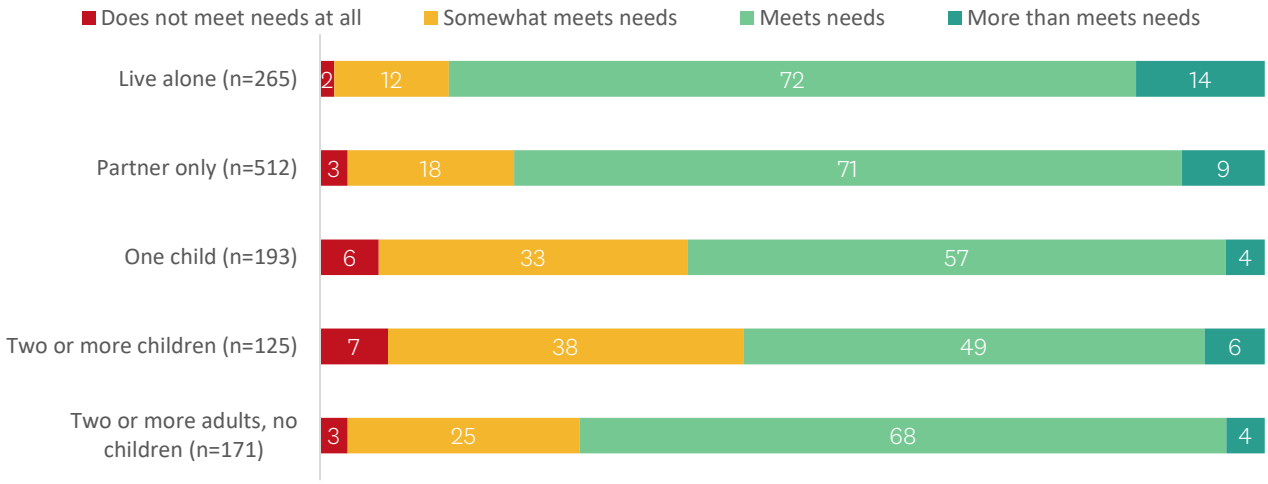
Larger households were more likely than smaller households to report the number of indoor living spaces 'does not meet' their needs. For example, just over a third (35%) of households with three people and 33 per cent of households with four or more people stated that the number of indoor living spaces 'somewhat meets the needs', compared with 17 per cent of one-person and 18 per cent of two-person households.

Very few (1%) one-person households reported that the number of living spaces 'does not meet needs at all'. This figure compares with 5 per cent of households with three people, and 7 per cent of households with four or more people.

As Figure 9 shows, there is variation in how well the number of indoor living spaces is meeting needs across household compositions.

Households where participants live alone (72%) or with a partner only (71%) were significantly more likely to report the number of indoor living spaces meets the needs of the household compared with households with one child (57%) or two or more children (49%). Households with children (one child, 33%; two or more children, 38%) were significantly more likely to report the number of indoor living spaces 'somewhat meets needs' compared with those who live alone (12%) or with a partner only (18%).

Figure 9: How well the number of indoor living spaces meets the needs of the household, by household composition (%)

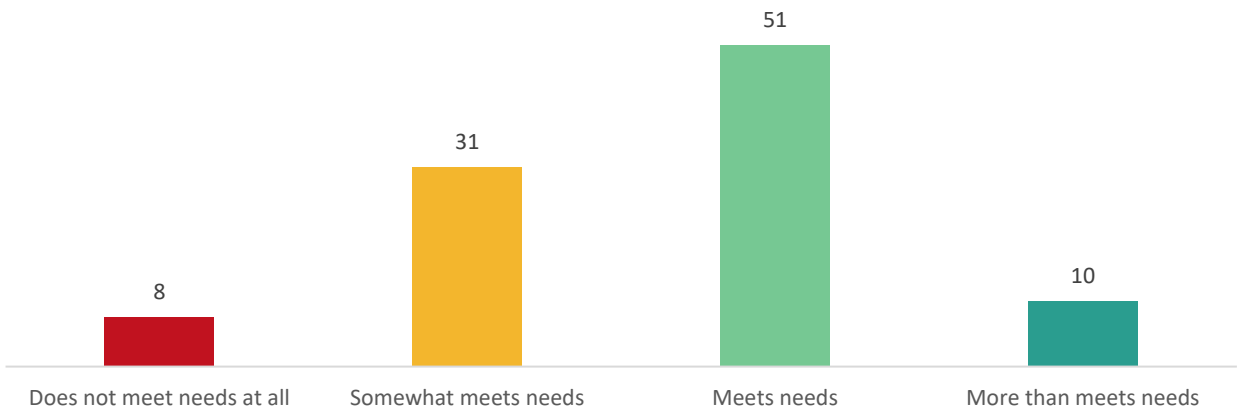


1.2.2 Kitchens

Participants were asked how well the size of their kitchen, including the bench space, meets the needs of the household.

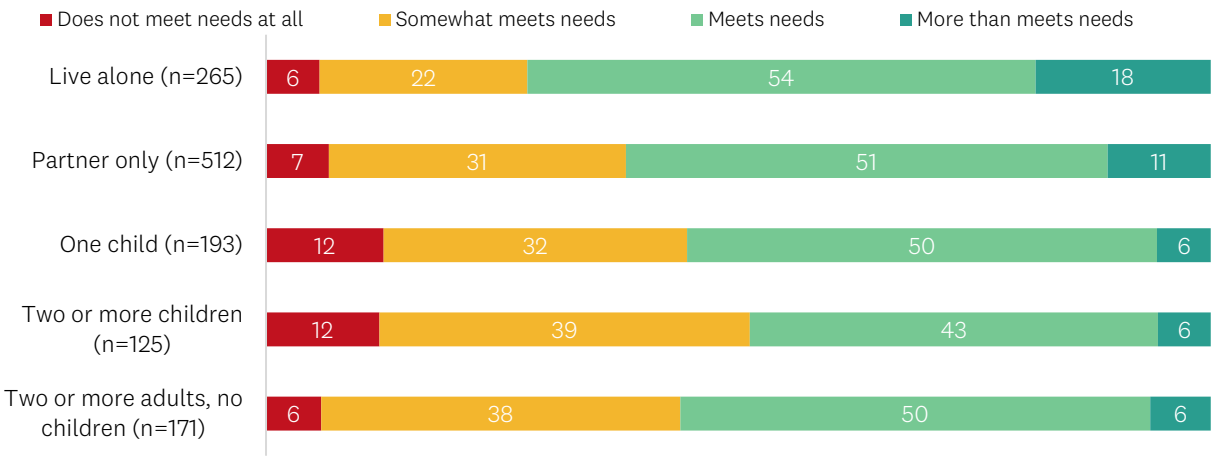
Half (51%) reported the size of the kitchen meets the needs of the household while 31 per cent reported it 'somewhat meets needs' and 8 per cent said it 'does not meet needs at all'.

Figure 10: Participant ratings of how well the size of the kitchen meets the needs of the household (n=1335) (%)



There were some differences by household composition. Participants living alone (18%) were more likely to report that the size of their kitchen 'more than meets the needs' compared with any other household composition. However, over one in ten households with children (12% for both one child and two or more children) stated the kitchen size did 'not meet their needs at all'.

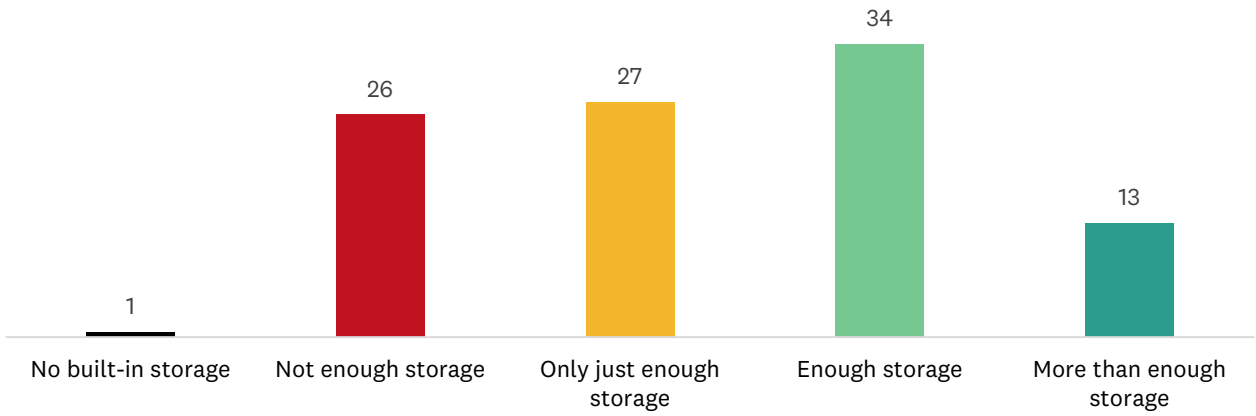
Figure 11: How well the size of the kitchen meets the needs of the household, by household composition (%)



Kitchen storage

Participants were asked to rate the amount of built-in storage in their kitchen for food and equipment (e.g. pots, appliances, microwave). A third (34%) reported having 'enough storage', 27 per cent reported having 'only just enough' and 26 per cent reported having 'not enough storage'.

Figure 12: Participant ratings of the amount of built-in storage in the kitchen for food and equipment (n=1330) (%)



Participants were asked if they had made changes to their kitchen, such as adding an island bench or storage cabinet. Seventeen per cent of participants who had made at least one change to their home reported having made a change to their kitchen. [10]

[10] Question 26 also asked participants whether they had made changes to the kitchen (Chapter 4); to improve privacy (discussed in Chapter 7); to increase storage, e.g. chest of drawers or storage cupboard (79% of participants who had made

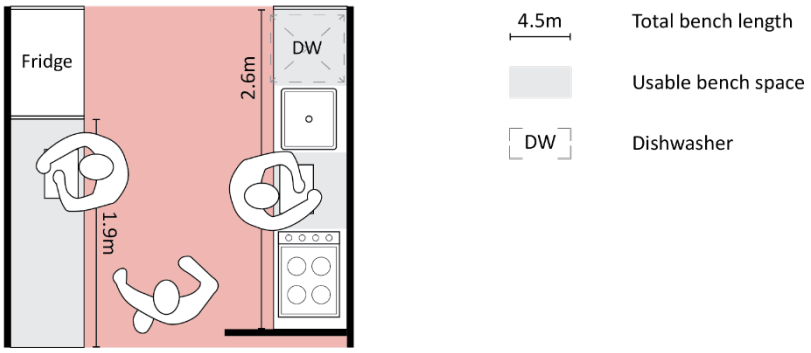
Participants' comments about kitchens

A small number of participants (n=39) commented on aspects of their kitchen in response to a question asking what they like least about their home.

In some of these comments, participants describe the size of the kitchen overall as an issue:

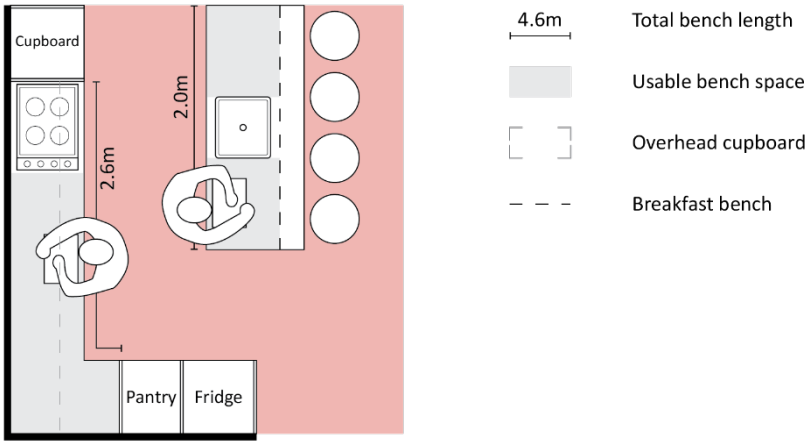
Very small kitchen area.

(7.8m^2 floor area
actual plan of kitchen in participant's home from consented plans)



Kitchen and living/dining areas are relatively small; i.e. it becomes crowded in the kitchen even when only 2 people are in it.

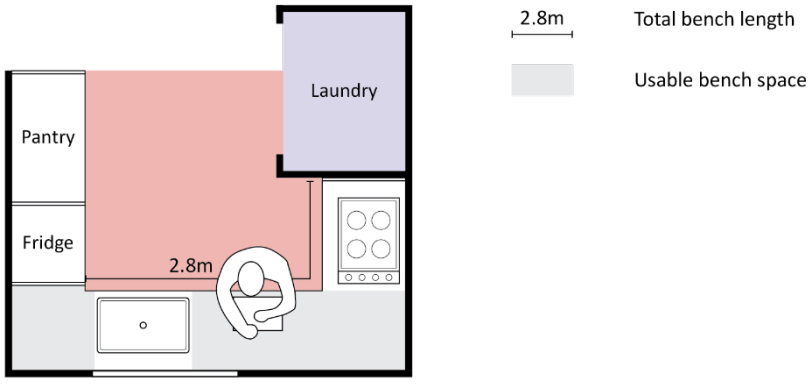
(8m^2 floor area
actual plan of kitchen in participant's home from consented plans)



A few mentioned a lack of kitchen bench space. One participant living in a household with three adults and a kitchen bench 2.8m in length (from consented plans) commented:

The kitchen is small and has very limited bench space.

(5.2m^2 floor area"
actual plan of kitchen in participant's home from consented plans)

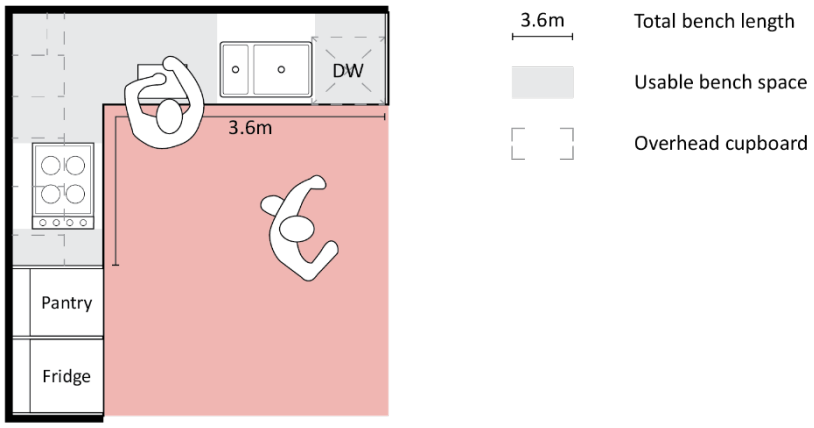


a least one kind of change); to permanently repurpose a room (13% of participants who had made a least one kind of change); improve accessibility (3% of participants who had made at least one kind of change), or changes to anything else. The participants could also indicate that they intended to make changes or that they had made no changes and had no intention to. Just over three-quarters (78%) stated they had made at least one kind of change to their dwelling since they had moved in.

Another participant living in a home with two adults and a kitchen bench 3.6m in length (from consented plans) commented:

Insufficient kitchen bench space and food storage space.

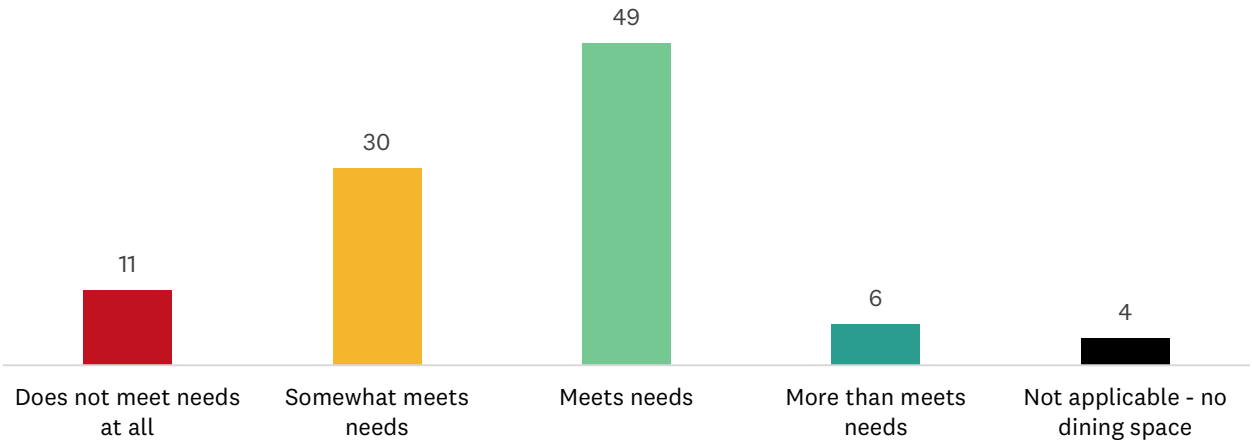
(actual plan of kitchen in participant's home from consented plans)



1.2.3 Dining spaces

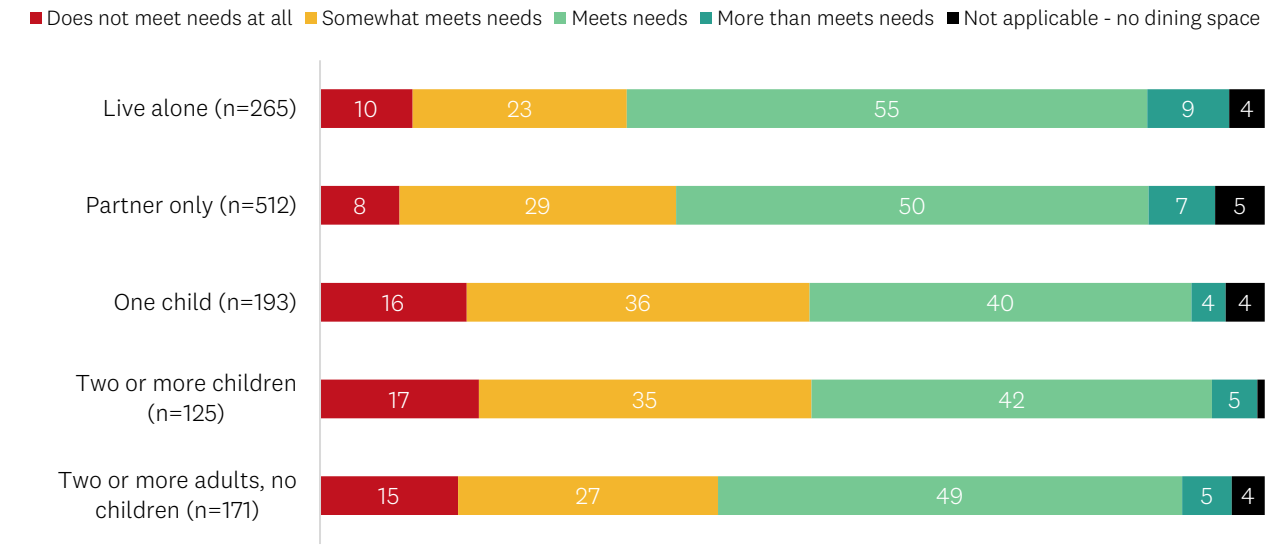
Participants were asked how well the size of the 'dining room/space for a dining table' meets the needs of the household. Close to half (49%) reported this space meets the needs of the household, 30 per cent said it 'somewhat meets needs' and 11 per cent said it 'does not meet the needs at all'. A small proportion (4%) reported they do not have a dining space in their home.

Figure 13: Participant ratings of how well the size of the dining space meets the needs of the household (n=1335) (%)



How well the size of a dining space meets the needs of the household did not vary significantly by household composition. Close to half of the participants who live alone (55%), with a partner only (50%) or in a household with two or more adults and no children (49%) reported the size of the dining space meets the needs of their household. Meanwhile, closer to four in ten participants in households with children reported that the size of the dining space meets their needs (40% of households with one child, 42% of households with two or more children).

Figure 14: Participant ratings of how well the size of the dining room/space for a dining table meets the needs of the household, by household composition (%)



A few participants, when explaining why it is uncomfortable to do activities important to them in their home, commented about a lack of space for dining and hosting guests:

> *Lack of space. No room for a dining table for when we have guests for a meal.*

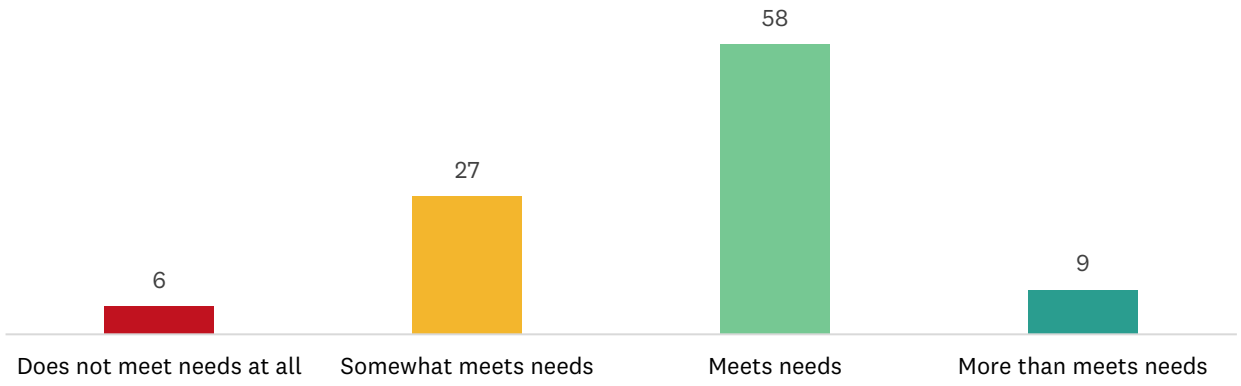
> *Area around indoor are not spacious to host family and friends gathering.*

See Section 1.4 in this chapter for more detail on activities in the home.

1.2.4 Lounges and additional living spaces

Participants were asked to rate how well the size of their lounge or living room meets the needs of the household. As shown in Figure 15, over half (58%) said the size of their lounge meets the needs of the household, while 27 per cent reported it 'somewhat meets needs'.

Figure 15: Participant ratings of how well the size of the lounge or living room meets the needs of the household (n=1335) (%)



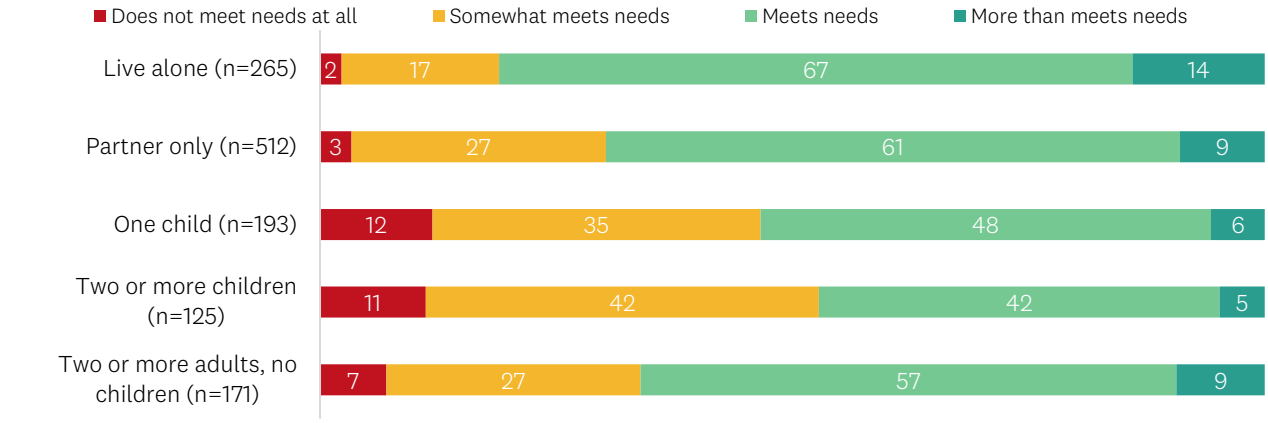
Unlike kitchen space, there were several differences in lounge space by household composition. Relatively large proportions of participants who live alone (81%) or with a partner only (70%) reported the size of the lounge 'meets' or 'more than meets' their needs. In comparison, 54 per cent

of participants in a household with one child and 47 per cent of participants in a household with two or more children reported the size of the lounge 'meets' or 'more than meets' their needs.

As Figure 16 shows, households with children (one child, 12%; two or more children, 11%) were more likely to report that the size of the lounge 'does not meet needs at all' compared with those who live alone (2%) or with a partner only (3%).

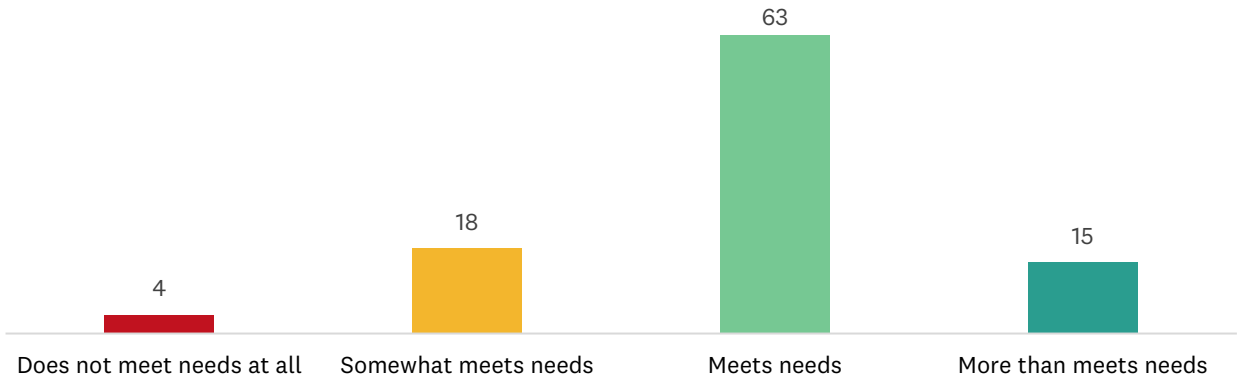
This result may be influenced by a lack of spare bedrooms or additional spaces, which places greater pressure on the only lounge space in the home. Larger households were more likely to have all bedrooms being used as a bedroom in their home, resulting in no spare bedrooms to be used as an additional living space (e.g. as a study, hobby space, playroom, media room). (See also Section 2.2 in this chapter for the research findings on bedrooms.)

Figure 16: Participant ratings of how well the size of the lounge or living room meets the needs of the household, by household composition (%)



Participants were also asked how well the size of any additional living spaces, such as a playroom or office/study, meets the needs of the household. As discussed in Section 1.2.1, the proportion of properties with additional living spaces was relatively small. However, 78 per cent of participants in this group reported the size of additional living spaces 'meets' or 'more than meets' the needs of the household, while 18 per cent reported the size 'somewhat meets needs', and 4 per cent that the size 'does not meet needs at all'.

Figure 17:Participants' ratings of how well the size of their additional living space meets the needs of the household (n=140) (%)



Note: Base is all participants with an additional living space in their home.

1.3 Consented plans: Number and sizes of spaces for living

As described in Chapter 3, this study included analysis of the consented floor plans for 110 properties whose residents had participated in the survey. The largest number of plans were for terraced houses (58%), followed by apartments (24%) and duplexes (18%). A total of 117 survey responses were received from these 110 properties.

Nearly all (95%) of the consented plans in the sample showed an open plan kitchen, dining and living space. Five of the six properties without an open plan living space were terraced houses and one was a duplex. These properties had walls or other physical structures such as stairwells that divided the kitchen, lounge and dining areas (for an example, see Figure 2).

All of the properties in the sample had a kitchen and lounge, and all but two properties had a dining space. Twenty-one properties (19%) had at least one additional living space. Nine properties (8%) had two additional living spaces. On consented plans, these additional spaces were annotated in a variety of ways, such as flexi-room, study or family room. All these spaces could be used in different ways, such as a study, media room, playroom, or hobby space.

The average sizes of spaces for living are compared with the ADM and other best practice guidance. As Section 1.1 explained, different guidelines provide guidance for different combinations of spaces or fixtures (e.g. kitchen bench length) in a home. This section is organised to align with guidance in the ADM, which provides minimum floor areas based on number of bedrooms for the following:

- combined kitchen, dining and lounge (Table 1)
- combined kitchen and dining (Table 2)
- lounge (Table 4).

Kitchen bench length is compared with the New Zealand Public Housing Design Guidance (Table 3).

1.3.1 Combined kitchen, lounge and dining areas

The average floor area for combined kitchen, lounge and dining spaces in this sample was found to be smaller than the recommended minimum floor area in the ADM.

Two-bedroom homes had an average kitchen, lounge and dining space of 30.2m^2, which is 7m^2 smaller than the ADM recommended minimum of 37.2m^2, and 3-bedroom homes had an average kitchen, lounge, dining space of 33.1m^2, which is 11m^2 smaller than the ADM recommended minimum of 44.2m^2 (Table 6). This finding is consistent with the TMDO observation of kitchen, lounge and dining spaces not increasing proportionally to the number of bedrooms.

Table 5: Net internal floor area for kitchen, lounge and dining space combined (m^2), by number of bedrooms

	Average of analysed consented plans	ADM minimum recommendation*
1 bedroom	—	30.8
2 bedrooms	30.2	37.2
3 bedrooms	33.1	44.2

Note: Values representing 30 or fewer properties are marked with a dash and have been excluded from the table.
Source: **Auckland Design Manual*. Residential Design Element R6: Unit Layouts and Room Sizes.

1.3.2 Kitchen and dining

The average net internal floor area for the kitchen and dining area across the 110 properties was 17.9m^2. There was variation across properties with the kitchen/dining space ranging from 4.5m^2 to 32m^2. The average net internal floor area of the kitchen and dining space for 3-bedroom homes (18.5m^2) was slightly higher than that of 2-bedroom homes (16.9m^2). This degree of increase is similar to the size difference between the minimum size recommended in the ADM for a 3-bedroom home (16.2m^2) and a 2-bedroom home (13.2m^2).

While the average size of the kitchen and dining space for properties included in the consented plans analysis are 2 to 3m^2 larger than the ADM minimum, this small difference could be due to the challenge in determining where the lounge part of an open plan kitchen, lounge, dining space ends and the kitchen and dining space begins. This is acknowledged as being a subjective distinction and so this small difference is interpreted to be primarily the result of measurement differences.

Table 6: Net internal floor area of kitchen and dining space (m^2)

	Average of analysed consented plans	ADM minimum recommendation*
1 bedroom	—	10.8
2 bedrooms	16.9	13.2
3 bedrooms	18.5	16.2

Note: Values representing 30 or fewer properties are marked with a dash and have been excluded from the table.
Source: **Auckland Design Manual*. Residential Design Element R6: Unit Layouts and Room Sizes.

Seven participants reported not having a dining space. Only two properties were noted as not having a dining space in the consented plans.[11] Of note, the participants living in these two properties without a dining space in the consented plans both reported the size of dining space 'does not meet needs at all', while the five other participants who reported not having a dining space did have a dining space in the consented plans of their homes. This could be due to dining spaces being absorbed into lounges or kitchens and not feeling like an intentional space for dining (for example,

[11] A 'dining space' was a classified for the purpose of this study as space for a dining table and chairs or a breakfast bar.

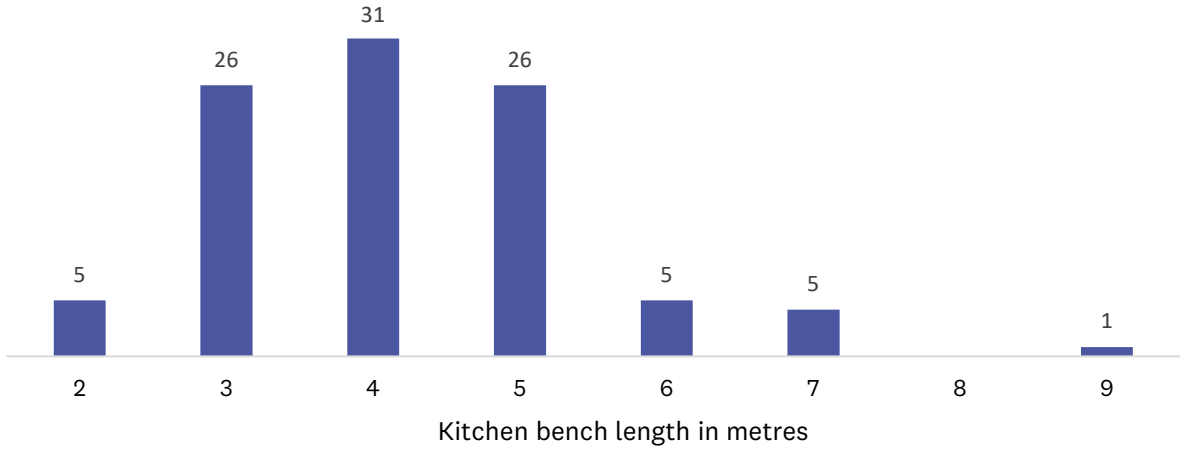
see the dining space in Figure 1 which could feel as though it is part of the lounge, and in Figure 43, which the participants used as kitchen bench and functions as part of the kitchen).

Kitchen bench

The average kitchen bench length in the 110 consented plans was 4.2m.[12] The smallest kitchen bench measured 1.9m and the largest measured 8.8m. Kitchen benches can be modified by households without a building consent and so it is possible that some participants have altered their kitchen benches following the consenting process.

The majority (83%) of kitchen benches were between 3m and 5m (Figure 18). Kitchen benches that include an island or peninsula have a longer linear length (average of 4.4m) than those without (average of 3.5m).

Figure 18: Kitchen bench length on consented plans (n=110) (%)



Comparing the average kitchen bench length in the consented plans with the New Zealand Public Housing Design Guidance shows that benches are longer than the recommended length. Little difference in bench length is found between 2- and 3-bedroom homes, with both groups having kitchen benches close to 4m in length, which is the recommended length for 3-bedroom homes (Table 7).

Table 7: Kitchen bench length (m), by number of bedrooms

	Average of analysed consented plans (metres)	New Zealand Public Housing Design Guidance recommendation (metres)*
1 bedroom	–	2.65
2 bedrooms	3.9	2.65
3 bedrooms	4.1	4.05

Note: Values representing 30 or fewer properties are marked with a dash and have been excluded from the table.

Source: *Ministry of Housing and Urban Development (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Table 3.

[12] Bench space includes sinks and oven hob space.

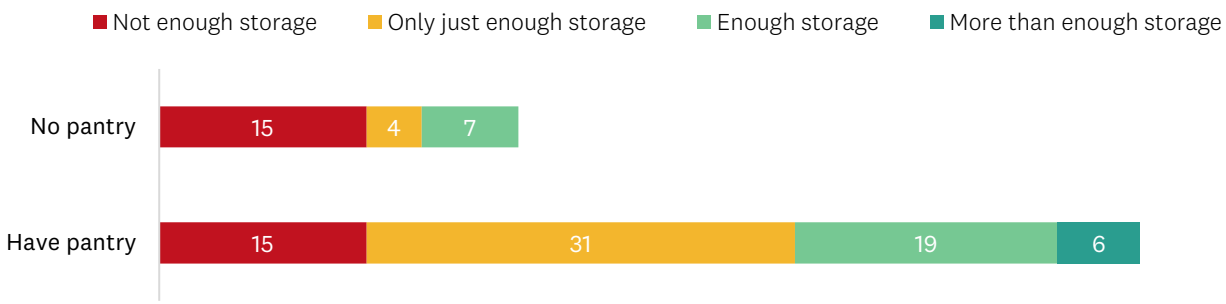
Kitchen storage: pantry

For the purposes of this study, a pantry is defined as a cupboard in the kitchen for the purpose of storing food. It usually contains several shelves and is from floor to ceiling in height.

A quarter (23%) of the consented plans did not include a pantry in the kitchen, nearly two-thirds (61%) had one pantry, and 5 per cent had two. The existence of a pantry could not be determined from the consent plans of 11 per cent of the properties.

In the survey, participants were asked to rate the extent to which there was enough built-in 'kitchen storage for food and equipment (e.g. pots, appliances and microwaves)'. As Figure 19 shows, participants living in properties without a pantry noted in the consented plans tended to rate built-in storage in their kitchen for food and equipment poorer than those who have a pantry. No participants in the sub-sample reported their kitchen to have no built-in storage. This result suggests the inclusion of a pantry in their kitchen is important for most households.

Figure 19: Participant ratings of the amount of built-in kitchen storage for food and equipment, by presence of pantry in consented plans (counts)

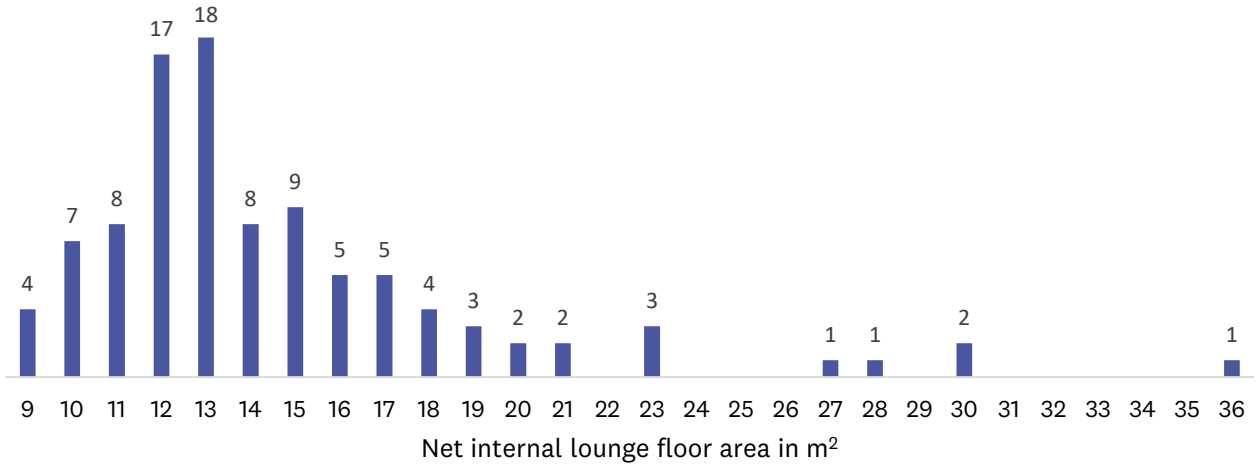


Note: The existence of a pantry could not be determined from the consent plans for 11 per cent of properties, so participant responses from these properties are not shown (n=13).

1.3.3 Lounge

The average size of a lounge in the consented plans was 14.5m^2. As Figure 20 shows, three-quarters of lounges were between 10m^2 and 16m^2.

Figure 20: Net internal floor area (m^2) of lounge (n=110) (%)



The average floor area for lounges is more than 10m^2 less than the ADM guidance for homes with 2- or 3-bedrooms. Two-bedroom homes have an average lounge area of 13m^2 compared with the ADM guidance of 24m^2, while 3-bedroom homes have an average lounge area of 15m^2 compared with 28m^2. To put this in context, an average sized bedroom with space for a queen bed and circulation around is 9m^2 (Figure 66).

Table 8: Net internal lounge floor area (m^2), by number of bedrooms

	Average of analysed consented plans	ADM minimum recommendation
1 bedroom	-	20
2 bedrooms	13	24
3 bedrooms	15	28

Note: Values representing 30 or fewer properties are marked with a – and have been excluded from the table.
Source: *Auckland Design Manual*, Residential Design Element R6: Unit Layouts and Room Sizes.

1.3.4 Additional living spaces

Twenty-one homes in the sample had an additional living space. Fourteen of these were classified as a study/office space (including study nooks) and the remaining six as other kinds of living spaces such as flexi-rooms.

Study or office spaces ranged in size from 2m^2 (a study nook in a hallway) to 9.1m^2 (a room with a door). Flexi-rooms, rumpus rooms or other kinds of spaces for living were larger than study spaces, ranging from 9.8m^2 to 19.7m^2.

1.4 Survey results: Uses of spaces for living

Participants were asked to indicate from a list of 13 possible options how different rooms and spaces in their home are used (they could also describe any other uses in an open-ended comment). [13]. For example, if participants indicated that their home included a 'main indoor living space', two bedrooms and a garage, they were asked how each of these spaces was used. The uses of indoor living spaces and garages are presented here. The uses of bedrooms are presented in Section 2.2.4.

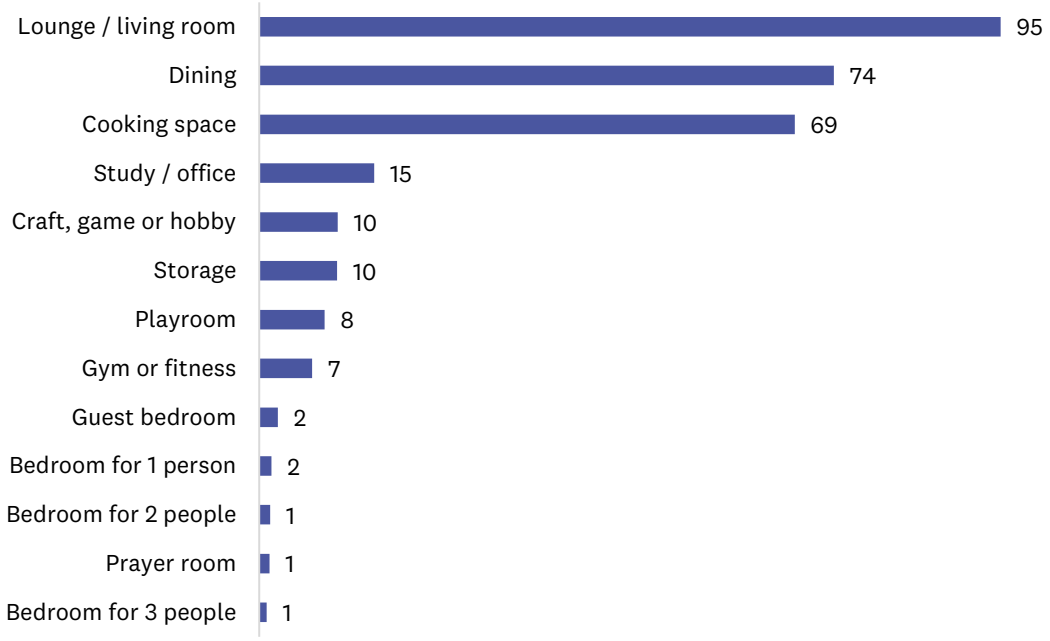
1.4.1 Indoor living spaces

As explained in Section 1.2, participants were asked to indicate the types of spaces and rooms that were part of their home, including the presence of a 'main indoor living space' (the question wording suggested that this might include a lounge, dining and kitchen), as well as any second or third indoor living spaces (i.e. flexi-rooms).[14] These additional living spaces might be used as a playroom, hobby space, study or media room.

[13] Survey question 18; refer to Appendix 5.
[14] Note: It is possible that spaces in a home reported to be second or third indoor living spaces may originally have been nominated on consented plans as bedrooms, garages or study spaces, but are used as extra 'living spaces' by participants.

Figure 21 shows results for uses of 'main indoor living spaces' among those who indicated their home had such a space. The most reported uses were as a lounge/living space (95%), for dining (74%), and for cooking (i.e. includes a kitchen) (69%). For those who reported using this space for dining, this might be describing a dining table and chairs or breakfast bar, while for others this may mean meals are eaten in the lounge area on a sofa or on the floor (as may be their cultural custom). Smaller proportions of participants used the main living area as a study/office (15%), for craft, games or hobbies (10%), or for storage (10%). The multi-functionality of these spaces was evidenced by the finding that three uses of the space were identified by 44 per cent of participants.

Figure 21: Uses of the main indoor living space (n=1130) (%)



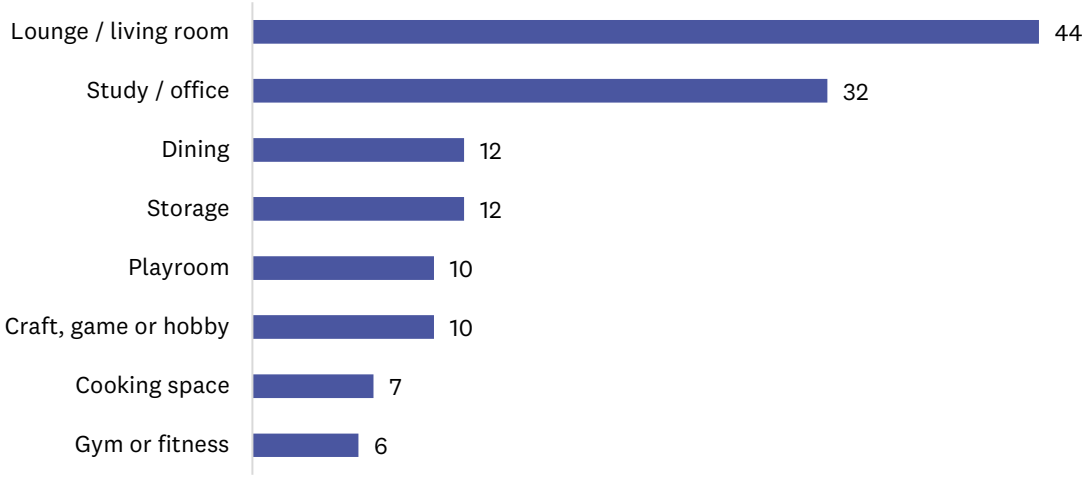
Notes: 1. Base is all the households with a 'main indoor living space'.
2. Multiple responses allowed; therefore, total does not sum to 100.

Close to half (44%) of those living in a property with a second living space use this space as a lounge or living room, while a third (32%) use this space as a study or office. Eighty-nine per cent of those with a second living area use this space for one purpose and 7 per cent nominated two purposes for the space.

The prevalence of second living areas functioning as a lounge suggests that the main living space provides insufficient lounge space for households. It also suggests that activities undertaken in a lounge (e.g. watching TV, socialising) are prioritised by households for these second spaces.

There may be inadequate space for other kinds of activities (e.g. office work, exercise, hobbies) to be undertaken in a space intended for such purposes as opposed to in a bedroom. Section 2.2.4 on the use of bedrooms demonstrates these are often used as spaces for activities such as office work and hobbies.

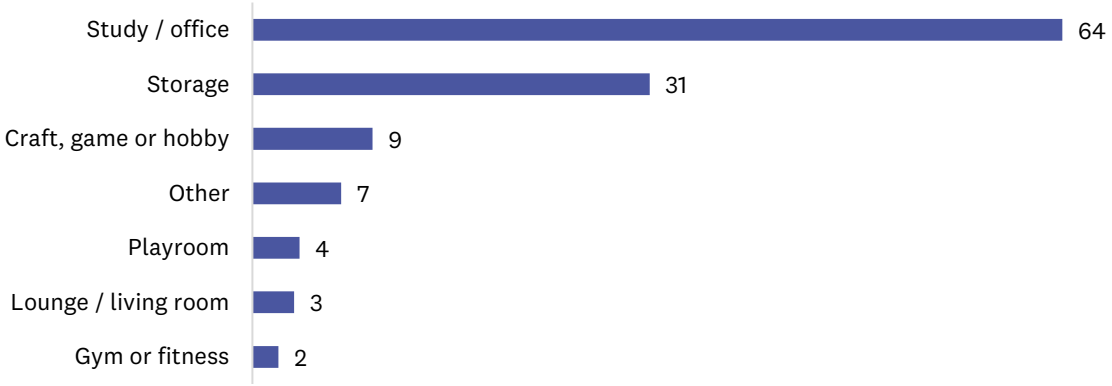
Figure 22: Uses of a second indoor living space (n=118) (%)



Notes: 1. Base is all the households with a 'second indoor living space'.
2. Multiple responses allowed; therefore, total does not sum to 100.

The survey also asked about the uses of study nooks or hallway spaces. These spaces are most frequently used as a study/office space (64% of households with a study nook or hallway space). Thirty-one per cent of the 244 participants who had such a space in their home said they use this space for storage.

Figure 23: Uses of a study nook or hallway space (n=244) (%)



Notes: 1. Base is all the households with a 'study nook or other hallway space'.
2. Multiple responses allowed; therefore, total does not sum to 100.

1.4.2 Garages

Garages are found to be an important, if unintended, place for 'living'. The uses of garages are discussed in this section, and Chapter 8 also discusses garages as places for vehicle storage.

Just over half (53%) the participants living in a terraced house or duplex reported having a garage in their home. Garages were more common in duplexes (69% had a garage) than in terraced houses (47% had a garage).

The survey asked participants about how they use their garage as part of a question about using different spaces in their home. In this question participants selected from a list of options all their uses of the garage in their home. Carparking or bike storage was not an option in this list, although

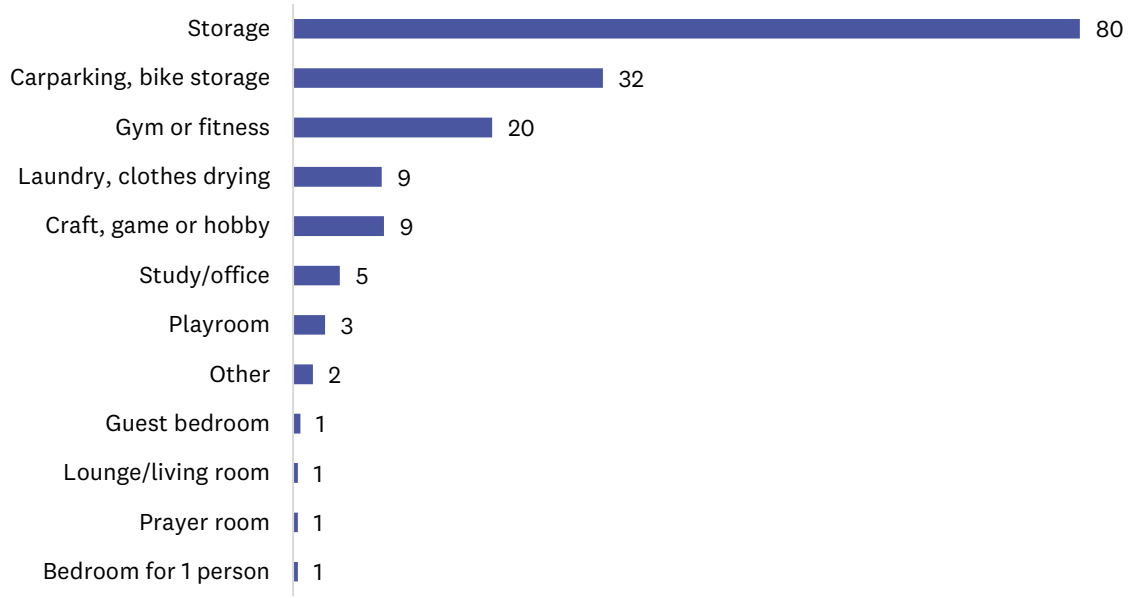
participants could answer 'something else' and write how they use their garage. In a separate question, participants were asked to describe in an open response questions where they store their vehicles, and for some this included their garage (see Chapter 8 for full results of this question).

In response to the question asking them to choose from a list how they use their garage, storage was the most reported use (selected by 80% of participants) (Figure 24). Participants also described using their garages for activities intended to be undertaken in a living space or bedroom. Twenty per cent of use their garage for gym or fitness and 9 per cent for craft, games or hobbies, while 5 per cent use the space as a study/office, and 3 per cent as a playroom. Uses of the garage as a lounge is uncommon (reported by only 1 per cent of participants). This range of garage uses mirrors the results of previous research into a master planned community in South Auckland which found garages to be used as home gyms, for storage, as utility spaces and for cooking (Reid et al., 2019).

Nearly two-thirds (57%) of participants reported using their garage for one purpose and 28 per cent reported using their garage for two purposes.

A third (32%) of participants answered they used their garage for 'something else' and described using their garage for carparking or bike storage. This is likely to be underreported as it required participants to select 'something else' and type in carparking or bike storage. Chapter 8 on carparking and vehicle storage reports that 98 per cent of participants in terraced houses and duplexes reporting having at least one car. Of those with at least one car and a garage, half (50%) report storing at least one car in their garage.

Figure 24: Uses of garages (n=399) (%)



Notes: 1. Base is all the households with a 'garage'.
2. Multiple responses allowed; therefore, total does not sum to 100.

1.4.3 Activities in the home

A series of questions asked participants about activities they might do in their home. The survey first showed participants 10 activities and asked them to rate how important doing each one in their home

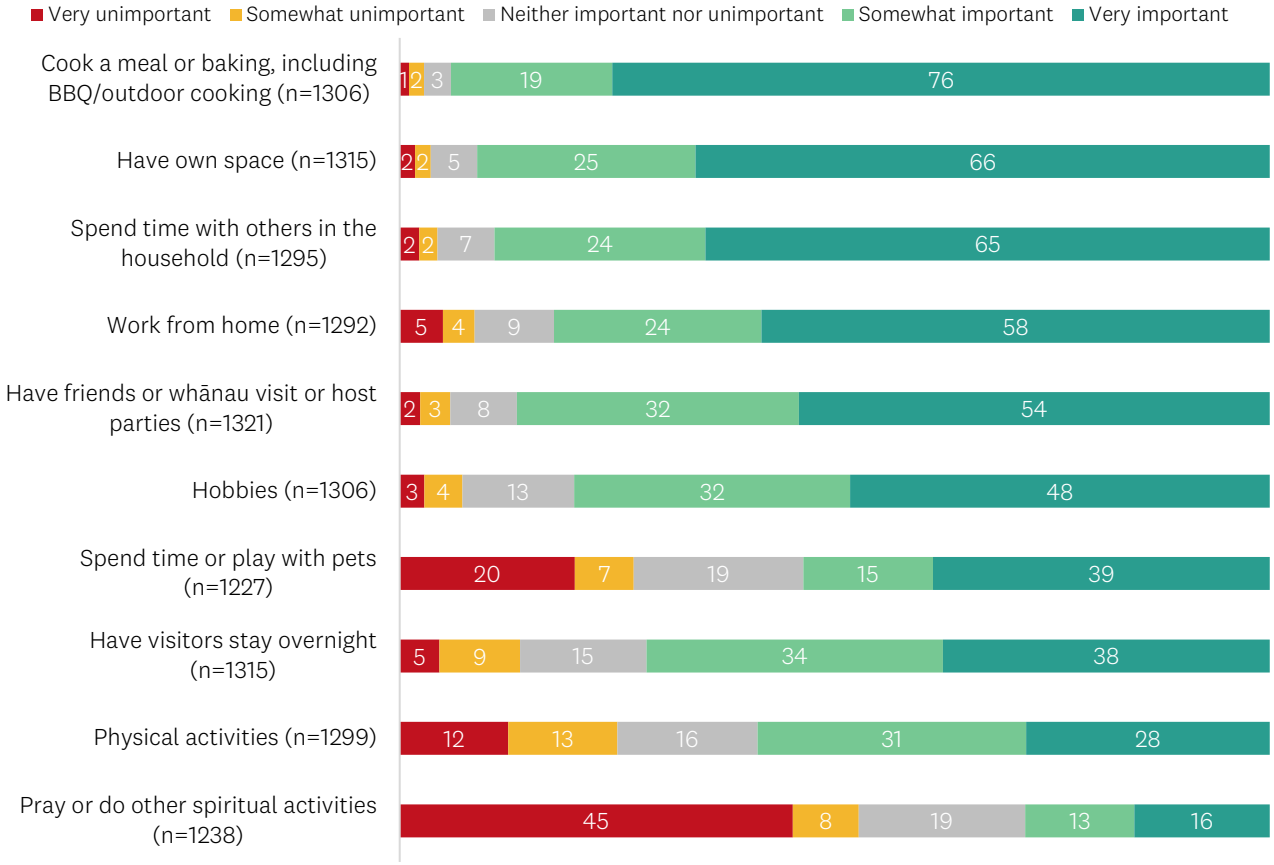
is to them (Figure 25). If a participant rated any activities as being 'somewhat important' or 'very important', they were then asked how comfortable it is to do those activities in their home (Figure 26). Depending on how the participant rated the comfort of doing activities, they were asked to describe via an open response question what it is about their home that makes it comfortable – or uncomfortable – to do those activities that are important to them. If a participant rated at least one activity as 'very uncomfortable' or 'somewhat uncomfortable', they were asked what it is about their home that makes it uncomfortable to do that activity (or activities). Likewise, if a participant rated at least one activity as 'somewhat comfortable' or 'very comfortable', they were asked what it is about their home that makes it comfortable to do their activity (or activities).[15] Themed responses to these two open response questions are presented following the importance and comfort rating results.

As Figure 25 shows, participants identified cooking a meal or baking as the most important activity that they do in their home (76% of participants said this is 'very important') followed by having their own space (66% 'very important') and spending time with others in the household (65% 'very important'). In contrast, some of the least important activities reported are prayer or other spiritual activity (45% of participants said this was 'very unimportant'), spending time with pets (20% 'very unimportant'), and physical activity (e.g. throwing ball, yoga, children running around; 12% 'very unimportant').

Of the 317 participating households who reported having a pet, 78 per cent reported spending time or playing with the pet as being 'very important', 18 per cent 'somewhat important', and 4 per cent as 'neither important nor unimportant'.

[15] These open response questions were not asked separately for each activity. If one activity was rated as being uncomfortable, then participants were asked about why that is. Likewise if one activity was rated as being comfortable, they were asked why. Answering the open response questions was optional.

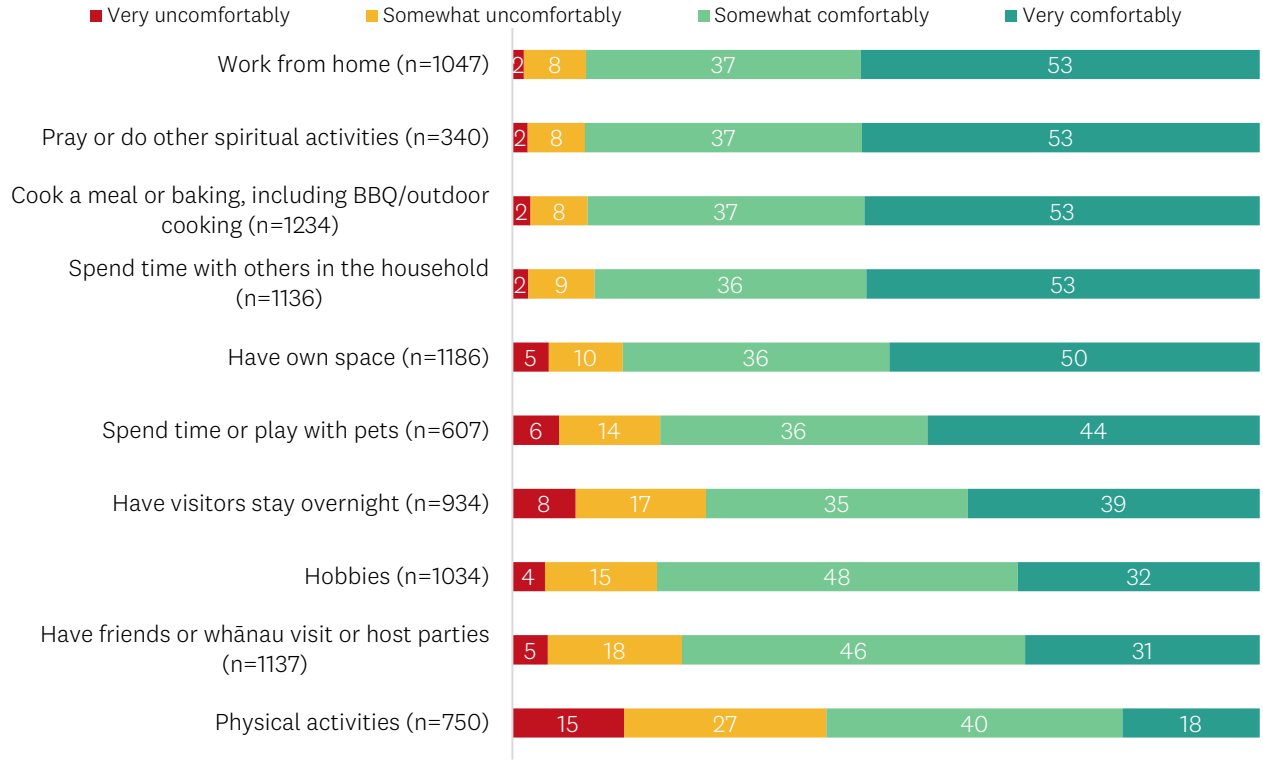
Figure 25: Participants' rating of importance of ability to be able to do certain activities in their home (%)



Participants were then asked to rate how comfortable it is to undertake the activities they had indicated were 'somewhat' or 'very' important to them. Overall, participants indicated they can comfortably do the activities in their homes that are important to them (Figure 26).

The activity reported as the most uncomfortable to do is 'physical activities', with 27 per cent of participants reporting this to be 'somewhat' uncomfortable and 15 per cent reporting this to be 'very' uncomfortable. This is followed by having friends or whānau over or hosting parties (23% said this was 'somewhat' or 'very' uncomfortable).

Figure 26: Participants' rating of how comfortable it is to do activities in the home (%)



Note: Base is all the participants who answered the activity is 'somewhat' or 'very important' to them.

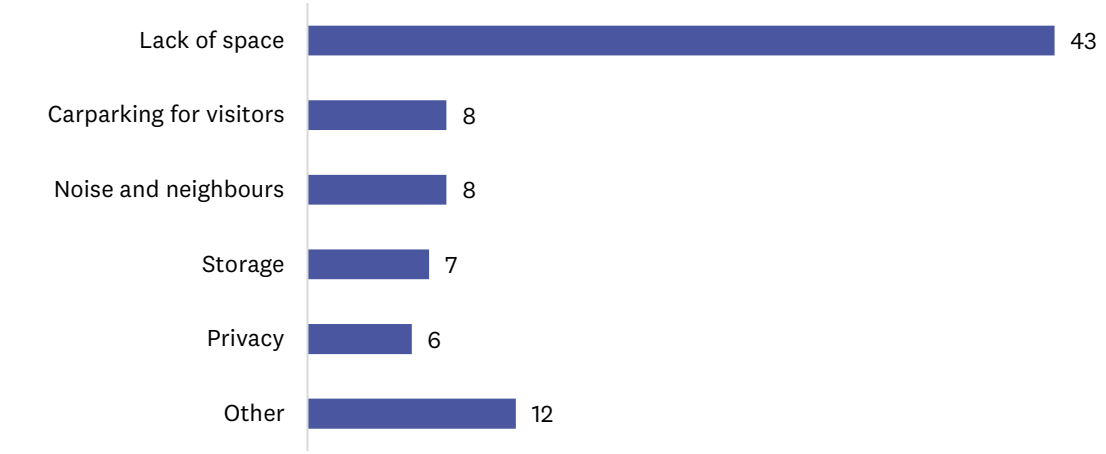
Aspects of home that make it uncomfortable to undertake important activities

Participants who reported at least one activity was important to them but 'somewhat' or 'very' uncomfortable to do in their home were asked to describe what it was about their home that makes it uncomfortable. A total of 593 participants were asked this question, and most (545 participants) provided a response. Responses were thematically coded and are discussed below. See Appendix 13 for a table summarising the thematic codes for the open responses.

As Figure 27 shows, lack of space was a common theme (43% of those who left a comment mentioned this). Other issues mentioned by smaller proportions of participants included carparking issues (8%), needing to be considerate of noise and neighbours (8%), lack of storage (8%), and privacy issues (6%).

An example of participant responses coded into each theme are provided below.

Figure 27: Reasons why it is uncomfortable to do some activities at home (n=545) (%)



Note: Base is all the participants who answered at least one activity that is 'somewhat' or 'very uncomfortable' to do in their home.

A lack of space can impact the ability to comfortably have visitors and do different activities:

> *My apartment is well appointed but really only big enough for one person (and a dog). For example, when more than one person comes for a meal I need to rearrange the furniture to fit everyone around the table. I find I shift items from place to place depending on the activity I'm doing.*
>
> *Space for working from home. The apartment is only a 1 bedroom and an open plan living, dining and kitchen area. In hindsight, if we knew we would be working at home throughout COVID thru to present time, we might have bought something bigger.*
>
> *The size of some of the rooms limits what we can do in them or how many people we can have in our home at any given time. The layout of the kitchen was changed from what we were shown on plan, which severely limited bench space for preparing meals.*

Carparking for visitors was an issue for some:

> *Not enough parking spaces for visitors. That's why I never host any religion activity meetings as not convenient for parking.*
>
> *No visitor parking makes it unsafe having family/friends over in the dark if parking only available far away from my building.*
>
> *There are only two visitor carparks for our 18 units and the time limit on the carparks is two hours so if I have a visitor who drives here, I often let them have my carpark and park my car somewhere nearby, like the train station, as our street parking is not very safe – neighbours' cars have been broken into overnight.*

A lack of storage affects the amount of space participants have to do activities.[16] Having guests over or doing hobbies can require rearranging furniture or unpacking and repacking equipment:

> *The small size of the bedrooms and low amount of storage space means that our guest bedroom/home office is very cluttered. We have to do lot of rearranging to set it up for different activities; e.g. hosting guests or DIY or working from home. Storage space is the biggest pain point.*
>
> *Items are stored away in the shed or storage boxes and must be unpacked and set up to use and then packed down again once finished.*
>
> *Available space. We are able to have people over and do hobbies such as fitness in front of our TV, but usually this requires moving existing furniture around, being creative with storage, etc.*

A lack of storage can also mean some participants are unable to have the items needed to do activities, and so are unable to do these activities important to them at their home:

> *Not enough space to do some things comfortably or even do some things at all. This includes not being able to do some things as not enough storage space to house appropriate equipment.*
>
> *Not enough space to do the activities and storage to keep items related to activities.*
>
> *No storage for such items like a sewing machine, etc.*

Concern around noise, sound privacy and imposing on their neighbours was an issue for 8 per cent of those who provided a comment: [17]

> *Privacy and the ability to do anything without the neighbours hearing every word. (I do not enjoy being subjected to their gatherings/music, etc. and so I avoid doing it myself.)*
>
> *The living area is too small to host more than four people at a time. I worry about impacts on neighbours if I am listening to loud music or having visitors over until late at night.*
>
> *Proximity of neighbours meaning I have to be very mindful of noise as they can even hear me talking at normal level when the windows are open.*
>
> *Awareness of neighbours if I want to sing with music mic and amp.*

Aspects of home that make it comfortable to undertake important activities

Participants who indicated it would be 'somewhat' or 'very 'comfortable to do at least one activity that was important to them at home were asked what it is about their home that makes it comfortable to do those activities. A total of 1130 participants provided a response. Responses were

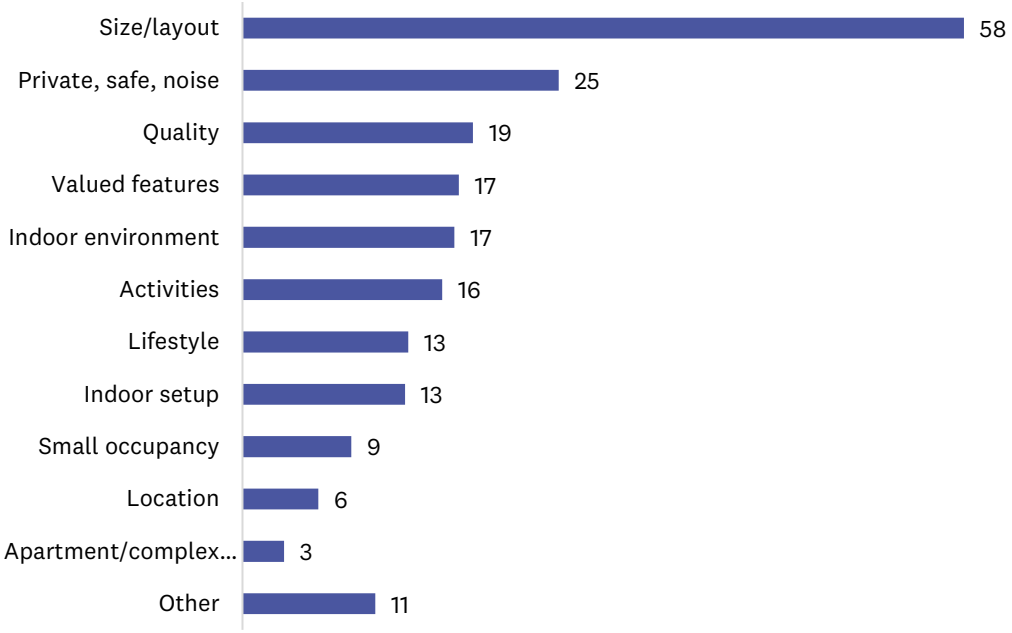
[16] See also Chapter 5, Section 1: Household storage.

[17] See also Chapter 7, Section 4: Sound and soundproofing.

thematically coded and are discussed below. See Appendix 13 for a table summarising the thematic codes for the open responses.

Figure 28 shows the proportion of comments coded to each theme. Size/layout was the largest theme, comprising 58 per cent of comments. Sub-themes were identified within these themes, and comments illustrating these sub-themes are provided below.

Figure 28: Reasons why it is comfortable to do activities within the home (n=1130) (%)



Note: Base is all the participants who answered at least one activity that is 'somewhat' or 'very' comfortable to do in their home.

A quarter (25%) of participants' comments within the theme of size/layout described their home as having "enough space", the "right amount of space", or just "enough space" to do their activities:

> *Enough space to do a workout in kitchen.*
>
> *I think my home is small, but has enough space to make most of the things I want to do possible, and that provides me with comfort.*
>
> *We have the right amount of space to do them, with designated zones for each activity.*

Being spacious was also a common sub-theme within the size/layout theme. These comments describe the home as being large or having ample space. For some, this space was the result of the small size of the household:

> *Living alone means that it's not crowded and easy to do things that are important to me.*
>
> *Just the two of us live here in a 2-bedroom house so we have a main bedroom and a second room for our work space/gaming area. More than enough space for the two of us.*

The layout of the home was a theme mentioned in 18 per cent of comments. This included room locations, open plan living spaces or the separation of spaces, the number of bedrooms, and indoor-outdoor flow:

Awesome and well thought out floor plan.

Open space makes it easy to be in the kitchen while looking after the kids.

Good flow between kitchen, lounge and dining room with the open plan design. Makes it easy to host and cook at the same time.

Enough space inside to do all these things in separate rooms.

Outdoor area faces the right way and is same level as house, so easy flow outside – great for family BBQ dinners.

Outdoor space is another sub-theme within size/layout (mentioned by 11% of the participants who responded to this question):

It has large outdoor garden patio, and big enough open plan living for yoga/exercise.

Plenty of outdoor space for gardening. We have planted more plants and enjoy gardening.

Large balcony for plants and entertaining, with good wind shelter and good sunlight.

The final sub-theme within size/layout relates to having an extra room in the house, a spare bedroom or a flexi-room:

A spare bedroom that no one lives in also makes it comfortable to do activities, but not need to rearrange or occupy the main living space (e.g. crafts, work from home).

Having a bedroom as an office means we can have more space when needed.

A spare bedroom which is used for guests, office space for working from home, and space for indoor hobbies.

A quarter of the comments (25%) referred to factors relating to 'privacy, safety and noise'. The largest proportion of comments within this theme (15%) were about homes being private:

High up on the third storey and it has tinted windows.

Window treatments including sheer curtains for privacy with daylight into living spaces, and black out curtains for full privacy.

Trees and hedge trees are tall enough now so more privacy for my own yoga and home fitness, watching movies, praying chanting quietly by myself and my own family members. Small but private garden gives cosy feeling for my reading, studying at home by myself. Very sunny and warm nice air flowing; feels so fresh, so I really enjoy quiet, my own time.

Quiet surroundings were mentioned by about 9 per cent of those who left a comment:

Fairly good soundproofing with door to balcony closed but aware of neighbours.

Level of noise is low around the complex.

Double glazing windows to block out sound.

Related to these sub-themes were comments about design features that made the home feel private or quiet, such as curtains or window coverings (8 comments), double glazing (17 comments) and insulation (33 comments):

> *Ample space to do so. Plenty of privacy – curtains.*
>
> *Double glazing windows to block out sound.*
>
> *It's new, built well with good insulation.*

The final sub-theme within the privacy, safety, noise theme is about safety (47 comments), which refers to the safety of the building/complex or neighbourhood:

> *Safe, soundproof.*
>
> *It's a safe known space that we control.*
>
> *It is private and there is enough space inside the gated complex to let little kids move around.*

A theme concerning 'perceptions of quality' comprised 19 per cent of comments. Within this theme were comments about homes being of high quality, new, clean or modern:

> *My new apartment is of unusual high quality and FAR above the poor quality of most new apartments being built in Point Chev.*
>
> *New, so no maintenance.*
>
> *Clean and tidy, no clutter.*
>
> *It's large and modern with lots of natural light.*
>
> *Our home is relatively new and very well built in an area that we love and we can do everything we want in it.*

Also within this theme are generally positive comments, using a range of adjectives; for example:

> *Aesthetically pleasing.*
>
> *Comfortable.*
>
> *Welcoming and calming.*
>
> *Pleasant place to be in.*

The theme 'valued features' describes aspects of the home that are valued by participants (17% of comments). This includes aspects such as the view or outlook:

> *Lovely outdoor view of trees and garden as well as neighbours' outdoor area.*
>
> *Views on either side (no tunnel vision as in apartments with windows only on one side).*

Feeling relaxed and be able to do relaxing activities is also valued:

> *All rooms have plenty of sunlight and excellent ventilation, makes feel very relax.*

> *Living room space and lawn size are perfect to relax and spend time with family and friends.*
>
> *There is a second smaller lounge which adds some extra space to relax, play the piano and watch TV.*

Features about their home that made it cheap or affordable to live in (due to the cost of utilities, maintenance and/or rent) was valued by some:

> *It's also very warm and quiet and we have a heat pump which is so good and quite cheap to run because of all the insulation.*
>
> *Modern amenities – Double glazed windows, warmth and insulation. Cheaper to run the house in terms of utilities like power and water.*

Comments within this theme were also about specific spaces in the home, including the garage, laundry, living spaces and bathrooms:

> *Enough space for friends/family to hang out for the day; kids can play in room or garage.*
>
> *The apartment comes with a small laundry and hot water cupboard. These features add hugely to the liveability of what is a fairly small space.*
>
> *I can watch movie in the living room.*
>
> *Having multiple bathrooms means I have a separate bathroom for visitors to use.*

The 'indoor environment' theme (17% of comments) included comments about sunlight, temperature, humidity and airflow:[18]

> *Good sound and temperature insulation.*
>
> *My apartment is cosy, warm in winter and cool enough in summer. It's light, sunny and dry. There is enough room for my collections and it's a comfy place for my dog.*
>
> *Great indoor quality (temperature, humidity, light, noise, etc.).*
>
> *I like having a breezeway; it allows airflow with the door ajar when inside on summer days.*

The 'activities' theme describes having spaces to do activities that are important to participants. For example, having space for a dining table to entertain guests or privacy to practise yoga:

> *The kitchen/dining is spacious and modern which means cooking and entertaining for guests is definitely possible.*
>
> *It has large outdoor garden patio, and big enough open plan living for yoga/exercise.*
>
> *Design/layout of our spare room makes space for craft/hobby nice and spacious.*

[18] See also Chapter 7: Indoor environment.

The 'lifestyle' theme reflects comments about living a lifestyle that is complementary to what MDH can offer (13% of comments). This includes choosing to live in a smaller space, home ownership, sense of community and low maintenance:

> *Chose to live tiny so could spend time enjoying it.*
>
> *That it is mine (owned), that it is private, that it is spacious enough for me to do all of those that are important to me.*
>
> *Good community and neighbourhood.*
>
> *Being smaller it is easy to maintain so we have more time for spending time as a family like movie nights and game nights.*

The theme of 'indoor setup' is related to lifestyle in some ways. This theme includes comments about having 'no clutter' or a small amount of material items, choosing furniture to fit the space, prioritising activities, or having hobbies that do not require large amounts of space:

> *We have prioritised the small space we have for the important things like cooking meals and eating as a family.*
>
> *Just enough space and careful furniture and storage selection.*
>
> *Hobbies don't always take up a lot of room.*
>
> *Clean and tidy, no clutter.*

1.5 In-home immersions: Uses of spaces for living

As described in Chapter 3, Section 1.3, this study included 20 in-home immersions with participants who had completed the survey.

The in-home immersions found that kitchen, lounge and dining spaces are generally used for living activities undertaken with other people (e.g. socialising, playing board games or watching movies). In contrast, flexi-rooms, studies or spare bedrooms (discussed in Section 2 on bedrooms) are for living activities done alone (e.g. playing musical instruments, office work, yoga or computer games). Garages accommodate both activities undertaken with other people (e.g. socialising) and activities undertaken alone (e.g. exercise). Activities done with other people can include watching TV, eating, playing board games, hanging out or socialising. It is these kinds of activities that tend to be done in the kitchen, lounge and dining spaces of homes, and can also be done in garages.

This section first describes findings about lounges, followed by where participants eat in their homes, which tended to be in lounges or at dining tables. Next kitchens and food storage is discussed. The final two sections display results about flexi-rooms or additional living spaces, and garages.

1.5.1 Lounges

The size and layout of lounges (and dining spaces) affects how furniture can be arranged, and therefore how households use their space. Some participants were able, through creativity and financial means, to select furniture that made the space work well for them. Other participants

prioritised having furniture in their home that was important to them even though it was not always the best size for the available space (e.g. inherited chairs or dining tables reminiscent of their childhood). The homes described below illustrate how this range of capabilities and priorities translate into different experiences of living in lounges and dining spaces.

The configuration of furniture in lounges can be constrained by the location of sockets for power, internet and aerials, in addition to the size and shape of the space. In the figure below, the TV aerial and power points were in the corner requiring the TV to be placed there (Figure 29). To have the TV at the right angle for the sofa required a triangular cabinet and the household commissioned a custom-made cabinet to fit the space.

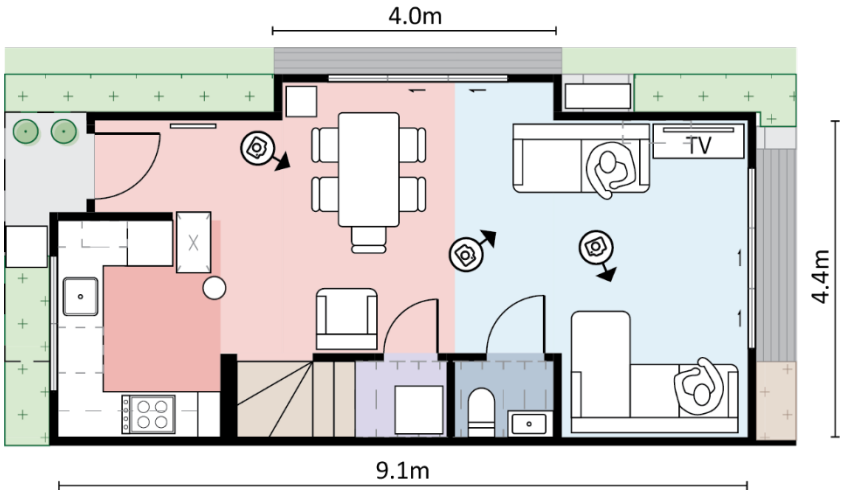
Figure 29: Lounge as part of an open plan kitchen, dining, lounge space

One participant, who lived alone in a duplex, commented on the challenge of finding furniture to fit in the lounge. He wanted the lounge that would both enable having conversations, achieved through sofas facing one another, and provide a comfortable space to relax and watch TV. The position of the TV in the corner and the 2-seater sofa sticking out past the wall demonstrates the challenge of sourcing furniture that fits in constrained spaces (Figure 30).

> *I knew this space [the lounge] was going to be quite a challenge to fill, based on the plans [when it was being built], but I had a struggle, I had to search a little bit to find a couch that was going to fit…*

A lounge chair of sentimental value was kept in the dining space and moved into the lounge area when needed to accommodate guests.

Figure 30: Lounge furniture carefully selected to fit the space (left, centre) and lounge chair in dining space (right)



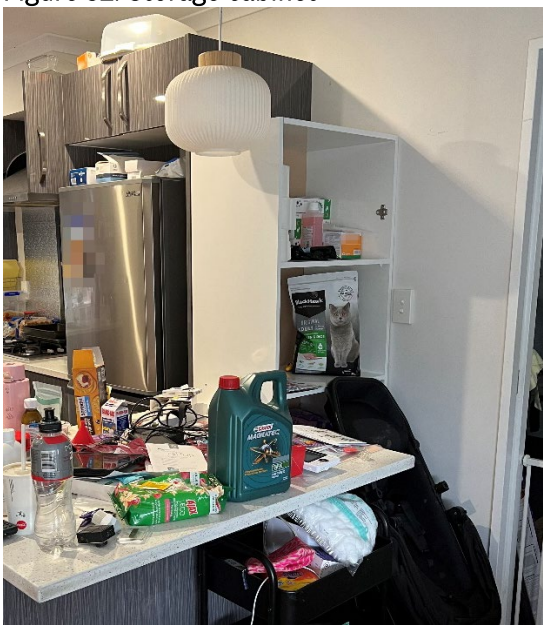
A multigenerational household of two adult children, a teenager, two parents and one grandparent placed their sofa in front of a ranch slider that gave access to a patio facing the street. This prevented use of the door and therefore access to the patio (Figure 31). However, of greater importance to the participants was that this layout caused an issue from their cultural perspective of Feng Shui as it affected the flow between the lounge and patio. The household had been unable to arrange their furniture in a way that better aligned with Feng Shui principles.

Figure 31: Access to patio restricted by placement of sofa in front of ranch slider

The challenge of finding furniture to fit their home was expressed by another participant who commented on the 'non-standard' size of spaces for furniture in their home.

Purchasing furniture has been really interesting in this place, just in terms of the standard size of things and the fact that this space is an odd size... We've just put this [storage] cupboard in [beside door to the garage]. We're going to have the light switches removed... the gap between this [kitchen bench] and the wall is 59cm and the standard size of a cupboard is 60cm. This inconsistency is kind of throughout the whole house, the spaces for furniture and things are not quite standard.

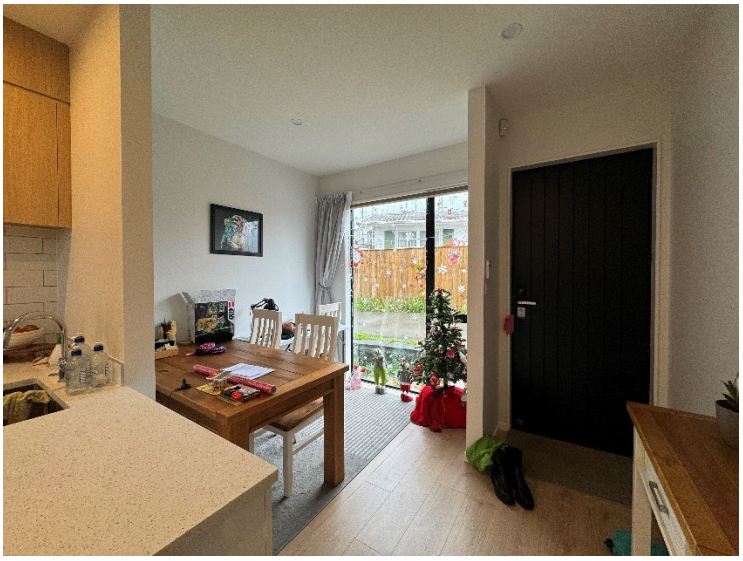
Figure 32: Storage cabinet

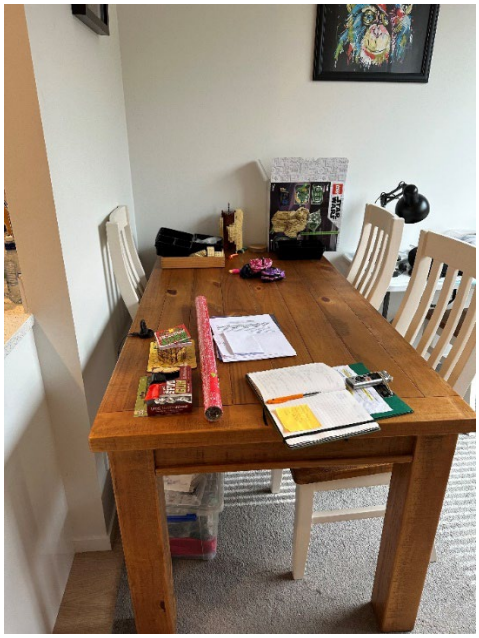


One household of two parents and their teenage daughter lacked space to accommodate furniture in which they could comfortably sit together to watch TV. The parents sat on the sofa and the daughter had a beanbag in their flexi-room upstairs which was brought down so they could sit together. This household also ate their meals in the lounge (Figure 33) as they used their dining table for hobbies like board games and Lego (Figure 34). The experience of this household in their lounge reflects the TMDO observation of lounges just being large enough to fit a sofa and TV cabinet, and therefore being insufficient in size to seat all members of the household or accommodate visitors.

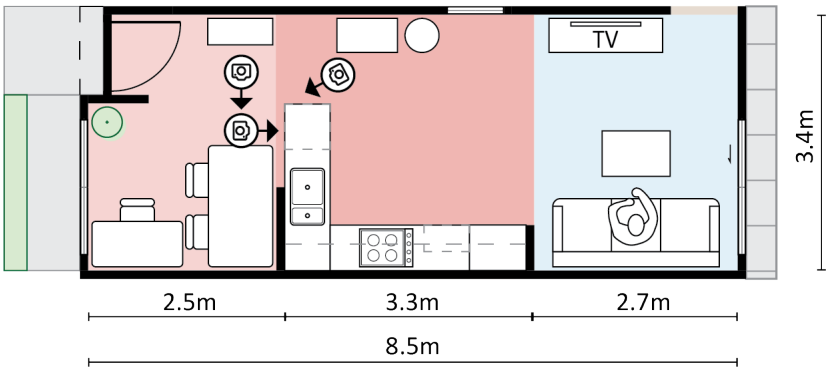
Figure 33: Lounge as part of an open plan kitchen, dining, lounge space

Figure 34: Dining table used for board games and other hobbies like Lego



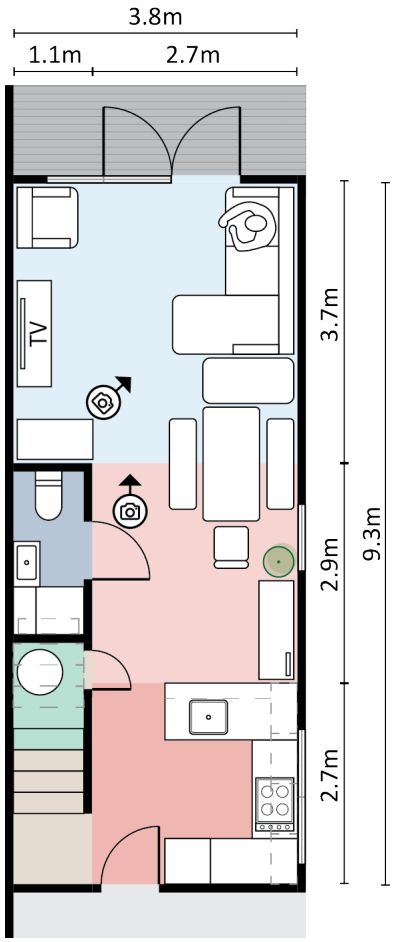


Note: The table had been recently pushed against wall to accommodate space for Christmas decorations.



In another household comprising of a couple and two flatmates, the couple were exceptionally considered in their choice of furniture to make their home accommodate social activities for the household. Their segmented sofa was arranged so that the couple could sit in the seats to the left, which was separated by an arm rest from the flatmates' seat to the right.[19]

Figure 35: Flatting home with a couple and two flatmates



[19] The second flatmate worked in the evenings and so all four members of the household infrequently sat in the lounge together.

One participant, in a household of two adults and two children, described their open plan kitchen, dining (bar stools) and lounge as the “everything big space”:

> *This is the everything big space ... this is the play space, the relaxing space, the TV space, the eating space ... 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.*

Figure 36: Kitchen, dining, lounge space of an apartment with two adults and two children

Another household, consisting of a couple in a terraced house, had a wider (5m) home in which they were able to accommodate several activities in their lounge and dining space. They had lived in their home for a few years. Over that time, they have been through several arrangements of furniture and swapped out furniture as they could for items that better fitted the space:

> *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 ... It works a lot better now ... The couch was another thing; we've had that for a couple of years now. The original one we brought with us, [but] it just stuck out just a bit too far. And it's surprising, that extra 10cm just makes everything feel a bit more restrictive.*

They also described being able to use their lounge as a place for exercise, especially during COVID-19 lockdowns, to play with their cats, and for their piano. Both the careful selection of furniture and the width of this home enables the space to accommodate a range of activities comfortably.

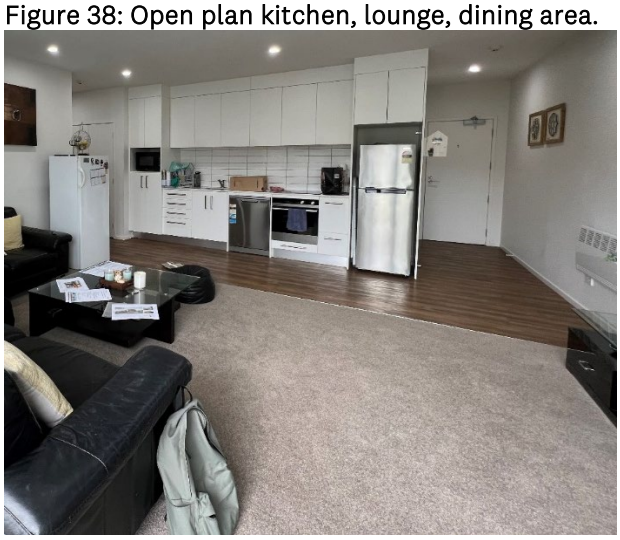
Figure 37: Wider (5m) lounge and dining space has seating for the household as well as space for a piano, exercise equipment, bookshelves and cat toys

1.5.2 Eating and uses of dining tables

We found that dining spaces are not commonly used by households as places to eat together. Only three households that took part in the immersions discussed the importance of eating an evening meal as a household. Two of these households had a table for this purpose, and the third household ate their meals sitting on a sheet on the floor as was their cultural custom.

Meals are eaten sitting on a sheet on the carpeted floor for this household of two adults and two teenage children.

Figure 38: Open plan kitchen, lounge, dining area.

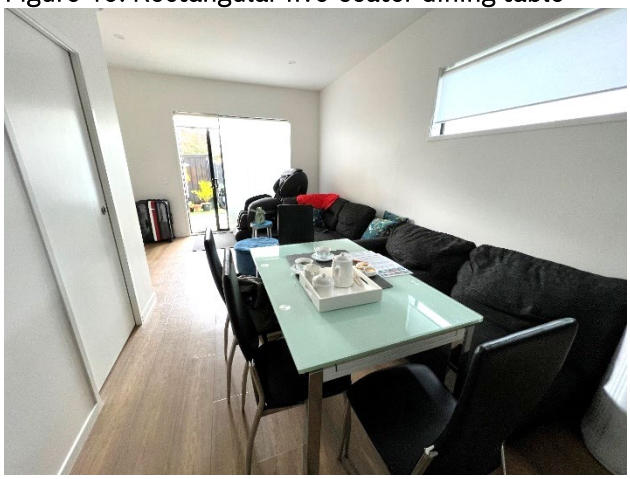


Eating meals together at the table was a priority for this multigenerational household of two adult children, a teenager, two parents and one grandparent. The dining space in this home was located at the rear of the terraced house, the kitchen in the middle, and the lounge at the front. This layout was a challenge for the household as it restricted their ability to watch the evening TV news and eat together, a bathroom opened into the dining space, and eating near their religious shrine was uncomfortable for them.

Figure 39: Round six-seater dining table

A multigenerational household with two children, two parents and a grandmother valued having a dining table as eating meals together was of religious and cultural importance to them. However, their dining experience had several constraints: the table and chairs need to accommodate five people, fit in the 3.6m wide dining space, and consist of furniture already owned from their previous home. The household found the furniture they had available was ill-fitted to the space.

Figure 40: Rectangular five-seater dining table



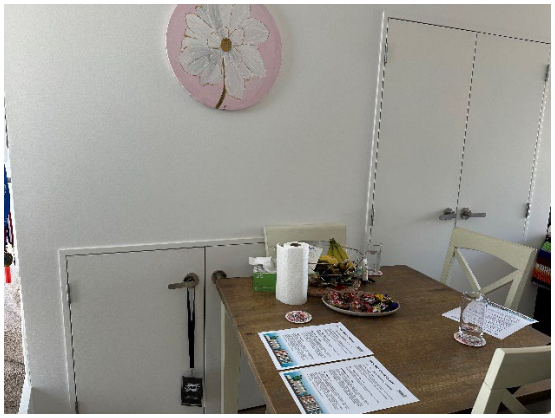
Being able to see the TV comfortably while eating appears to be of high importance to many of the participants, and where meals are eaten can be determined by the location of the TV. Many participants said they eat their meals while sitting on the sofa or in a chair in front of the TV. Figure 41 shows a dining table used only for entertaining visitors. The members of this household usually eat their meals sitting on a favourite chair in the lounge in front of the TV.

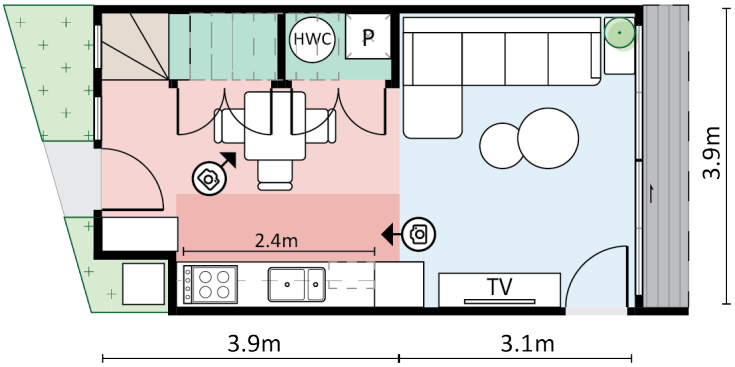
Figure 41: Open plan kitchen, lounge, dining space for a household of one person

Figure 42 shows the lounge of a multigenerational household consisting of two parents, a teenage son and a grandparent. They eat their meals on the sofa using the nesting tables. The dining table near the kitchen has seating for three (although this is a household of five) and the table is used for meal preparation (i.e. as an extension of the kitchen bench) (Figure 43). The dining table is against wall in front of a half-cupboard (used for large pots, pans, food storage boxes) and the hot water cupboard/pantry (Figure 46).

Figure 42: Kitchen, dining, lounge space

Figure 43: Dining table in kitchen





Dining tables and chairs were present in 16 of the 20 in-home immersion homes, even when they were infrequently used for eating. Participants reporting using their dining tables for eating on special occasions, when considerable effort has gone into making a meal or when hosting visitors. The more

day-to-day function of dining tables was not about 'dining', and it may be more appropriate to refer to this piece of furniture as simply a 'table'. These tables were used as an extension of the kitchen bench for meal preparation, a space to play board games, for laptop tasks, to have a conversation around, etc.

1.5.3 Kitchen and food storage solutions

The kitchen is a central part of the home for many of the households who took part in the in-home immersions. This means they are frequently used and need to accommodate a range of functions.

Kitchen benches are used as storage spaces for food, appliances and other items such as keys and water bottles. They are also used as a space for food preparation and drying dishes, and for pot plants. The wide range of uses demanded of kitchens helps to explain the dissatisfaction many of the survey participants reported with the size of their kitchens, including the kitchen bench and built-in storage.

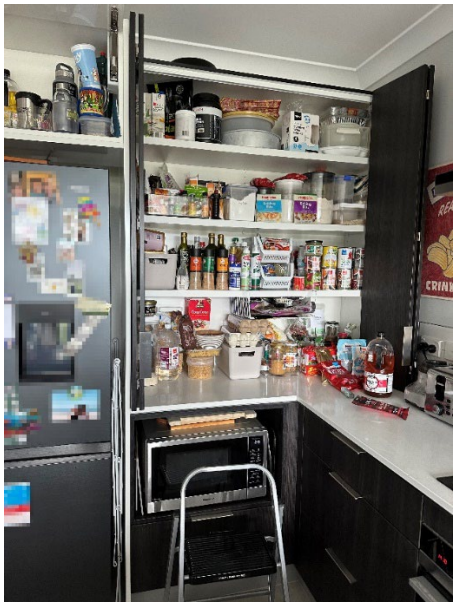
Figure 44: A sample of kitchens displaying the variety of kitchen bench uses

Note: White rice container in bottom left of image, underneath kitchen bench.

Kitchen storage, and especially storage for food, is a challenge for most (16) of the participating immersion households. Built-in food storage (i.e. pantries) are difficult to use for some participants for a range of reasons. For example, one participant highlighted how the food storage cupboard in her kitchen opens directly onto the kitchen bench, meaning the bench has to be clear to open the cupboard doors, and consequently the doors are just kept open (Figure 45).

I've got no storage space, so everything just kind of gets shoved in. Like look at this, the food is ridiculous!

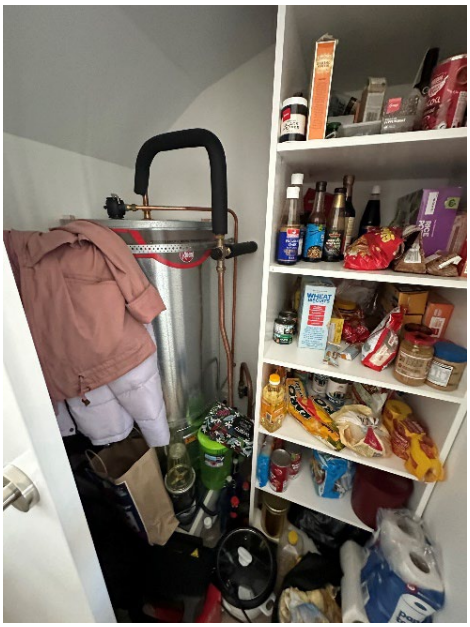
Figure 45: Pantry above bench with doors kept open



In another home, the pantry space is also the location of the hot water cylinder (Figure 46). These participants expressed discomfort at having their food near the cylinder as this felt "weird" and created a warm space that was not safe for storing some food.

The pantry is half pantry half hot water cylinder … The biggest problem with it is the warmth! So, we're careful not to put things in the pantry … just sometimes I want to put some damp clothes in there to dry, but we try not to because … it just feels weird.

Figure 46: Pantry cupboard shared with the hot water cylinder



One participant who had an interest in cooking expressed disappointment about their kitchen storage. Some cupboards were hard to reach and so were underutilised (Figure 47) and to compensate they had added a buffet with a hutch to store plates and cups (Figure 48). The participant also found the narrow and deep design of the pantry challenging to access (Figure 49). Finding the 'right' spaces to store equipment was difficult. Storing their food mixer under the sink alongside cleaning products (Figure 51) and jars for preserves in the laundry under the stairs (Figure 50) was a dissatisfactory solution.

> *A little bit disappointed with some of the kitchen storage options and just how that works for me … I don't have a pantry per se … when I signed the paperwork … there was actually no details about those fixtures in there.*[20]

Figure 47: Example of underutilised kitchen cupboards due to them only being accessible by stepladder

Figure 48: Buffet with hutch added to provide more kitchen storage

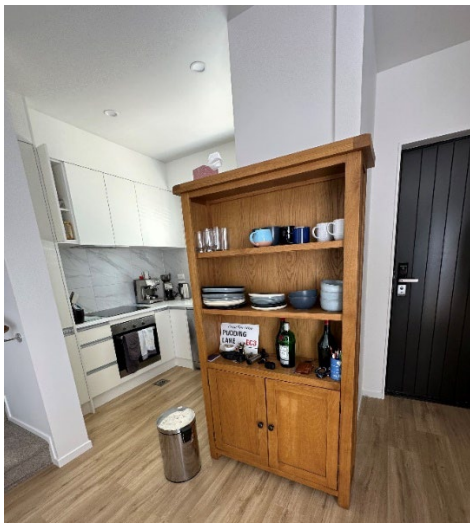


Figure 49: Narrow pantry where items were found challenging to access

Figure 50: Preserving jars stored in laundry with buckets and brooms

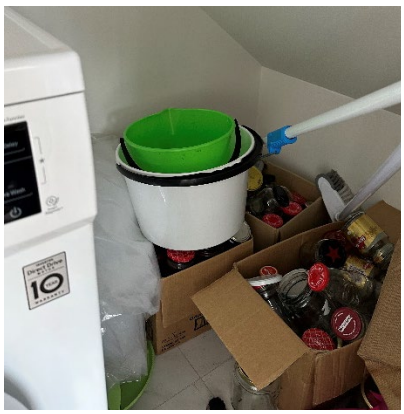
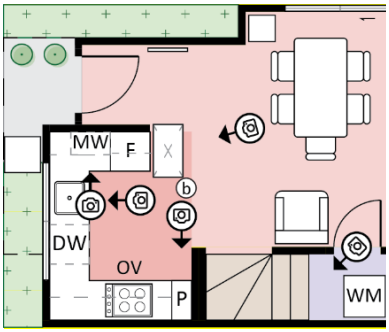


Figure 51: Food mixer stored under the sink alongside cleaning products



[20] Detailed kitchen schematics are not typically provided at the resource or building consent stage as a kitchen fitout does not require a consent.

Another problematic design for food storage is the cupboard under the stairs. Participants reported that low half-height cupboards are uncomfortable to access as they require squatting or kneeling on the ground. These cupboards typically lack shelving and so some participants store their food on wheeled trollies which they can pull out of the cupboard, in addition to free-standing shelving.

Figure 52: Understairs pantry found to be difficult to access

Figure 53: Wheely trolley in a half-height pantry under stairs

A multigenerational household who followed Feng Shui practices in arranging their home spoke of the importance of their rice being stored in a container outside of a cupboard (see top left image in Figure 44). When asked about keeping this container outside of a cupboard, they explained:

> *This [rice] is already a container itself. We want it to always be full, always full. We don't want to contain it.*

The need of this household to store their rice outside of a cupboard, and their creation of a space for this, is a different example to the additions of storage furniture added by other participating households described below who added a shelving or cupboards for food storage.

Many of the participants who are living in homes with insufficient built-in pantries have added storage furniture (often in the dining space) to store food. The food-storage furniture seen in the immersion households came in different forms, including double-door cupboards, baskets in a floating island bench and trollies. This finding mirrors the design observation described in Section 1.1.2 that kitchens commonly lack pantries and sufficient storage.

A household with two adults and a child expressed frustration at the lack of kitchen storage and shared how they added a cupboard and floating island bench to store food and kitchen equipment (Figure 54).

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...

Figure 54: Cupboard added to function as a pantry and a floating island bench with baskets used for food storage (and shoes stored underneath)

A flatting household with four adults lacked a pantry in their kitchen. They found a free-standing cupboard on TradeMe and added handles to match their kitchen cupboards.

> *There is a shortage of space [in this kitchen]. And to be honest, if it wasn't for this [indicating the storage unit], we would be stuffed. 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? … We love it. We keep our food here.*

The inclusion of this pantry in the dining space means that the dining table is now encroaching on the lounge. As described in Figure 35, the participants were selective in the choice of their lounge furniture to fit the available space.

Figure 55: Additional cupboard added to dining space to function as a pantry

Some households stored their kitchen items in unexpected locations, such as drawers containing tins next to the TV cabinet (Figure 56) and plastic containers in an unused dishwasher (Figure 57). One household extended their kitchen bench to create a food storage cupboard, space for their microwave and a drawer for pots and pans (Figure 58).

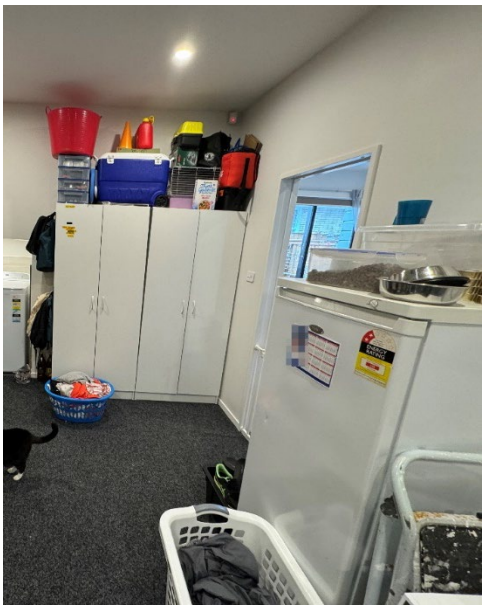
Figure 56: Additional food storage drawers next to TV cabinet in lounge

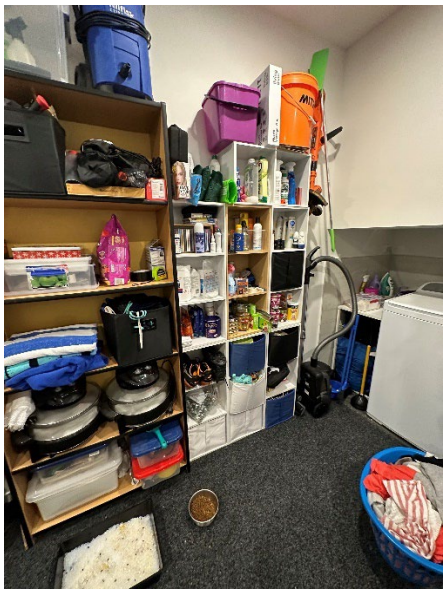
Figure 57: Dishwasher used as storage for plastic containers

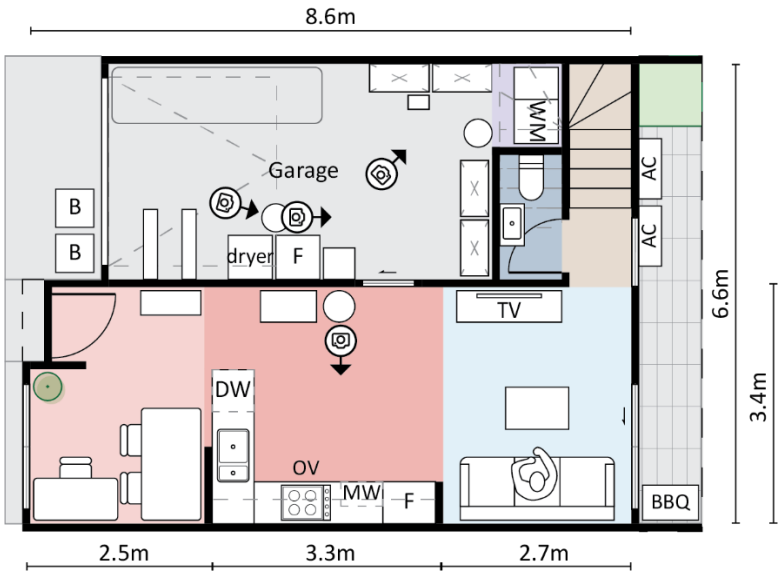
Figure 58: Kitchen bench extended by participant

Garages were also locations for food storage. Some garages had shelving or cupboards to store dry goods, kitchen equipment/appliances and/or chest freezers or additional fridges. One household of two parents and a teenage daughter lacked a pantry in their kitchen and so added shelving and cupboards to the garage for storage of food, kitchen appliances, cleaning products, general household storage and cat food/litter (Figure 59). This garage was not used to park the household's car.

Figure 59: Shelving, free-standing cupboards and a standing freezer for food storage in a garage. Kitchen without pantry also pictured







All combined, households tended to be required by the design and space allocation of their kitchens to distribute the storage of their food around the home. This has flow-on impacts for the uses of these other spaces. For example, additional furniture in the dining space is reducing the space for a dining table, and storage in a garage is reducing the space for carparking. (See also Section 1.5.5 in this chapter for the findings from the in-home immersions on the use of garages.) The accessibility and function of understairs pantries/kitchen storage cupboards could be improved by installing shelving.

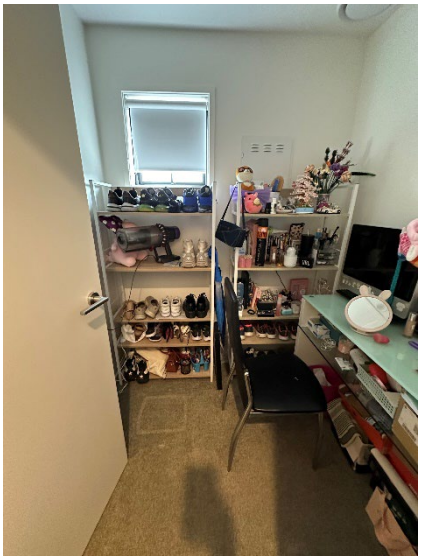
Consideration of appropriate cultural and safe food storage is required. Pantries have been a common approach to storing dried foods in New Zealand. However, Auckland is a culturally diverse region and homes with a diversity of food storage solutions are required to accommodate, for example, Feng Shui approaches to food storage (e.g. the rice container). Appropriate separation of food from other items is also a food safety consideration. One household's pantry was shared with a hot water cylinder (Figure 46), and they commented about the warm temperature of the space being unsafe for some foods. Similarly, storing food in garages or dispersed around the home is resulting in food stored alongside cleaning products and pet food/items.

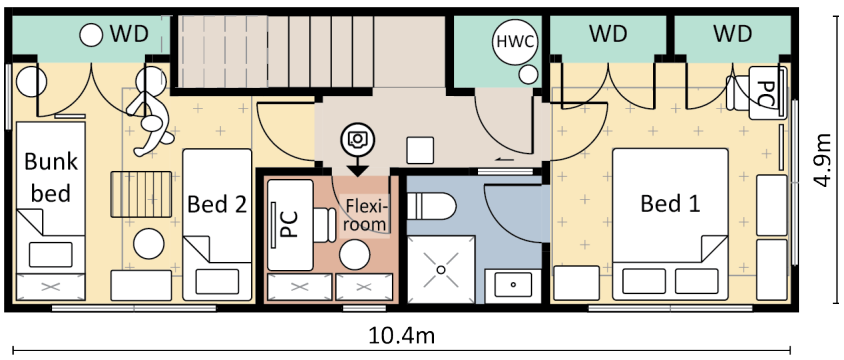
1.5.4 Flexi-rooms or additional living spaces

Six of the homes had a flexi-room (a room shown on the approved plans as a study or other non-bedroom space). The uses of the flexi-room were similar to that of a spare bedroom in that they tended to be used for activities done alone, such as being an office or hobby space for a teenager. A flexi-room is often lacking windows and/or smaller than the minimum size for a bedroom. Flexi-rooms do not have wardrobes. (See also Section 2.2 in this chapter for the research findings on bedrooms.)

A household with a teenage daughter, younger son, parents and grandmother had a flexi-room in the second storey of their terraced house. The flexi-room was used by the teenage daughter and called her 'office' (Figure 60). She used this space to do make-up and use the computer. This space also stored some of the household's shoes and the vacuum cleaner.

Figure 60: Flexi-room used as cosmetics and hangout space for teenager. Space also used for storage of shoes and vacuum cleaner.





Another household with a teenage daughter also made their second storey flexi-room into a space for their daughter (Figure 61). This space was referred to as the daughter's "hang-out space" and contained a TV and seating, including a beanbag which was brought downstairs to watch TV as a household (Figure 33).

Figure 61: Flexi-room (no windows, only skylight pictured in ceiling)

One participant, who lived alone in an apartment with one bedroom, one flexi-room and two bathrooms, described her flexi-room as a “fake bedroom” (Figure 62). She used this space as an office and had a TV on a wall-bracket which allowed it to swing out into the room and be watched from the sofa. There was no space in the lounge for a TV.

Figure 62: Flexi-room with glazed sliding door

1.5.5 Garages

Garages are found to be critically important components in homes. The garages of the in-home immersion homes are rarely used for their intended purpose of carparking and instead are highly multi-functional spaces used to undertake activities not accommodated elsewhere in the home. (See also Chapter 8, Section 1.6 for further results about cars and carparking from the in-home immersions.)

Five of the 20 in-home immersion households lived in properties that had garages. Two garages were used for parking a car – one was a double garage and the other wider than a standard single garage. The other three homes did not use their single garage for carparking. All five garages were multi-functional. Uses other than carparking included general household storage, storage of food and kitchen equipment (see Section 1.5.3 in this chapter on kitchen and food storage), exercise equipment (treadmills, boxing bags, surfboards), shoes and clothing, lawn mower, tools and wheelie bins, as well as for a piano, for TV/gaming and as a guest bedroom. Garages were also used for the storage of push bikes, e-bikes and motorbikes.

Participants described the multitude of uses of and items stored in their garages. Participants saw that they 'needed' their garage to provide this space and one participant hypothetically asked where the stuff in their garage would go if they did not have a garage:

> *If you were to put a car in there [garage], where do you then put all of that stuff? There's no ability to put a shed anywhere … and I think if you have a family, with kids' toys, bikes, scooters, prams … where does all that stuff go?*

Figure 63 shows the garage of a terraced house that is home to a teenage son, two parents and a grandmother. The lounge is most often used by the parents or the household all together (Figure 42), while the garage functions as the space for the teenage son to hang out with his cousins. In acknowledgement of how the garage was used, the family call the garage "the [son's name]'s boy cave". The garage also has a piano, washing machine and drying rack, as well as storage for shoes, boxes and the recycling bin.

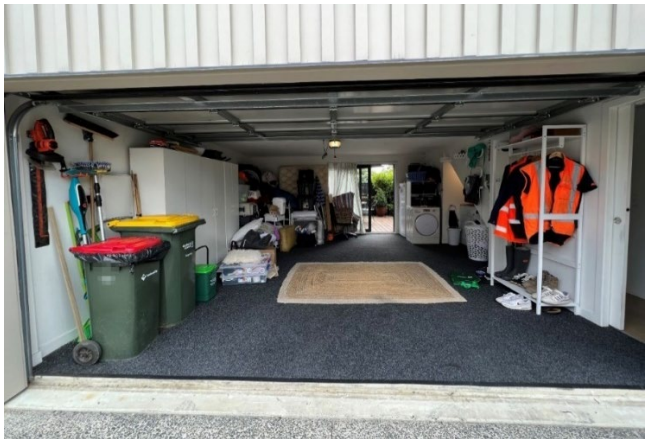
> *We knew with the limited space, like this [garage] would be some type of second living room. We've got a lot of kids, nieces and nephews in our wider families, our extended family. So yeah, so we make use of the chairs as well out there … The older boys like to [be in the garage] because there's another TV in there and they can do the PlayStation kind of thing.*

This household also commented that none of the terraced houses in their block of nine used their garage to park their cars.

Figure 63: Multipurpose garage

A household with a wider garage (although it is too narrow to be considered a double garage for two cars) used their garage to park one car on top of a rug (Figure 64). The rug was said to have been placed there simply for temporary storage as opposed to being placed for the purpose of protecting the garage carpet from the car. The size of this garage means there is enough space for a laundry and the household can store a wide range of items there in addition to their car. The garage provides storage for wheelie bins, a vertical freezer, work clothing, tools and cupboards and boxes containing a range of household items.

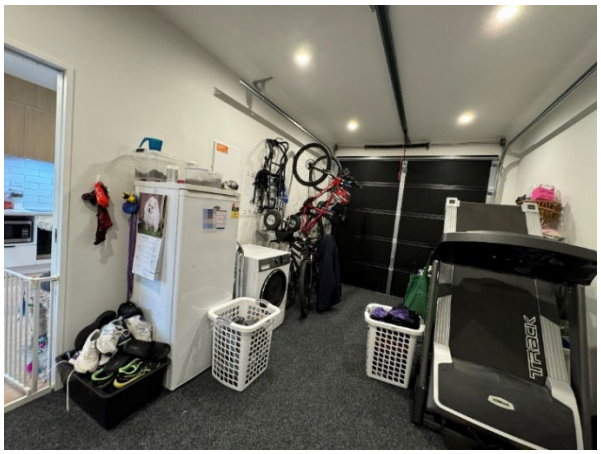
Figure 64: Wide garage with outdoor living spaces accessible through a ranchslider at rear of garage



Another household described their garage as the place with “everything in it” and felt that their car would not fit in their garage, even if they wanted to use it for carparking (Figure 65; see also Figure 59 showing kitchen storage in this garage):

> *It's like got everything in it! We use it for everything … so we use it for our bikes … dryer and the freezer … our trolley for our groceries … soccer balls … clothing racks, work bags, treadmill in action … pantry and the baking supplies… all your plastics and extra stuff … baking stuff … the dog leads and the bags can go up there, all our shoes.*
>
> *So our SUV, it’s not a big one, only just sort of fits in the garage. And you would have to let everyone else out, outside the garage … like there’s no room especially now with our stuff in there.*

Figure 65: Multipurpose garage



2 Bedrooms

This section considers all aspects of bedrooms including the number, size, uses and storage for clothes and shoes.

2.1 Regulations and best practice guidance

Auckland Unitary Plan (AUP)

The AUP does not specify minimum bedroom sizes, but the purpose of the overall minimum dwelling size standard is to "ensure that dwellings are functional and of a sufficient size to provide for the day to day needs of residents, based on the number of occupants the dwelling is designed to accommodate".[21]

Auckland Design Manual (ADM) and best practice design guidance

Bedrooms should be able to comfortably accommodate a queen size bed or two single beds, as well as a wardrobe. Adequate circulation space should be provided around the bed(s), and larger bedrooms should be able to accommodate additional furniture such as a chest of drawers or desk space.

Table 10 sets out relevant best practice guidance for bedroom sizes and wardrobe provision. Note that the ADM recommended minimum size is less than the other New Zealand and Australian design guidance considered in this study.

[21] For example, Mixed Housing Urban Policy H5.3(5)(a) and Minimum Unit Size H5.6.16 Purpose Statement.

Table 9: Best practice guidance for bedroom sizes and wardrobes

	Auckland Design Manual (net)	**Public Housing Design Guidance and Kāinga Ora Design Requirements (gross)**	**NSW Apartment Design Guide (net)**	**NSW Low Rise Housing Diversity Design Guide (net)**	**Victoria Apartment Design Guide (net)**
Principal (largest) bedroom	9m^2	10m^2	10m^2	10m^2	10.2m^2
All other bedrooms	9m^2	9m^2	9m^2	9m^2	9m^2
Minimum bedroom dimension	3m	2.9m	3m	3m	3.4m (principal) 3m (other)
Wardrobes	1 bedroom 1m^2 2 bedrooms 2.18m^2 3 bedrooms 3.18m^2	0.6m(d) x 1.2m(w) (0.72m^2)	1.8m(w) x 0.6m(d) x 2.1m(h) (1.08m^2)	—	1.5–1.8m(w)

Sources:

- *Auckland Design Manual,* R6: Residential Design Element Unit Layout and Room Sizes.
- Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Table 4.
- Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirement* (Version 1.1), Table B2.1-1.
- New South Wales Department of Planning and Environment (2015). *Apartment Design Guide,* Part 4 Designing the Building, Design criteria 4D-3, 1 and 2.
- New South Wales Department of Planning and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Section 2.3K Terrace Dwelling Size and Layout, Design criteria 74 and 75.
- State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines for Victoria*, Section 3 – Dwelling Amenity, Table D7.

The ADM has a minimum recommended bedroom size of 9m^2. A floor area of 10m^2 can accommodate additional furniture, and a further ~1m^2 is recommended for a wardrobe. Larger bedrooms of 10-12m^2 allow for more flexible use of the room including two single beds, and space for drawers, as illustrated in Figure 66.

Figure 66: Bedroom sizes and furniture layout

Section 35 (s35) monitoring

The Council's s35 monitoring of the AUP did not specifically monitor bedroom provision but did find that a broad range of dwelling sizes and number of bedrooms are being provided to meet the diverse needs of Aucklanders.

Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

- Room sizes are generally ~3m x ~3m (9m^2; Figure 66) with little space for additional furniture (e.g. drawers, desk etc).
- Wardrobes are often needed for general household storage (e.g. linen, towels, suitcases).
- Bedrooms at ground level at rear of garaging are often only accessible through the garage, creating amenity and functionality issues.
- Bedrooms at ground level of terraced houses are often used for access to outdoor living spaces, reducing functionality of outdoor living space and reducing privacy and amenity of the bedroom.
- Window placement and size (particularly floor-to-ceiling glazing) can impact flexibility of the space, including how furniture can be placed within the room, as well as privacy.

2.2 Research findings

This section presents the research findings on indoor living spaces and is organised by topic. The section presents the results of the survey, consented plans analysis and in-home immersions. Results pertaining to the number and size of bedrooms are described first, followed by storage for clothes and shoes, and finally uses of bedrooms.

The results presented in this section describe bedrooms as defined by participants. The survey participants were asked to indicate from a list of different rooms and spaces which ones were part of their home. The list included 'main bedroom', 'second bedroom', 'third bedroom', etc. As discussed further on in this section, there may be variation in how participants define a 'bedroom', relative to how it is defined in consented plans or by a design professional. For example, a space used as a 'bedroom' by a participant may be a 'flexi-room' in consented plans, and vice versa.

Section 2.2.4 shows that a 'bedroom' from the perspective of participants is not always a room with a bed. Instead, bedrooms can have a wide range of uses and furniture and still be called a bedroom. The term 'spare bedroom' is adopted in this report to describe rooms that are bedrooms (defined as either a bedroom in consented plans or called a bedroom by participants) but are used for something other than sleeping or do not contain a bed. The term 'guest bedroom' is used to describe a room with a bed that is not a bedroom for a permanent member of the household.

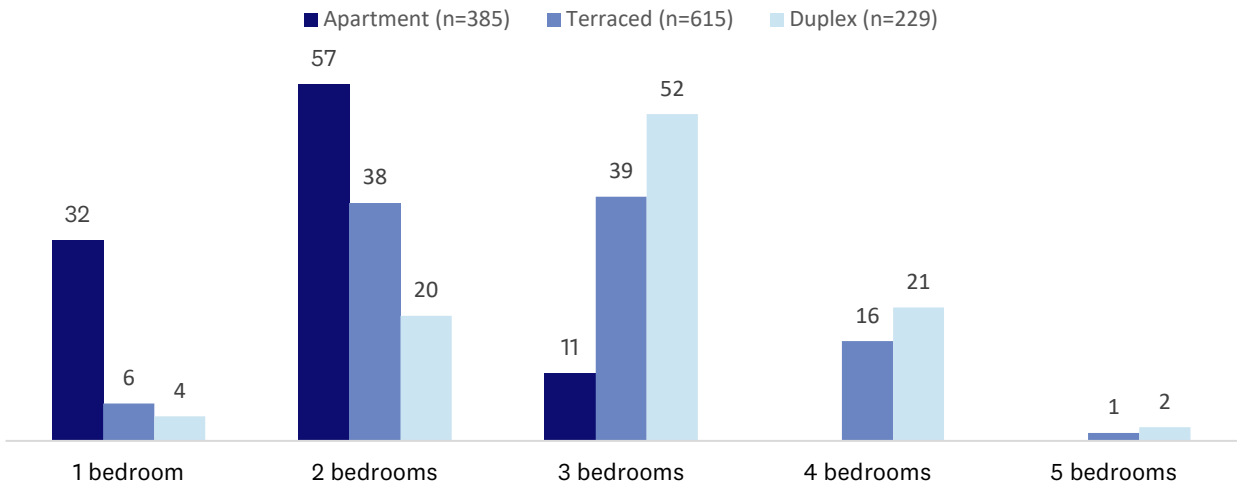
2.2.1 Number of bedrooms

In this section, survey and consented plan analysis results about the number of bedrooms are described.

Survey results

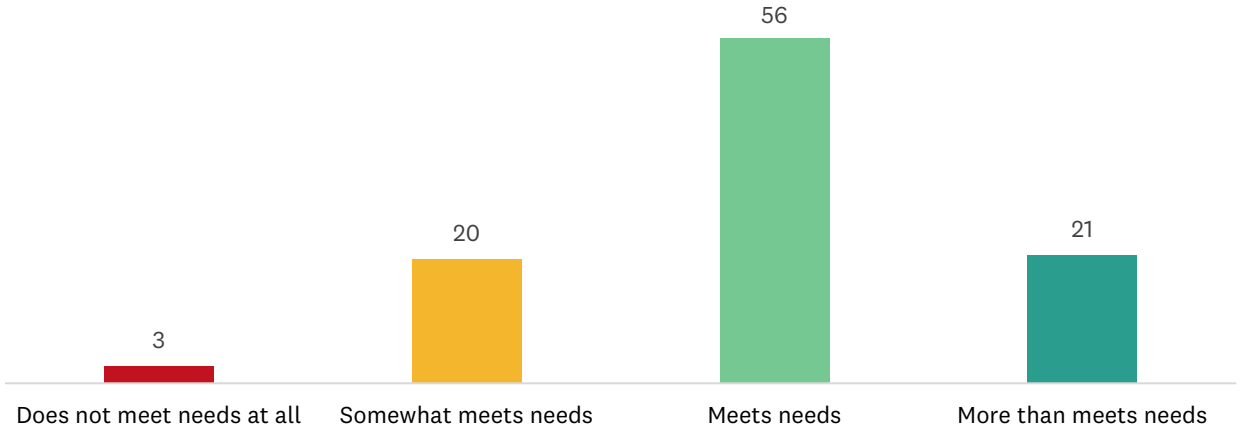
The largest proportion of properties in this study were reported to have two or three bedrooms (Figure 67). Apartments are more likely to have one bedroom (32%) than are terraced houses (6%) and duplexes (4%), which are more likely to have three bedrooms (39% and 52%, respectively).

Figure 67: Number of reported bedrooms in the home, by typology (%)



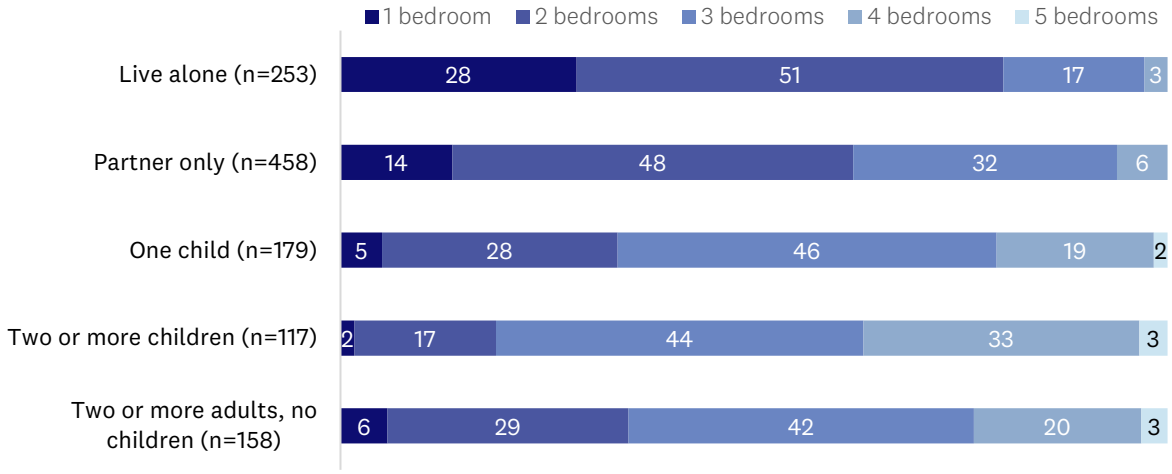
Participants were asked how well the number of bedrooms in the home meets the needs of the household. Over half (56%) reported that the number of bedrooms meets the needs of the household, 21 per cent reported the number of bedrooms 'more than meets' their needs and 20 per cent reported the number of bedrooms 'somewhat meets needs'. Participants with three bedrooms were more likely than those with one or two bedrooms to report the number of bedrooms more than meets their needs (Figure 68).

Figure 68: How well the number of bedrooms meets the needs of the household (n=1333) (%)



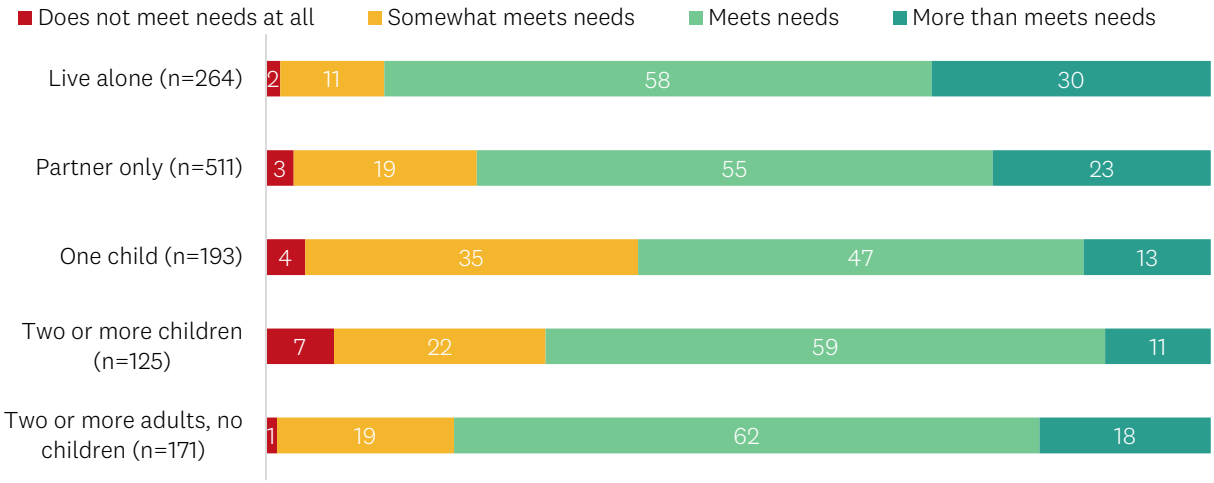
Households with children, or two or more adults and no children, were living in homes with more bedrooms than those who live alone or with a partner only (Figure 69).

Figure 69: Number of bedrooms, by household composition



As Figure 70 shows, households with one child were more likely to report the number of bedrooms 'somewhat meets needs' of the household (35%) compared with those who live alone (11%), with a partner only (19%) or with two or more adults and no children (19%). Those who live alone (30%) or with a partner only (23%) were more likely to report the number of bedrooms 'more than meets' the needs of the household compared with households with two or more children (11%).

Figure 70: How well the number of bedrooms in the home fit the needs of the household, by household composition



Generally, the results from the survey found a correlation between the number of people in a household and the number of reported bedrooms in the home (Table 10). For example, a large proportion (103, or 61%) of 1-bedroom homes were home to one person households. The largest proportion of 2-bedroom homes were home for two people, and the largest proportion of 3-bedroom homes were home to three people.

Table 10: Reported number of people in the household, by reported number of bedrooms (counts)

	1 person	2 people	3 people	4 or more people	Total
1 bedroom	103	51	6	8	168
2 bedrooms	180	243	54	18	495
3 bedrooms	64	189	91	58	402
4 bedrooms	15	51	33	50	149
Total	362	534	164	134	1214

Note: Households reported to have 5 or more bedrooms (n=12) have been excluded from table.

Consented plans

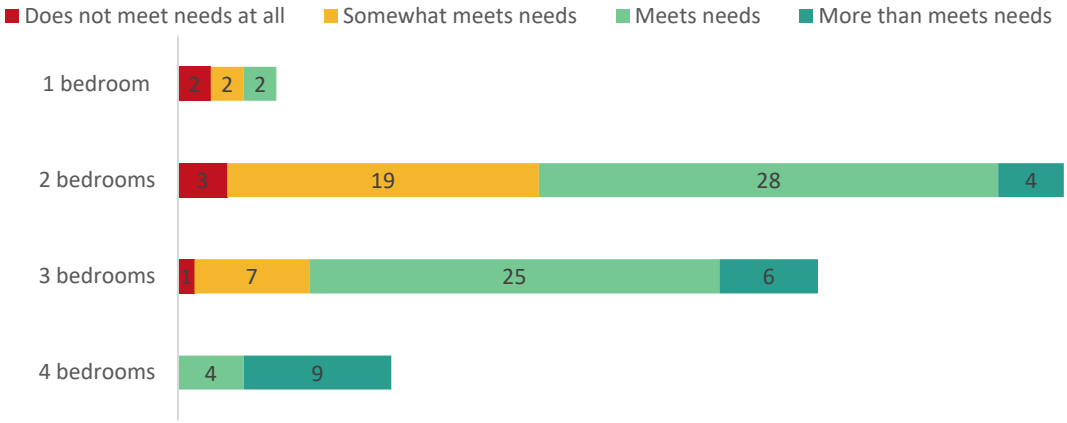
Almost half (45%) the properties included in the sample of consented plans analysed showed two bedrooms on the plans and a third (34%) showed three bedrooms.

Table 11: Number of bedrooms in a property (n=110 properties)

	Proportion
1 bedroom	8%
2 bedrooms	45%
3 bedrooms	34%
4 bedrooms	12%
5 bedrooms	1%

Larger numbers of participants in homes with fewer bedrooms reported the number of bedrooms ‘does not meet needs at all’ or ‘somewhat meets needs’ (Figure 71). Two participants in a 1-bedroom home and three participants in a 2-bedroom home reported the number of bedrooms ‘does not meet needs at all’ compared with only one participant in a 3-bedroom home and no participants in 4-bedroom homes.

Figure 71: How well the number of bedrooms meets the needs of the household, by number of bedrooms (counts)

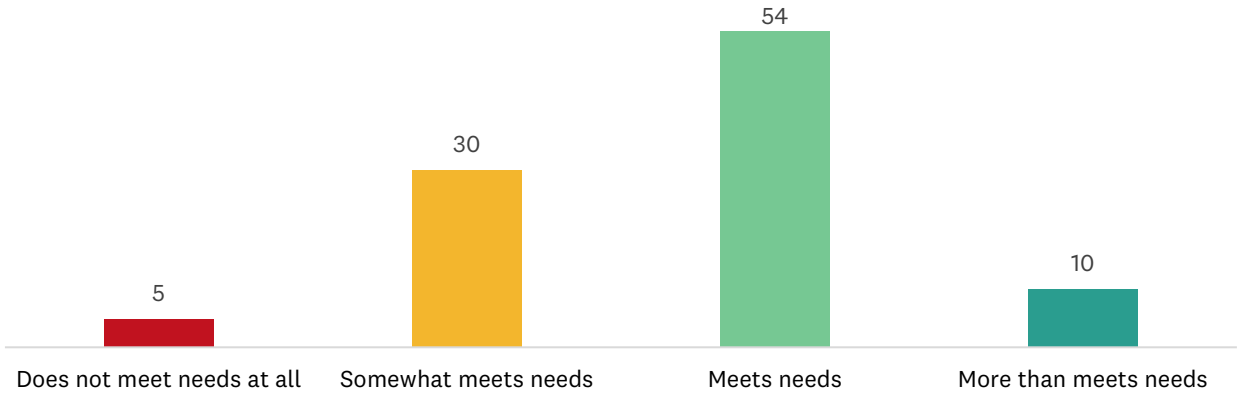


2.2.2 Size of bedrooms

Survey results

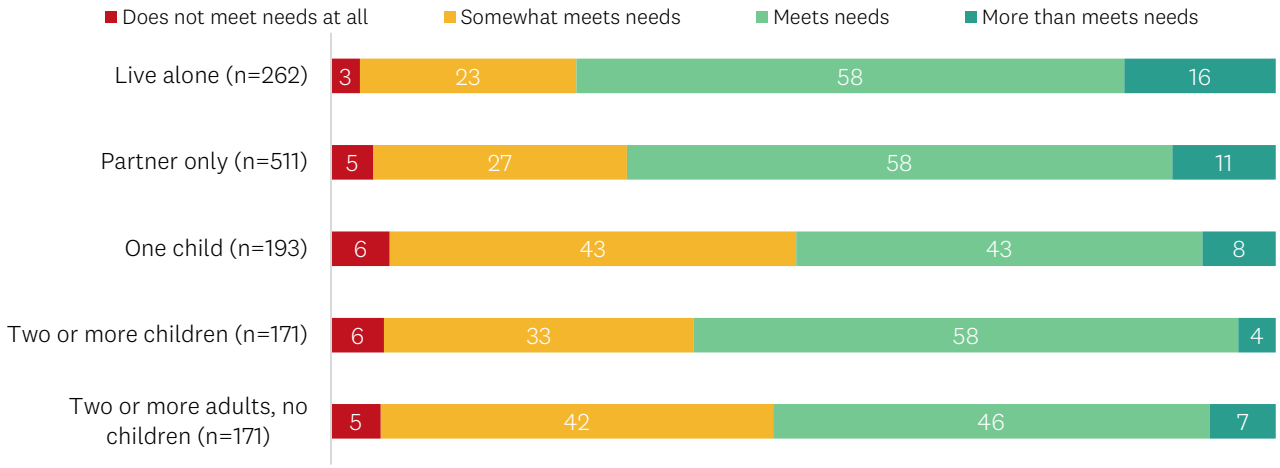
Over half (55%) of the participants reported the size of bedrooms in their home 'meets needs' of the household. Close to a third (30%) reported the size of bedrooms 'somewhat meets needs' of the household.

Figure 72: How well the size of bedrooms meets the needs of the household (n=1335) (%)



The participants who live alone (16%) were more likely to report the size of bedrooms in their home 'more than meets' the needs of the household compared with households with two or more children (4%). Those with one child (43%) or two or more adults and no children (42%) were more likely to report the size of bedrooms 'somewhat meets needs' compared with those who live alone (23%) or with a partner only (27%).

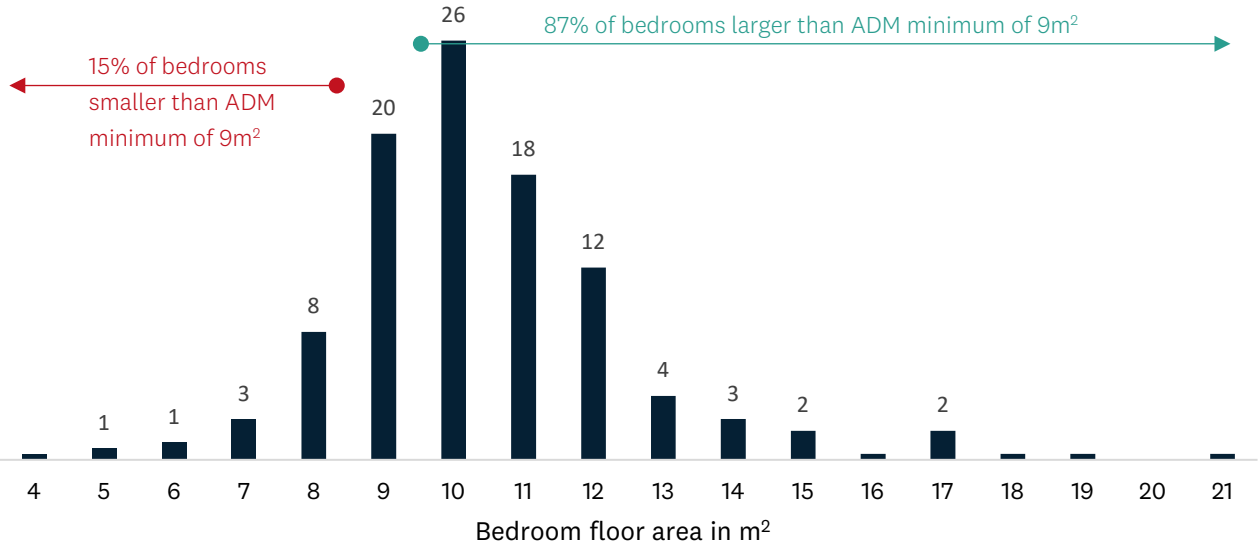
Figure 73: How well the size of bedrooms fits the needs of the household, by household composition (%)



Consented plans

The average bedroom size in the 110 consented plans analysed was 10.4m^2. The smallest bedroom in the sample was 4.4m^2 and the largest was 21m^2. Three-quarters of the bedrooms were between 9m^2 and 12m^2 (Figure 74).

Figure 74: Bedroom floor area (m^2) (n=277 bedrooms) (%)



Notes: 1. Measurement excludes wardrobe space and is rounded to nearest m^2.
2. Chart displays floor areas for 277 bedrooms across 110 properties. Labels for values less than 1% excluded.
3. Housing Improvement Regulations 1947 state that a bedroom, by definition, is at least 6m^2 and has a minimum dimension of 1.8m.

In this study, a bedroom under 8m^2 is defined as only able to accommodate a single bed and only able to accommodate one person,[22] whereas bedrooms larger than 8m^2 are defined as being able to accommodate a queen size bed. Thirty-five bedrooms in the sample were identified as single

[22] This floor area has been determined on the basis of the minimum dimensions required to accommodate a double or queen bed, and 0.8m of circulation space around the bed.

bedrooms. In the consented plans, these single bedrooms tended to have a single bed drawn against a wall.

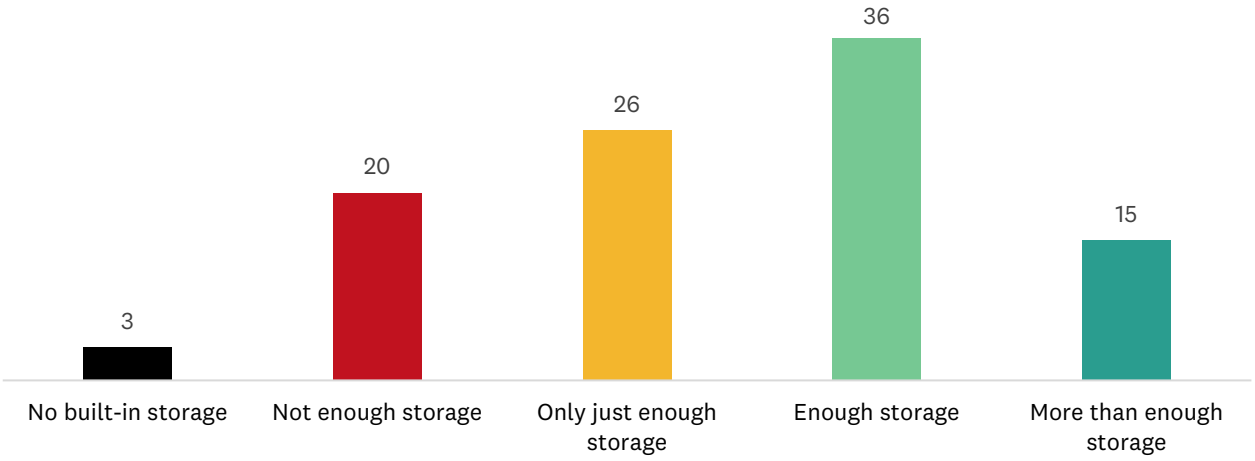
2.2.3 Storage for clothes and shoes

Survey results

Participants were asked to rate the amount of built-in storage for clothes and shoes (this can come in the form of wardrobes, coat cupboards or shoe racks).

One in five (20%) participants reported there is 'not enough storage' for clothes and shoes, 26 per cent reported 'only just enough' and 36 per cent reported 'enough storage' (Figure 75).

Figure 75: Participant ratings of the amount of built-in storage for clothes and shoes (n=1330) (%)



Note: Nine participants reported not having clothes and shoes and have been excluded from the chart.

Some participants commented about a lack of wardrobe storage when asked what they dislike about their home:

> *Due to lack of storage in the too-small wardrobe (we don't have many clothes), we needed a chest of drawers in the room which made it cramped and difficult to clean.*
>
> *No storage whatsoever! I have 1 single wardrobe that has a hot water tank inside!*

Consented plans

The average floor area of a wardrobe in the 110 consented plans we looked at was 1.5m^2. The largest wardrobe was 6.7m^2 and the smallest was 0.3m^2. There were very few properties with large walk-in style wardrobes and most wardrobes had a floor area of 1m^2.

The ADM guidance for wardrobes is based on the total floor area of all wardrobes in a home. The average wardrobe floor area for properties of all bedroom sizes exceeds the ADM minimum. However, not all homes exceed ADM guidance.

Table 12: Total floor area (m^2) of all wardrobes, by number of bedrooms

	Average	Maximum	Minimum	ADM
1 bedroom	1.4	2.2	0.5	1.0
2 bedrooms	2.9	4.8	1.9	2.18
3 bedrooms	4.4	8.9	2.0	3.18
4 bedrooms	7.4	10.8	4.8	—

Source: *Auckland Design Manual,* Residential Design Element R6: Unit Layouts and Room Sizes.

In-home immersions

Generally, wardrobes were working well for the participating households. However, it was not uncommon for participants to supplement the built-in shelving and racks in wardrobes with baskets or shoe racks. The fitout of wardrobes with racks and minimal shelving can lack functionality without additional storage, resulting in dissatisfactory storage of clothing (e.g. stored on the floor).

Figure 76: Sets of drawers added to wardrobe

Figure 77: Baskets added to a wardrobe.

Figure 78: Shoe rack, hooks (left) and baskets (top shelf) added to a wardrobe

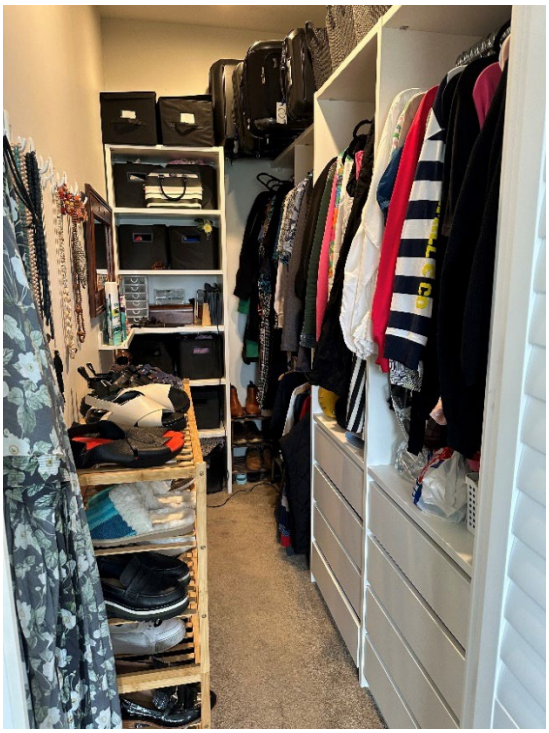


Figure 79: Wardrobe lacking additional storage resulting in clothing stored on the floor

In some homes, wardrobes were also used for the storage of linen, paperwork or other household items, and this can result in additional drawers being required for clothing. This finding reflects the design observations described in Section 2.1 on wardrobes being used for household storage, and furniture placed in front of windows.

Figure 80: Linen (top shelf) and boxes (bottom) in a wardrobe

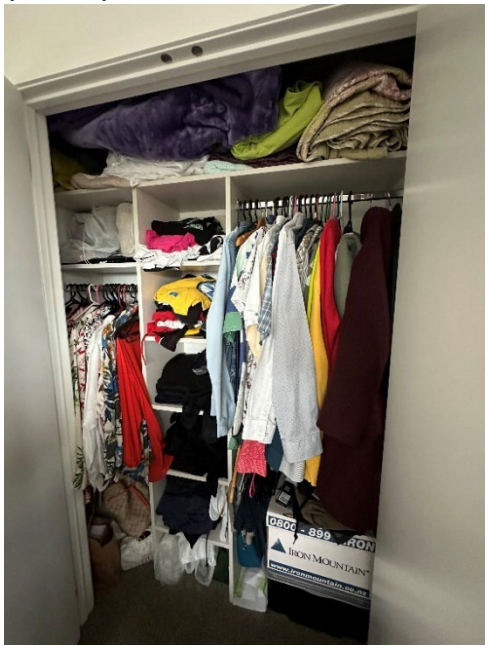


Figure 81: Drawers and shelves in a bedroom to provide storage for clothing

Note: Drawers have been intentionally placed in front of full height window to improve privacy.

Shoes were infrequently stored in bedrooms and several participants added shoe storage furniture to their entranceways (which for one household was through their garage).

Figure 82: Shoe rack by front door

Figure 83: Shoe rack inside front door

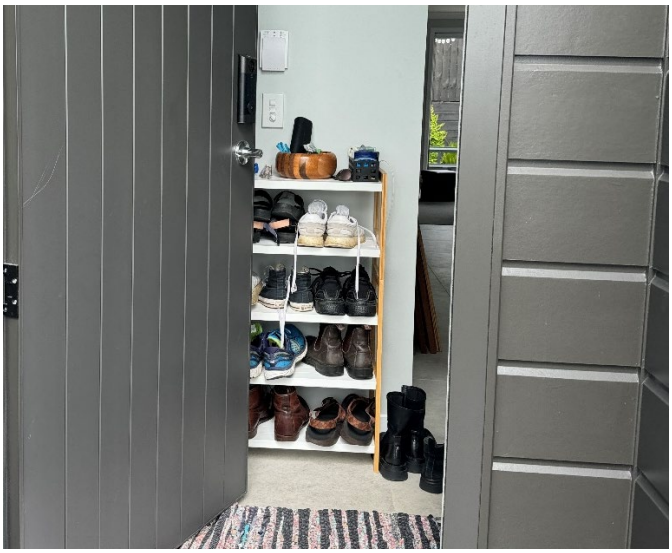
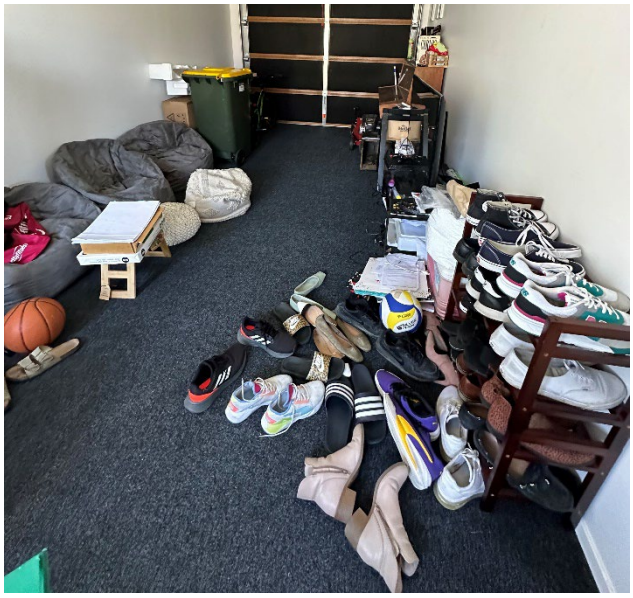
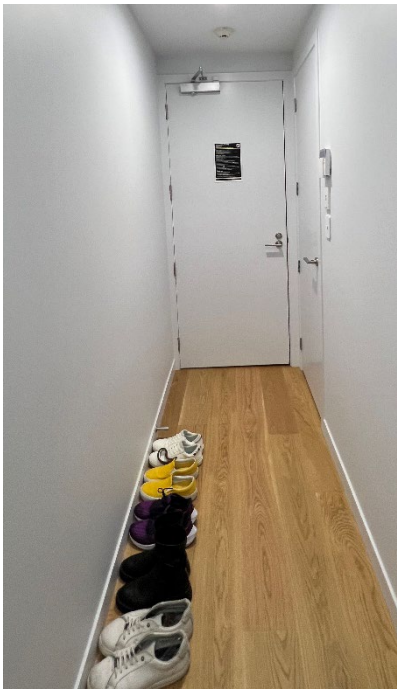


Figure 84: Shoe rack in garage



Note: Household enters their home through the garage and do not use their front door.

Figure 85: Shoes stored in a hallway



2.2.4 Uses of bedrooms

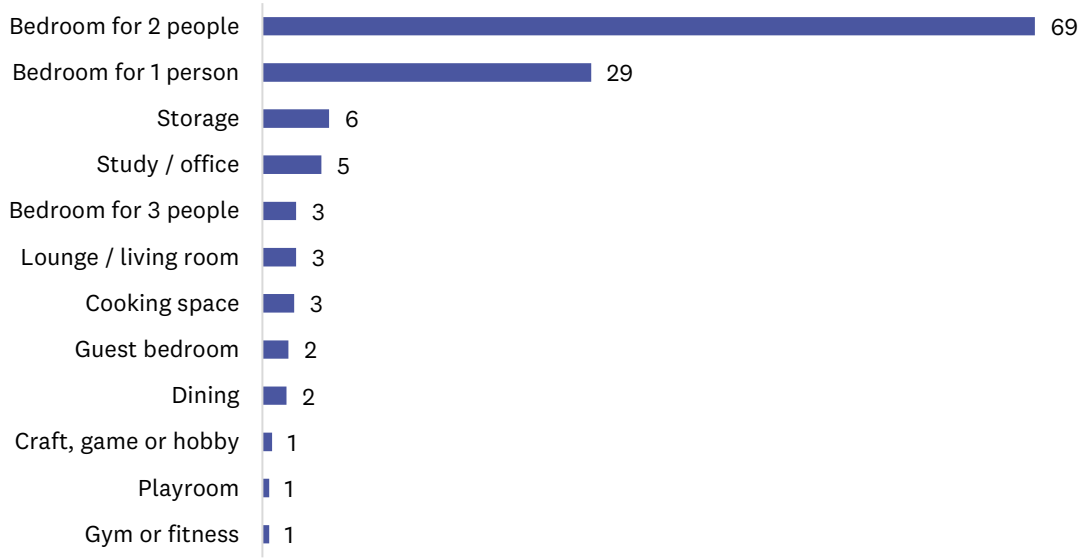
Survey results

This section reports on uses of bedrooms. Participants were asked how they used the different spaces which they had previously indicated were part of their home.

The participants who indicated in the survey they had a ‘main bedroom’ were asked how this room was used. The main bedroom was used as a bedroom for two people by 69 per cent of participants and a bedroom for one person by 29 per cent.

The majority (89%) of main bedrooms were reported to have one use, and 8 per cent to have two uses. The most common second uses for the main bedroom were for storage or as a study/office space (Figure 86).

Figure 86: Uses of the main bedroom (n=1154) (%)

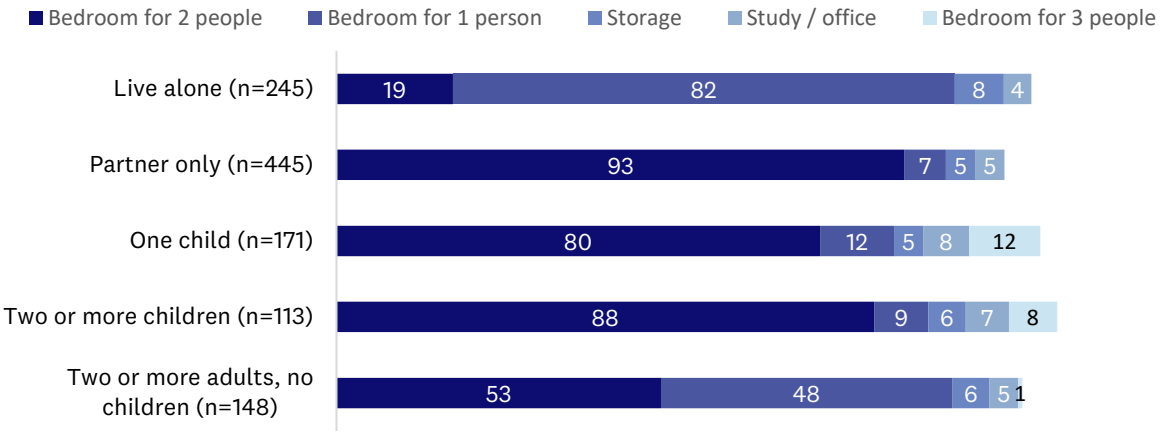


Notes: 1. Base is all households with a 'main bedroom'.
2. Six participants said they used the main bedroom as a prayer room. This is less than 1 per cent of the sample, so is not visible on the chart.
3. Multiple responses allowed; therefore, total does not sum to 100.

The uses of a main bedroom are generally consistent across different household compositions (Figure 87). For all household compositions, except those living alone, the main bedroom is most frequently used as a bedroom for two people. Some households with children report using the main bedroom as a bedroom for three people (12% of one child households and 8% of households with two or more children). The third person is likely a baby as a few participants described having a bassinet in their main bedroom.

Nineteen per cent of the participants who live alone reported that their main bedroom is a bedroom for two people. Participants may have interpreted this question to be asking how many could use the bedroom and answer that it is a bedroom for two people if the room contains a double bed.

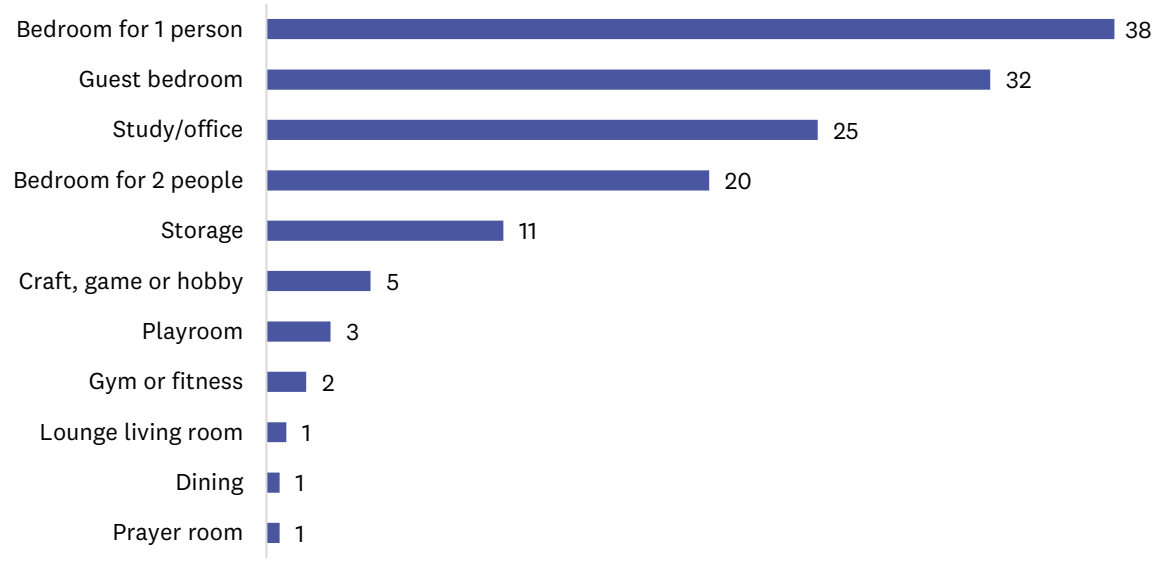
Figure 87: Uses of the main bedroom, by household composition (%)



Notes: 1. Base is all the households with a 'main bedroom'.
2. Multiple responses allowed; therefore, total does not sum to 100.

The participants who reported having a second bedroom were asked how this was used. Second bedrooms were used by over a third (38%) of participants as a bedroom for one person. Thirty-two per cent report using a second bedroom as a guest bedroom. A quarter (25%) of participants use a second bedroom as a study and 20 per cent as a bedroom for two people (Figure 88).

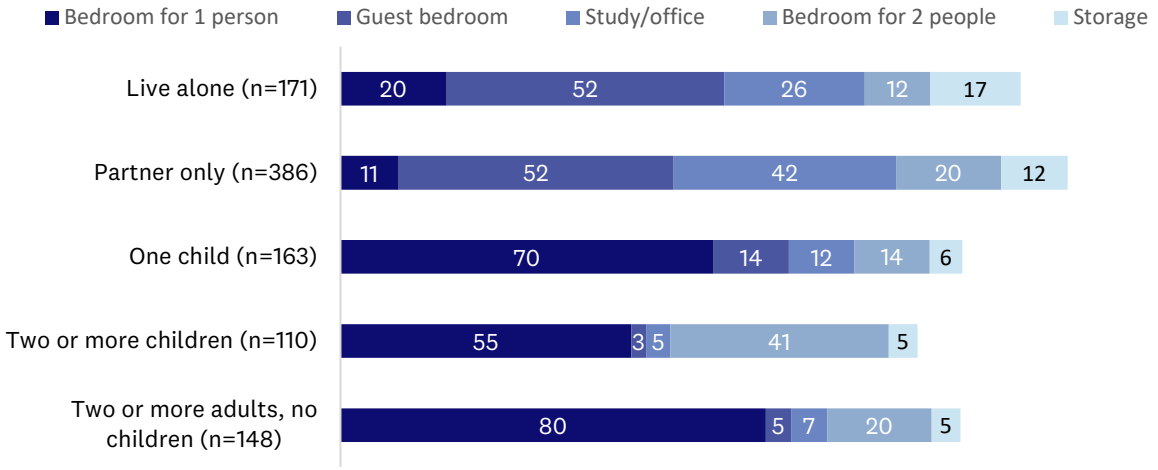
Figure 88: Uses of a second bedroom (n=1008) (%)



Notes: 1. Base is all the households with a 'second bedroom'.
2. Multiple responses allowed; therefore, total does not sum to 100.

Uses of second bedrooms vary across different household compositions (Figure 89). Households with one child (70%) or with two or more adults and no children (80%) were more likely to use the second bedroom as a bedroom for one person than those who live alone (20%) or with a partner only (11%). Households with two or more children were more likely to use the second bedroom as a room for two people (41%) compared with all other household compositions. Guest bedrooms were the most frequently reported use of second bedrooms for those who live alone (52%) or with a partner only (52%) compared with all other household compositions.

Figure 89: Uses of second bedroom, by household composition (%)

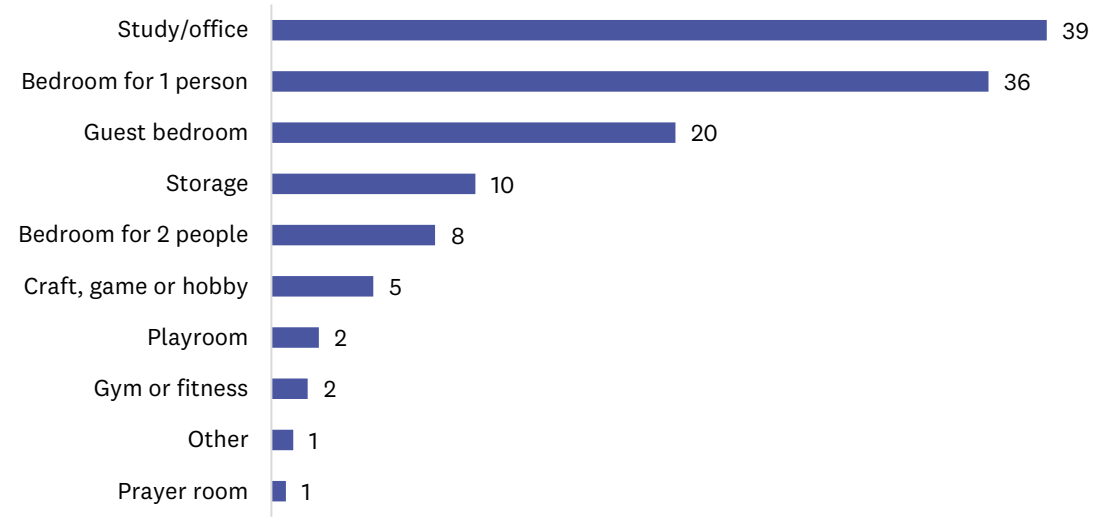


Notes: 1. Base is all the households with a 'second bedroom'.
2. Multiple responses allowed; therefore, total does not sum to 100.

Over a third (39%) of third bedrooms were used as a study or office space and a similar proportion (36%) were used as a bedroom for one person (Figure 90). Eight in ten (82%) third bedrooms had one use and 12 per cent had two uses.

Households with two or more children were more likely to use a third bedroom as a room for one person (66%) compared with those who live alone (30%), with a partner only (11%) or with one child (37%). Households with a partner only (60%) are more likely than any other household composition to use a third bedroom as a study or office space.

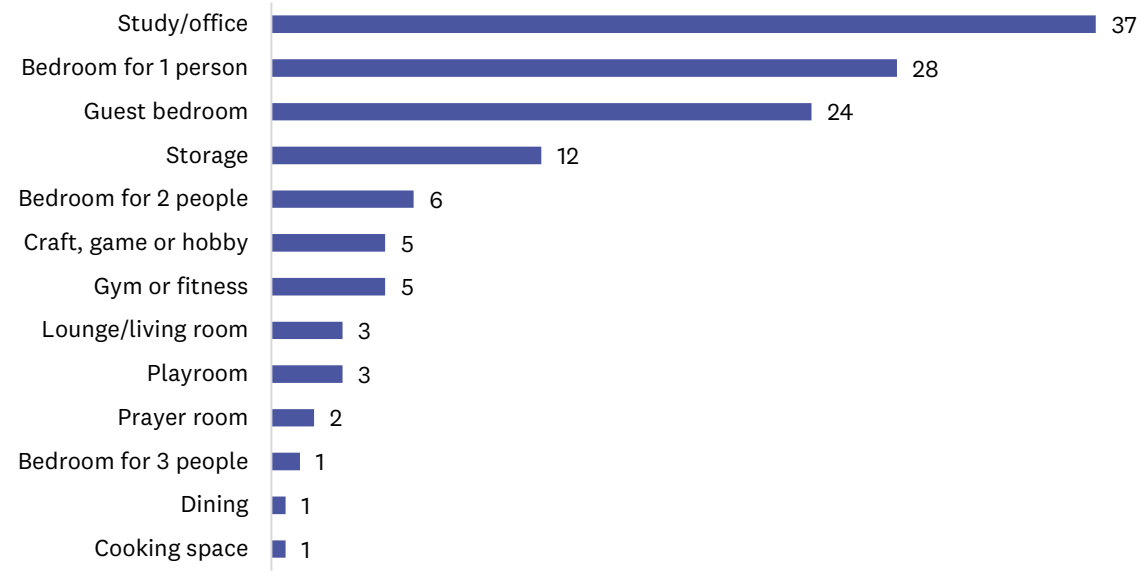
Figure 90: Uses of the third bedroom (n=545) (%)



Notes: 1. Base is all the households with a 'third bedroom'.
2. Multiple responses allowed; therefore, total does not sum to 100.

The use of fourth bedrooms also varies. The three main uses were as a study/office (37%), as a bedroom for one person (28%), and as a guest bedroom (24%) (Figure 91).

Figure 91: Uses of a fourth bedroom (n=157) (%)



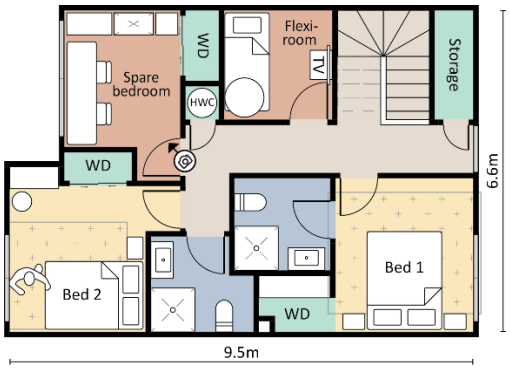
Notes: 1. Base is all the households with a 'fourth bedroom'.
2. Multiple responses allowed; therefore, total does not sum to 100.

In-home immersions

In-home immersions found that bedrooms (i.e. closed rooms with a window and wardrobe) tend to be used as a bedroom (i.e. a place for sleep), or as a space for other activities (e.g. for hobbies, media, office, play space) and/or home management (e.g. for laundry, storage, vacuum). The figures below demonstrate uses of spare bedrooms in four households.

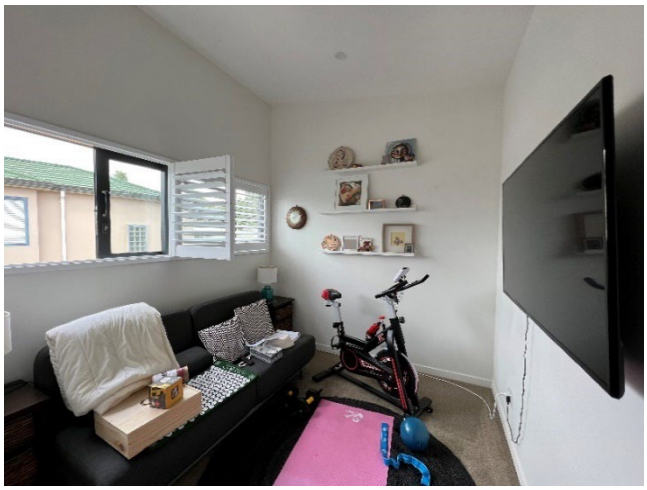
The first spare bedroom, in a home to a couple and their teenage daughter, is a craft room (Figure 92). The couple used one bedroom with the larger wardrobe and smaller floor area (bed 1), and the daughter the larger floor area bedroom (bed 2). The daughter was also the primary user of the flexi-room (Figure 61).

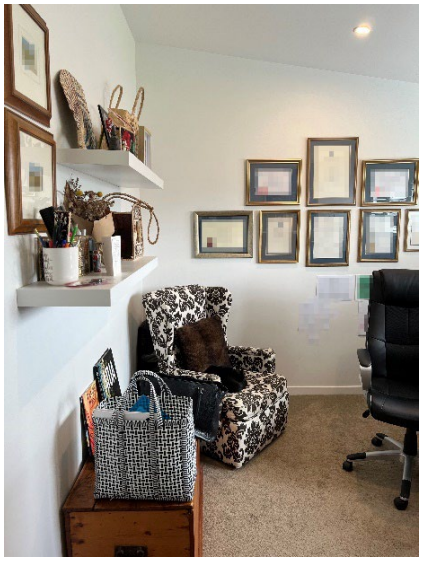
Figure 92: Spare bedroom used as a craft room



The home in Figure 93 had two spare bedrooms. One of these rooms is used as an office, and the other as both a media room and for exercise (Pilates equipment and spin bike). This 2storey duplex was home to a couple and their adult daughter. The couple used the bedroom with the walk-in wardrobe and ensuite (bed 1), and the daughter the other bedroom (bed 2).

Figure 93: A home with two spare bedrooms – one used as a media room and exercise space, the other as an office





The 2-storey duplex pictured below was home to one person. Their spare bedroom was multi-purpose, being used to practise musical instruments, for ironing, and for storage of their vacuum cleaner, heaters, spare mattress, boxes etc.

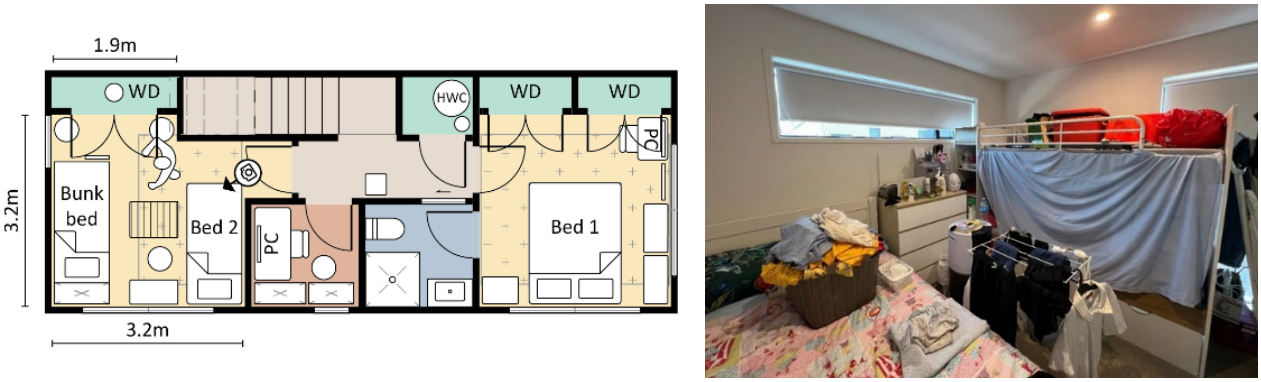
Figure 94: Multi-purpose spare bedroom

The spare bedroom in Figure 95 was used for drying laundry and household storage (e.g. suitcase, fan, documents and office supplies). This was a home to one person.

Figure 95: Spare bedroom used for laundry and storage

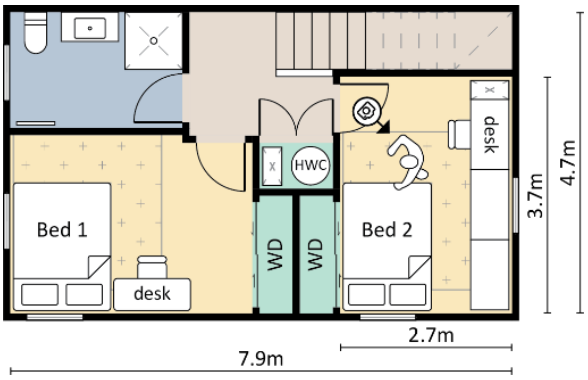
Bedrooms were infrequently being used as both a bedroom and as a space for other activities (e.g. office or for laundry). Households that were lacking a spare bedroom to be used as a space for other activities described above, struggled to find spaces in their homes for such activities. One bedroom was shared by a teenage daughter and her grandmother. The room is also used to dry laundry and a top bunk bed is used for storage of suitcases and other bulky items (Figure 96).

Figure 96: A 10m² bedroom for two people, and other activities



One participant who was now living alone had recently had a flatmate. She used her bedroom as a bedroom as well as a space to work at a desk, and had created a reading nook atop the drawers by the window (Figure 97). Her bedroom was her private space away from her flatmate. Accommodating these uses of the room required her bed to be against the wardrobe. The wardrobe was accessed by standing on the bed. She had selectively purchased furniture from overseas that exactly fitted along the length of the wall.

Figure 97: 10m² main bedroom with office space and reading nook



3 Overall size of the home

The size (floor area) of a dwelling and the internal arrangement of rooms are meant, in the AUP, to provide functional spaces for the intended number of people in the household. Optimal floor area and room arrangement affords flexibility and ease of living, including activities that the home can support as well as privacy between different room uses.

This section first describes regulations and best practice relating to the overall size (internal floor area) of homes. Analysis of the 110 consented plans follows in Section 3.2. The final section presents five case studies containing the consented floor plans of a survey participant's homes alongside their comments about the size of the home and descriptions of how different spaces in the home are used by the household.

3.1 Regulations and best practice guidance

Approaches to regulations and guidelines

There are two main approaches to the design of a home in respect of its overall size, from a planning and design perspective. These are a minimum floor area approach and a design-led approach.

Minimum Floor Area

Minimum floor area requirements for different activity areas or rooms and/or overall dwelling size is adopted in many design guidelines and planning standards/rules. While minimum floor area rules are simple to apply to the design of a dwelling, and to confirm compliance with from a consenting perspective, they are a blunt and inflexible tool to manage the design of spaces, as they do not consider the variability of dwelling layout and circulation (such as space taken up by stairwells and hallways). And while they do protect against the very smallest floor areas, they can also have the unintended consequence of dwellings being designed to the absolute minimum required standard, rather than designing for function and amenity.

The same minimum floor area standard in the AUP applies to all housing typologies including standalone houses, terraced houses, duplexes and apartments. This ignores the significant difference in dwelling layouts arising from the typologies– a terraced house has two to three levels and as such will include a greater amount of space dedicated to circulation (i.e. staircases and associated hallways), whereas an apartment is typically on one level in a multi-storey building and will have far less circulation space. Both the Kāinga Ora Ngā Paerewa Hoahoa Whare Design Requirements and the Public Housing Design Guidance acknowledge this by recommending different gross floor area requirements depending on the number of levels of a dwelling; for example, a single level 2-bedroom dwelling has a minimum floor area requirement of 70m^2, whereas a 2-storey 2-bedroom dwelling has a minimum floor area requirement of 82m^2 – a 17 per cent increase on the single-storey floor minimum area. Australian design guidance referenced in this study also have different guidelines for terraced houses and apartments, in acknowledgement of their different typological characteristics.

There is inconsistency across the AUP and design guidelines referred to in this study with respect to the measurement of 'floor area'. Where a minimum floor area is required or recommended, the definition of this as either net or gross floor area is significant. The AUP and best practice guidance referenced in this report includes both methods of measurement (for example, see Table 1 where the ADM uses net floor area and the other two New Zealand guidelines use gross floor area).

Gross floor area is defined in the AUP as the sum of the area of all floors of a building measured from the exterior faces of the exterior walls, or from the centre line of walls separating two adjoining dwellings (e.g. terraced houses). The AUP gross floor area definition also includes balconies and garages but excludes carparking.[23] Gross floor area by this definition will therefore be larger than the net floor area. However, depending on the design and layout of a dwelling, it may not necessarily mean that the different activity areas within a home are functional. From the consented plan analysis undertaken as part of this research, gross floor area is most commonly used in resource consent and building consent application drawings.

Net internal floor area is defined in the AUP as the floor space between the finished surfaces of internal walls between rooms and excludes both balconies and garages.[24] The net floor area is therefore a more accurate calculation of usable floor area for a particular room or space. However, where circulation is included in a total net floor area, it may not provide an accurate representation of how functional individual rooms or activity areas are. For the purposes of the consented plan analysis and in-home immersion interviews, a net internal floor area has been used to be consistent with the AUP and is a more accurate measurement of useable floor space for individual rooms/spaces. Notwithstanding this, based upon the consented plans of the 20 in-home immersion homes, the amount of space dedicated to circulation ranged between 0 to 13 per cent (of the total net internal floor area, excluding garages and balconies) for a single-storey dwelling (n=7 dwellings), 9 to 17 per cent for a 2-storey dwelling (n=13 dwellings), and 25 per cent for the one 3-storey dwelling.

Design-led approach

An alternative approach to a minimum floor area is a more design-led approach related to the functionality of different activity areas or rooms through design principles. This approach requires consideration of the needs of different activity areas relative to the number of people a dwelling has been designed to accommodate. The spatial requirements of each activity area are then considered to ensure it is functional, including circulation. This method allows more flexibility for designers while still ensuring that spaces are functional for their intended use. It also allows for more adaptable layouts that can provide for changes in household needs. However, a design-led approach is not as simple to determine compliance with compared with a minimum floor area approach. A design-led approach requires a more discretionary consenting framework, and in some instances, determination of compliance with the design principles is undertaken by a design review panel.[25]

[23] *Auckland Unitary Plan,* Chapter J1 Definitions.
[24] Ibid.
[25] For example, the New South Wales Housing State Environmental Planning Policy and Assessment Regulations 2021 established a Design Review Panel to determine compliance with the New South Wales Apartment Standards, which take a design-led approach.

The Apartment Design Guidelines for Victoria takes a somewhat hybrid approach where minimum dimensions and areas are specified for some activity areas (bedrooms and living areas) but also requires that the usability, functionality and amenity of a room, including configuration of furniture and circulation space, is demonstrated.

Auckland Unitary Plan (AUP)

The AUP adopted the minimum floor area approach and specifies a minimum net internal floor area of 30m^2 for studio dwellings and 45m^2 for one- or more bedroom dwellings in the Mixed Housing Suburban (MHS), Mixed Housing Urban (MHU) and Terraced Housing and Apartment Building (THAB) zones.[26] The purpose of these standards is "to ensure dwellings are functional and of a sufficient size to provide for the day to day needs of residents, based on the number of occupants the dwelling is designed to accommodate".[27] However, this is an assessment matter for four or more dwellings in the MHS and MHU zones, [28] and all dwellings in the THAB zone, rather than a standard or rule for compliance, and is considered as part of a resource consent application.

The minimum dwelling size does not increase proportionately with the number of bedrooms; i.e. a 1-bedroom dwelling of 45m^2 and a 3-bedroom dwelling of 45m^2 would both comply with the standard. This appears at odds with the purpose of the standard, which requires the dwelling to be functional for the number of occupants the dwelling is designed to accommodate. The standard therefore only prevents the smallest of floor areas.

The minimum dwelling size standards in the AUP were derived from the minimum gross floor areas for studio and 1-bedroom apartments in the legacy Auckland City Council Central Area District Plan rules for apartments.[29] These rules were adopted in 2011 in response to the 'shoe box' apartments in the city centre in the 2000s and research commissioned by the then national Building Industry Authority.[30] However, the legacy Central Area District Plan rules for apartments differ to the AUP in that they also applied minimum floor areas of 70m^2 for 2-bedroom and 90m^2 for 3-bedroom apartments.

The AUP minimum dwelling standards therefore ignore the significant differences in dwelling layouts and circulation requirements for different dwelling typologies.

Auckland Design Manual (ADM) and best practice guidance

The ADM also adopts the minimum floor area approach and recommends minimum activity areas/rooms and a total minimum net internal floor area depending on the number of bedrooms (and therefore intended number of occupants).[31] These minimum guidelines were also taken from the

[26] *Auckland Unitary Plan,* Terraced Housing and Apartment Building zone Standard H6.6.17, Mixed Housing Urban zone Standard H5.6.16 and Mixed Housing Suburban zone Standard H4.6.15.
[27] *Auckland Unitary Plan,* Purpose of Terraced Housing and Apartment Building zone Standard H6.6.17, Mixed Housing Urban zone Standard H5.6.16 and Mixed Housing Suburban zone Standard H4.6.15.
[28] 'Assessment matters' in the AUP require *consideration* in the assessment of resource consents as opposed to being a requirement.
[29] City of Auckland – District Plan, Central Area Section. Operative 2004. Appendix 12 Minimum Residential Apartment Standards. A. Matrix of minimum gross floor areas for components of various residential apartment types.
[30] Heslop, V., Lysnar, P., Dixon, J. et al. (2004). *Living the highlife? A review of apartment living in inner city Auckland* (A report prepared for the Building Industry Authority). Uniservices, University of Auckland.
[31] *Auckland Design Manual*, Residential Design Element R6: Unit Layout and Room Sizes.

legacy Auckland City Council's Auckland Central Area District Plan rules.[32] It is therefore questionable as to whether these minimum floor areas are appropriate for all medium density typologies, particularly multi-level terraced houses and duplexes with their additional circulation requirements. As outlined previously, the consented plans of the 20 in-home immersion properties had up to 25 per cent of the total net internal floor area dedicated to circulation.

As mentioned above, both the Kāinga Ora Design Requirements and the Public Housing Design Guidance acknowledge the additional circulation requirements of multi-level homes by recommending floor areas based on the number of storeys (Table 13).

The National Medium Density Design Guide, while not specifying minimum dwelling sizes, does recommend a minimum terraced house or apartment width be greater than 4.5m.[33]

All of the design guidance referred to in this report has larger minimum floor areas than the AUP (by up to 150%) and ADM (by up to 47%).

Table 13: Best practice guidance for minimum dwelling size (m^2)

Number of bedrooms	Auckland Unitary Plan (net)	Auckland Design Manual (net)	NZ Public Housing Design Guidance and Kāinga Ora Design Requirements (gross, excl. garages, decks and patios)		NSW Apartment Design Guide (net)	NSW Low Rise Housing Diversity Design Guide (net)	Victoria Apartment Design Guidelines (net)
			One level	Two level			
Studio	$30m^2$	$30m^2$	—	—	$35m^2$	—	Functional layout with furniture and circulation space adequate for the number of people
1 bedroom	$45m^2$	$45m^2$	$50m^2$	—	$50m^2$	$65m^2$	
2 bedrooms	$45m^2$	$62m^2$	$70m^2$	$82m^2$	$70m^2$	$90m^2$	
3 bedrooms	$45m^2$	$82m^2$	$95m^2$	$107m^2$	$90m^2$	$115m^2$	
4 bedrooms	$45m^2$	—	$118m^2$	$130m^2$	—	$127m^2$	

Sources:
- *Auckland Unitary Plan*, Residential Standards H4.6.15, H5.6.16 and H6.6.17 Minimum Dwelling Size.
- *Auckland Design Manual*, Residential Design Element R6: Unit Layouts and Room Sizes.
- Ministry of Housing and Urban Development. (2022). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Table 2.
- Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirement* (Version 1.1), Table B2.1-1.
- New South Wales Department of Planning and Environment. (2015). *Apartment Design Guide*, Part 4 Designing the Building. Section 4D.
- New South Wales Department of Planning and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Section 2.3K Terrace Dwelling Size and Layout, Design criterion 70.
- State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines for Victoria*, Section 3 – Dwelling Amenity.

[32] *City of Auckland – District Plan*, Central Area Section. Operative 2004. Appendix 12 Minimum Residential Apartment Standards. A. Matrix of minimum gross floor areas for components of various residential apartment types.
[33] Ministry for the Environment. (2023). *National Medium Density Design Guide*, Section 7, Rule of Thumb.

Findings from Section 35 (s35) monitoring

The council's s35 monitoring of the AUP found that a broad range of dwelling sizes and number of bedrooms are being provided to meet the diverse needs of Aucklanders,[34] and in most instances, the dwelling sizes exceed the AUP's minimum standards.

Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

- The typical terraced house width of 4m limits the spatial arrangement and flexibility of the dwelling layout.
- It is becoming common for each bedroom to have an ensuite, which can result in room sizes and storage provision being compromised.
- Secondary living spaces shown on consented plans as 'family' or 'media rooms' are designed in a way (e.g. with a conventional hinged door, a wardrobe and ensuite) that would allow them to be used as bedrooms, further compounding size and functionality of kitchen, dining spaces and lounges.
- Dwelling facilities such as hot water cylinders are being placed outside due to internal space constraints.

3.2 Consented plans

The ADM does not provide guidance for circulation space (e.g. hallways, stairs), flexi-rooms/studies or garages. As a result, the total internal floor area of homes, including such spaces, is lacking a direct comparison in best practice guidance. To overcome this limitation, the analysis of 110 consented plans presented in this section combines the floor areas of rooms/spaces which are included in the ADM's minimum dwelling size recommendation (Table 13). These rooms/spaces include lounges, kitchens, dining spaces, bedrooms and wardrobes, and bathrooms. The floor areas of additional living spaces (i.e. flexi-rooms), garages and circulation space (i.e. hallways, stairs) are excluded. The results of this analysis are presented in Table 14.

The average floor areas for lounges, kitchen and dining, bedrooms and wardrobes have been previously shown in earlier sections of this report (see Section 1.3 and Section 2.2.2 in this chapter). As mentioned in Section 1.3.3, the size of lounges, on average, are more than 10m^2 smaller than the ADM recommended minimum. Kitchen and dining spaces are slightly larger than the ADM minimum, although this difference may be due to the challenge of determining where a dining space ends and a lounge begins in an open plan kitchen, lounge, dining space layout.

The average floor area of bedrooms in both 2- and 3-bedroom homes is 10m^2, which is slightly larger than the ADM recommended minimum of 9m^2. For 2-bedroom homes, the total floor area of these two bedrooms is 20.3m^2, on average, and the three bedrooms of 3-bedroom homes is 30.4m^2.

[34] Auckland Council (2022). *Auckland Unitary Plan Section 35 monitoring,* B2.3 A quality built environment, page ix.

Table 14: Floor area (m^2) of consented plan sub-sample properties and ADM minimums, by rooms and spaces

		1 bedroom	2 bedrooms	3 bedrooms
Lounge	Average in sample	—	13.4	14.7
	ADM minimum	20	24	28
Kitchen and dining	Average in sample	—	16.9	18.5
	ADM minimum	10.8	13.2	16.2
KLD subtotal	Average in sample	—	30.3	33.1
	ADM minimum	30.8	37.2	44.2
Bedroom	Average in sample	—	10.1 (20.3 total)	10.4 (30.4 total)
	ADM minimum		9	9
Bathroom	Average in sample	—	3.9 (6.1 total)	3.6 (9.8 total)
	ADM minimum		3 (3 total)	3 (6 total)
Laundry	Average in sample	—	—	—
	ADM minimum	0.84	1.26	1.26
Wardrobe	Average in sample	—	2.9	4.4
	ADM minimum	1.0	2.18	3.18
Internal floor area	Total of sample averages		59.6	77.6
	ADM minimum	45	62	82

Notes: 1. Values representing 30 or fewer properties are marked with a dash and have been excluded from the table.
2. 'Internal floor area: total of sample averages' is the average of KLD subtotal, all bedrooms, all bathrooms, all wardrobes.
3. Laundry floor area is not included in the consented plan analysis, as it was often understairs, in a cupboard or in the garage (if applicable).

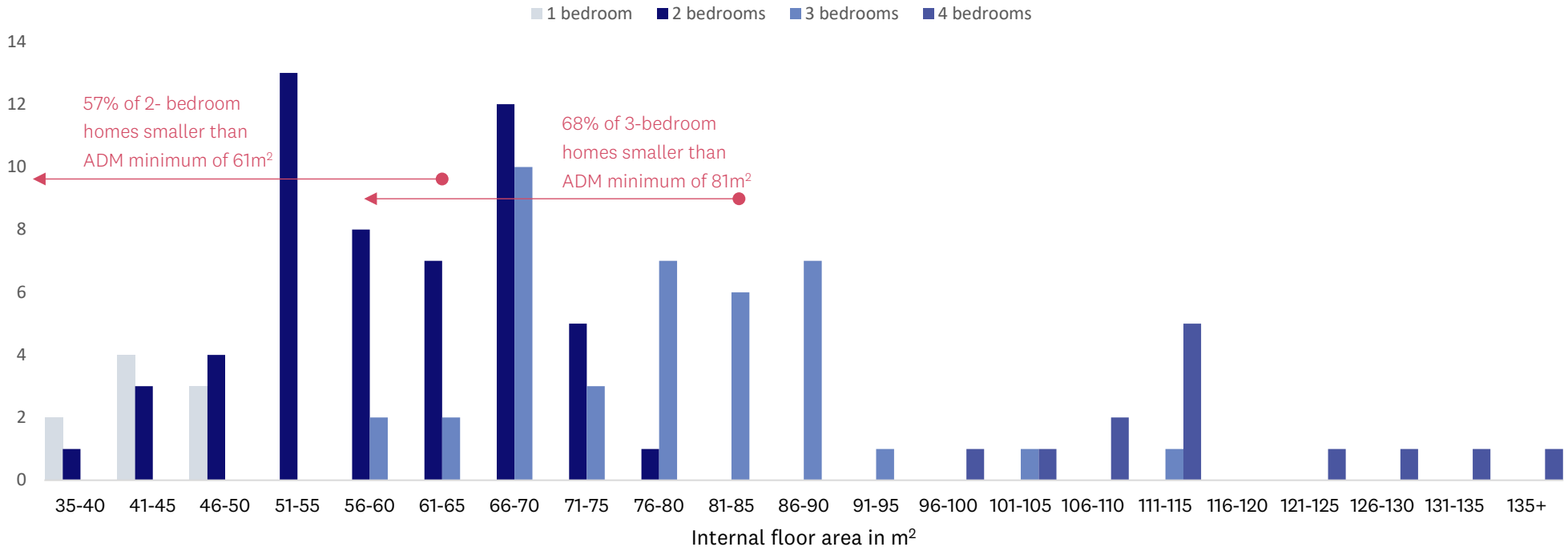
The ADM recommends one bathroom of a minimum $3m^2$ for 2-bedroom homes, and two bathrooms totalling a minimum of $6m^2$ ($3m^2$ each) for 3-bedroom homes. The consented plans of 2-bedroom homes analysed had an average of $6.1m^2$ dedicated to bathrooms, which often comprises either two bathrooms (rooms with a shower or bath), or a bathroom and a WC (i.e. separate toilet). Three-bedroom homes show a similar pattern, with an average of $9.8m^2$ dedicated to bathrooms. This combined 'bathroom' floor area is representing several bathrooms or a combination of bathrooms and WCs. Compared with the ADM, the consented plans analysed have on average $3m^2$ more floor area dedicated to a bathroom (or WC) than is recommended. Bathrooms are discussed further in Chapter 5 on Storage, laundries and bathrooms.

The average internal floor area of all these spaces combined for 2-bedroom homes was $59.6m^2$ and for 3-bedroom homes was $77.6m^2$. These figures are smaller than the ADM minimums of $62m^2$ for a 2-bedroom home and $82m^2$ for a 3-bedroom home.

The consented plan analysis also recorded the net total internal floor area of the home, inclusive of all space including those excluded from ADM guidelines. The net total internal floor area measurement recorded included hallways, stairwells, secondary living spaces such as study/office space or flexi-rooms, and garages (which are not included in the ADM guidance). For 2-bedroom homes, the net total internal floor area on average is 77m^2, and for 3-bedroom homes, it is 119m^2. These measurements are much larger than the sum of net internal floor areas for the ADM specified rooms and spaces in a home and are indicative of the amount of space consumed by circulation spaces primarily, and also additional living spaces such as flexi-rooms and studies not included in guidelines.

Figure 98 shows the distribution of the internal floor areas of the 110 consented plans analysed. These floor areas are inclusive only of the rooms/spaces included in the ADM minimum dwelling size recommendation. In addition to the average 2- and 3-bedroom homes being smaller than the minimum, this figure shows 57 per cent of 2-bedroom homes and 68 per cent of 3-bedroom homes are smaller than the ADM minimum. This chart also shows the distribution of the small number of 1- and 4-bedroom homes in the sample.

Figure 98: Internal floor area (m²) (ADM comparable), by number of bedrooms



Note: Floor areas represented include the sum net floor area of bedrooms, wardrobes, lounge, kitchen, dining and bathrooms. This excludes circulation space, flexi-rooms/studies, garages, storage cupboards, balconies and outdoor living areas.

3.3 Survey results: Perceptions of overall size of homes

The size of their home was a common theme when participants were asked about what they like the most and least about their homes. Being too small (dislike) was mentioned by 15 per cent of participants (183 comments), while being a good size was mentioned by 12 per cent (137 comments).

To provide further context, a selection of quotes from the survey are displayed below, alongside drawings of the consented plans for their home for five participants. The arrangement of furniture and implied uses of different rooms and spaces is an interpretation of the consented plans and does not necessarily reflect how the household has set-up their home.

These comments demonstrate both positive and negative sentiments towards the size of homes and how well homes are meeting the needs of the household.

Example 1

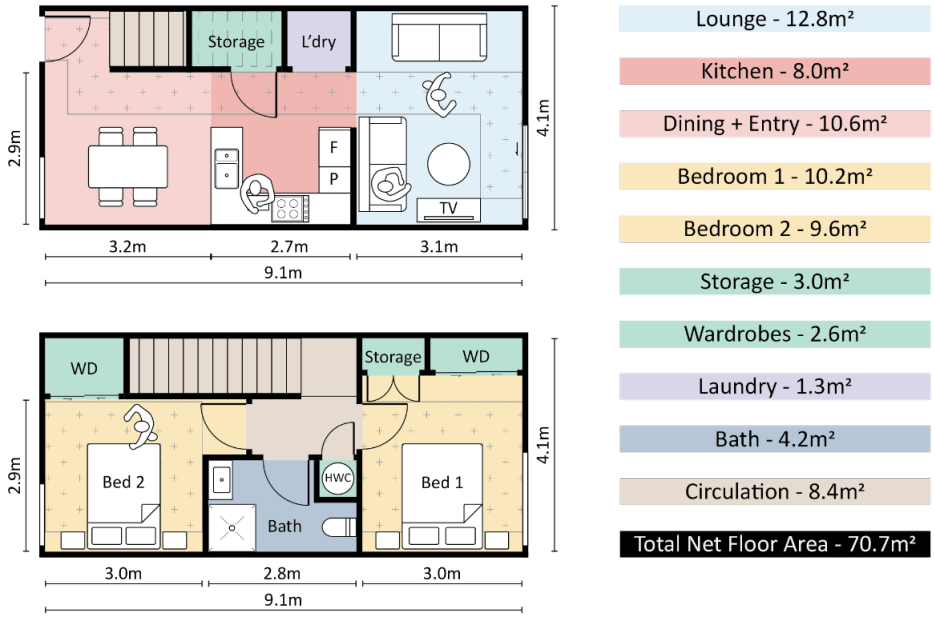
Figure 99 shows the floor plan of the home of one participant who lives in a household with two adults and a pre-school aged child. They said there was:

> *Simply not enough space for two adults and a baby (and all the items babies come with!)*

The combined kitchen, dining space and lounge of their home was 31.4m^2 which is close to 6m^2 smaller than the ADM recommended size of 37.2m^2 for a 2-bedroom home. The ADM recommends a minimum bedroom size of 9m^2 and so 6m^2 is equivalent to a small single-bedroom amount of space 'missing' from the combined kitchen, dining, lounge in this home. The main living area of this home is described by the participant to be a lounge, for dining, and for their child to play.

The participant describes their home as having two bedrooms and explained how these rooms are used. One bedroom sleeps all three members of the household with their young child in a bassinet. The other bedroom is used as a study, for storage and as a bedroom for one person (this may be for the child when they are older).

Figure 99: 70.7m^2 2-bedroom, 1 bathroom duplex consented floor plan



Example 2

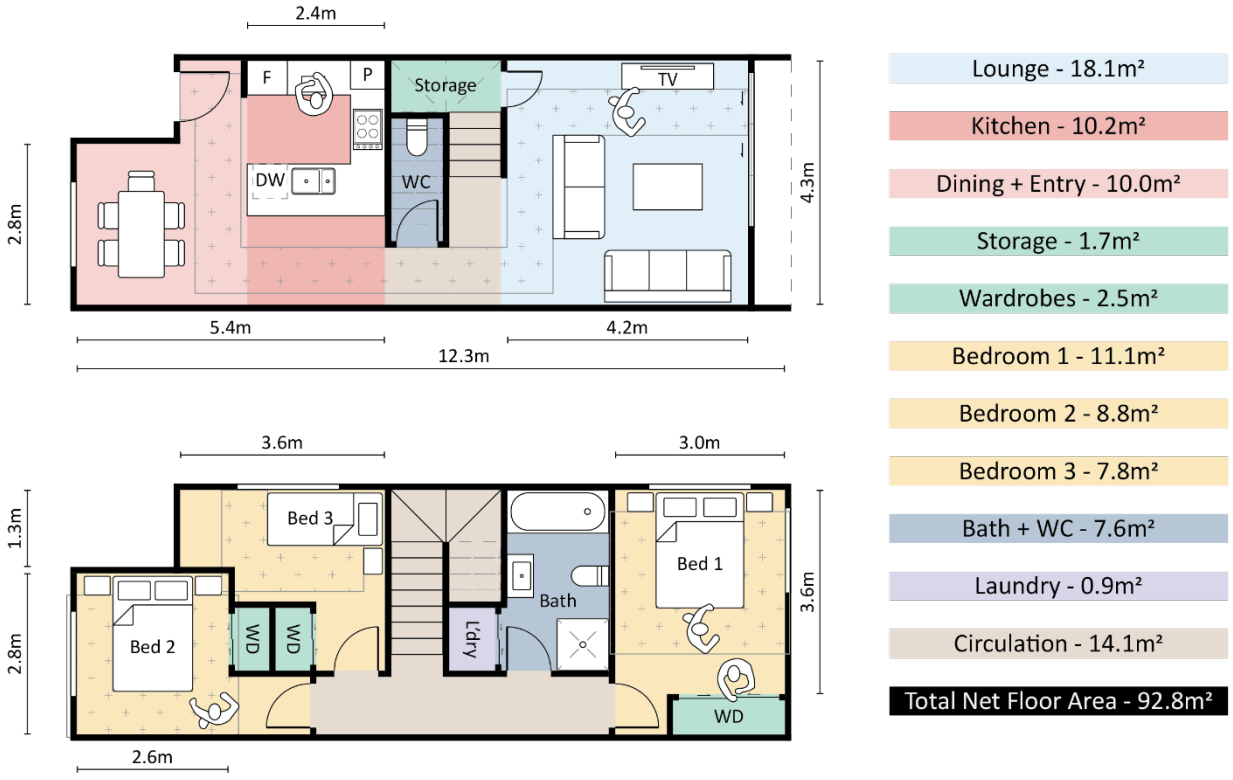
One participant living in a household consisting of two adults and two primary school aged children said:

> *There is very little space. It is a small 3 bedroom and very small outdoor space.*

As Figure 100 shows, the combined kitchen, dining and lounge area of their home is 38.3m^2 which is close to 6m^2 smaller than the ADM recommended size of 44.2m^2 for a 3-bedroom home.

This home has three bedrooms, with only one bedroom (11.1m^2) larger than the ADM recommendation of 9m^2. The other two bedrooms are 8.8m^2 and 7.8m^2. The long and narrow almost L-shape of the smallest bedroom (bed 3) is such that it can only fit a single bed. All three bedrooms in this home are used as bedrooms for the four members of the household. There are no spare bedrooms in this home and the bedrooms are reported to only be used as bedrooms (i.e. they are not also functioning as spaces for play, hobby, study etc.).

Figure 100: 92.8m^2 3-bedroom, 1 bathroom, 1 WC terraced house consented floor plan



Example 3

A participant who was living alone in a property with two bedrooms, two bathrooms and a flexi-room said:

> *Small living spaces, small bedrooms, no storage facility.*

The combined kitchen, dining and lounge area of this home is 16.3m^2 which is less than half (44%) of the ADM recommended size of 37.2m^2 for a 2-bedroom home (Figure 101).

One of the two bedrooms was larger than the ADM recommended minimum of 9m^2, at 11.6m^2, but the other was smaller, at 8.2m^2. The participant described their home in the survey as having three bedrooms and one living space. One bedroom is used as a bedroom for one person. The second bedroom is a guest bedroom and used for storage. The third bedroom (noted as a flexi-room on the floor plan below) is used as a study, for storage and as a 'pet room'.

The only built-in storage in this home are two wardrobes (totalling 2.2m^2 of floor space). There is no built-in storage for linen, household items (e.g. suitcases, vacuum cleaner, laundry rack), or personal possessions (e.g. hobbies, books, memorabilia).

Figure 101: 65.8m² 2-bedroom, 1 flexiroom, 2 bathroom, 2-storey duplex floor plan

Example 4

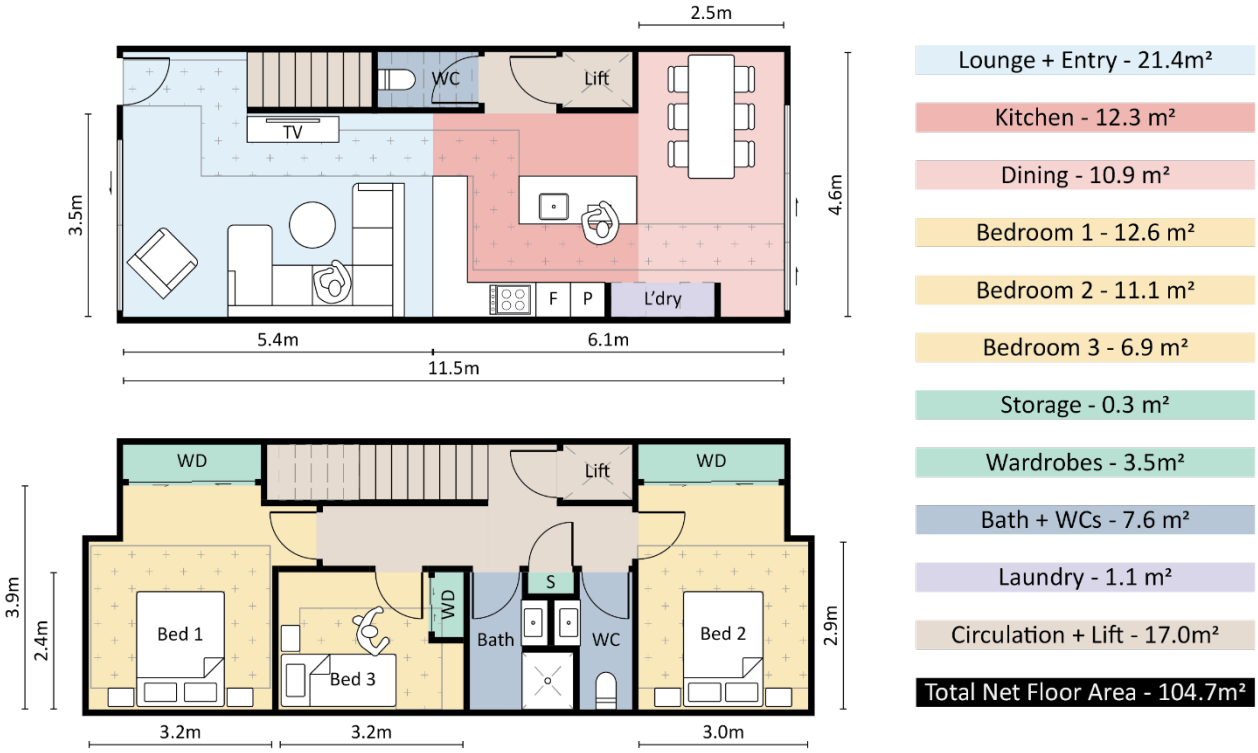
A household of two adults in a 104.7m^2 terraced house with 3 bedrooms said their home has:

> *Just the right amount of space indoors and outdoors.*

The combined kitchen, dining space and lounge of this home is 44.6m^2, which is slightly larger than the ADM recommended size of 44.2m^2 for a 3-bedroom home.

Two of the three bedrooms are larger than the ADM recommendation of 9m^2 (12.6m^2 and 11.1m^2). This participant described their home as having two bedrooms and two living spaces. One bedroom is used as a bedroom for the couple in the household and one bedroom is a guest bedroom and sewing room. The second living space, which is a spare bedroom, is used as a study.

Figure 102: 104.7m^2 3-bedroom 1 bathroom, 2 WCs terraced house floor plan



Example 5

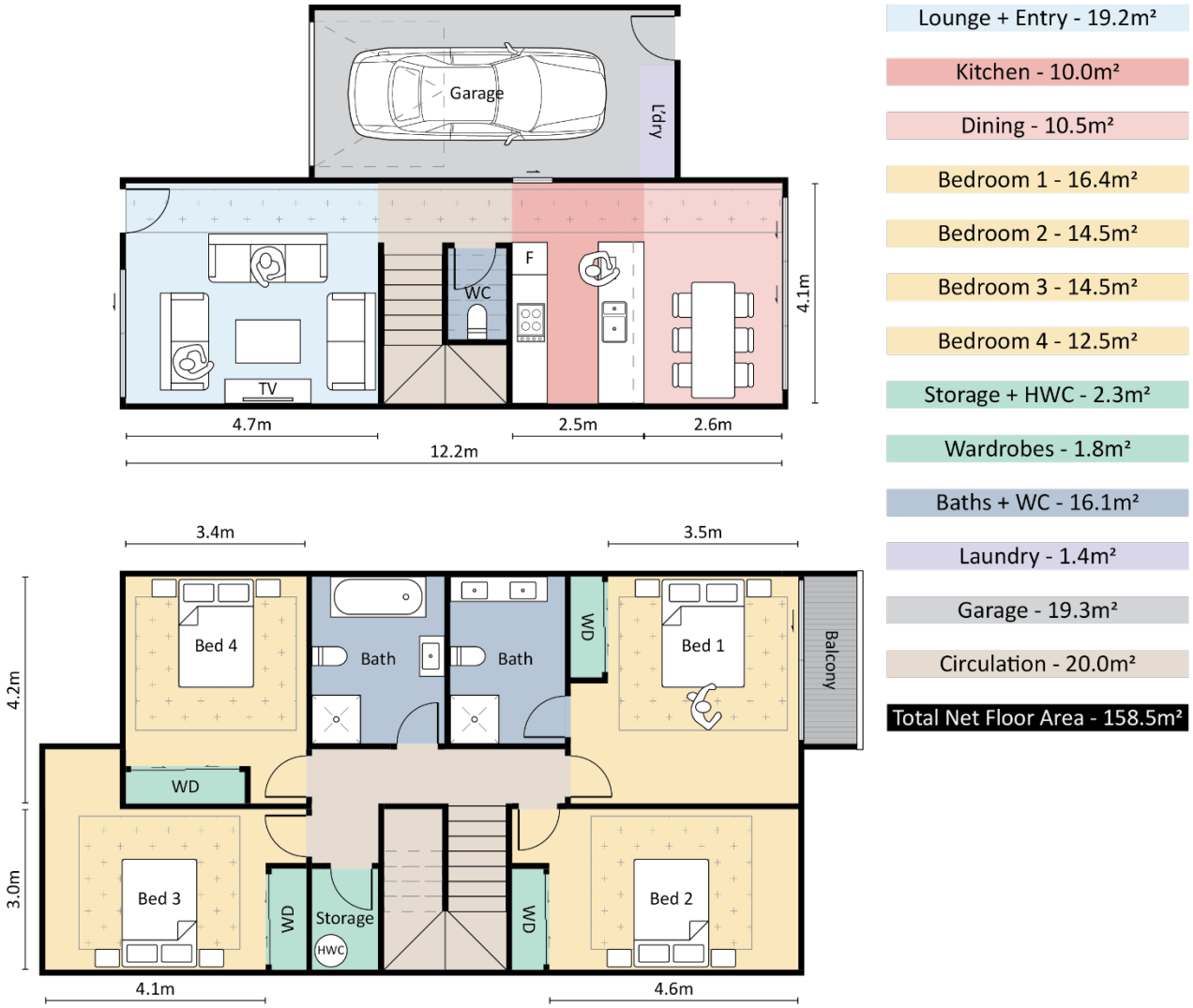
Another household, also with two adults, described what they like about their home:

> *We have more than enough space – only two of us in a 4-bedroom house, and only one car meaning we don't have to use the indoor garage, just the carport.*

This 158.8m^2 home has four bedrooms, all of which are larger than the ADM 9m^2 recommendation (the bedrooms range from 12.5m^2 to 16.4m^2). With just two adults in the household, this household is anticipated to have at least two spare bedrooms.

The ground floor kitchen, dining space, lounge is 39.2m^2. The ADM does not make recommendations for 4-bedroom homes, although a 3-bedroom home is recommended to have a kitchen, dining space and lounge of 42.2m^2. The participant's comment suggests that their garage is being used as a space for 'living' as their car is parked in the carport.

Figure 103: 158.8m2 4-bedroom, 2 bathrooms, 1 WC terraced house floor plan



4 Summary

AUP requirements are to deliver homes that are functional and of an adequate size to meet the day-to-day needs of residents (based on the number of occupants the dwelling is designed to accommodate.[35] The results presented in this chapter suggest that this outcome is not being achieved for all MDH. Overall, MDH is meeting some of the needs of some households. There are several reasons to explain this variance, including the impact of limited food storage in the kitchen resulting in pantries being placed in dining spaces and garages, inflexibility in how furniture can be arranged in lounges, and the importance of spare bedrooms. Homes with fewer people in the household appear to have greater flexibility within the spaces of their home and so are interpreted to have a more positive experience of their MDH compared with larger households who experience more constraints.

The sections below summarise the results presented in this chapter.

Size of spaces for living and their ability to accommodate activities of importance to participants

Lounges and combined kitchen, dining, lounge spaces are found to be substantially smaller than Auckland Design Manual (ADM) recommended minimum sizes. The size of these spaces for 'living' was found to not be meeting the needs of a notable proportion of the 1335 participants:

- Thirty-three per cent of participants report the size of the lounge 'somewhat' or 'does not meet' the needs of the household.
- Thirty-eight per cent of participants report the size of the kitchen, including the kitchen bench, 'somewhat' or 'does not meet' the needs of the household.
- Forty-one per cent of participants report the size of the dining space 'somewhat' or 'does not meet' the needs of the household.

The survey participants were asked what activities are important to them and how comfortable these were to do in their homes. Most participants reported that spending time with others in the household (89%) and having friends or whānau visit or hosting parties (82%) are 'somewhat' or 'very' important to them. However, having friends or whānau visit has the second highest proportion of participants (23%) reporting this to be 'somewhat' (18%) or 'very' uncomfortable (5%). Undertaking physical activities was also of high importance to 58 per cent of participants ('somewhat' or 'very' important) but has the highest proportion of participants reporting these to be 'somewhat' (27%) or 'very' uncomfortable (15%) to do in their home.

When asked what makes it uncomfortable to do activities important to them, participants reported a lack of space (43%) and storage (7%), describing how they need to rearrange furniture,

[35] For example, Mixed Housing Urban Policy H5.3(5) and associated minimum dwelling size standard H5.6.16, to "ensure dwellings are functional and of a sufficient size to provide for the day to day needs of residents, based on the number of occupants the dwelling is designed to accommodate".

unpack/repack equipment, or are simply unable to do activities that are important to them in their homes. Some participants reported that a lack of space is preventing them from comfortably having visitors to their home. This finding highlights a risk to wellbeing (social, mental, physical and spiritual) and a potential shift in the demand of public space, spaces shared with neighbours (e.g. communal outdoor living space, see Chapter 9: Shared facilities), or third-places to accommodate these activities.[36]

Working from home (90%), cooking a meal (90%), and spending time with others in the household (89%) were the most frequently reported activities to be somewhat or very comfortably done in the home. Fifty-eight per cent of participants reported the size or layout of their home is what makes it comfortable to do activities important to them. Living spaces need to be as flexible as possible to accommodate a wide range of activities and household needs.

Lounges and additional living spaces

Ninety-three per cent of homes are reported to have one living space. A small proportion (7%) of homes are reported to have a second living space (e.g. flexi-room, study, playroom, media room).

The number and size of lounges are more likely to 'meet' the needs of those who are living alone or with a partner only. Meanwhile households with children are more likely to report the number and size of lounges 'somewhat' meets the needs of the household. As the section below on bedrooms describes, this difference across household compositions may be the result of households without children using spare bedrooms as a space for living (e.g. as a study, hobby space or exercise space), which are less frequently available in larger households.

The dimensions of lounges and placement of power points can restrict the types and arrangement of furniture they can accommodate. This is resulting in lounges that only contain a sofa and TV and consequently are spaces primarily used for watching TV (and eating, see below section on dining spaces). Households in the in-home immersions said they found it challenging to find and arrange furniture that enables both watching TV and facing one another to have a conversation.

This limitation of lounges encourages asking where households are doing other activities like hobbies, play, exercise and study. Spare bedrooms appear to have a role in accommodating these activities, as do dining spaces and garages. A lack of built-in storage (e.g. pantry) can result in households adding storage furniture, which can compromise the available space to do activities in the home.

Kitchens

Thirty-eight per cent of participants reported the size of their kitchen 'does not meet' or 'somewhat meets' the needs of their household. The remaining 61 per cent report the size of the kitchen 'meets' or 'more than meets' their needs. Over half the participants reported having 'not enough' (26%) or 'only just enough' (27%) storage in the kitchen for food and equipment.

[36] A 'third-place' is 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.

In-home immersions found food storage to be a challenge in terms of:

- being difficult to access (e.g. requiring step ladders, squatting to reach understairs cupboards)
- the wrong size/shape for items (e.g. large pots, stand mixers)
- enabling a range of cultural approaches (e.g. Feng Shui)
- supporting safe food storage (e.g. appropriate temperature).

Participants are adding storage furniture to other spaces in their homes (e.g. dining spaces, lounges and garages) to compensate for storage limitations in their kitchens. This is having a flow-on effect on the uses of other spaces, such as being unable to park a car in the garage or a dining table taking up space in the lounge. Resolving functionality challenges with kitchen storage may therefore benefit not only the use of kitchens but also how other spaces in the home are able to be used, and even carparking.

Dining Spaces

Fifty-five per cent of participants reported their dining space 'meets' or 'more than meets' the needs of their household, while 41 per cent reported this space 'does not meet needs at all' or 'somewhat meets needs' and four per cent said they do not have a dining space. Little variation is seen across household compositions.

The in-home immersions show that eating is not an activity that only happens around a dining table. For a few households, having an evening meal together around a table was important, but for many, being able to watch TV while they ate was equally or more important. This way of living is unlikely to be a reality for only households living in MDH and encourages a reconceptualisation of 'dining spaces' in design guidelines.

Most of the households who participated in the in-home immersions had a dining table. These tables served several functions for households; for example, as an extension of the kitchen bench for food preparation, for hobbies like board games, for having a conversation or for working on a laptop. The dining table is a multi-functional piece of furniture, and the space it occupies in homes needs to facilitate much more than sitting members of the household to eat together. The multi-functionality of dining tables is especially critical given the limitations on furniture arrangement in lounges that can prevent lounges from being spaces for social activities done with others.

Bedrooms

Seventy-seven per cent of participants reported that the number of bedrooms in their home 'meets' or 'more than meets' the needs of the household.

The participants living in apartments reported having fewer bedrooms compared with those living in terraced houses and duplexes. Only 11 per cent of the participants living in apartments reported having three bedrooms (39% of terraced and 52% of duplexes had three bedrooms) and none of the participants living in apartments reported having more than three bedrooms. A greater supply of apartments with more bedrooms in Auckland may enable a wider range of household compositions to live in apartments.

The most frequently reported uses of main and second bedrooms are as bedrooms for one or two people. Those with third or fourth bedrooms are reporting these spaces to be used as a study, with slightly smaller proportions of participants reporting these rooms to be used as a bedroom for one person or as a guest bedroom. Households with children are more likely to be using second bedrooms as bedrooms for one or two people (likely bedrooms for children) compared with households without children.

The in-home immersions found that bedrooms tend to be used as a bedroom for a permanent member of the household or as a space for other activities (e.g. hobbies, as a study) and home management (e.g. for airing laundry, storage). When bedrooms are required to accommodate both being a bedroom and other activities *and* home management, this demand on a bedroom can become very challenging. Households with children and multi-generational households were more often lacking a spare bedroom in the in-home immersions.

These differences across household composition in having a spare bedroom may explain variation in satisfaction with kitchen, dining space, lounges and additional living spaces described earlier in this section. It is interpreted that spare bedrooms are providing a space for activities that are unable to be comfortably accommodated in spaces intended for living (i.e. lounges, dining spaces, flexi-rooms, etc.). Spare bedrooms are contributing to, for example, lounges 'meeting the needs' of the household when they are only able to function as a space for watching TV because a spare bedroom is available to be the space in which participants do hobbies, exercise, play or work. Conversely, lounges are 'not meeting the needs' of the household when there is no spare bedroom because in this situation, the lounge is also required to function as a space for hobbies, exercise, play, etc. Lounges can struggle to be multi-purposes spaces due to their dimensions and the space possibly containing furniture intended for other spaces (e.g. storage or dining table).

Close to half of the survey participants reported negatively about the amount of built-in storage for clothes and shoes (3% reported 'no built-in storage'; 20%, 'not enough storage'; 26%, 'only just enough'). Analysis of consented plans finds that, on average, wardrobes are slightly larger than the ADM minimum. This seems in conflict with high proportions of participants reporting not enough or just enough storage. However, the in-home immersions found that the space in wardrobes for clothes and shoes can be restricted by wardrobes having ducting for air conditioning, and because they are being used to store linen or hobby items. Wardrobes rarely include built-in storage for shoes and participants were found to add shoe racks to their wardrobes and/or be storing shoes elsewhere, such as in the garage or entranceway. The uses of wardrobes to store more than clothing and the lack of built-in shoe storage can explain that while the floor area of wardrobes is slightly larger than the minimum recommended in the ADM, insufficient storage elsewhere in the home is resulting in wardrobes being too small to meet the needs of households.

Garages

Just over half (53%) of the participants living in a terraced house or duplex reported having a garage in their home. Of those with at least one car and a garage, half (50%) report storing at least one car in their garage.

The survey participants reported using their garage for 'living' activities (20% of participants use their garage for gym or fitness, 9% for craft or hobbies, 5% as a study, and 3% as a playroom). The garage as a place for living was also seen in the in-home immersions, as places for fitness (e.g. treadmills), for socialising (e.g. teenager 'boy cave'), and as a place for laundry and storage for a range of items (e.g. bikes, food, wheelie bins, shoes, etc.).

The use of garages as a space for living could be explained as being the result of limitations on the intended living spaces (i.e. kitchen, dining, lounge, flexi-rooms, bedrooms) within the home, as discussed previously. Garages, like spare bedrooms, could be interpreted by households to be critical in making the experience of living in the home viable. Households without a garage or spare bedroom are facing significant challenges to living comfortably due to limitations described on spaces intended for living.

Garages are also used to undertake laundry, a use reported by nine per cent of the survey participants who have a garage in their home. The in-home immersions found garages are spaces where drying racks are put up and one participant had installed a washing line. Some garages are also the location for the washing machine and storing baskets of laundry.

Overall size of the home

Efforts to compare the internal floor area of homes to best practice guidelines has uncovered inconsistencies in definitions and approaches to measuring 'internal floor area'. For example, the total floor area guidelines in the ADM do not include circulation space (i.e. hallways and staircases) which can account for over 20m^2 in a 2-storey terraced house. The AUP defines a minimum net internal floor area, but it does not define how staircases in multi-storey homes are measured. Consented plans generally state the gross floor area and count staircases for every level (i.e. in a 2-storey home, the floor area of staircases is counted twice), which is at risk of artificially inflating the floor area. It is consequently challenging to draw conclusions about how well the overall size of MDH in this study is meeting guidelines and brings into question how guidelines are being applied through council processes such as consents and development contributions.

Circulation space is unable to be used as a space for living. Households are unable to use hallways or staircases safely or comfortably for activities. Layouts of homes should therefore aim to have the smallest possible amount of circulation space to enable the remaining space to be utilised. The floor plans displayed throughout this chapter illustrate terraced houses and duplexes are mostly rectangular and have similar layouts (i.e. kitchen, dining, lounge on ground floor and bedrooms on higher levels). More variation is seen in apartments with some having irregular shapes and others being more square than rectangular. Long and narrow rectangles can require more hallways (and therefore a smaller proportion of floor area for living), compared with squarer shapes. Guidelines on overall sizes of homes would benefit from considering the amount of 'useable' floor area that excludes circulation space and floor layouts/shapes that minimise circulation space.

Developing floor area recommendations for different housing typologies that considers variation in circulation space could assist in overcoming these limitations. Section 35 monitoring came to a similar conclusion in reporting that applying generic standards across different housing typologies is inadequate for medium density typologies and larger scale developments.

The size of their home was mentioned in 320 of the open response questions by participants when asked what they like and dislike about their home. Being too small (dislike) was mentioned by 15 per cent of participants (183 comments), while being a good size was mentioned by 12 per cent (137 comments). Looking at the floor plans and overall size of a small sample of these homes relative to the household composition, as well as uses of different rooms, again demonstrates that kitchen, dining spaces, lounges and bedrooms smaller than ADM recommended sizes are dissatisfactory, and the existence of spare bedrooms and garages are contributing to greater satisfaction.