

Life in Medium Density Housing
in Tāmaki Makaurau / Auckland

Chapter 5

Storage, laundries and bathrooms



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
- Chapter 5: Storage, laundries and bathrooms
- Chapter 6: Outdoor living spaces
- Chapter 7: Indoor environment
- Chapter 8: Carparking and vehicle storage
- Chapter 9: Shared facilities
- Chapter 10: Discussion and recommendations

Appendices:

- 1: References
- 2: NPS-UD and Auckland Regional Policy Statement objectives and policies
- 3: Survey invitation letter and reminder postcard
- 4: Survey consent form
- 5: Survey questionnaire
- 6: Standalone houses excluded from the sample
- 7: Survey sample characteristics
- 8: In-home immersion screener survey
- 9: In-home immersion discussion guide
- 10: Design attributes for analysis of consented plans
- 11: Map of broad geographic study areas
- 12: Study limitations
- 13: Codes for open ended responses

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

This chapter discusses spaces in the home that enable day-to-day life. This includes spaces for storage of household items (e.g. linen, suitcases, vacuum cleaners), laundries and bathrooms. As was discussed in the previous chapter on indoor spaces for living, in some homes, spaces for living are infringed on by storage and laundry when the provision for such aspects in a home are insufficient (e.g. wardrobes being used for linen or laundry happening in bedrooms where people sleep).

1 Household storage

This section reviews the provision of built-in storage for household items such as linen, occasional items such as suitcases, and general household equipment. It excludes wardrobes and kitchen cupboards, as they are covered in Chapter 4.

1.1 Best practice guidance and regulations

Having access to convenient, accessible and secure storage improves the functionality of dwellings. Storage additional to that provided in wardrobes and kitchen cupboards is required for small and bulky items including shoes, linen, suitcases, ironing boards, vacuum cleaners, sports and hobby equipment. Storage can be cleverly integrated into a dwelling, such as using the space underneath stairs, or attic space. The overall volume of storage should be proportional to the number of bedrooms in a dwelling and therefore the number of occupants.

Lack of storage can mean that spaces intended for other purposes (such as bedrooms or garages) are used for storage, or that certain items or activities cannot be accommodated in a dwelling, thus requiring an outdoor storage shed or off-site storage (e.g. commercial storage facilities).

Auckland Unitary Plan (AUP)

The AUP does not specify minimum storage requirements for medium density housing (MDH) but does require accommodation “to be designed to meet day to day needs of residents”,¹ and more specifically through the assessment criteria for residential development, that dwellings “provide secure and conveniently accessible storage for the number and type of occupants the dwelling is designed to accommodate”.²

Auckland Design Manual (ADM) and best practice guidance

The *Auckland Design Manual* (ADM) recommends that a range of storage solutions are provided for, including indoor and outdoor storage (i.e. sheds). Storage solutions should provide easy access to regularly used items such as vacuum cleaners and linen. For less regularly used items, such as suitcases and sporting equipment, this could be provided for in less convenient spaces such as attics, within garages or in lockable outdoor storage sheds. Outdoor storage should also be considered for gardening equipment, tools and bicycles.

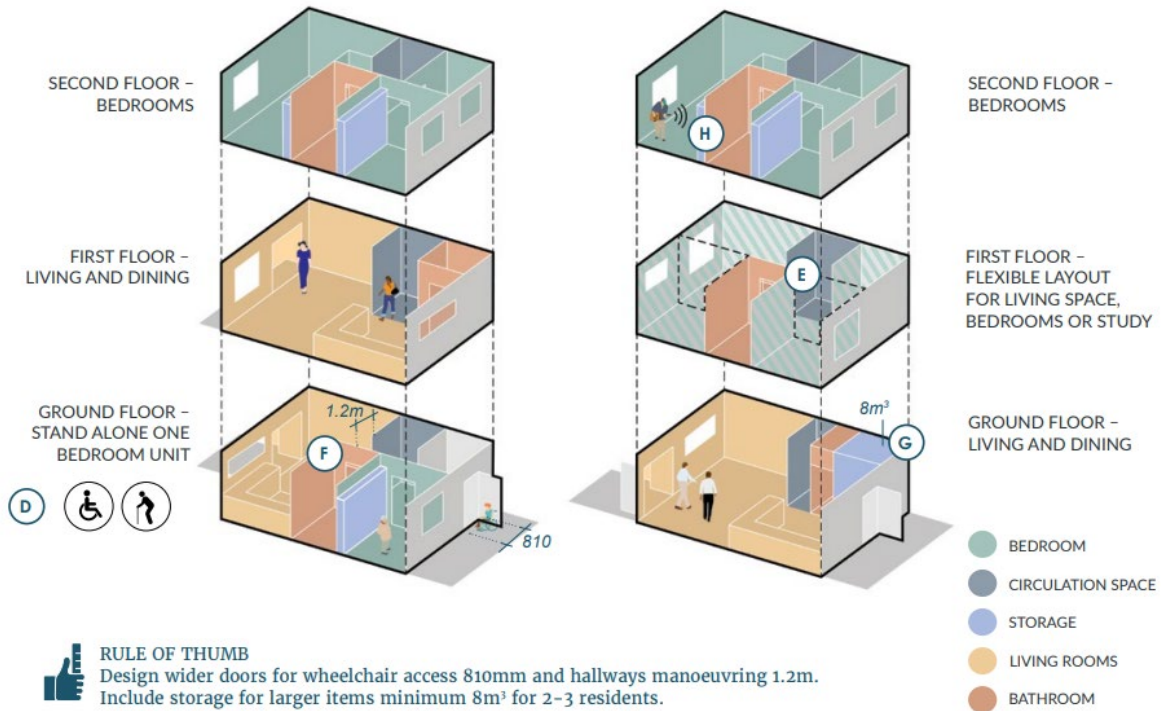
The ADM recommended minimum internal storage volumes (m³) are detailed in Table 1 below, in comparison to other best practice guidance. Where storage recommendations are made as a plan area (m²), they have also been converted to a volume, using a standard residential 2.4m floor-to-ceiling height, to enable a direct comparison. The *National Medium Density Design Guide* recommends 8m³ for dwellings with 2-3 occupants, so that dwellings provide “sufficient storage to

¹ E.g. *Auckland Unitary Plan*, Mixed Housing Urban Policy H5.3(5).

² E.g. *Auckland Unitary Plan*, Mixed Housing Urban Assessment Criterion H5.8.2(2)(e)(iii).

accommodate larger items, recreational equipment, and other items, such as prams. This can increase the efficient use of indoor space and avoid larger items spilling out onto outdoor living spaces”.³

Figure 1: Storage provision within a dwelling



Source: Ministry for the Environment. (2023). *National Medium Density Design Guide*, page 17.

The *Kāinga Ora Ngā Paerewa Hoahoa Whare Design Requirements* (2024) (hereafter, referred to as the *Kāinga Ora Design Requirements*) specifies minimum storage for linen, general storage, wardrobe storage and hot water cylinder (HWC) storage. The *Apartment Design Guidelines for Victoria* recommended storage volume includes bathrooms and kitchens. Dedicated lockers for long-term storage are also recommended in basement and carparking areas, of a functional shape and size to suit various needs such as storing bulky items.

³ Ministry for the Environment. (2023). *National Medium Density Design Guide*, Section 6, In the house: A liveable home, Design criterion G.

Figure 2: Long-term storage solution in basement car park

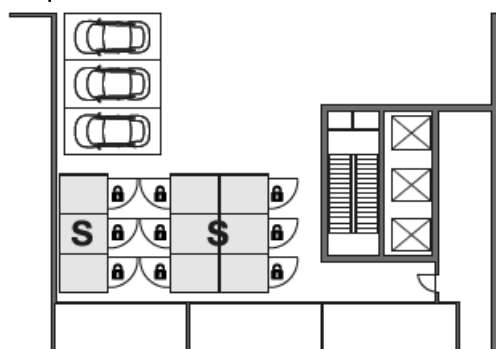
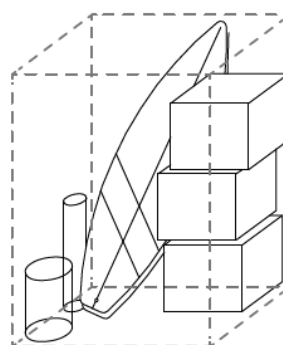


Figure 3: Functional long-term storage volume



Source: The State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines for Victoria*, page 125.

The ADM generally only recommends half the storage requirements of other New Zealand and Australian best practice guidance. Other best practice guidance recommended in this report (excluding kitchen and bathroom storage) ranges from 4-8m³ for studio dwellings, 4.8-8m³ for 1-bedroom dwellings, 4.8-8m³ for 2-bedroom dwellings, 7.2-10m³ for 3-bedroom dwellings and 12m³ for 4-bedroom dwellings.

Table 1: Minimum storage requirements (volume)

Number of bedrooms	ADM	National Medium Density Design Guide	Public Housing Design Guidance	Kāinga Ora Design Requirements	NSW Apartment Design Guide	NSW Low Rise Medium Density Design Guide ⁴
Studio	1.5m ³	8m ³ for 2-3 residents	-	-	4m ³	-
1 bedroom	2m ³		4.8m ³	4.8m ³	6m ³	6m ³
2 bedrooms	3m ³		4.8m ³	6.5m ³	8m ³	8m ³
3 bedrooms	4m ³		7.2m ³	8.2m ³	10m ³	10m ³
4 bedrooms	5m ³		12m ³	12m ³	-	-

Sources:

- *Auckland Design Manual*, Residential Design Element R8: Site Amenities, Section 1.2.
- Ministry for the Environment (2023). *National Medium Density Design Guide*, Section 6. In the house: A liveable home, Rule of thumb.
- Ministry of Housing and Urban Development (2023). *Public Housing Design Guidance for community housing provides and developers*, Section 4.8, Table 7.
- Kāinga Ora Homes and Communities (2024). *Ngā Paerewa Hoahoa Whare Design Requirements*, Table B2.4-2.
- New South Wales Department of Planning and Environment. (2015). *Apartment Design Guide for Apartments*, Objective 4G-1, Design criterion 1.
- New South Wales Department of Planning, Industry and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Section 2.3 Terraces, Design criterion 82.

⁴ At least 50 per cent to be contained within the dwelling.

Section 35 (s35) monitoring

Auckland Council's s35 monitoring did not specifically analyse storage provision in dwellings. However, it found that structures such as storage sheds are added to outdoor living areas by residents after the development is completed.⁵ The effect is a reduction in the size and dimensions of the outdoor living space. This, in combination with other site facilities in outdoor spaces such as waste storage, hot water cylinders, heat pump tanks and water tanks, was effectively changing the functionality of outdoor living spaces to be service courtyards.

Design observations

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

- Storage is generally not a primary consideration in the design of medium density dwellings and is often an afterthought which is squeezed into leftover spaces, often making access to storage inconvenient or inaccessible.
- Storage solutions under stairs are common, but are not fitted out with bespoke solutions such as pull-out trolleys or drawers, which would make them more functional.
- Outdoor storage sheds are often added by occupants to compensate for poor storage within the dwelling, which can reduce the usability and amenity of outdoor living areas.

Figure 4 and Figure 5 below illustrate these points.

Figure 4: Storage integrated underneath internal staircase, accessible from outside of dwelling



Source: TMDO, Auckland Council.

⁵ Auckland Council. (2022). *Auckland Unitary Plan Section 35 Monitoring*, B2.3 A quality built environment, page 78.

Figure 5: Storage sheds placed in outdoor living space



Source: TMDO, Auckland Council

1.2 Survey results

The survey participants were asked to rate the amount of built-in storage they had in their home for seven types of household items. Some results are shown here, and others are included elsewhere in the report.⁶

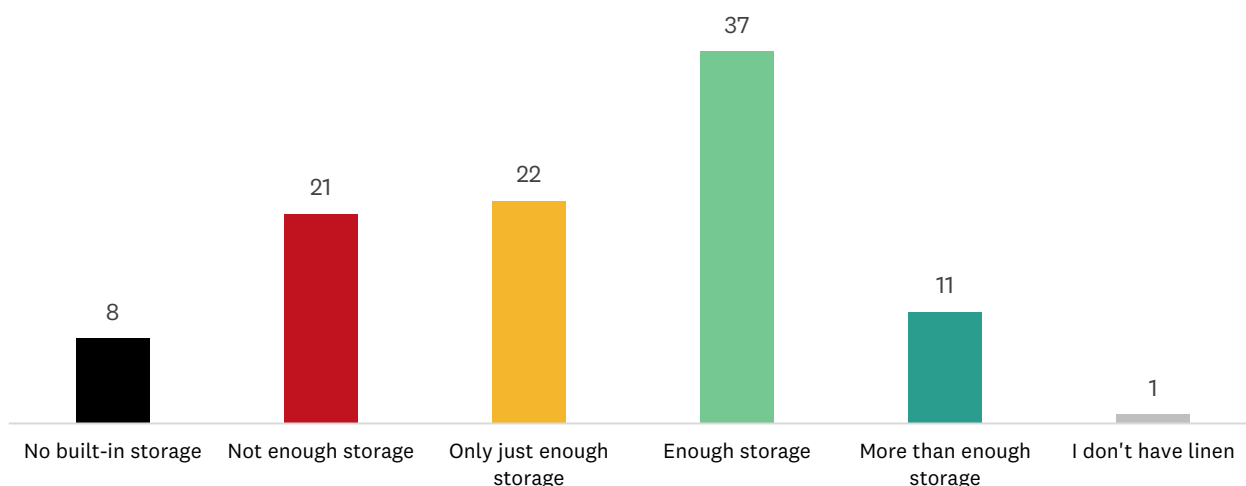
This chapter focuses on the storage of linen (e.g. sheets, towels, blankets), household equipment (e.g. vacuum cleaner, airing rack, ironing board), hobby/sport equipment (e.g. sewing machines, golf clubs, collectables, guitar), young children's items (e.g. pram, car seat, highchair, toys) and occasional-use items (e.g. suitcases, Christmas tree). Results for each are discussed separately below and are somewhat mixed. Rating of storage across households will depend to an extent on the number of and types of items that need to be stored – which was not explored in this study. It is worth noting, however, that for all items shown below, at least a quarter of participants stated there was 'not enough storage'.

1.2.1 Linen

Over a third (37%) reported having 'enough storage' for their linen, 22 per cent had 'only just enough', and 21 per cent had 'not enough storage'. A small proportion (8%) reported that their home had no built-in storage for linen.

⁶ Chapter 4 discusses participants' rating of the amount of kitchen storage for food and equipment (Section 1.2.2) and storage for clothes and shoes (Section 2.2.3).

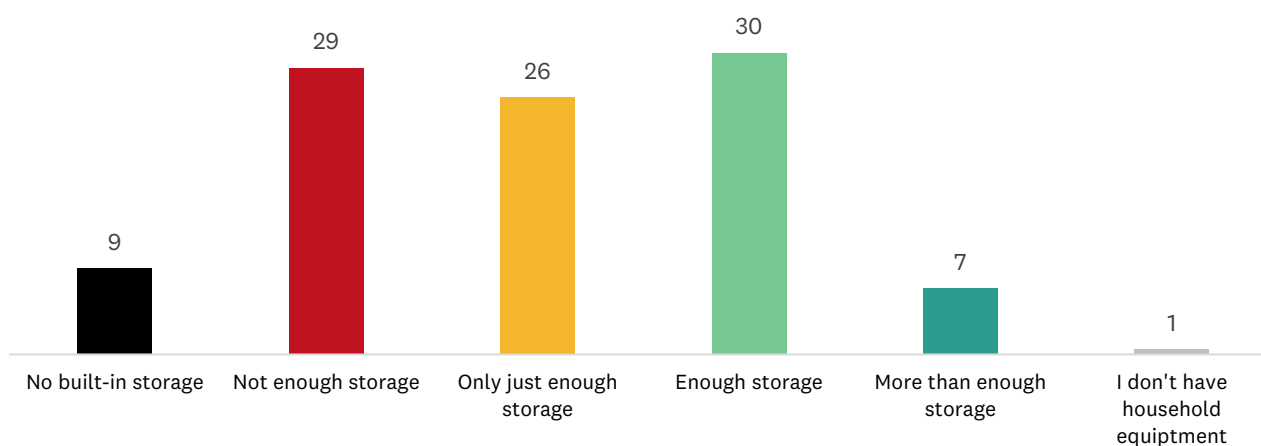
Figure 4: Participant ratings of the amount of built-in storage for linen (n=1330) (%)



1.2.2 Household equipment

While just under a third of participants (30%) reported having 'enough storage' for household equipment (e.g. vacuum cleaners, lawnmower, airing rack and ironing board), similar proportions reported having 'not enough storage' (29%) or 'only just enough storage' (26%). One in ten (9%) reported that their home had no built-in storage for that kind of item.

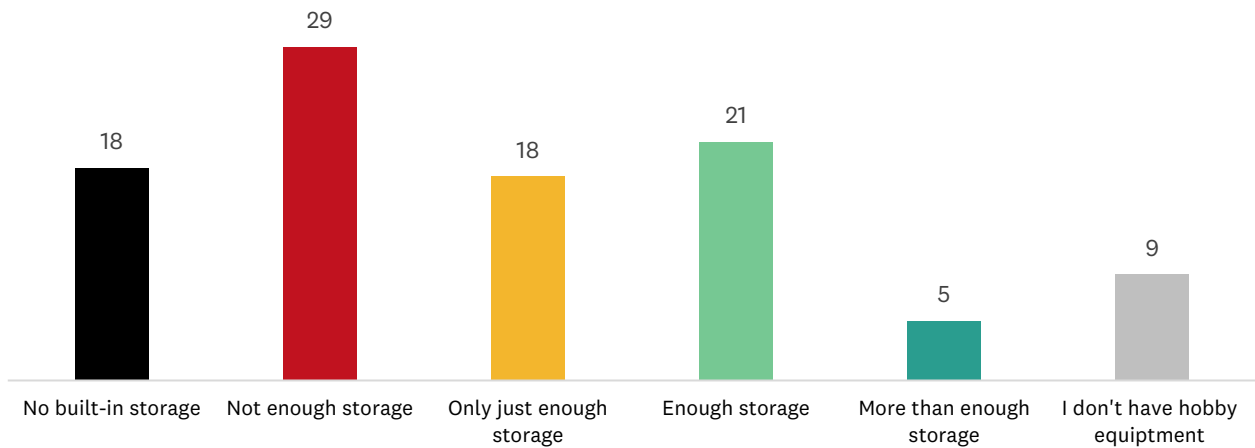
Figure 5: Participant ratings of the amount of built-in storage for household equipment (n=1330) (%)



1.2.3 Hobby/sport equipment

Large proportions of participants reported insufficient built-in storage for hobby and sport equipment and only nine per cent of participants reported not having any hobby or sport equipment. Eighteen per cent of participants reported having 'no' built-in storage for hobby and sport equipment, 29 per cent reported having 'not enough' and 18 per cent reported having 'only just enough' storage.

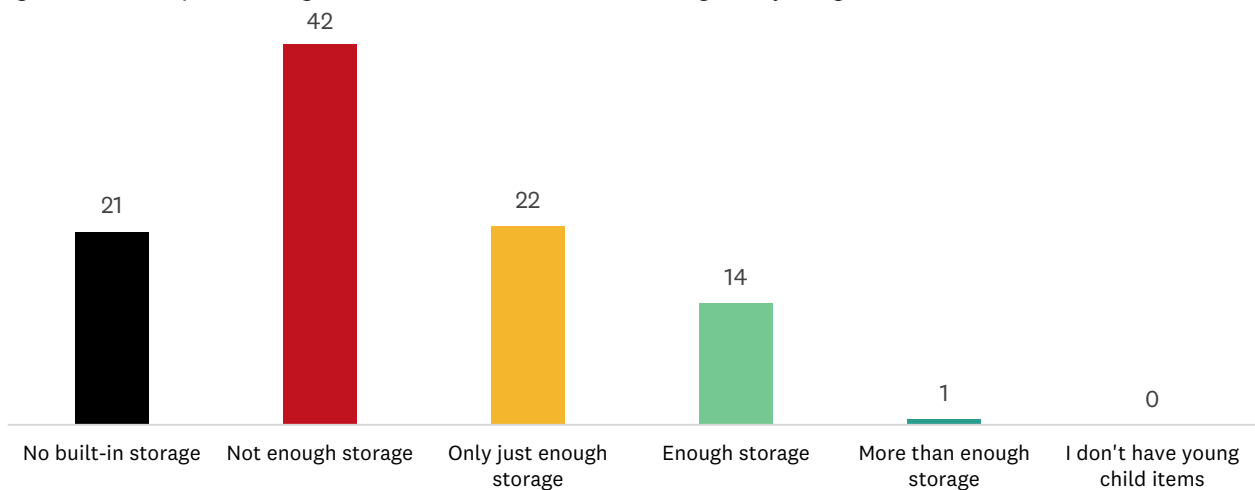
Figure 6: Participant ratings of the amount of built-in storage for hobby/sport equipment (n=1330) (%)



1.2.4 Young children’s items

Figure 9 shows how participants who reported having pre-school aged children in their household responded to a question on storage for young children’s items such as prams and highchairs. Twenty-one per cent of participants reported having ‘no’ built-in storage, 42 per cent reported having ‘not enough’ and 22 per cent reported having ‘only just enough’. Only one per cent reported having ‘more than enough’ storage.

Figure 7: Participant ratings of the amount of built-in storage for young children’s items (n=177) (%)

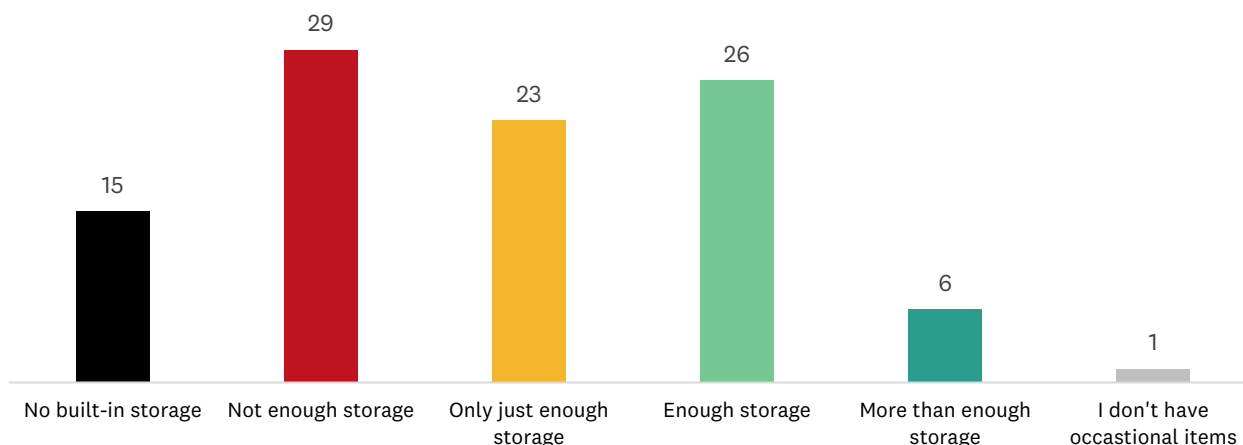


Note: Base is all the participants with pre-school aged child(ren) in their household.

1.2.5 Occasional-use items

A similar pattern is seen for storage of occasional items (e.g. suitcases, Christmas tree). Close to a third (29%) reported having ‘not enough storage’, 23 per cent said there was ‘only just enough storage’ and 15 per cent reported their home had ‘no built-in storage’ for this kind of item.

Figure 8: Participant ratings of the amount of built-in storage for occasional items (n=1330) (%)



1.2.6 Comments on storage

We also asked participants to tell us whether they had made any changes to their home since they had moved in (they were asked to select from a list of possible options). One of the options was whether they had increased storage (e.g. chest of drawers, cupboard shelving). A large proportion (58%) said they had done this. Forty-four of the participants who reported they had made changes to 'something else' described making a change to increase storage. Generally, four kinds of storage were described:

1. Outdoor storage, often in the form of a garden shed, but also built into other outdoor modifications

Built a deck with storage under the seats.

Built an awning for outdoor storage, multiple shelves for storage.

Had to build an outdoor shed so we can have more storage for sports equipment.

2. Storage in a garage

Cupboards in the garage.

Built own storage cupboards in our carpark.

Added five floor-to-ceiling shelves across the garage wall for extra storage. Includes extended pantry, kitchen equipment, shoes, camping gear, occasional stuff.

3. A way to use their attic as storage

Attic stairs.

Installed a pull-down attic.

4. Modifying spaces in the home to create storage

Added under stairs storage.

Converted cloak cupboard into storage space for kitchen appliances, etc.

Repurposed wardrobes with more shelving and less clothes-hanging space.

In their comments about what they dislike about their home, 8 per cent mentioned a lack of household storage space; for example:

Lack of built-in functional storage.

Not enough general storage space – people need adequate storage space in townhouses, and it is not provided.

I wish we had more space and storage so it felt less cramped and so that I could put things away more easily.

Lack of storage space for everyday items like cloths rack, ironing boards, etc.

1.3 Consented plans

As described in Chapter 3, this study included analysis of the consented floor plans for 110 properties of residents who had participated in the survey.

Most (93%) of the plans analysed showed at least one household storage space in the home, such as under stairs, a linen cupboard or storage locker.

The types of storage spaces were denoted as being a ‘half cupboard’ (e.g. under stairs or to approximately 1.2m in height) or ‘full cupboard’ (typical floor-to-ceiling cupboard height of 2.4m). An approximation of the volume of storage was calculated through these estimated heights and the measured floor area. Nine properties were noted to have a storage locker in a communal area such as a basement (no volume estimate available).

On average, properties are found to have 2.5m³ of storage space. Comparing the average volume of storage in the sample properties with the ADM recommendation, we find the average storage provision is under the recommended amount. Two-bedroom homes have an average of 2.3m³ while the recommended amount is 3m³, and 3-bedroom homes have 3m³ on average while the recommendation is 4m³.

Comparing with the National Medium Density Design Guide, which recommends 8m³ for 2-3 residents, the average indoor storage provision for 2-bedroom homes (2.3m³) was 71 per cent less and 3-bedroom homes (3.0m³) was 63 per cent less. As noted previously, the ADM generally recommends storage volumes half that of other design guidance.

Table 2: Volume (m³) of indoor storage (excluding bathroom and kitchen), by number of bedrooms

	Average indoor storage	ADM	National Medium Density Design Guide	Public Housing Design Guidance	Kāinga Ora Design Requirements	NSW best practice guidance
1 bedroom	—	2m ³	8m ³ for 2-3 residents	4.8m ³	4.8m ³	6m ³
2 bedrooms	2.3m ³	3m ³		4.8m ³	6.5m ³	8m ³
3 bedrooms	3.0 m ³	4m ³		7.2m ³	8.2m ³	10m ³
4 bedrooms	—	5m ³		12m ³	12m ³	—

Note: Averages based on fewer than 30 values are not shown.

Sources:

- *Auckland Design Manual*, Residential Design Element R8: Site Amenities, Section 1.2.
- Ministry for the Environment. (2023). *National Medium Density Design Guide*, Section 6. In the house: A liveable home, Rule of thumb.
- Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for community housing provides and developer*, Section 4.8, Table 7.
- Kāinga Ora Homes and Communities, (2024). *Ngā Paerewa Hoahoa Whare Design Requirements*, Table B2.4-2.
- New South Wales Department of Planning and Environment, (2015). *Apartment Design Guide for Apartments*, Objective 4G-1, Design criterion 1.
- New South Wales Department of Planning, Industry and Environment, (2020). *Low Rise Housing Diversity Design Guide for complying development*, Section 2.3 Terraces, Design criterion 82.

1.4 In-home immersions

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

Finding innovative storage solutions for household items was a challenge for most of the participants we talked to during the in-home immersions. This resulted in unexpected solutions such as using spare bathrooms and hallways for storage of household items such as suitcases, irons and cleaning equipment (Figure 11 and Figure 12).⁷ Some participants were able to find innovative furniture with built-in storage (e.g. sofa with storage under seats) (Figure 13 and Figure 14).

Figure 9: Suitcase and other household items stored on landing



Figure 10: Suitcase and other household items stored in the shower of a 'spare bathroom'



Figure 11: Sofa with built-in storage

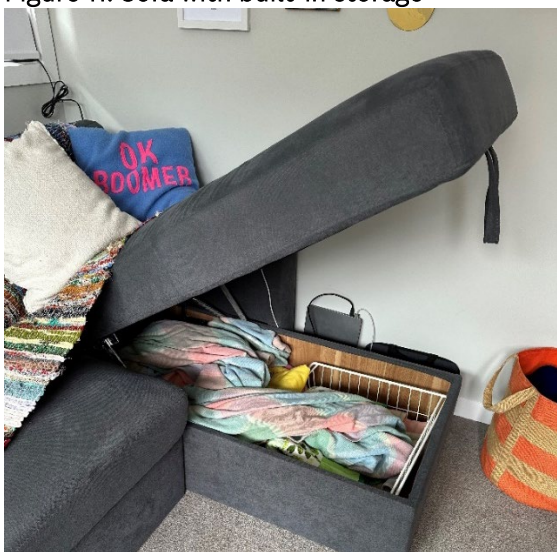


Figure 12: Ottoman with storage



⁷ See Section 3.4 in this chapter for more information on spare bathrooms.

Some homes had built-in storage that could accommodate suitcases and other bulky occasional items, such as an attic space (Figure 15).

Figure 13: Suitcase and other household items stored in an attic space accessed by a drop-down ladder



Outdoor sheds were used to store items, especially those that were not used often and/or were bulky and large.

Figure 14: Suitcase and other items stored in sheds in outdoor living space



Linen was sometimes stored in wardrobes due to a lack of dedicated linen cupboards. Some homes included a cupboard that was used to store linen and other household items (e.g. cleaning products/equipment, toilet paper) (Figure 18). Not all these cupboards came equipped with shelving, resulting in households adding shelving (Figure 19), or when this option was not financially available, placing linen on the ground (Figure 20).

Figure 15: Bed with built-in drawers used to store linen



Figure 16: Linen and other household items in a cupboard



Figure 17: Linen stored on free-standing shelving unit in hot water cylinder cupboard



Figure 18: Linen cupboard without shelving



2 Laundry

2.1 Best practice guidelines and regulations

Laundry facilities such as space for a washing machine and dryer, and space for outdoor drying are necessary to provide for the day-to-day needs of residents. Space for outdoor drying also contributes to a healthy home by reducing moisture within the home.

Auckland Unitary Plan (AUP)

The AUP does not specify laundry requirements but does include policies and standards 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”.⁸

Auckland Design Manual (ADM) and best practice guidance

The ADM specifies a minimum laundry size of 0.84m² for studio and 1-bedroom dwellings, and 1.26m² for two or more bedrooms. The Public Housing Design Guidance and Kāinga Ora Design Requirements specify a minimum laundry tub width, as well as minimum space for a washing machine/dryer. The Kāinga Ora Design Requirements also include provision for a wall-mounted shelf.

Laundries are discouraged in kitchen areas for tapu and noa design considerations in the Public Housing Design Requirements.⁹ This is also acknowledged in the National Medium Density Design Guide.¹⁰

The Kāinga Ora Design Requirements require an outdoor service area including external clothes drying facilities for all dwellings, of a size that suits the dwelling’s occupancy.¹¹ It is recommended that this area is screened from the street, and for apartments, an alternative solution such as a shared laundry facility is considered. Similarly, the Public Housing Design Requirements include provision for private washing lines, screened from the street, but does not specify minimum clothesline lengths.¹² For apartments, open-air laundry drying on the balcony is recommended where possible, positioned with least visual line of sight from the street.¹³ The New South Wales Apartment

⁸ E.g. *Auckland Unitary Plan*, Mixed Housing Urban Policy H5.3(5)(a) & Minimum Unit Size H5.6.16 Purpose Statement.

⁹ In te ao Māori, there is a need to keep certain household functions separate from others in order to preserve their tapu (sacred) or noa (common/profane) nature – bathrooms/toilets being the most tapu element and food the most noa. Thus, there is a need to keep all food-related facilities separate from bathrooms, toilets and clothes washing.

¹⁰ Ministry for the Environment. (2023). *National Medium Density Design Guide*, Section 6: In the house: A liveable home, Design criterion F.

¹¹ Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirements*, Performance requirement 2.3.2.A.

¹² Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for community housing provides and developer*, Section 3.7.

¹³ It is common, however, for body corporate rules to prevent households drying laundry on their balcony.

Design Guide also recommend that where clothes drying is located on balconies, they should be screened and integrated into the building design.¹⁴

¹⁴ *New South Wales Apartment Design Guide*, Objective 4E-3.

Table 3: Laundry provision

Number of bedrooms	ADM	National Medium Density Design Guide	Public Housing Design Guidance	Kāinga Ora Design Requirements	NSW Apartment Design Guide	NSW Low Rise Medium Density Design Guide	Victoria Apartment Design Guide
Studio	0.84m ²	—	—	—	N/A	An outdoor area for clothes drying of at least 16 lineal metres, screened from public and communal areas	N/A
1 bedroom	0.84m ²	Can be located in bathroom or cupboard Minimum tub width of 0.35m	Tub width 0.35m Washer/ dryer space 0.45m ²	Tub width 0.35m Washer/ dryer space 0.45m ² Clothesline 14-28m long	N/A		N/A
2 bedrooms	1.26m ²				N/A		N/A
3 bedrooms	1.26m ²	Separate laundry of 3m ² Minimum tub width of 0.56m	Tub width 0.56m Washer/ dryer space 0.45m ²	Tub width 0.56m Washer/ dryer space 0.45m ² Clothesline 14-28m long	N/A		N/A
4 bedrooms	—				Tub width 0.56m Washer/ dryer space 1.05m ²		Tub width 0.56m. Washer/ dryer space 1.05m ² Clothesline 28-40m long

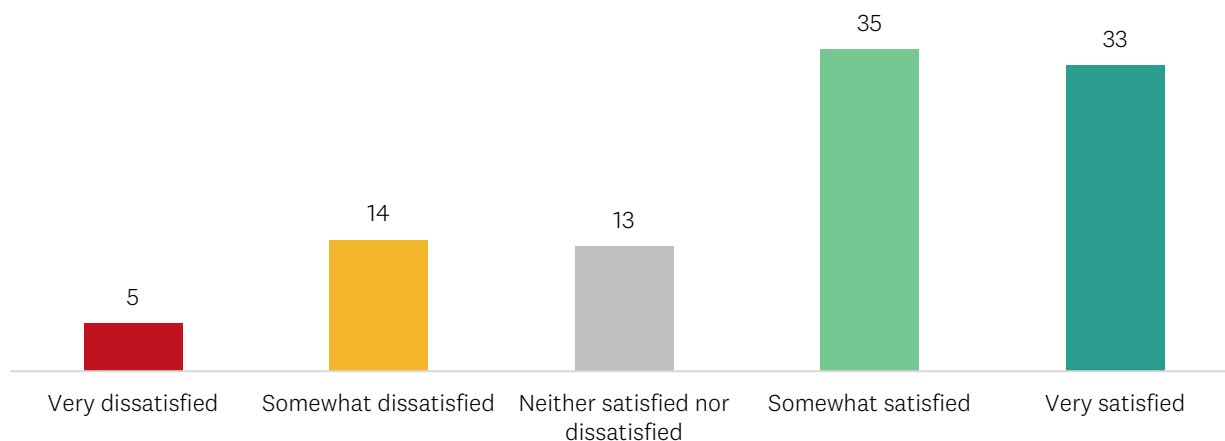
Sources:

- *Auckland Design Manual*, Residential Design Element: R6 Unit Layouts and Room Sizes, Section 1.0.
- Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Section 4.7, Table 6.
- Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirement*, Table B2.3-1, Minimum requirements for kitchen and laundry components and performance requirement A2.3.2.A.
- New South Wales Department of Planning and Environment. (2015). *Apartment Design Guide*, Part 4, Designing the Building.
- New South Wales Department of Planning and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Design criterion 116.
- State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines for Victoria*.

2.2 Survey results

The survey participants were asked about their satisfaction with the laundry facilities in their home, building or complex. Laundry facilities might include washing machine, laundry sink, or space for drying washing, including consideration of body corporate or residents' association rules. Over two-thirds of participants are 'somewhat' or 'very satisfied' with the laundry facilities in their home.

Figure 19: Participant satisfaction with laundry facilities (n=1333) (%)



A few participants mentioned making modifications to their laundry to increase storage and usability:

Fixed shelving in laundry and storage cupboard.

Added laundry tub and shelving.

Issues with laundry were mentioned by some when describing what they dislike about their home:

There is also no outside line to hang laundry, so my guest bedroom is a dedicated laundry room.

Laundry tiny.

Drying laundry indoors (with window open).

Laundry not set up very functionally.

Drying washing (on a drying rack) takes up a lot of space in my living area when I am unable to use my balcony to do this. Body Corp rules prevent washing being visible on balconies (which I agree with) but at times it is too windy to use my outdoor screening blind.

Thirty-nine participants mentioned using their garage as a laundry including for drying clothes. Garages used as a laundry can limit the ability of the garage to also function as a carparking space. (See also Chapter 4, Section 1.4.2 on the uses of garages.)

A car can fill up the garage so that laundry won't be accessible.

2.3 In-home immersions

The activity of doing laundry was found to occur in many spaces around the home. Laundry hampers with dirty laundry and baskets with clean laundry are stored in a range of locations including lounges, garages, bedrooms and bathrooms. Washing machines and dryers are often located in garages, cupboards or tucked around a corner.

Figure 20: Washing machine and dryer in corner by front door



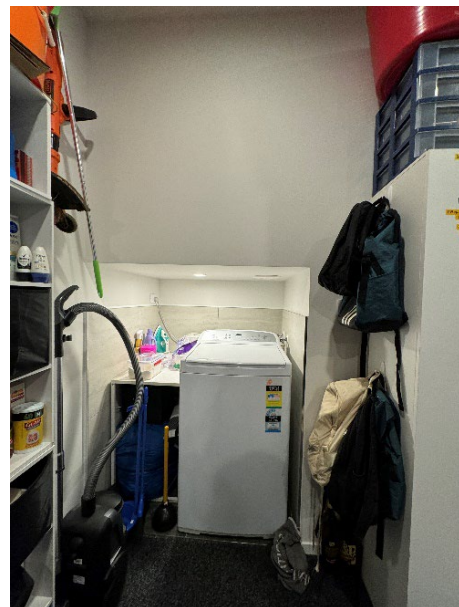
Figure 21: Washing machine, drying rack and basket in garage



Figure 22: Washing machine with hanging laundry basket



Figure 23: Washing machine in garage under stairs



Drying racks, baskets and hampers are used and stored in many locations including bathrooms, bedrooms, lounges, garages and outdoor living spaces. (See Chapter 4, Section 1.5.5 on the uses of garages and Section 2.2.4 on the uses of bedrooms.)

Figure 24: Laundry hamper, basket and drying rack in a spare bedroom



Figure 25: Laundry baskets and hamper in a bedroom

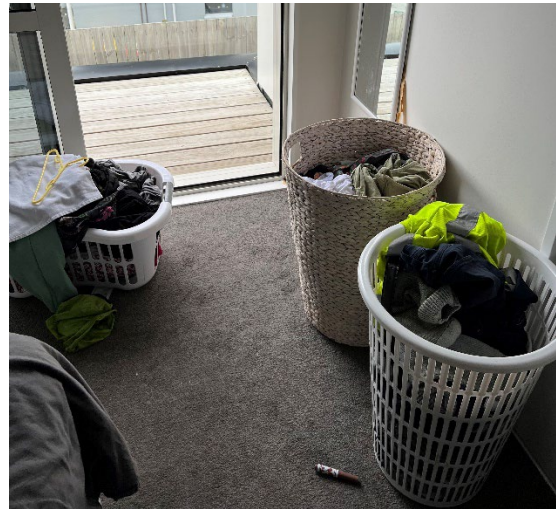
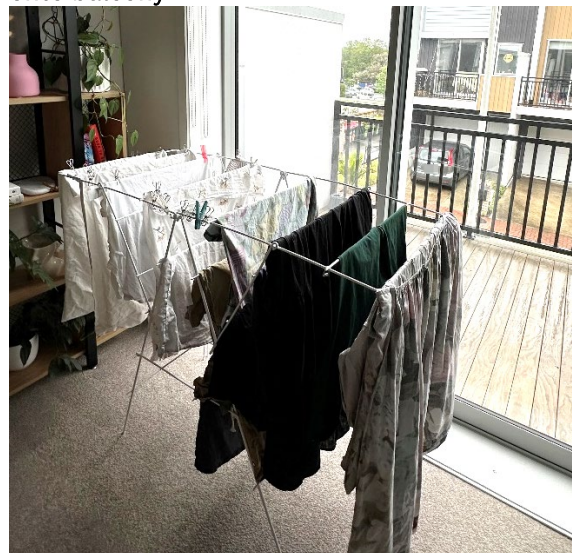


Figure 26: Laundry hamper in bathroom



Note also additional storage baskets underneath vanity.

Figure 27: Drying rack in lounge by ranch slider onto balcony



3 Bathrooms

This study distinguishes between a bathroom and a water closet (WC). A ‘bathroom’ is defined as a room with a bath and/or a shower; a bathroom may also include a toilet, but not always. A WC is defined as a room with a toilet, and without a shower or bath.

3.1 Best practice guidelines and regulations

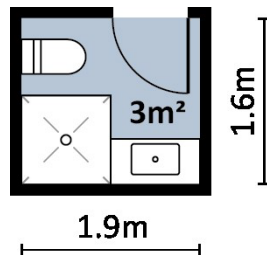
Auckland Unitary Plan (AUP)

The AUP does not contain any standards or guidance on provision of bathrooms or WCs.

Auckland Design Manual (ADM) and best practice guidance

The ADM does not distinguish between bathrooms and WCs, and it does not define what a bathroom is. However, it recommends that each bathroom is 3m² in floor area (Figure 30), and that two bathrooms are provided for dwellings with 3 or more bedrooms.¹⁵

Figure 28: Bathroom with 3m² floor area



The Public Housing Design Guidance and National Medium Density Design Guide both recognise the need to keep certain household functions separate from others in order to preserve their tapu or noa nature.^{16, 17} The Public Housing Design Guidance recommends that all food-related facilities are kept separate from bathrooms, toilets and clothes washing, and that there is no visual line of sight to any toilet fitting within any bathroom from the living or dining room or kitchen, or the dwelling entry. Similarly, the NSW Apartment Design Guide recommends that access to bathrooms and laundries is separated from living areas, minimising direct openings between living and service areas.¹⁸

The Kāinga Ora Design Requirements require a bath in addition to a shower for dwellings with 3 or more bedrooms and a second shower for dwellings with 5-6 bedrooms (Table 5).

¹⁵ *Auckland Design Manual*, Residential Design Element R6: Unit Layouts and Room Sizes.

¹⁶ Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for community housing providers and developers*, Section 4.1.1.

¹⁷ Ministry for the Environment. (2023). *National Medium Density Design Guide*, Section 6: In the house: A liveable home, Clause F.

¹⁸ New South Wales Department of Planning and Environment. (2015). *Apartment Design Guide*, Part 4, Objective 4D-3.

Table 4: Bathroom provision by floor area (m²)

Number of bedrooms	AUP	ADM	National Medium Density Design Guide	NSW Apartment Design Guide	NSW Low Rise Housing Diversity Design Guide	Victoria Apartment Design Guide
1 bedroom	N/A	3m ²	N/A	Secondary bathrooms are a minimum of 5m ² in area	Secondary bathrooms are a minimum of 5m ² in area	N/A
2 bedrooms	N/A	3m ²	N/A			
3 bedrooms	N/A	3m ² x 2	N/A			
4 bedrooms	N/A	3m ² x 2	N/A			

Sources:

- *Auckland Design Manual*, Residential Design Element R6: Unit Layouts and Room Sizes, Section 1.0.
- New South Wales Department of Planning and Environment. (2015). *Apartment Design Guide*, Part 4, Objective 4D-1, Design criterion 1.
- New South Wales Department of Planning and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Objective 2.3K-1, Design criterion 71.

Table 5: Bathroom provision by number of fixtures

Kāinga Ora Design Guidance and Public Housing Design Guidance				
Number of bedrooms	Toilet	Shower	Bath	Vanity
1 bedroom	1	1	0	1
2 bedrooms	1	1	0	1
3 bedrooms*	1 in separate room	1	1	1
4 bedrooms*	2	1	1	1

Note: Kāinga Ora Design Guidance requires that multi-storey homes with 3 or more bedrooms must include one toilet per floor, whereas the Public Housing Design Guidance requires multi-storey homes with 4 or more bedrooms to provide one toilet per floor.

Sources:

- Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for Community Housing Providers and Developers*, Section 4.7, Table 5.
- Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirement*, B2.3 Private Space: Kitchens, Bathrooms and Laundries, Performance requirement acceptable solution B2.3.2.B(i) and Table -3 Minimum requirements for bathroom and toilet fittings and fixtures.

Section 35 (s35) monitoring

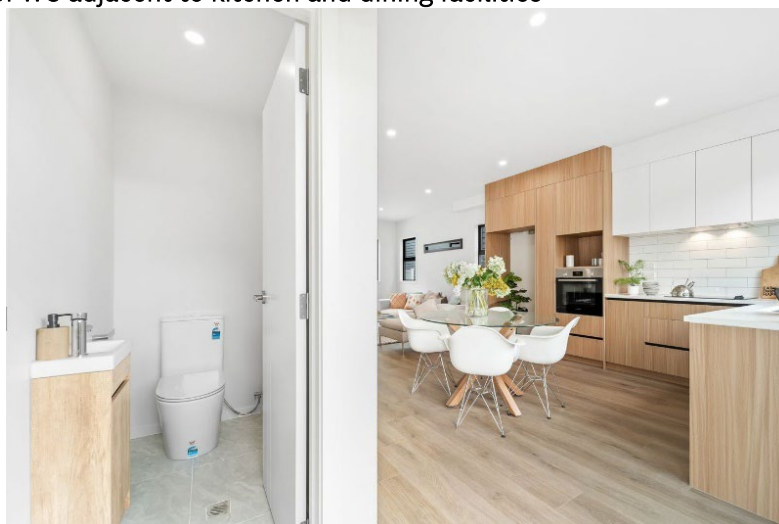
No specific monitoring of bathrooms or WCs was included in the s35 monitoring.

Design observations

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

- There is a developer preference for WCs to be on the ground floor in acknowledgement of benefits for universal access and visitors. However, this can compromise amenity of adjacent kitchen and dining space and remove or compromise storage opportunities under stairs.
- One bathroom (often an ensuite) per bedroom is typically provided.
- There is limited provision for baths.
- There is limited integrated storage solutions within bathrooms.

Figure 29: Example of WC adjacent to kitchen and dining facilities



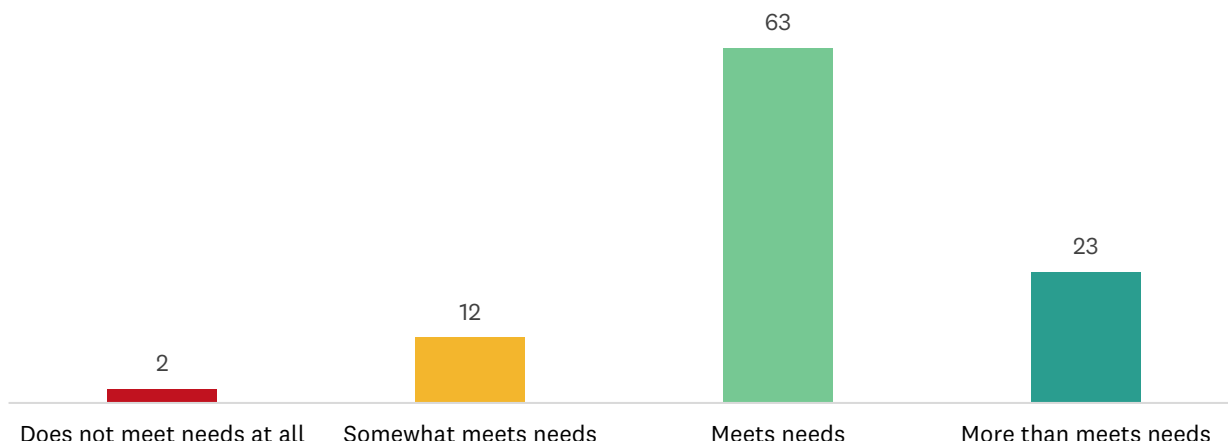
Source: TradeMe.

3.2 Survey results

The survey participants were asked how well the number of bathrooms in their home meets the needs of the household.¹⁹ Two-thirds (63%) reported the number of bathrooms 'meets the needs' of the household and a quarter (23%) reported the number of bathrooms 'more than meets the needs' (Figure 32).

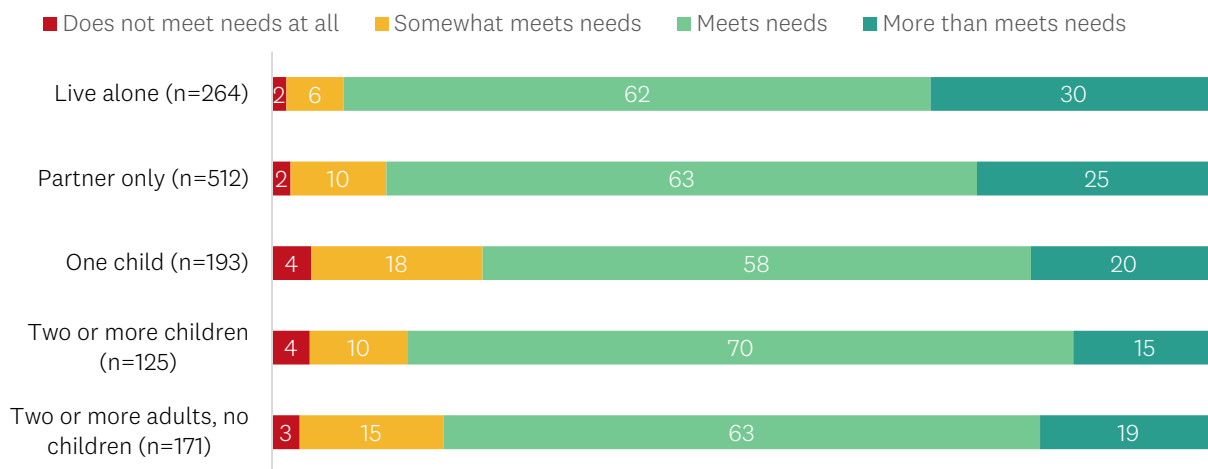
¹⁹ Note: The survey question did not define a 'bathroom' or distinguish a bathroom from a WC.

Figure 30: Participant rating of how well the number of bathrooms fit the needs of the household (n=1335)



Households with one child were more likely than other households to say the number of bathrooms ‘somewhat meets needs’ (18%). This proportion compares with 6 per cent for those who live alone, 10 per cent for those with a partner only and for those with two or more children, and 15 per cent for two or more adults with no children.

Figure 31: Participant rating of how well the number of bathrooms fits the needs of the household, by household composition (%)



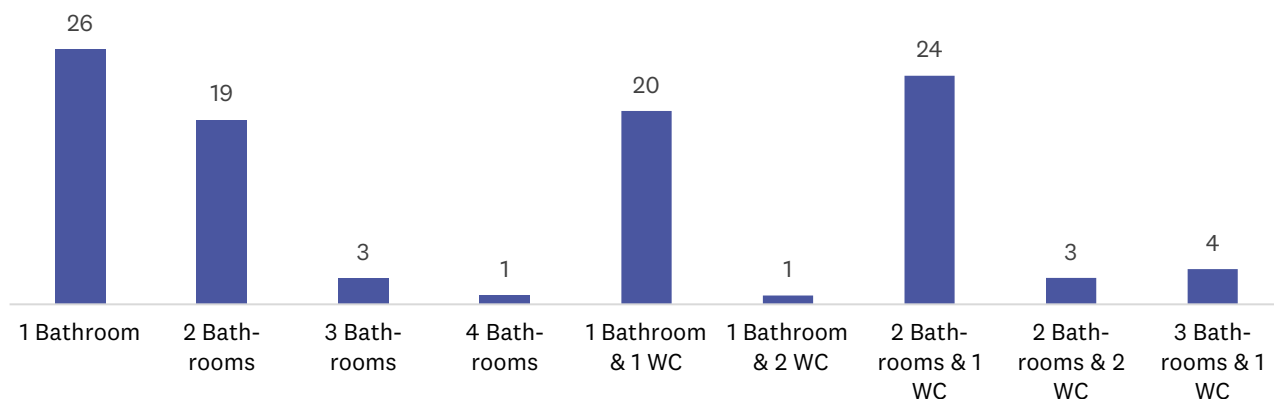
3.3 Consented plans

The ADM recommends a minimum bathroom size of 3m² for 1- and 2-bedroom homes and 6m² (or two bathrooms) for those with three or more bedrooms.²⁰ The average size of a bathroom/WC was 3.9m². The smallest bathroom/WC was 1.2m² and the largest was 8.5m².

²⁰ The ADM does not define a bathroom. This minimum is interpreted to be for either a WC or a bathroom, as defined in this study.

Our analysis of 110 consented plans found a mix of homes with bathrooms only, or bathrooms and WCs. Close to half had a combination of bathrooms and WCs. A quarter (26%) had 1 bathroom, a quarter (24%) had 2 bathrooms and a WC, and 20 per cent had 1 bathroom and 1 WC (Figure 34).

Figure 32: Number of bathrooms and WCs (n=110) (%)



Different best practice guidelines take different approaches to bathrooms. Some recommend the number of bathrooms and/or WCs while others recommend the number of fixtures (i.e. toilets, showers or baths).

As mentioned earlier, the ADM does not distinguish between bathrooms and WCs and it recommends having a second bathroom (or WC) only when there are three or more bedrooms. Our analysis of 110 consented plans found that bathroom and WC provision was more generous than these guidelines. For example, 29 of the 50 2-bedroom homes had either two bathrooms or one bathroom and a WC, and 20 of the 37 3-bedroom homes had three bathrooms (or a combination of bathrooms and WCs) (Table 6).

Table 6: Number of bathrooms and WCs, by number of bedrooms (counts)

	1 bathroom	2 bathrooms (or 1 bathroom and 1 WC)	3 bathrooms (or a combination of bathrooms and WCs)	4 bathrooms (or a combination of bathrooms and WCs)
1 bedroom	9	—	—	—
2 bedrooms	20	16 had 2 bathrooms (13 had 1 bathroom and 1 WC)	(1 had 1 bathroom and 2 WCs)	—
3 bedrooms	—	5 had 2 bathrooms (9 had 1 bathroom and 1 WC)	1 had 3 bathrooms (19 had 2 bathrooms and 1 WC)	1 had 4 bathrooms (2 had 2 bathrooms and 2 WCs)
4 bedrooms	—	—	1 had 3 bathrooms (7 had 1 bathroom and 2 WCs)	1 had 4 bathrooms (4 had 3 bathrooms and 1 WC)
5 bedrooms	—	—	1 had 3 bathrooms	—

The Public Housing Design Guidance and Kāinga Ora Design Guidelines take a different approach to the ADM guidelines. These recommend a WC for dwellings with three or more bedrooms and a toilet on each level.²¹ Of the consented plans analysed with three or more bedrooms, most had at least one WC and a small number had two WCs (Table 7).

Table 7: Number of WCs (separate toilet), by number of bedrooms (counts)

	No WC	1 WC	2 WCs
1 bedroom	9	—	—
2 bedrooms	36	13	1
3 bedrooms	7	28	2
4 bedrooms	1	11	1
5 bedrooms	1	—	—

New Zealand’s Public Housing Design Guidance and Kāinga Ora Design Requirements also recommend the numbers of toilets and showers/baths instead of a number of bathrooms. One toilet and one shower is recommended for 1- and 2-bedroom homes (Table 5). One toilet in a WC (i.e. a toilet that is not in a bathroom), one shower and one bath is recommended for 3-bedroom homes. Two toilets and one shower and one bath is recommended for 4-bedroom homes.

Taking this guidance into account, and looking at toilets first, all the 1-bedroom homes had just one toilet (Table 8). Most of the two 2-bedroom homes (29) had two toilets, which is one toilet more than the guidelines recommend. Similarly, most of the 3-bedroom homes (20) had three toilets, and three 3-bedroom homes had four toilets, which again are more toilets than recommended.

Table 8: Number of toilets, by number of bedrooms (counts)

	1 toilet	2 toilets	3 toilets	4 toilets
1 bedroom	9	—	—	—
2 bedrooms	20	29	1	—
3 bedrooms	—	14	20	3
4 bedrooms	—	—	9	4
5 bedrooms	—	—	1	—

The detail available in consented plans prevents distinguishing between baths and showers, especially when there may be a shower over a bath. As a result, baths and showers have been combined in this analysis. When looking at showers and baths, we found that a large proportion of the 2-and 3-bedroom homes have the recommended number of showers/baths (Table 9). Two-

²¹ The data collected from the consented plans does not allow for assessment of the number of toilets per level in a home.

bedroom homes are recommended to have one shower and most (31) have one shower or bath; however, a considerable number of the 2-bedroom homes (18) have two showers or baths. Three-bedroom homes are recommended to have one shower and one bath, and 21 of the 3-bedroom homes met this recommendation with two showers or baths, and nine homes exceeded the recommendation with three or more showers or baths.

Table 9: Number of showers/baths, by number of bedrooms (counts)

	1 shower/bath	2 showers/baths	3 showers/baths	4 showers/baths
1 bedroom	9	—	—	—
2 bedrooms	31	18	1	—
3 bedrooms	7	21	8	1
4 bedrooms	—	4	5	4
5 bedrooms	—	—	1	—

The number of bathrooms (including WCs) in the consented plans generally exceeded the guidelines. And both the number and size of bathrooms is greater than the ADM guidelines. The number of toilets and the number of showers and/or baths is greater than New Zealand Public Housing Design Guidance and Kāinga Ora Design Requirements. This suggests that some MDH with more bathrooms and fixtures than the guidelines may have bathrooms or WCs, or fixtures within, which are underutilised. These spaces may function as spare bathrooms and either not be used (and are an inefficient use of space) or be used for a different purpose (such as storage or drying laundry) in a similar way to how spare bedrooms are being used as a study or hobby space.

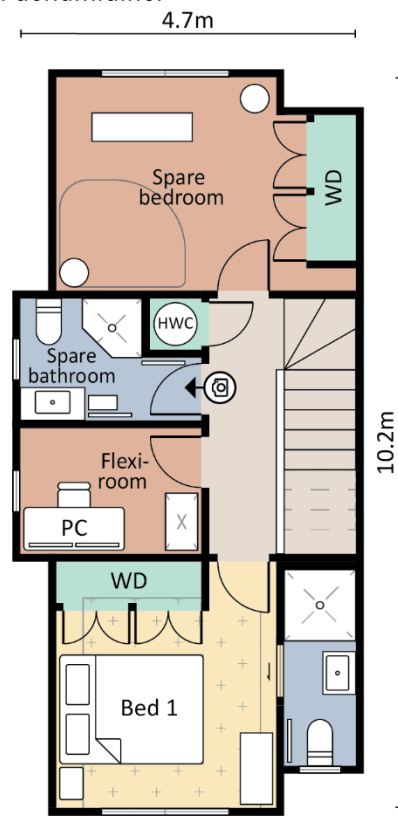
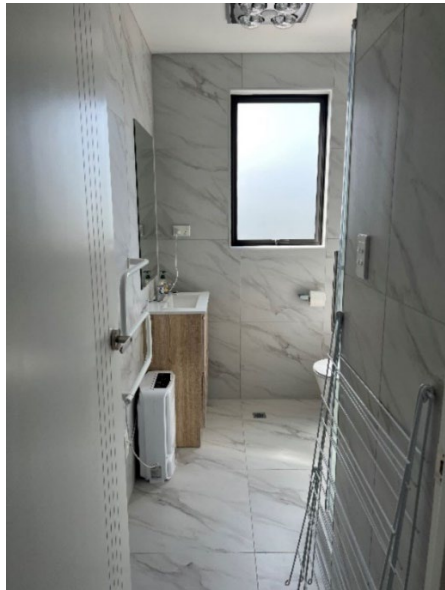
3.4 In-home immersions

Half of the 20 homes visited had a WC in addition to their one (six homes) or two (four homes) bathrooms. The other 20 homes had one bathroom (five homes), two bathrooms (four homes) or three bathrooms (one home). (Refer to Tabel 7 in Chapter 3: Section 7 for an overview of the bathrooms/WCs and their fixtures.)

Those living in properties with equal numbers of bedrooms and bathrooms, or more bathrooms than the number of bedrooms, were found to have spare bathrooms which were being repurposed for storage and laundry activities (i.e. drying and laundry hampers). One participant living in a terraced house commented that their next-door neighbour had converted their downstairs toilet into a butler’s pantry. This suggests this excess of bathroom or WC amenity is not beneficial for households and the space may be better allocated to an additional living space (e.g. flexi-room) or as storage (e.g. pantry).

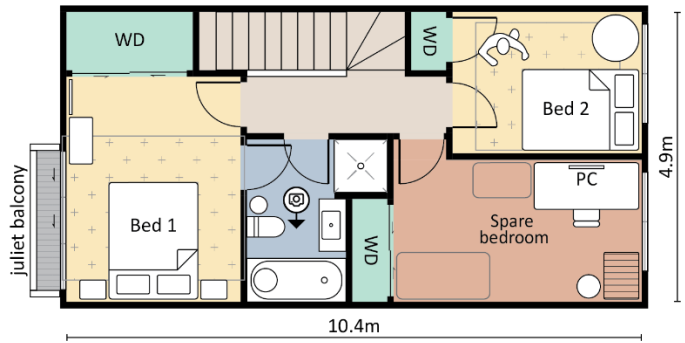
One participant living alone in a duplex that had two bathrooms and a WC used their ensuite bathroom as a bathroom, the downstairs WC on occasion (Figure 43), and the other bathroom as a dedicated laundry drying room. They had set up a dehumidifier in the bathroom and hung laundry on a rack (Figure 35).

Figure 33: Spare bathroom used as a laundry drying room with dehumidifier



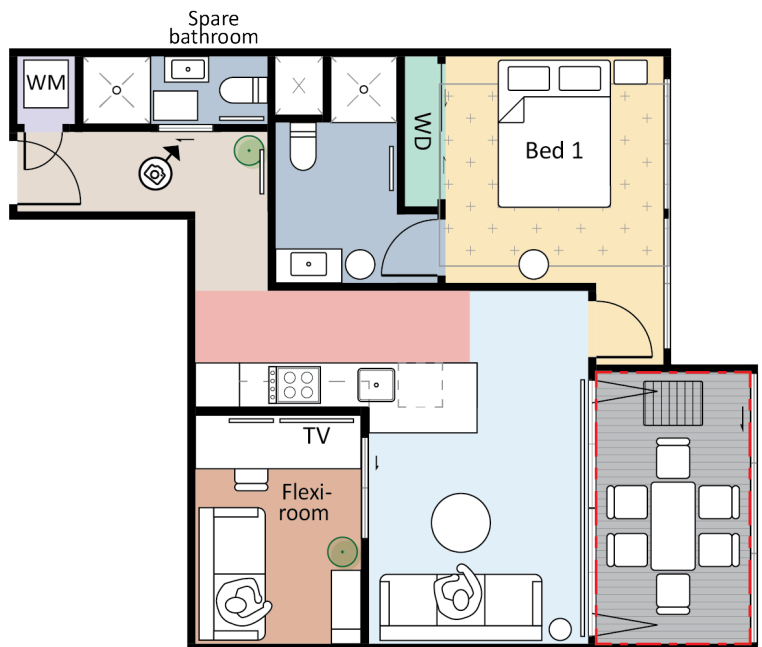
A household of two adults used the bath in their upstairs bathroom for storage. This bathroom has a separate shower (Figure 36).

Figure 34: Bath used for storage



Another participant living in a 1-bedroom apartment had two bathrooms (an ensuite and another bathroom off the hallway). They used their spare bathroom for storage (Figure 37).

Figure 35: Spare bathroom used as a storage cupboard



Supplementary storage was found to have been added for toiletries and other bathroom items (e.g. toilet paper, towels, cleaning products/equipment). Some of this storage furniture is being added to bathrooms (where there is space), while other households are adding storage to circulation space or garages.

Figure 36: Storage baskets stored underneath vanity

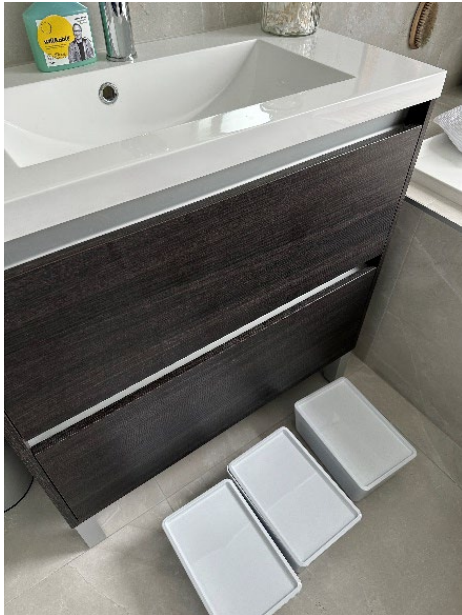


Figure 37: Additional shelving in bathroom



Figure 38: Shelving for bathroom products in upstairs hallway

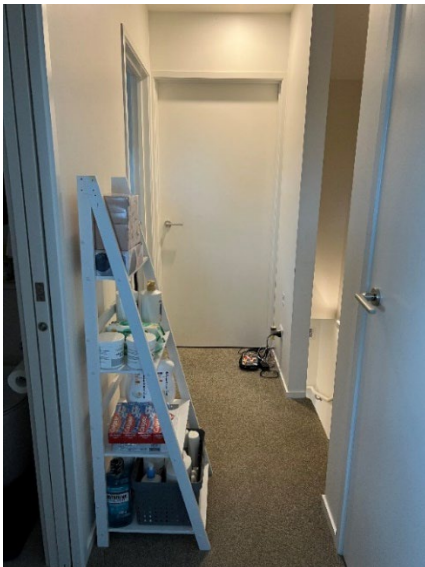


Figure 39: Shelving unit in bathroom



Some terraced houses had a WC on the ground floor, often under the stairs, which opened into the kitchen, dining and lounge space (Figure 42 and Figure 43).²² The amount of separation between the toilet and living area had an impact on participants' degrees of comfort and use of this space. Many expressed discomfort with the proximity of the WC to the living space, saying they felt it is 'wrong' for toilets to be close to food (kitchen, dining) and socialising (i.e. privacy concerns with others hearing use of the WC).

Figure 40: Ground floor WC that opens into dining space

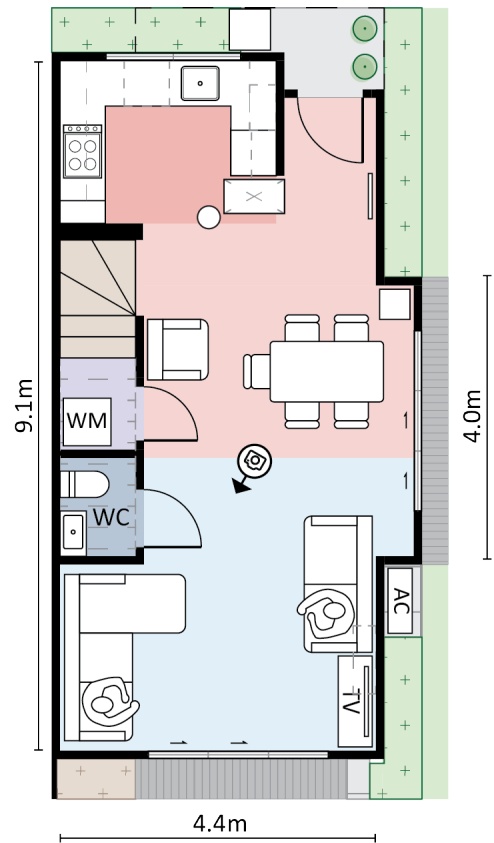


The participant living in the home pictured in Figure 43 said:

I would never encourage guests to use that loo because it's right here ... there's just something about it ... it's so close to the living area; I guess, it just feels different to what I might ordinarily associate with what happens in one place, and I guess living happens in another. But like I said, when you're dashing out of the house and you think "Oh maybe it would be really good if I just went", then it's perfect for that.

²² The Compliance Document for New Zealand Building Code Clause G1 Personal Hygiene states that in household units at least one door shall be provided between a soil fixture (e.g. toilet) and a kitchen or place for food storage. Source: <https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g1-personal-hygiene/asvm/G1-personal-hygiene-2nd-edition-amendment-6.pdf>. In contrast, from the 1950s to 1990s local councils required kitchens to be separated from toilets by two doors (source: <https://teara.govt.nz/en/washing-cleaning-and-personal-hygiene/page-4>).

Figure 41: Ground floor WC opening into lounge



Where toilets are separated by an additional door off the living area (Figure 44 and Figure 45), this provides enough separation from the dining/lounge space and was not as much of a concern to the householders. Designs where the downstairs WC is buffered by a laundry, access from the garage, or the door is around a corner are preferable.

Figure 42: Ground floor WC accessed from garage

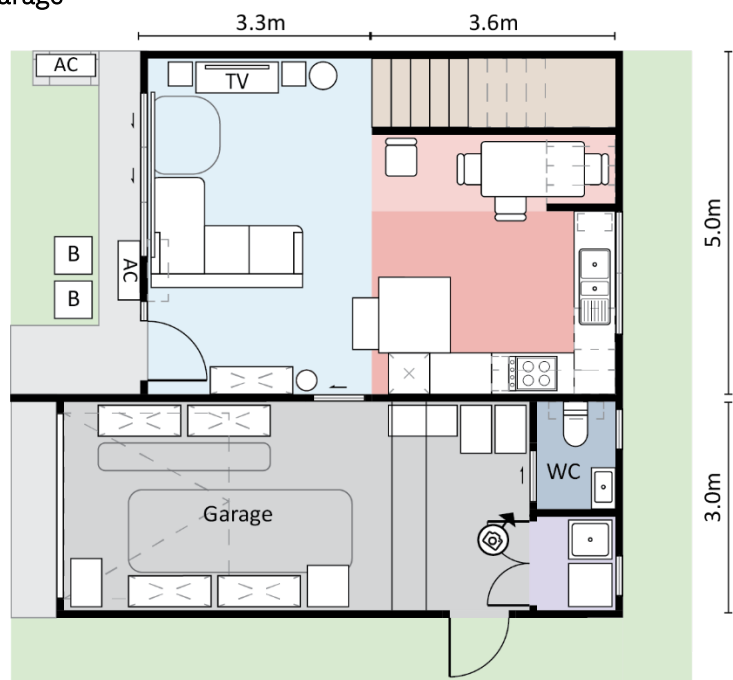


Figure 43: Ground floor WC separated from kitchen, dining and lounge by additional door, accessed through laundry



4 Summary

Storage

Built-in storage for linen, household equipment and occasional-use items is lacking in the homes of many of the survey participants. Over half the participants (51%) reported having ‘no’, ‘not enough’ or ‘only just enough’ built-in storage for linen. Two-thirds (62%) reported having ‘no’, ‘not enough’ or ‘only just enough’ built-in storage for household equipment. And 67 per cent of participants reported having ‘no’, ‘not enough’ or ‘only just enough’ built-in storage for occasional items.

The ADM recommends 3m³ of storage for 2-bedroom homes and 4m³ for 3-bedroom homes. Analysis of the 110 consented plans showed that 2-bedroom homes have on average 2.3m³ of storage and 3-bedroom homes have 3m³ of storage on average. In other words, homes have close to one cubic metre less storage than recommended, which aligns with notable proportions of participants reporting insufficient storage for linen, household equipment and occasional-use items. And in comparison to the National Medium Density Housing Design Guidance, homes are providing less than a third of the recommended 8m³ of storage.

Items are being stored in wardrobes, garages, outdoor living spaces and storage furniture in lounges, spare bedrooms and even spare bathrooms. The lack of dedicated built-in storage is resulting in items being stored in spaces for living, which in turn has an impact on the ability of these spaces to accommodate activities of importance to the household (see also the discussion in Chapter 4).

Laundry

While 68 per cent of participants are ‘somewhat’ or ‘very’ satisfied with the laundry facilities in their homes, where to dry laundry is an issue for some. For example, participants expressed dissatisfaction at needing to dry laundry inside in living spaces (e.g. lounges, spare bedrooms) due to a lack of outdoor facilities or rules determined by their body corporate/residents’ association.

Garages are used as places for laundry by nine per cent of the participants with a garage (see Chapter 4, Section 1.5.5). Having washing machines and dryers in a garage can limit the possibility of the garage being used for its intended purpose of carparking (if the garage is not designed to allow circulation space around a parked vehicle to access other uses in the garage such as storage or laundry facilities). Some participants found their washing machines to be inaccessible with their car also in the garage.

Bathrooms

Eighty-six per cent of participants reported that the number of bathrooms in their home ‘meets’ or ‘more than meets’ the need of the household. Only 14 per cent reported that the number of bathrooms ‘somewhat’ or ‘does not’ meet the needs of the household.

Homes are found to have more bathrooms or WCs and more fixtures (e.g. toilets, showers) than is recommended for the number of bedrooms in a home (generally one bathroom/WC per bedroom is provided). The in-home immersions found that participants with more bathrooms or WCs or more

fixtures (e.g. baths, showers) than they require use these spare bathrooms in unintended ways, including for the storage of suitcases and cleaning equipment and for drying laundry.

The experience of living in MDH may be improved by reducing the number of bathrooms and WCs and increasing the amount of built-in storage for household items, as well as spaces for living (e.g. flexi-rooms).