



# NGĀ PAEREWĀ HOAHOA WHARE DESIGN REQUIREMENTS

FOR PUBLIC HOUSING  
DELIVERED BY, AND FOR,  
KĀINGA ORA – HOMES  
AND COMMUNITIES

VERSION 1.1  
JANUARY 2024

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# RĀRANGI UPOKO CONTENTS

<b>Change log</b>	3		
<b>Legislative compliance</b>	7		
<b>Strategic context</b>	7		
<b>Design outcomes</b>	9		
<b>How to use this document</b>	11		
<b>Wāhanga A: Wāhi Whakatū Whare Section A: Site</b>		<b>Wāhanga B: Mahi Hanga Whare Section B: Building</b>	
<b>A1 Site response</b>	16	<b>B1 Building envelope and overall performance</b>	32
A1.1 Risk management and mitigation	17	B1.1 Structure	32
A1.2 Site response: building form and orientation	17	B1.2 Weather-tightness	33
A1.3 Site response: Safety, security and privacy	18	B1.3 Interstitial moisture	35
<b>A2 Amenity provision and configuration</b>	20	B1.4 Thermal performance	36
A2.1 Private outdoor space	21	B1.5 Windows	40
A2.2 Communal outdoor recreation spaces	22	B1.6 Acoustics	43
A2.3 Outdoor service areas	23	B1.7 Whole-of-life carbon	44
A2.4 Landscaping	25	<b>B2 Private space</b>	45
<b>A3 Site movement and circulation</b>	26	B2.1 Provision and configuration	45
A3.1 Pedestrian circulation	27	B2.2 Access, egress and circulation	48
A3.2 Driveway safety	28	B2.3 Private space: kitchens, bathrooms and laundries	50
A3.3 Carparking	29	B2.4 Private space: finishes, fittings and furnishings	55
A3.4 Mobility scooters, bicycles and other transport modes	30	<b>B3 Shared space</b>	58
A3.5 Product, material and system selection	30	B3.1 Shared space: provision and configuration	59
		B3.2 Communal access, egress and circulation	61
		B3.3 Communal kitchens, bathrooms and laundries	64
		B3.4 Shared space: finishes, fittings and furnishings	65

# RĀRANGI UPOKO

## CONTENTS

<b>Wāhanga C: Ngā Ratonga Whare</b>		
<b>Section C: Services</b>		
<b>C1</b>	<b>Three waters</b>	66
C1.1	Stormwater	66
C1.2	Wastewater	67
C1.3	Water supply	68
C1.4	Water metering	69
C1.5	Water fixtures, fittings, hydraulics and hot water	70
<b>C2</b>	<b>Energy and electrical</b>	72
C2.1	Energy supply and metering	72
C2.2	Electrical distribution	73
C2.3	Lighting	74
C2.4	Data, communications and controls	76
C2.5	Access controls and security systems	77
<b>C3</b>	<b>Heating, ventilation and air conditioning</b>	79
C3.1	Heating, ventilation and air conditioning	79
<b>C4</b>	<b>Fire protection systems</b>	84
C4.1	Fire protection systems	84
<b>Appendices</b>		
	Appendix A: Products and Materials supplementary requirements	88
	Appendix B: Universal Design and Accessibility	123
	Appendix C: Homestar® supplementary guidance	142
<b>List of tables</b>		
A2.1-1	Minimum requirements for private outdoor living areas	21
B1.4-1	Recommended method for compliance with thermal performance criteria	39
B2.1-1	Minimum requirements for gross floor areas	46
B2.1-2	Tapu and noa planning matrix	47
B2.3-1	Minimum size requirements for kitchen and laundry components	51
B2.4-1	Private dwelling floor, wall and ceiling finishes schedule	54
B2.4-2	Minimum requirements for household storage	55
B2.4-3	Minimum requirements for bathroom and toilet fittings and fixtures	56
C1.5-1	Minimum requirements for the capacity of hot water cylinders	71
C2.2-1	Minimum requirements for distribution of power outlets inside the dwelling	73
C2.3-1	Minimum interior lighting (lux) levels	75
C4.1-1	Fire protection requirements for spaces	87

# RĒHITA HURINGA

## CHANGE LOG

The Ngā Paerewa Hoahoa Whare – Design Requirements v1 was released in January 2023. The following table details changes made for the v1.1 minor release in January 2024.

DATE	CREDITS(S) AFFECTED	DESCRIPTION OF CHANGE
01/01/2023	–	Initial release v1.0
01/01/2024	See table below	First update v1.1

### Change identification

To make it easier to identify changes within this document, **purple text** has been used to signify changes. These changes can also be cross referenced in the table below.

MAIN DOCUMENT CHANGE # V1.1	CLAUSE	CHANGE TYPE	SUMMARY
p.8, 12, 14, 17, 25, 29		Update	Documents renamed Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing. Tāone Ora: Urban Design Guidelines
p.17	A1.1.1A	Clarification	Change to Acceptable Solution: overland flow paths & sanitary sewer manholes added to environmental risks.
p.18, 19	A1.3.2A & Guidance	Clarification	Change to Acceptable Solution & Guidance: height at which protection from falling is required for landings, ramps & retaining walls.
p.21	A2.2.1 Guidance & Table A2.1-1	Clarification	Change to Acceptable Solution: clarify requirements for private outdoor living areas, updated minimum areas.
p.23	A2.3.1Aii	Clarification	Change to Acceptable Solution: clarification on taps
p.23	A2.3.2A (i, ii, iii)	Clarification	Change to Acceptable Solution: updated clothesline lengths
p.24	A2.3.3A	Clarification	Change to Acceptable Solution: table removed, and reference added to Appendix A instead
p.24	A2.3.4A	Clarification	Change to Acceptable Solution: clarify non-keyed padlocks required
p.25	A2.4.3A	Clarification	Change to Acceptable Solution: retaining walls not to be painted or stained
p.27	A3.3.1A i & ii	Clarification	Change to Acceptable Solution: wording updated re paths & steps.
p.30	A.3.5.2A	New	Change to Acceptable Solution: low carbon concrete details added

# RĒHITA HURINGA CHANGE LOG

MAIN DOCUMENT CHANGE # V1.1	CLAUSE	CHANGE TYPE	SUMMARY
p.32	B1.1.2A & B	New	New requirement: low carbon concrete
p.33	B1.2.1C	Clarification	Change to Acceptable Solution & Guidance: 3-level walks ups added to wording
p.36	B1.4.1 Guidance	Correction	Change to Guidance: update reference to Practice Note
p.40	B1.5.1 Guidance	Update	Change to Guidance: new Thermal Performance wording
p.43	B1.6.1 C ii	Correction	Update: dB in living areas and bedrooms
p.44	B1.7 Guidance	Update	Change to Guidance: updated date for measurement of whole-of-life carbon
p.47	B.2.1.2 Guidance	Update	Change to table: remove reference to out-of-date document
p.49	B2.2.3 Ai	Clarification	Change to Acceptable Solution: further definition for stair design
p.49	B2.2.5.Ai	Correction	Change to Acceptable Solution: handle height corrected to 1.2m
p.50	B2.3.2	Clarification	Change to Acceptable Solution & Guidance: table updated
p.52	B2.3.-1 Note 3	Correction	Change to Guidance: shelf height corrected to minimum
p.55	Table B2.4-2	Correction	Change to Guidance: table B2.4-2 updated with adjusted storage areas
p.56	Table B2.4-3	Update	Change to Guidance: table updated to clarify toilet requirements
p.56	B2.4.5 Guidance	Clarification	Change to Acceptable Solutions & Guidance: clarification on curtain requirements and addition of note re blinds
p.70	C1.5.1B	Deletion	Change to Guidance: removed hot water tap location requirement for baths
p.70	C1.5.2Aiv	Clarification	Change to Acceptable Solution: dedicated circuit for storage type hot water heaters
p.70	C1.5.3B	Clarification	Change to Acceptable Solution: design & placement note for hydraulic system
p.70	C1.5.4 Aii, B & C	New	New requirement: heat pump hot water systems
p.71	Table C.5-1	Update	Change to Guidance: include new information for heat pump hot water cylinders and update to cylinder capacity in table
p.72	C2.1.1E	Correction	Change to Acceptable Solution: corrected to earth stakes
p.76	C2.4.2Ai Aiii & Aiv	Clarification	Change to Acceptable Solution: updates to ONT location and star wiring requirements



# RĒHITA HURINGA CHANGE LOG

MAIN DOCUMENT CHANGE # V1.1	CLAUSE	CHANGE TYPE	SUMMARY
p.80	A3.1.2 & Guidance	Update	Change to Acceptable Solution & Guidance: more detailed provided for mechanical ventilation
p.81	C3.1.3	New	New requirement: mechanical extract ventilation systems
p.81-83	C3.1.3	Update	Homestar targeted points reference. Further Information mechanical ventilation.

APPENDIX A - CHANGE # V1.1	CLAUSE	CHANGE TYPE	SUMMARY
p.89, 90, 92		Update	Change to Measurable Criteria: updated document names
p.90	Decks, Patios and Steps	Update	Change to Description & Measurable Criteria: composite details added
p.91	Clotheslines and Letterboxes	Update	Change to Description: new options added
p.91	Clotheslines and Letterboxes	Update	Change to Description & Measurable Criteria: option removed & padlock detail updated
p.92	External Storage	Update	Change to Measurable Criteria: note re smaller storage options and updated document name
p.93	Subfloor	Deletion	Change: Section to be removed
p.93	Cladding	Deletion	Change to Measurable Criteria: C. removed wash outs note
p.94 & 95	Insulation	New	Change to products: Glasswool, Pink Batts options added, Glasswool
p.96 & 97	Windows and Glazing	Update	Change to Measurable Criteria: updated with additional information
p.98	External Doors and Hardware	Update	Change to description: wording update including composite fibreglass added
p.98 & 99	Internal Doors and Hardware	Update	Change to products: 8 & 16 pack options added
p.99	Kitchen and Laundry Fittings and Components	Update	Change to products: new products added
p.100	Kitchen and Laundry Fittings and Components	Update	Change to Measurable Criteria: Bench-tops separated out

# RĒHITA HURINGA CHANGE LOG

<b>APPENDIX A - CHANGE # V1.1</b>	<b>CLAUSE</b>	<b>CHANGE TYPE</b>	<b>SUMMARY</b>
p.101	Kitchen and Laundry Fittings and Components	New	Change to products: new section added for Laundry Tub
p.103	Paint Finishes	Update	Change to Measurable Criteria: wording change re fire group ratings
p.104	Floor Coverings – Carpet and Vinyl	Update	Change to Measurable Criteria: update to wording including adding wool carpet
p.108	Bathroom and Toilet Fittings	Update	Change to products: additions and removal, new supporting document
p.110	Bathroom and Toilet Fittings	Update	Change to products: addition of shower enclosures options
p.111	Bathroom and Toilet Fittings	Update	Change to products: additions and removal, new supporting document
p.112	Bathroom and Toilet Fittings	Update	Change to products: additions
p.113	Window Treatments	Update	Change to Measurable Criteria: wording change to remove habitable and thermally lined
p.115	Hot Water Supply	New	Change to Measurable Criteria: new information
p.117	Heating, Ventilation and Air Conditioning	Update	Update to product range
p.118	Heating, Ventilation and Air Conditioning	Update	Change to products & Measurable Criteria: product list change and new wording added
p.120, 121	Heating, Ventilation and Air Conditioning	New	Change to Measurable Criteria sections added – Continuous Mechanical Extract Ventilation, Mechanical Ventilation Heat Recovery, Trickle vents and Wall vents as new
p.122	Fire Protection Systems	Update	Update to interconnected alarms notes



## PURPOSE

Kāinga Ora has a mandate under the **Kāinga Ora – Homes and Communities Act 2019** to help create sustainable, inclusive, thriving communities that provide people with quality homes.

This Design Requirements document sets out the minimum requirements for the design of all new public housing developed by, and for, Kāinga Ora – Homes and Communities.

Incorporation of these requirements into the design and construction of our homes enables us to meet our responsibilities as a government agency and long-term asset owner as well as the needs of our customers and communities.

## LEGISLATIVE COMPLIANCE

The requirements set out in this document are specific to Kāinga Ora. They are not intended in any way to replicate, substitute, contradict or compromise a development's compliance with relevant legislation.

The design and construction of all Kāinga Ora developments and dwellings must comply with all requirements set out under existing legislation. Developments must also meet the requirements of local territorial authorities.

## STRATEGIC CONTEXT

The requirements set out in this document support the objectives of the Kāinga Ora – Homes and Communities Act 2019 through the way in which our homes are designed and delivered, contributing to sustainable, inclusive and thriving communities.

This document is part of a suite of resources that support successful design outcomes for urban design, landscape and housing within Kāinga Ora developments across the motu/ country (see Figure 1).

## Te Rautaki Māori o Kāinga Ora – Kāinga Ora Māori Strategy 2021–2026

Our organisational objectives include prioritising and supporting iwi and rōpū Māori aspirations for housing. These are clearly articulated in the Kāinga Ora Māori Strategy 2021–2026, which sits alongside our Kāinga Ora Strategy 2030. This document, and the others in the Kāinga Ora guidance ecosystem, are part of the journey we are on as an organisation to meet our goals and realise our vision:

**He mana i te whenua, he kura  
kāinga, he whare haumaruru, he  
puna ora, hei oranga tangata.**

With pride of place, with a space to call home, with a protective house, let the spring of life prosper and bring wellbeing to all.

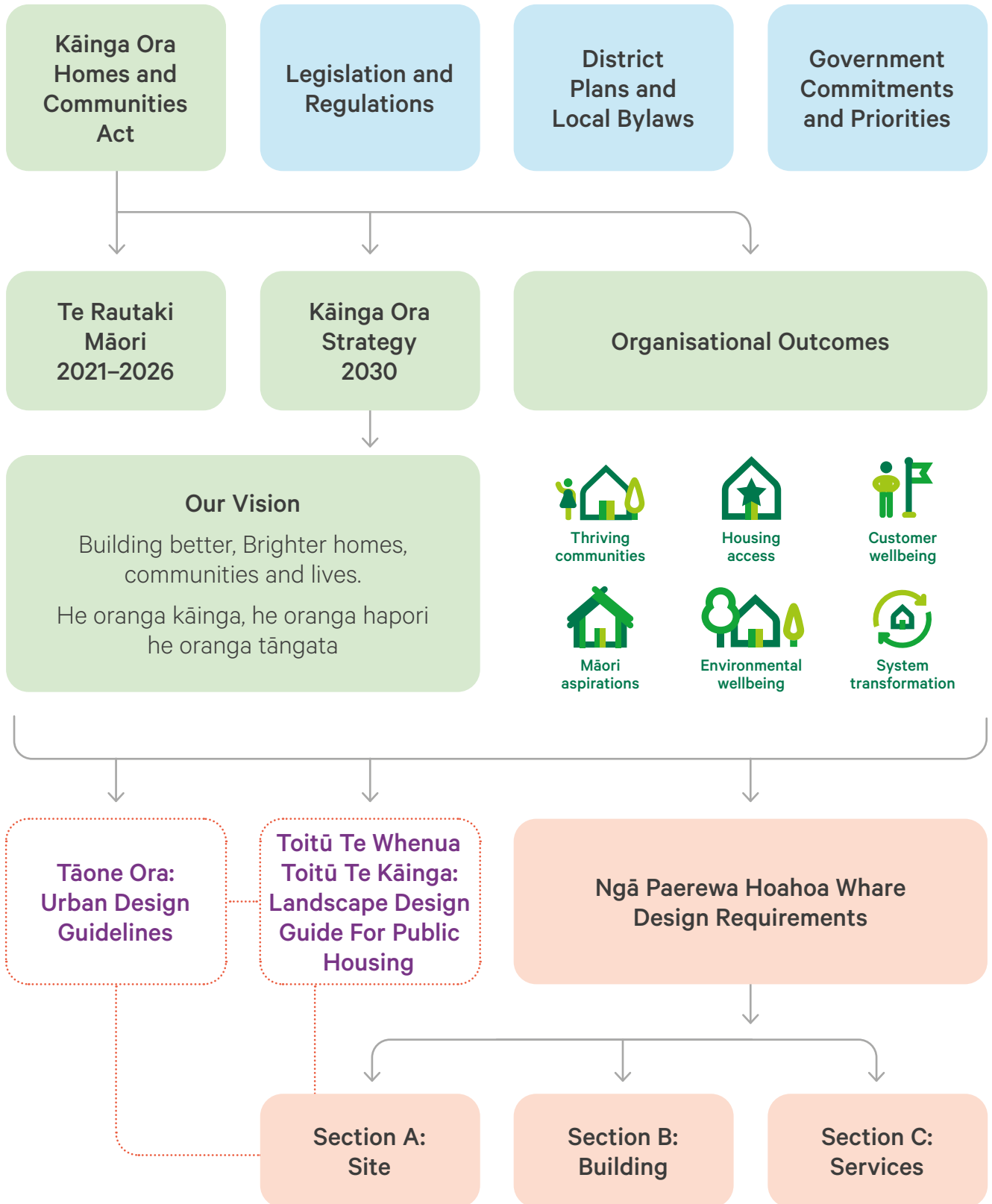


Figure 1: Design Requirements within the strategic context

## DESIGN OUTCOMES

The Performance Requirements and corresponding Acceptable Solutions set out in this document seek to describe tangible and achievable design attributes that will contribute to the achievement of our organisational strategic objectives.

### Our customers' experience

Kāinga Ora provides housing to approximately 187,000 people – 4 percent of the New Zealand population. We house a higher proportion of households with high and complex needs than ever before.

Approximately 82,000 of our household occupants are under the age of 20, and 39,000 are tamariki/ children under the age of 10 – a critical time in child development. More than 30 percent of our tenancies belong to sole parents. Our homes need to incorporate features that enable safe supervision of tamariki/children and separation of play spaces for vehicle manoeuvring areas.

### Safe living environments

Kāinga Ora has a responsibility, to ensure that the health, safety and wellbeing of all customers, employees and contractors is protected and promoted.

In addition to planning and designing for driveway safety, development design should reflect the principles of WorkSafe New Zealand's **Health and Safety by Design** and follow guidance from the Ministry of Justice **National Guidelines for Crime Prevention through Environmental Design in New Zealand**.

Within the dwelling, design detailing can help prevent slips, trips and falls and other accidents. Many of the design requirements are intended to minimise these risks for our customers.

### Universal design and accessibility

Universal design enables the environments we create to be accessed, understood and used to the greatest extent possible by all our customers, their whānau/family and manuhiri/visitors regardless of age, size, ability or disability. If an environment is universally designed, usable, convenient and a pleasure to use, everyone benefits.

As part of our Accessibility Policy and Statement of Performance Expectations, Kāinga Ora has targets relating to incorporation of universal design attributes into our new-build projects. Incorporation of these features contributes to ease of use of our homes for a greater number of Kāinga Ora customers. It also facilitates ageing in place and supports our customers as they journey through life's changes – for example, accidents and illness that may limit their mobility.

Where requirements within this document are highlighted in pink, they contribute to achievement of our Full Universal Design requirements. These requirements are applicable to **all** our homes unless it is stated that they are **additional requirements for Full Universal Design**, in which case, only properties targeting Full Universal Design compliance need to incorporate these attributes.

For further information and detailed requirements, refer to **Appendix B**.

## Culturally responsive design

Under current legislation, Kāinga Ora is required to actively engage and work with Māori and local iwi. This includes in urban development and planning activities and in the design, construction and maintenance of individual dwellings.

Simple design features such as organisation, separation and adjacency of spaces within a home can ensure that Māori cultural practices are facilitated and maintained.

The design process should allow for adequate engagement with customer representatives and/or community representatives and seek to develop designs that are sensitive and responsive to cultural needs and aspirations.

## Maintenance and durability

Kāinga Ora is New Zealand's largest residential landlord, accounting for 12 percent of the total rental sector. At the time of publication, we manage approximately 70,000 properties, and around 187,000 New Zealanders live in our homes.

The design and specification of our new-build and retrofitted homes will have a direct impact on our ability to maintain these homes. This is from both a planned and responsive maintenance planning perspective.

Responsive maintenance requests and follow-ups account for the most significant proportion of customer requests to our call centre. Our maintenance partners need to be able to quickly and easily maintain our properties, homes, fittings and fixtures. This will minimise, as far as possible, disruption to our customers and will enable works to be undertaken in the most efficient way.

## Environmental sustainability

Buildings and construction create demand on our natural environment for materials, energy and water. Kāinga Ora is currently leading the largest coordinated construction programme in the country, with 16,000 homes in our construction pipeline. We are in a unique position to pivot the sector towards low-carbon, high-performance residential construction practices.

Our Environment Strategy sets out four key environmental outcomes: to reduce the emissions associated with our activities; to use resources effectively and efficiently, particularly minimising water consumed, waste produced and materials used; to enhance the natural environment, restoring mana and mauri of the whenua and awa; and to mitigate climate change risks to minimise negative climate outcomes for our homes, customers and communities, including defending whare and whenua.

## Homestar®

In 2019, Kāinga Ora made a commitment to ensuring all new homes we design and build are able to meet the requirements of Homestar®. Developed by the New Zealand Green Building Council, Homestar® is an industry best-practice rating tool and audit process that ensures incorporation of design features to minimise environmental impacts.

Where requirements outlined in this document align with Homestar® requirements this is stated and highlighted in blue. For more information, refer to [Appendix C](#).

## HOW TO USE THIS DOCUMENT

### Key users

Stakeholders involved in the design and construction of our public housing developments should use this resource to ensure projects incorporate design attributes that will enable us to meet our responsibilities as a government agency and long-term asset owner and the needs of our customers and communities.

Key users of this document will include external consultants, build partners and subcontractors involved in the design of homes for Kāinga Ora as well as internal Kāinga Ora development and project managers and quality assurance teams who are responsible for ensuring designs meet our organisational and customer needs.

Others will not directly use this document but will be impacted by or have influence over the requirements set out in this document. This includes Kāinga Ora place-based teams, maintenance partners and internal teams, for example, Urban Design, Sustainability and of course, our customers.

### Scope of use

Design Requirements describes the minimum expectations for all new public housing delivered by, and for, Kāinga Ora:

- **Stand-alone, duplex and terraced housing:** This includes single-storey and multi-storey houses that fit within the scope of New Zealand Building Code (NZBC) clause **E2 External moisture** Acceptable Solution E2/AS1.
- **Apartments:** This includes three-level walk-ups and other multi-storey apartment buildings that typically fall outside the scope of E2/AS1.

- **Multi-unit developments:** This refers to developments where there are multiple dwellings. This may be multiple stand-alone or terraced houses, apartment buildings or a combination of building typologies within one site.
- **Community group housing:** This housing typology may require bespoke features or amenities that are additional or different to the Performance Requirements presented in this document. In this case, an Alternative Solution may be proposed (see **Terminology**).

Some requirements apply only to specific typologies or situations. Where this is the case, it will be noted within the relevant section.

### Delivery method

These design requirements are applicable regardless of the construction or delivery methodology. However, we recognise that some methods are new or emerging and differ substantially from traditional construction methods. We will seek to refine our requirements through a continuous improvement process to ensure they are well suited for use by all projects regardless of construction methodology.

### Housing use

These design requirements are not mandatory for transitional or emergency housing but provide a useful set of requirements that can be followed where practical.

## Document structure

This document is set out in five primary sections:

### Introduction

This section describes the context, purpose, desired outcomes and application of the design Performance Requirements.

### A. Site

This section aligns with requirements set out in the **Tāone Ora: Urban Design Guidelines** and **Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing** and section sets out requirements for site planning and provision of outdoor amenity spaces and features and pedestrian and vehicle access.

### B. Building

This section sets out passive design requirements relating to the overall performance of the building, including weathertightness, thermal performance and acoustics as well as internal space sizing and arrangement, fittings and finishes.

### C. Services

This section sets out the active system requirements for site and building services, including energy and water supply and distribution, access control and security systems, active heating and ventilation systems.

### Appendices

These provide additional detail and guidance as required.



Figure 1: Document structure

## Terminology

Performance Requirements are grouped and organised around design themes and building components. Each subsection includes the following terminology:

<b>Rationale</b>	Describes why a specific set of requirements is important.
<b>Performance Requirement</b>	The outcome expected from the design solution.
<b>Acceptable Solution</b>	The design attributes or design approach deemed to satisfy the Performance Requirements. Generally these are described as statements, for example, “All circulation routes are at least 1050mm-wide (measured from the face of the wall-linings).”
<b>Adequate or appropriate</b>	Where used, these terms acknowledge that, for some requirements, a specific measure can’t be provided (or has yet to be determined) as the solution will be dependent on the size or type of development and/or number of anticipated occupants. Discretion must be applied and/or best-practice guidelines (where available) used to determine the most appropriate response.
<b>Wherever possible</b>	This means that the Acceptable Solution must be adhered to unless there is justifiable reason not to.
<b>Consider or consideration</b>	Use of these terms recognises that there may not be a pre-defined Acceptable Solution to address specific issues or that project constraints may preclude a project from incorporating proposed solutions. As a minimum, a project must give thought to how to address the issue specified or whether application of the proposed solution might be possible.
<b>Alternative Solution</b>	Any solution to achieve a Performance Requirement that differs from what is described in the Acceptable Solution.
<b>Guidance</b>	Additional information, definitions or rationale that clarify the meaning and intent of the Performance Requirements and/or Acceptable Solutions. <ul style="list-style-type: none"> <li>Where the guidance provides a detailed <b>definition</b> (for example, a list of high-risk design details to be avoided) this information supplements the Acceptable Solution and as such is mandatory.</li> <li>All other guidance is not mandatory, but <b>can</b> or <b>should</b> be followed where relevant.</li> </ul>



## Making good decisions

Development projects contain their own set of conditions – unique opportunities, challenges and constraints. Projects must seek to achieve **each** of the Performance Requirements set out within this document without compromising achievement of other requirements.

There can be some challenges when weighing up design options and solutions, for example:

- creating privacy in homes while enabling solar access and achieving passive surveillance of public spaces
- providing adequate ventilation to homes located on a busy street where opening windows may compromise acoustic comfort
- providing adequate open space and vegetation and protecting mature trees where sites are constrained along with adequate carparking.

## Design management and advice

Design management and advice play a critical role in ensuring balanced decision making and optimal outcomes for our developments. The Architectural Design Management Office of Kāinga Ora manages these design management and design quality processes.

## Urban design review

Urban design review plays a role in the redevelopment of larger sites. The Kāinga Ora Urban Design team manages this review process (refer to **Tāone Ora: Urban Design Guidelines**).

## Alternative Solutions

Sometimes, the best solution to achieve the outcomes set out as a Performance Requirement is different from the Acceptable Solution that is outlined and deemed to comply. If this is the case, an Alternative Solution can be proposed. This will be reviewed by our Design Quality and/or Quality Homes Advisory teams to determine whether the proposed solution will achieve the intent of the relevant Performance Requirement.

## Revisions, feedback and queries

This document will undergo regular review and update to incorporate:

- technical clarifications and corrections
- project and stakeholder feedback
- resolution of identified issues or obstacles
- updated, revised and/or new requirements and guidance that meet changing business needs, priorities and aspirations.

To provide feedback or seek clarification, please contact the Quality Homes Advisory team by sending a message to

**[QualityHomesQueries@KaingaOra.govt.nz](mailto:QualityHomesQueries@KaingaOra.govt.nz)**

# A

# WĀHI WHAKATŪ WHARE SITE

## A1 Site response

- A1.1 Risk management and mitigation
- A1.2 Site response: building form and orientation
- A1.3 Site response: safety, security and privacy

## A2 Amenity provision and configuration

- A2.1 Private outdoor space
- A2.2 Communal outdoor recreation spaces
- A2.3 Outdoor service areas
- A2.4 Landscaping

## A3 Site movement and circulation

- A3.1 Pedestrian circulation
- A3.2 Driveway safety
- A3.3 Carparking
- A3.4 Mobility scooters, bicycles and other transport modes
- A3.5 Product, material and system selection





A1

## SITE RESPONSE

### RATIONALE

Initial master planning for a development requires careful consideration of a number of site-specific factors as well as wider contextual factors. Consideration should be given to existing site features, significant landforms, topography, ecology, stormwater and existing vegetation as well as surrounding natural, cultural and urban features.

The development strategy should seek to respond holistically, applying balanced decision making to both mitigate risks and support optimal outcomes for our customers and their community.



## A1.1 RISK MANAGEMENT AND MITIGATION

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A1.1.1 Risk management</b></p> <p>Site and environmental risks are identified and appropriately managed or mitigated.</p>	<p>A. <b>Environmental risks</b> such as soil contamination, flood plains, overland flow paths, unstable land, high voltage power lines, waterways, steep cliffs, stormwater &amp; sanitary sewer manholes and major arterial routes are considered and mitigated as appropriate.</p> <p>B. Site and master planning <b>mitigates the effects of noise</b> from external sources (for example, traffic).</p>

## A1.2 SITE RESPONSE: BUILDING FORM AND ORIENTATION

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A1.2.1</b></p> <p><b>Urban design</b> – site layout, building form and orientation of buildings and communal spaces is responsive to site context and urban form.</p>	<p>A. <b>Building form and site layout</b> is appropriate for the site conditions, context and topography.</p>

### Guidance

Refer to the [Tāone Ora: Urban Design Guidelines](#)

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A1.2.2</b></p> <p><b>Solar access</b> is managed through site layout, orientation of buildings and communal spaces to create a comfortable and pleasant living environment.</p>	<p>A. <b>Layout and orientation of the building</b> facilitates controlled passive solar gain into the main living area and private outdoor space for each dwelling.</p> <p>B. <b>Location and arrangement</b> of outdoor service and communal recreation spaces considers appropriate solar access.</p>

*Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort and HC5: Natural Lighting. Refer to Appendix C.*

### Guidance

Orientation and location of the building, placement, sizing and thermal performance of windows, location of vegetation and shading/screening devices and thermal performance of the building envelope will all contribute to creating pleasant and comfortable indoor environments and need to be considered holistically. Living spaces and outdoor areas should receive a minimum of three hours of direct sunlight each day throughout the winter months, and orientation and/or building design features should seek to mitigate the risk of overheating in summer months. Refer also to:

- B1.4 Thermal performance
- B1.5 Windows

Appropriate solar access should be provided to outdoor areas, for example:

- to facilitate clothes drying
- to ensure outdoor recreation spaces are pleasant environments
- to ensure planting and landscaping strategies will be successful.

Refer also to the [Tāone Ora: Urban Design Guidelines](#) and the [Toitu Te Whenua Toitu Te Kainga: Landscape Design for Public Housing](#) for further guidance.

### A1.3 SITE RESPONSE: SAFETY, SECURITY AND PRIVACY

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A1.3.1</b></p> <p>Site design and layout protects and promotes customers' <b>safety, security and privacy</b>.</p>	<p>Site design facilitates passive supervision, clear and intuitive layout and connections, and a sense of ownership by demonstrating adherence to <b>CPTED principles</b> while avoiding compromising personal privacy.</p> <p>A. Potential areas of concealment are avoided.</p> <p>B. Site layout and design reduces the risk of vehicle injury, provides clear way-finding and signage (<i>Refer A3 Movement and Circulation</i>)</p>

*Relates to Kāinga Ora Homestar Targeted Points under LV3: Eco-Friendly Living. Refer Appendix C.*

#### Guidance

**Crime Prevention Thought Environmental Design (CPTED)** is a crime prevention discipline that promotes effective design of the built environment to deter anti-social behaviour and foster local custodianship within a community. CPTED helps reduce crime, and fear of crime, by reducing criminal opportunity and fostering positive social interaction among legitimate space users.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A1.3.2</b></p> <p>Site <b>design features</b> provide safety, security and privacy.</p>	<p>A. Protection from falling from landings and or ramps i.e., a handrail and wheel-stop rail, is provided where there is a fall-height risk of 500mm or higher.</p> <p>B. <b>Fencing, screening and/or other barriers</b> are provided to facilitate security and privacy.</p> <p>i. Each dwelling's private outdoor space is provided with physical boundaries to separate the unit from common areas.</p> <p>ii. Screening is provided to communal rubbish and recycling areas.</p> <p>C. Non-climbable fencing prevents free access/ movement between children's play-areas and car-parking and manoeuvring spaces. (<i>Refer also A3. Site Movement &amp; Circulation</i>)</p> <p>D. <b>Exterior lighting and access control systems</b> are provided to facilitate security and safety. (<i>Refer Section C. Services</i>)</p> <p>E. New fencing must comply with Resource Consent conditions. Refer to The Landscape Design Guide for Public Housing for design requirements for fencing.</p> <p>i. Safety fencing is at least 1.2m-high, with a durable, corrosionresistant finish.</p> <p>ii. Have a maximum of 100mm between fence base and natural ground.</p>

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
	<p>F. Gates should:</p> <ul style="list-style-type: none"> <li>i. Swing open into the secure children’s play-area.</li> <li>ii. Have self-closing hinges and an automatic magnetic latch set at 1.5m above ground level.</li> <li>iii. Not have a keyed lock.</li> </ul> <p>G. Note that sharp tops, spikes, or verticals that protrude above the</p> <p>H. top-rail of the fence or gate are not permitted.</p>

*Relates to Kāinga Ora Homestar Targeted Points under LV3: Eco-Friendly Living. Refer Appendix C.*

**Guidance**

Topography of the site should be considered in site design, ensuring safe movement, circulation, and use of the site. Protection from falling may include strategies such as barriers, fencing or planting. Fencing and retaining wall design should ensure customer safety, while also seeking to maximise useable outdoor area. Refer to **Toitu Te Whenua Toitu Te Kainga: Landscape Design for Public Housing** for best-practice approaches to maximise outdoor amenity spaces. *Where retaining walls are under 1.0m in height no protection from falling, over and above Building Code is required.*



## A2 AMENITY PROVISION AND CONFIGURATION

### RATIONALE

Adequately sized and well-connected outdoor living areas enhance internal dwelling spaces and are important in supporting customers' health and wellbeing. For larger developments, outdoor shared recreational spaces can support social interaction and community development.

A well-designed and considered landscape can contribute to a development's sense of place, enhancing the customers' experience, which helps to foster social interaction, pride of place and community stewardship. Landscaping helps to soften built form, activate spaces in between and can provide privacy.



Shared play area at Kāinga Ora development in Avondale, Auckland



## A2.1 PRIVATE OUTDOOR SPACE

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A2.1.1</b></p> <p><b>Private outdoor spaces</b> are provided to each dwelling to allow customers comfortable living and connectivity to the outdoors.</p>	<p>A. All dwellings (regardless of typology) are provided with a balcony, deck or patio that:</p> <ul style="list-style-type: none"> <li>i. meets size requirements outlined in Table A2.1-1</li> <li>ii. is directly accessible from the living and dining area.</li> </ul> <p>B. In addition:</p> <ul style="list-style-type: none"> <li>i. for stand-alone and terraced housing, a private lawn/ play area is provided that meets the size requirements outlined in Table A2.1-1</li> <li>ii. for apartment developments, communal outdoor recreation areas are provided in line with the project brief. (Refer to A2.2 Communal outdoor recreation spaces.)</li> </ul>

### Guidance

Outdoor living spaces should be of a usable shape and size, easily accessible by all occupants and with with one access from living spaces to patio or decks. Outdoor living spaces should be sheltered from the prevailing wind. Shading is encouraged to protect users from the sun when the outdoor living space is located to the north or west.

**TABLE A2.1-1: MINIMUM REQUIREMENTS FOR PRIVATE OUTDOOR LIVING AREAS**

	DWELLING SIZE (BY BEDROOM NUMBER)				
	1	2	3	4	5-6
<b>MINIMUM REQUIREMENTS</b>					
Private lawn/play area	12m <sup>2</sup>	10m <sup>2</sup>	25m <sup>2</sup>	23m <sup>2</sup>	38m <sup>2</sup>
Balcony and deck or patio	8m <sup>2</sup>	10m <sup>2</sup>	10m <sup>2</sup>	12m <sup>2</sup>	12m <sup>2</sup>
<b>Total size area</b>	<b>20m<sup>2</sup></b>		<b>35m<sup>2</sup></b>		<b>50m<sup>2</sup></b>

### Notes

1. Where dwellings are provided with **both** a balcony/deck patio and a private lawn/play area, the total outdoor space accommodates washing line, rubbish and recycling area and external storage. (Refer to A2.3 Outdoor service areas.)
2. Where dwellings are provided with **only** a balcony/deck/patio, this space accommodates a washing line and space for heat pump units (as required) without infringing on the minimum spatial requirement outlined in Table A2.1-1. The balcony area should be sized to allow outdoor dining for all occupants of the dwelling.
3. Space required for above-ground tanks must not encroach on outdoor living space.
4. Private lawn/play areas are for standalone and terrace typologies.

## A2.2 COMMUNAL OUTDOOR RECREATION SPACES

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A2.2.1</b> <b>Adequately sized and appropriate</b> communal outdoor recreation spaces are provided to support community building and wellbeing.</p>	<p>A. <b>Communal outdoor recreation space</b> is provided in accordance with the project brief. The type and size of communal facilities takes into consideration:</p> <ol style="list-style-type: none"> <li>i. size of the development</li> <li>ii. the number of people anticipated to use the space</li> <li>iii. the age and ability of the anticipated user group</li> <li>iv. location of the development in relation to facilities in the surrounding area.</li> </ol>
<p><b>A2.2.2</b> <b>Location and arrangement</b> of communal outdoor recreation spaces facilitates use and opportunities for community building.</p>	<p>A. Location and design of communal outdoor recreation spaces considers:</p> <ul style="list-style-type: none"> <li>• solar access</li> <li>• shelter from prevailing winds</li> <li>• shade provision from buildings and shading devices</li> <li>• adjacency to indoor communal spaces</li> <li>• surveillance</li> <li>• adjacencies and separation of space (for example, from vehicle movements)</li> <li>• noise and noise-sensitivity</li> <li>• provision of equipment and fixtures to facilitate use (for example, seating, barbecues and structural elements).</li> </ul>

### Guidance

#### Location and configuration of communal outdoor areas

The primary communal outdoor amenity area should be located in sunny, centralised locations with gradients predominantly less than 1:20 and with direct sightlines from dwellings, the street and/or other well used public spaces. Communal outdoor space provided should be contiguous and adjacent to, and accessible from, indoor communal areas. They should not be located in isolated and/or inaccessible areas or narrow sideyards.

- The space should be usable year round in a range of weather conditions by including, for example, seating, slip-resistant paving, a barbecue area, wind screening, pergolas and shading devices.
- Adequate artificial lighting, an outdoor tap and, where possible, an outdoor power supply should be provided to facilitate use of the space.

#### Play areas

Where outdoor play areas are provided:

- areas should be separated from on-site hazards (such as access chambers, cesspits, manholes and driveways)
- they should be located to allow natural surveillance from roads, windows and balconies
- where play equipment is included, impact-absorbing surfacing under the equipment should be provided.

## A2.3 OUTDOOR SERVICE AREAS

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A2.3.1</b></p> <p>Adequate <b>rubbish and recycling areas</b> are provided, are easily accessed and screened appropriately.</p>	<p>A. <b>Rubbish and recycling areas</b> are provided and:</p> <ol style="list-style-type: none"> <li>are sized to suit the number of dwellings serviced</li> <li>have an external tap (where possible located over a gully trap).</li> <li>have a durable, non-slip floor surface.</li> <li>In addition, for <b>multi-unit developments</b>, rubbish and recycling areas:</li> <li>allow manoeuvring space for rubbish collection vehicles</li> <li>are located so as to prevent usage by the wider neighbourhood</li> <li>are provided with screening</li> <li>have an external tap and with falls to drainage collection point to facilitate cleaning.</li> </ol>

### Guidance

#### Stand-alone and terraced housing

- Space provision should allow for two wheelie bins.

#### Multi-unit developments

- Refuse collection areas should be readily accessed from all dwellings.
- Liaison with local rubbish collection providers may be required to correctly size the storage area and to obtain tracking dimensions of collection vehicles.
- A fire-rated block wall may be appropriate as a buffer for storage or rubbish bins where located directly adjacent to a boundary.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A2.3.2</b></p> <p>Adequate and appropriately located <b>clothes-drying facilities</b> are provided.</p>	<p>A. An external <b>clothes-drying facility</b> is provided to each dwelling (regardless of typology) and is sized to suit the dwelling's occupancy:</p> <ol style="list-style-type: none"> <li>between 14-28m long line for dwellings with 1-3 bedrooms.</li> <li>between 28-40m long line for dwellings with 4 or more bedrooms.</li> <li>Refer to <b>Appendix A</b> for available procured products.</li> </ol>

### Guidance

Provision of outdoor clothes-drying facilities encourages customers to dry laundry outside rather than indoors, which can result in internal moisture build-up.

- Where possible, clothes lines should not be directly fixed to a building or fence. In apartment blocks, where this may be unavoidable, fixings should be robust and weathertight.
- Where possible, clothes lines should not be located in full view of the street.
- For apartment and multi-unit developments, as an Alternative Solution, adequate drying facilities may be provided as a combination of private and shared facilities.

WHERE ELECTRIC CLOTHES DRYERS ARE PROVIDED AS PART OF PRIVATE OR SHARED FACILITIES, THESE RELATE TO KĀINGA ORA HOMESTAR TARGETED POINTS FOR EF4: ENERGY USE. REFER TO APPENDIX C.

**A2.3 OUTDOOR SERVICE AREAS CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
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**A2.3.3**

**Safe and secure storage** is provided for outdoor, gardening and recreational equipment.

**Stand-alone and terraced housing**

A. Lockable outdoor storage is provided sized in accordance with Appendix A.

**Guidance**

For apartment developments, alternative storage solutions may need to be developed where there is limited private outdoor space within which to provide a storage shed.

Refer to Appendix A for available procured outdoor storage products.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
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**A2.3.4**

A **letterbox** is provided to each dwelling.

A. Letterboxes are clearly numbered, weathertight, resistant to corrosion and lockable by padlock (not keyed lock) and must meet New Zealand Post’s **mailbox specifications**.

B. Letterboxes are located at the street front or main entry and are integral to the site and building’s circulation and wayfinding strategy. (Refer to A3 Site movement and circulation.)



## A2.4 LANDSCAPING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A2.4.1</b> <b>Landscaping</b> enables access to natural environments for wellbeing and supports resilience and environmental outcomes.</p>	<p>A. Landscape design aligns with <b>Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</b>.</p> <p>B. Landscape design aligns with the Kāinga Ora Policy: The Management of Trees and Vegetation (POL-367).</p>
<p><b>A2.4.2</b> Site layout and landscape design facilitates <b>maintenance</b>.</p>	<p>A. Soft and hard landscaping features mitigate the risk of accidental building damage and prevent build-up of moisture.</p> <p>B. Landscape design does not hinder the ability for maintenance contractors to access the building for cleaning and repairs.</p>
<p><b>A2.4.3</b> <b>Soft and hard landscaping</b> elements are robust and easy to maintain.</p>	<p>A. Retaining walls have a natural finish i.e., do not paint or stain.</p> <p>B. Ramps and steps have a non-slip finish.</p>
<p><b>Guidance</b> Refer to the <b>Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</b>. Refer to Appendix A for further requirements and guidance relating to product and materials specification.</p>	

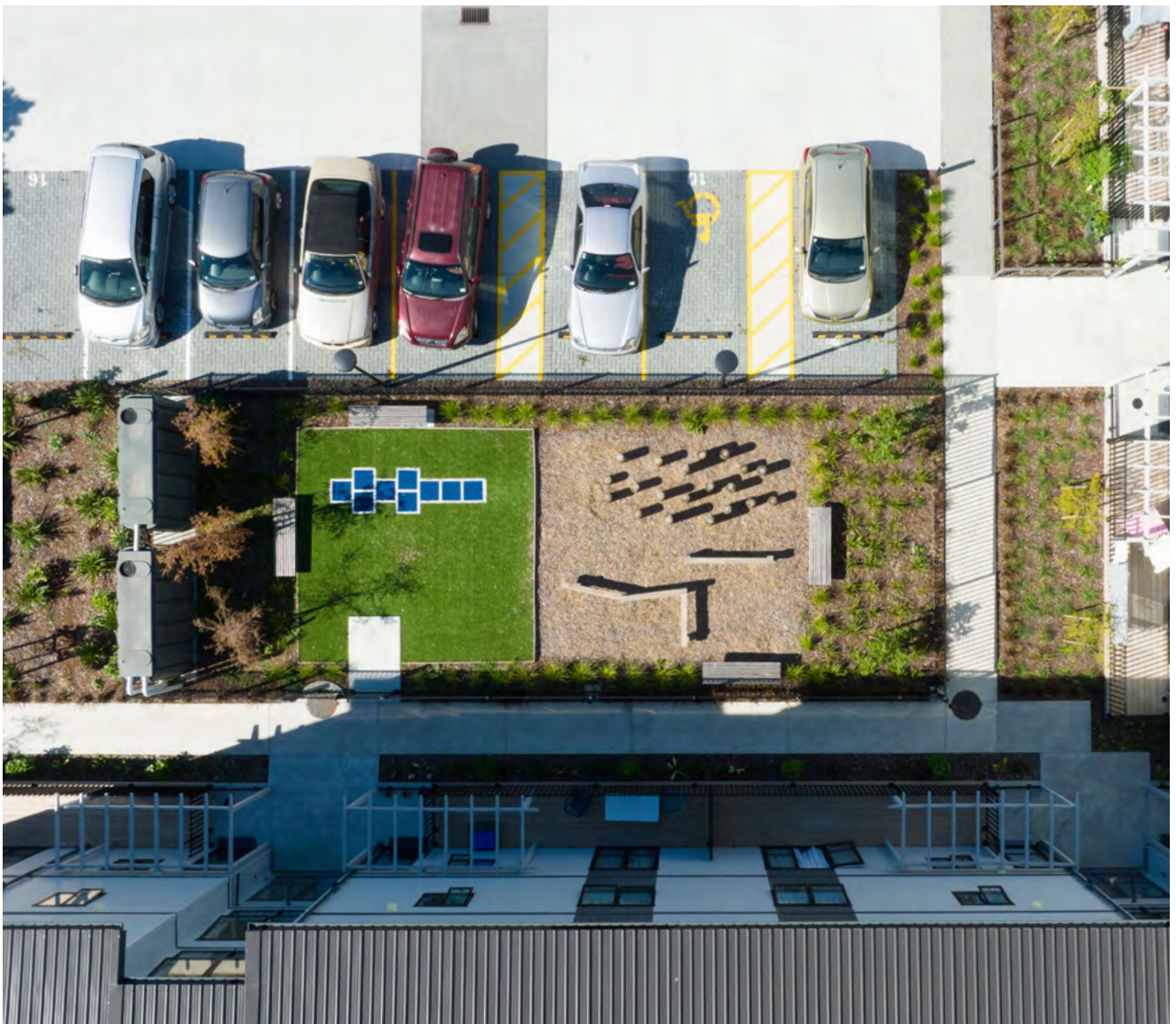




## A3 SITE MOVEMENT AND CIRCULATION

### RATIONALE

Site design should allow customers and their whānau and other visitors to **safely and easily access** the property and dwelling. Additional attention to designing for driveway safety is crucial to significantly reduce the risk of injury to a child.



### A3.1 PEDESTRIAN CIRCULATION

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A3.1.1</b></p> <p><b>Pedestrian access</b> facilitates safe movement and wayfinding for customers.</p>	<p><b>A. External circulation routes/pathways:</b></p> <ul style="list-style-type: none"> <li>i. are at least 1.2m wide from the street and/or parking areas to the main entry</li> <li>ii. one path is at least 800mm wide between the dwelling and the clothesline</li> <li>iii. have a maximum cross-fall of 1:50, shaped to allow for drainage of surface water.</li> </ul> <p><b>B. Stairs</b> contained within external circulation routes:</p> <ul style="list-style-type: none"> <li>i. align with the requirements for accessible stairs set-out in NZBC clause <b>D1 Access routes</b> Acceptable Solution D1/AS1 section 4.1</li> <li>ii. include a handrail on at least one side of the stairs</li> <li>iii. avoid using single steps where possible and do not use winders.</li> </ul> <p><b>C. Main entry</b></p> <ul style="list-style-type: none"> <li>i. Refer to B2.2 Private space: access, egress and circulation.</li> <li>ii. Refer to B3.2 Communal access, egress and circulation.</li> </ul> <p><b>D. Circulation routes</b> facilitate <b>wayfinding</b> and are well defined and easily identifiable, including at night.</p> <p><b>E. Clear signage</b> and numbering ensures the property address is clearly identifiable, including at night.</p> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• Accessways can be easily adapted to be step-free if required.</li> <li>• Accessways to service areas can be easily adapted to 1.2m wide.</li> </ul>

Dwelling identification relates to Kāinga Ora Homestar targeted points under LV3: Eco-Friendly Living. Full Universal Design requirements relate to Kāinga Ora Homestar targeted points under LV1: Inclusive Design. Refer to Appendix C.

#### Guidance

Treat any slope greater than 1:20 as a ramp. This will need to comply with the requirements of **NZS 4121:2001 Design for access and mobility: Buildings and associated facilities**.

For details and guidance relating to Full Universal Design, refer to Appendix B.

Where signage to identify CCTV monitoring is in place, it should be integrated with wayfinding signage.



## A3.2 DRIVEWAY SAFETY

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A3.2.1</b></p> <p><b>Pedestrian and vehicle areas</b> are appropriately separated, with design features to reduce risk of injury.</p>	<p>A. Driveways</p> <ul style="list-style-type: none"> <li>i. Driveways are appropriate for emergency, delivery service and maintenance vehicles.</li> <li>ii. <b>Private driveways</b> are designed with even transitions and the ability to shed water.</li> <li>iii. <b>Design features</b> such as kerbing, wheel stops, bollards, speed humps, passing bays, drop-off zones, mirrors and signage are provided where required for steep sites and long and common driveways.</li> </ul> <p>B. Pedestrian and vehicle spaces are appropriately <b>separated</b>.</p> <ul style="list-style-type: none"> <li>i. The pedestrian pathway to the building entry is separate from the driveway.</li> <li>ii. The main entry does not open directly onto a driveway, carpark or vehicle manoeuvring area.</li> <li>iii. Non-climbable fencing prevents free access/movement between children's play areas and carparking and manoeuvring spaces.</li> </ul> <p>C. Vehicle <b>visibility</b> to enter and exit and manoeuvre within the site is clear.</p> <ul style="list-style-type: none"> <li>i. Planting and fencing does not obstruct a clear line of sight for vehicles exiting the site.</li> </ul>

### Guidance

Driveways should be designed to have a minimum cross-fall of 1:100 and a maximum cross-fall of 1:50. Paved surfaces should be designed to prevent water ponding, collection of debris and growth of moss.

Refer to [A Guide to Driveway Safety for Property Owners](#) for further guidance.

### A3.3 CARPARKING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A3.3.1</b></p> <p>Adequate and safe <b>carparking</b> and/or drop-off zones are provided.</p>	<p><b>A. Parking – stand-alone and terraced housing</b></p> <ul style="list-style-type: none"> <li>i. One standard level carpark is provided per dwelling, with accessway to the dwelling.</li> <li>ii. Where provided, a garage is at least 3.5m (W) x 5.0m (L).</li> </ul> <div style="background-color: #f8d7da; padding: 5px;"> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• The carpark is able to be adapted to a width of 3.5m.</li> </ul> </div> <p><b>B. Parking – multi-unit developments</b></p> <ul style="list-style-type: none"> <li>i. <b>Carparking</b> provision aligns with the relevant project brief. Provision of carparking considers: <ul style="list-style-type: none"> <li>– anticipated customer numbers and mix</li> <li>– proximity to transit routes and public transport</li> <li>– requirements for additional parking, for example, for emergency vehicles and staff working in the building.</li> </ul> </li> <li>ii. For properties with shared carpark facilities, there is at least one standard carpark per Full Universal Design dwelling and 25 percent of these carparks are accessible (3.5m x 5m) <b>OR</b></li> <li>iii. For apartment complexes and multi-unit developments, there is a drop-off zone that is suitably located for customers' use. This must be supported by easily accessible public transport options and/or other services that support independent living.</li> </ul> <p><b>C. Signage</b></p> <ul style="list-style-type: none"> <li>i. Clear <b>signage</b> enables easy identification of dedicated/ allocated carparks, loading zones, clearways or service areas.</li> </ul>

Full Universal Design requirements relate to Kāinga Ora Homestar targeted points under LV1: Inclusive Design. Refer to Appendix C.

#### Guidance

Carparks should be designed to have a minimum cross-fall of 1:100 and a maximum cross-fall of 1:50. For multi-unit developments, carparking can be provided **on plot, on street** or **off plot**. Different treatments or a combination of treatments are appropriate in different settings to deliver the right amount of parking and the right type of parking in the right place to address the access and movement needs of an attractive, well-functioning neighbourhood. Refer to the **Tāone Ora: Urban Design Guidelines** for additional guidance.

For details and guidance relating to Full Universal Design, refer to Appendix B.

### A3.4 MOBILITY SCOOTERS, BICYCLES AND OTHER TRANSPORT MODES

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A3.4.1</b></p> <p><b>Bicycle and mobility scooter storage</b> is adequately sized and appropriately located, with provision for charging.</p>	<p><b>Apartments</b></p> <p>A. Where provided, parking for mobility scooters:</p> <ul style="list-style-type: none"> <li>i. is secure, weatherproof and easily accessible</li> <li>ii. includes manoeuvring space to at least one side of the scooter</li> <li>iii. includes a power outlet for charging.</li> </ul> <p>B. Where provided, bicycle parking is</p> <ul style="list-style-type: none"> <li>i. adequate for the number of occupants</li> <li>ii. located as close as possible to the main entry</li> <li>iii. secure.</li> </ul>

#### Guidance

##### Storage for mobility scooters

As a guide, allow for the following.

- Provide step-free access from the dwelling to the scooter parking area.
- Include sufficient clearance around the scooter (typically 800mm) for the customer to transfer from their walking frame or wheelchair.
- Include allowance for a 1.5–1.8m diameter turning circle for scooter manoeuvrability.

##### Storage for bicycles

Where short-term secure bicycle parking is required by the project brief, it is recommended that this is located within 25 metres of the main entry. In general, allow for one cycle park for every 10 dwellings.

### A3.5 PRODUCT, MATERIAL AND SYSTEM SELECTION

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>A3.5.1</b></p> <p><b>Products and materials</b> used for circulation routes are durable, safe and easy to maintain and consider whole-of-life costs and impacts.</p>	<p>A. All driveways and external pedestrian paths have a non-slip finish, shaped to fall to allow drainage of water.</p> <p>B. The following products/systems are <b>not</b> used.</p> <ul style="list-style-type: none"> <li>i. Interlocking paving systems.</li> <li>ii. Non-continuous pavers laid with gaps between.</li> </ul>
<p><b>A3.5.2</b></p> <p>Where practicable, <b>low carbon, low environmental impact materials</b> are used.</p>	<p>A. All concrete used for hardscaping shall be '<b>low carbon</b>' which has a minimum carbon reduction of at least 10% below the Infrastructure Sustainability Council (ISC) 2020 embodied carbon baseline.</p>

#### Guidance

As a non-slip finish, exposed aggregate is preferred to applied finishes as the slip resistance of the latter can degrade over time.

Refer to Appendix A for further requirements and guidance relating to product and materials specification.

# B

# MAHI HANGA WHARE BUILDING

## **B1 Building envelope and overall performance**

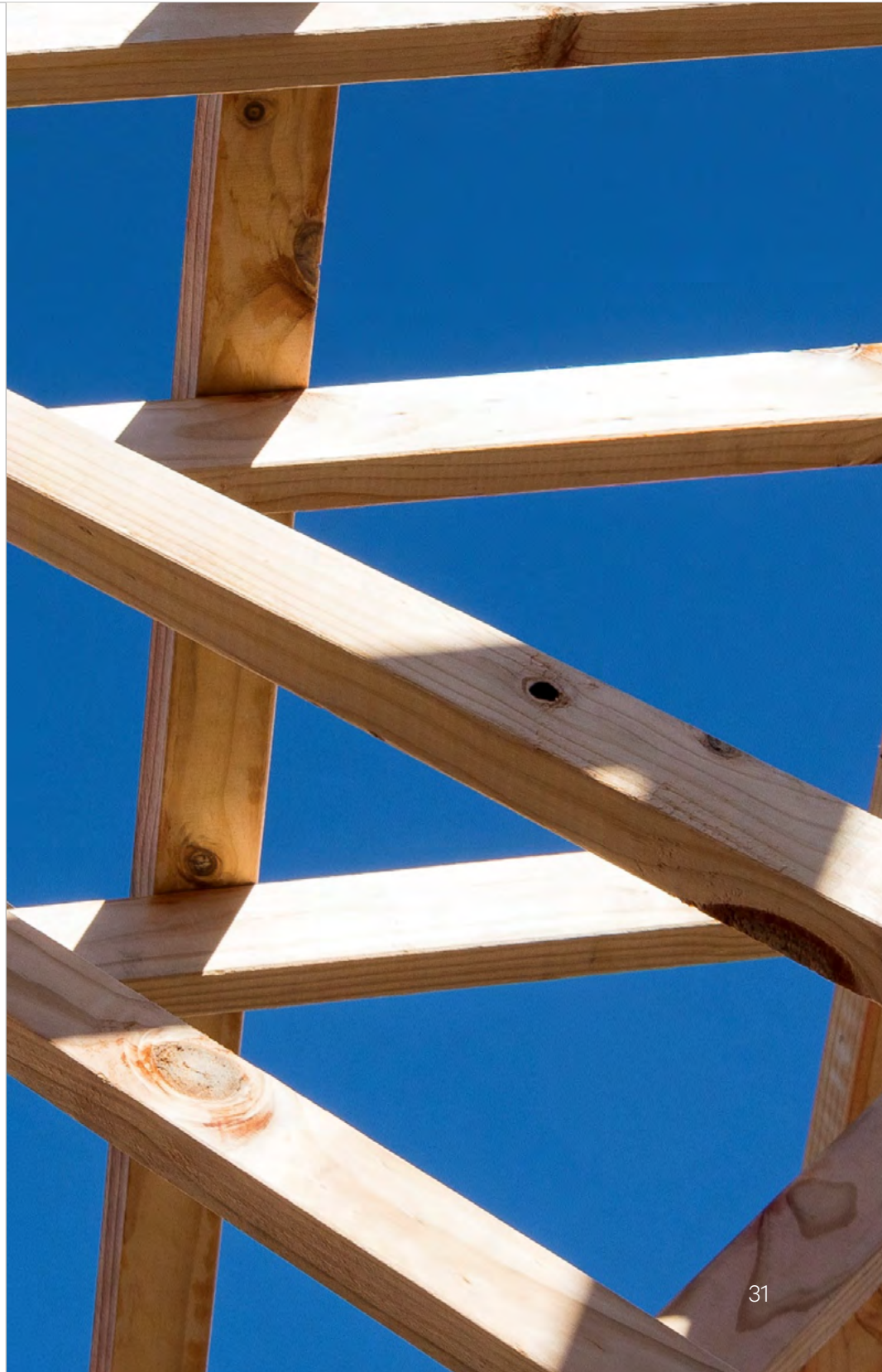
- B1.1 Structure
- B1.2 Weathertightness
- B1.3 Interstitial moisture
- B1.4 Thermal performance
- B1.5 Windows
- B1.6 Acoustics
- B1.7 Whole-of-life carbon

## **B2 Private space**

- B2.1 Private space: provision and configuration
- B2.2 Private space: access, egress and circulation
- B2.3 Private space: kitchens, bathrooms and laundries
- B2.4 Private space: finishes, fittings and furnishings

## **B3 Shared space**

- B3.1 Shared space: provision and configuration
- B3.2 Communal access, egress and circulation
- B3.3 Communal kitchens, bathrooms and laundries
- B3.4 Shared space: finishes, fittings and furnishings



## B1

BUILDING ENVELOPE AND  
OVERALL PERFORMANCE

## B1.1 STRUCTURE

## PERFORMANCE REQUIREMENT

## ACCEPTABLE SOLUTION

## B1.1.1

Structural design for the development is efficient and resilient.

No current requirement beyond legislation.

## B1.1.2

**Low carbon, low environmental impact materials** are used wherever practicable.

- A. All structural concrete used for floor slabs and precast systems, shall be 'low carbon' which has a minimum carbon reduction of at least 10% below the Infrastructure Sustainability Council (ISC) 2020 embodied carbon baseline.
- B. All other structural concrete shall be 'low carbon' where possible.

## Guidance

Refer to Appendix A for further guidance on product and materials specification.





**B1.2 WEATHERTIGHTNESS****Rationale**

Kāinga Ora is a long-term asset owner with homes located across the various climate zones of Aotearoa New Zealand. Building enclosure design needs to consider whole-of-life impacts, ensuring buildings are durable, cost-effective and easy to maintain. Current and future regional climate and weather patterns should be taken into consideration and the 4Ds of enclosure design (deflection, drainage, drying and durability) adequately addressed.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.2.1</b></p> <p>The design of the building envelope, rainwater and cladding systems <b>mitigates the risk of water ingress</b>.</p>	<p><b>All buildings</b></p> <p>A. There is provision for inspection and maintenance of rainwater systems.</p> <p><b>Stand-alone, terraced housing and 3-level walk-ups</b></p> <p>B. A score of 12 or less is achieved in the building envelope risk matrix (<b>E2/AS1 Table 2</b>).</p> <p>C. High-risk and/or high-maintenance design features are not permitted.</p> <p>D. Cladding systems include a drained cavity.</p> <p><b>Apartments</b></p> <p>E. Certified professional engineers in the relevant specialties (for example, façade engineer, fire engineer) are engaged as relevant to undertake specific engineering design (SED) work for the project.</p>
<p>Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort and HC4: Moisture Control. Refer to Appendix C.</p>	
<p><b>Guidance</b></p> <p><b>All typologies</b></p> <ul style="list-style-type: none"> <li>Achieving weathertightness using mechanical flashings is preferred to reliance on sealants.</li> <li>Where windows are recessed into the wall to reduce thermal bridging, careful attention should be given to flashings and waterproofing details. (Refer to B1.5 Windows.)</li> <li>Refer to Appendix A for further guidance on product and materials specification.</li> </ul> <p><b>Stand-alone, terraced housing and 3-level walk-ups</b></p> <p>High-risk and/or high-maintenance design detailing includes:</p> <ul style="list-style-type: none"> <li>flush eaves</li> <li>parapets</li> <li>internal gutters and downpipes</li> <li>decks over internal spaces</li> <li>retaining walls as part of the building envelope</li> <li>concealed fascia or gutter systems</li> <li>skylights.</li> </ul>	

**B1.2 WEATHERTIGHTNESS CONTINUED****PERFORMANCE REQUIREMENT****ACCEPTABLE SOLUTION****B1.2.2**

**Products, materials and finishes** selected for roofing, cladding and rainwater collection are robust, durable and easy to maintain and consider whole-of-life costs and impacts.

- A. Cladding, roofing and spouting/guttering aligns with Appendix A: Products and Materials
- B. High-risk and/or high-maintenance products, materials and finishes are avoided.

Roof cladding selection relates to Kāinga Ora Homestar targeted points under EN3: Sustainable Materials. Refer to Appendix C.

**Guidance****All typologies**

High-risk and/or high-maintenance products and materials to be avoided include:

- liquid-applied roofing membranes
- clear plastic roofing
- plywood cladding
- single-skin exterior insulation and finish systems (EIFS)
- polystyrene and plaster cladding systems
- horizontal profiled metal cladding
- stucco cladding systems
- stained finishes
- paint finishes with brick
- easily damaged claddings, particularly at ground level.

Where a cladding, roofing or rainwater collection system is proposed that is unfamiliar to Kāinga Ora, projects should submit the building envelope system for an M-396 system and components review.

Ensure the design incorporates features to allow safe inspection and maintenance of the building.



**B1.3 INTERSTITIAL MOISTURE****Rationale**

In all building exterior systems, the risk of interstitial moisture becomes increasingly prevalent as insulation levels increase and buildings become increasingly airtight. Water and moisture generated from indoor activities can pose a risk if not appropriately managed through a combination of window and wall detailing, finishes selection and services design.

Interstitial moisture can lead to issues such as mould and mildew, corrosion of fixings, decreased performance of damp or wet insulation and/or damage to fit-out and finishes. This can have detrimental impact on customer health and wellbeing as well as causing damage to the building and customer possessions.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.3.1</b> Building envelope design minimises the <b>risk of interstitial moisture</b>.</p>	<p>A. High-risk building envelope design features and claddings are avoided. (Refer to B1.2 Weathertightness.)</p> <p>B. Wherever possible, where concrete or other high-mass walls are used, insulation is located on the outside of the wall.</p> <p>C. Building envelope design minimises the risk of problematic moisture build-up by considering:</p> <ul style="list-style-type: none"> <li>i. robustness of the system</li> <li>ii. insulation performance (refer to B1.4 Thermal performance)</li> <li>iii. minimising thermal bridging</li> <li>iv. detailing of and minimising penetrations</li> <li>v. adequacy of ventilation</li> <li>vi. minimising the dependency on heating to manage relative humidity levels</li> <li>vii. risk of corrosion.</li> </ul>
<p>Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation and HC4: Moisture Control. Refer to Appendix C.</p>	
<p><b>Guidance</b></p> <p>Insulation on the outside of concrete walls prevents the potential for build-up of moisture on the cold surface behind the insulation.</p> <p>Where insulation is to be located on the inside of concrete walls or where building envelope design is deemed to be at higher risk of interstitial moisture:</p> <ul style="list-style-type: none"> <li>• dynamic modelling should be undertaken: <ul style="list-style-type: none"> <li>– by a suitably qualified and experienced professional</li> <li>– with a mould risk post-processor using reputable software</li> <li>– with consideration for the materials' ability to prevent or mitigate moisture issues (such as its ability to dry prior to mould forming)</li> </ul> </li> <li>• projects should submit the building envelope system for an M-396 system and components review.</li> </ul>	

**B1.4 THERMAL PERFORMANCE****Rationale**

New Zealand's existing buildings have been notoriously cold, damp and inefficient, and new homes are increasingly prone to overheating. On average, 60–70 percent of time at home is spent indoors,<sup>1</sup> although Kāinga Ora customers may spend more time at home than this depending on a variety of factors. Indoor temperature and relative humidity have direct implications for our customers' health and wellbeing.

The thermal comfort of a home can be improved through building envelope design and detailing, purposeful placement and sizing of windows and incorporation of external shading devices where needed. These aspects of a building's design can be hard to retrofit later. Getting this right from the initial build will help to reduce our customers' reliance on active heating and cooling, reducing energy costs and improving health outcomes.

Operational energy associated with a home over its life accounts for the most significant proportion of the building's carbon footprint. Reducing energy demand also reduces this impact.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.4.1</b></p> <p>The building envelope is designed to have appropriate levels of <b>thermal performance</b> to facilitate a healthy indoor environment.</p>	<p>A. All new Kāinga Ora redevelopment projects must have the thermal envelope(s) specified to the schedule method in NZBC Clause <b>H1 Energy efficiency</b> Acceptable Solution H1/AS1 5th edition amendment 1 or an equivalent level of thermal performance.</p>
<p>Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation and HC4: Moisture Control. Refer to Appendix C.</p>	
<p><b>Guidance</b></p> <p>There are three methods of calculating and demonstrating compliance with New Zealand Building Code clause H1 Energy Efficiency 5th Edition. Selection is by the client on advice of the project design team. These are:</p> <ul style="list-style-type: none"> <li>• H1/AS1 Schedule Method</li> <li>• H1/AS1 Calculation Method</li> <li>• H1/VM1 Modelling Method.</li> </ul> <p>For further guidance, refer to Practice Note PN004 Kāinga Ora Redevelopment Projects – Clause H1 – Energy Efficiency 5th Edition.</p>	

1. How New Zealanders distribute their daily time between home indoors, home outdoors and out of home ([tandfonline.com](https://www.tandfonline.com))

B1.4 THERMAL PERFORMANCE	
PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.4.2</b> Roof, wall and floor detailing (including junctions and corners) minimises heat loss through <b>thermal bridging and penetrations</b>.</p>	<p>A. Perimeter slab insulation is provided to all concrete slabs and is protected from damage.</p> <p>B. To prevent heat loss through the building envelope, consideration is given to:</p> <ul style="list-style-type: none"> <li>i. external insulation</li> <li>ii. efficient wall framing strategies – particularly around corners and junctions</li> <li>iii. slab strategies: <ul style="list-style-type: none"> <li>a. area-to-perimeter ratio</li> <li>b. under-slab insulation</li> <li>c. slab-edge insulation</li> </ul> </li> <li>iv. window placement in walls in line with the insulation layer</li> <li>v. avoiding cantilevered balconies</li> <li>vi. any other detailing that may compromise the thermal envelope performance such as: <ul style="list-style-type: none"> <li>a. penetrations</li> <li>b. recessed fittings</li> <li>c. meter boxes/cabinets</li> <li>d. internal storage recessed into external walls.</li> </ul> </li> </ul>
<p>Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort and HC4: Moisture Control. Refer to Appendix C.</p>	
<p><b>Guidance</b></p> <p><b>Slab insulation</b></p> <ul style="list-style-type: none"> <li>• For most climate zones, slab-edge insulation is likely needed to comply with Clause H1 5th Ed. Slab-edge insulation should be minimum 50mm thick extruded polystyrene foam board.</li> <li>• Under-slab insulation is likely needed to meet Clause H1 5th Ed. requirements, particularly in cooler climate zones.</li> <li>• Slab area-to-wall ratio impacts on thermal performance of the slab.</li> </ul> <p><b>External insulation</b></p> <ul style="list-style-type: none"> <li>• External insulation is particularly important for high-mass buildings such as reinforced concrete and concrete block.</li> </ul>	

**B1.4 THERMAL PERFORMANCE**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.4.3</b></p> <p>Each dwelling is able to efficiently and effectively achieve <b>healthy indoor temperatures</b> throughout the year.</p>	<p>A. Thermal modelling is undertaken to <b>calculate the heating and cooling demand</b> for each dwelling.</p> <ul style="list-style-type: none"> <li>i. For <b>stand-alone and terraced housing</b>, the NZGBC Homestar Energy and Carbon Calculator for Homes (ECCHO) is used.</li> <li>ii. For <b>three-level walk-ups and apartments</b>, dynamic thermal modelling is undertaken using CIBSE TM59 Design methodology for the assessment of overheating risk in homes (<b>CIBSE TM59</b>), with outputs subsequently entered into ECCHO.</li> <li>iii. <b>Alternatively</b>, where a project achieves Passive House certification, fixed heating in the main living area is not required under the Healthy Homes Standard (HHS) for heating. Modelling is undertaken using a Passive House Institute-approved software and methodology. The outputs from this modelling must subsequently be entered into ECCHO.</li> </ul> <p>B. The Kāinga Ora Whole-of-Home Heating Calculator is used to <b>determine the capacity of heater</b> required to heat the main living area, each bedroom and any other habitable spaces.</p> <p>C. Adequately sized heaters are subsequently specified and installed to each room in line with the calculated outputs, noting:</p> <ul style="list-style-type: none"> <li>i. gas heating is <b>not permitted</b></li> <li>ii. if the heater size required is more than 2.4kW, a heat pump is specified</li> <li>iii. for homes with 5 or more bedrooms, a whole-home centralised system should be considered.</li> </ul> <p>D. If ECCHO demonstrates that <b>overheating</b> is a medium to high risk:</p> <ul style="list-style-type: none"> <li>i. consideration is given to altering the design to mitigate this risk (window sizing, orientation, shading, ventilation)</li> <li>ii. where not already undertaken, consideration is given to using zone-based dynamic thermal modelling using CIBSE TM59 methodology to better understand and target vulnerable zones</li> <li>iii. if overheating cannot be designed out, consideration is given to provision of active cooling systems in problematic areas (such as heat pumps).</li> </ul>

Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort and HC4: Moisture Control. Refer to Appendix C.

**Guidance**

Note that the Kāinga Ora Whole-of-Home Heating Calculator can be used to demonstrate compliance with the heating standard contained within the Residential Tenancies (Healthy Homes Standards) Regulations 2019. Documentation demonstrating compliance must be submitted to Kāinga Ora for future use.

**Kāinga Ora definition of healthy indoor temperature**

- A. During the coldest part of the year, the following internal temperatures are able to be reached and maintained:
- i. 20°C for living areas
  - ii. 18°C for bedrooms AND
- B. internal temperatures do not exceed 25°C for more than 3 percent of the year (263 hours) OR
- C. thermally modelled design achieves full compliance with the requirements set out within **CIBSE TM59**.

**Thermal modelling**

The ECCHO tool was developed and is maintained by the New Zealand Green Building Council. It is one of the resources developed for use with Homestar v5 and is available to those who have completed Homestar v5 Designer training.

Thermal modelling will include the following inputs:

- Window openings and use of restrictors (refer to B1.5 Windows).
- Mechanical ventilation systems specified (refer to C3.1 Heating, ventilation and air conditioning).

**Compliance with thermal performance criteria****TABLE B1.4-1: RECOMMENDED METHOD FOR COMPLIANCE WITH THERMAL PERFORMANCE CRITERIA**

TYOLOGIES	HOMESTAR V5	NZBC CLAUSE H1 5TH ED	OVERHEATING	HEALTHY HOMES COMPLIANCE
Stand-alone	ECCHO	H1 Schedule Method <sup>1</sup>	ECCHO	Whole-of-home heating calculator <sup>3</sup>
Duplex				
Terraced	Dynamic model	H1 Calculation Method <sup>2</sup>	Dynamic model <sup>4</sup>	HVAC consultant design
Three-level walk-up				
Apartment				

**Notes**

1. Schedule Method use assumes project window-to-wall ratio (WWR) is ≤30 percent, which is typical of Kāinga Ora projects.
2. Both the H1 calculation and modelling method for Kāinga Ora require reference building WWR to equal proposed building WWR to comply with the Kāinga Ora Homestar v5 Transition Standard.
3. ECCHO tool or Healthy Homes Standard Heating Calculator from Kāinga Ora to be used.
4. Dynamic overheating assessment is to be CIBSE TM59 standard for naturally ventilated residential buildings.

**Heating calculators**

Use of the Kāinga Ora Whole-of-Home Heating Calculator or ECCHO tool heating calculation incorporates the requirements of the healthy homes heating standard, and outputs are used to demonstrate compliance with this legislation. Note:

- The Healthy Homes Standard requires heating to the main living area and the ability to maintain a temperature of 18°C.
- Kāinga Ora Whole-of-House Heating Policy requires provision of heating to the living area (to 20°C), and heating to each bedroom and any other habitable spaces or internal transition spaces over 24m<sup>3</sup> (to 18°C).

**Heating source**

For additional requirements and guidance, refer to C3.1 Heating, ventilation and air conditioning.



## B1.5 WINDOWS

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.5.1</b></p> <p><b>Window placement, sizing and specification</b> supports optimal wellbeing outcomes for our customers.</p>	<p>A. All new Kāinga Ora redevelopment projects have the thermal envelope(s) specified to Clause <b>H1/AS1</b> 5th edition schedule method or an equivalent level of thermal performance.</p> <p>B. Window size and location is appropriate for the orientation of the building and the floor layout, taking into consideration:</p> <ul style="list-style-type: none"> <li>• controlled solar gain</li> <li>• prevention of overheating</li> <li>• daylighting</li> <li>• natural ventilation</li> <li>• passive surveillance</li> <li>• privacy</li> <li>• security</li> <li>• safety</li> <li>• noise</li> <li>• universal design</li> <li>• connection to the outdoors</li> <li>• urban design</li> <li>• furniture placement.</li> </ul>

Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation, HC5: Natural Lighting, LV1: Inclusive Design and LV3: Eco-Friendly Living. Refer to Appendix C.

### Guidance

#### Clause H1/AS1 5th edition compliance

Window R-values specified in Clause H1/AS1 5th edition amendment 1 effectively require thermally broken joinery. Some climate zones will need insulated glazing units (IGUs) with high-performance pane spacers, specialty coatings and/or gas between the panes to reduce heat loss.

#### Thermal Performance

Placing windows in line with insulation significantly improves the thermal performance. Air seals should be installed at the inside edge of the window frame to reduce air leakage around window liners.

For further guidance, refer to Practice Note PN004 Kāinga Ora Redevelopment Projects – Clause H1 – Energy Efficiency 5th Edition.

#### Thermal modelling

Dynamic thermal modelling enables designers to optimise window layout and design (refer to B1.4 Thermal performance).

Typically, projects should:

- maximise north-facing glazing with appropriate summer shading
- minimise glazing on the southern side of the building
- carefully size and position west-facing glazing to prevent afternoon overheating and reduce glare in the shoulder seasons when sun angles are low.

The window sizing should be sufficient to provide good natural daylighting and provide awareness of the outside. This needs to be balanced against the higher heat losses from windows as compared to the surrounding wall.

G-values (solar heat gain coefficients) of glazing units are required for the ECCHO tool and CIBSE TM59 modelling and impact on performance under Kāinga Ora Homestar targeted points HC1: Winter Comfort and HC2: Summer Comfort. G-value information can be obtained from window manufacturers.

**B1.5 WINDOWS CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.5.2</b> Window openable area facilitates <b>natural ventilation</b> without compromising customers' safety and security.</p>	<p>A. At least one (preferably two) openable window sashes are provided to each occupied and common space.</p> <p>B. Openable sashes are located at an accessible height.</p> <p>C. Restrictor stays are provided</p> <ol style="list-style-type: none"> <li>i. to at least one window sash in each room</li> <li>ii. where there is a fall risk of 2m or more</li> <li>iii. where there is risk of someone walking into the open sash, for example, an external walkway is directly adjacent to the openable window.</li> </ol> <div style="background-color: #f8d7da; padding: 10px; margin-top: 10px;"> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>Window sills in living areas are placed at a maximum height of 1.0m above finished floor level (FFL).</li> <li>Window latches are positioned at a height that is accessible from sitting position.</li> </ul> </div>
<p>Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation, HC5: Natural Lighting and LV1: Inclusive Design. Refer to Appendix C.</p>	
<p><b>Guidance</b></p> <ul style="list-style-type: none"> <li>Restrictor stays limit window opening to 100mm.</li> <li>Use of restrictor stays will limit the ability to manage overheating risk through passive ventilation and need to be accounted for within thermal modelling and calculations (refer to B1.4 Thermal performance).</li> <li>Doors are not considered to be openable area when calculating natural ventilation requirements. This includes sliding doors.</li> </ul> <p><b>Trickle vents</b></p> <p>Trickle vents are often used in combination with continuous mechanical extract ventilation. Refer C3.1.3 Mechanical extract ventilation systems.</p>	

<b>B1.5 WINDOWS CONTINUED</b>	
<b>PERFORMANCE REQUIREMENT</b>	<b>ACCEPTABLE SOLUTION</b>
<p><b>B1.5.3</b> Design and specification of joinery, glazing and hardware ensures ease of maintenance, ease of use and safety.</p>	<p>A. All glazing over 1.5m high has at least one horizontal vision rail.</p> <p>B. All glazing is clear and, where required for privacy, is surface-treated, etched glass.</p> <p>C. High-maintenance joinery systems, glazing and hardware are avoided.</p> <p>D. All windows include lever-style handles that can be easily opened with one hand.</p>
<p>Relates to Kāinga Ora Homestar targeted points EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort and LV1: Inclusive Design. Refer to Appendix C.</p>	
<p><b>Guidance</b> High-maintenance joinery systems, glazing and hardware to be avoided includes:</p> <ul style="list-style-type: none"> <li>• fibreboard jamb liners</li> <li>• bi-folding doors</li> <li>• sliding windows</li> <li>• louvres</li> <li>• laminated glass.</li> </ul> <p>Ideally, window opening mechanisms should be accessible by people in a seated position (such as in a wheelchair).</p>	

**B1.6 ACOUSTICS****Rationale**

Many of our customers spend extended periods in their homes, and noise can have a significant impact on their health and wellbeing. There is a clear link between customers' exposure to noise – particularly over the long term – and psychological and physiological health effects. These can include tinnitus, hearing loss, annoyance and sleep disturbance.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B1.6.1</b></p> <p>Design strategies and features provide an acoustic environment that promotes health and wellbeing, <b>minimising noise transfer</b>.</p>	<p><b>Multi-unit developments</b></p> <p>A. Noise transfer <b>between abutting dwellings</b> is minimised.</p> <ol style="list-style-type: none"> <li>Walls, floors and ceilings achieve a minimum sound transmission class (STC) of STC 55.</li> <li>Floors achieve a minimum impact insulation class (IIC) of IIC 55.</li> </ol> <p>B. Noise transfer <b>between dwellings and common areas/circulation spaces</b> is minimised.</p> <ol style="list-style-type: none"> <li>For walls with doors between living areas and common areas, doors achieve STC 30 and walls achieve STC 45.</li> <li>All other walls abutting a common area achieve STC 55.</li> <li>All floors achieve IIC 55.</li> </ol> <p>C. Noise transfer from <b>building services</b> is minimised.</p> <ol style="list-style-type: none"> <li>Noise from services located within a dwelling or an abutting dwelling that is transmitted into habitable spaces does not exceed 40dB in living areas or 35dB in bedrooms.</li> <li>Where existing noise from services located in an abutting dwelling exceeds 35dB, the design does not increase this level by more than 1dB.</li> </ol> <p>D. <b>Common areas</b> are designed to be acoustically comfortable.</p> <ol style="list-style-type: none"> <li>All common areas have a target maximum reverberation time of 0.8 seconds.</li> </ol>

Where acoustic insulation is used, this relates to Kāinga Ora Homestar targeted points under EN3: Sustainable Materials. Refer to Appendix C.

**Guidance**

- STC and IIC levels should be measured as compliant post-construction.
- A suitably qualified acoustic consultant should be engaged on multi-unit developments.
- The design should seek to improve on the Performance Requirements criteria by 5dB where this can be achieved practically within project constraints.
- Acoustic treatments in walls should be taken to the underside of the roof or floor above, and/or acoustically rated ceilings should be used.

## **B1.7 WHOLE-OF-LIFE CARBON**

### **Rationale**

Kāinga Ora is required to report on all our material emissions sources annually from FY 2023 and to develop reduction targets in line with a 1.5°C climate scenario.

Achieving carbon neutrality across the Kāinga Ora housing portfolio and housing delivery programme will be a challenging, complex and long-term endeavour. However, there is an imperative to take immediate action given that decisions made now will lock in emissions beyond 2050.

To achieve meaningful carbon reductions, Kāinga Ora will need to transition from delivering one-off high-performance low-carbon homes as part of a pilot to delivering at scale. This will require integrating low-carbon solutions as requirements within our standard designs and specifications.

### **PERFORMANCE REQUIREMENT**

### **ACCEPTABLE SOLUTION**

*No current requirement.*

### **Guidance**

The requirement to measure whole-of-life carbon is anticipated mid 2024.



## B2

PRIVATE  
SPACE

The following requirements relate to each individual dwelling, whether stand-alone, terraced or contained within a multi-unit or apartment development.

### B2.1 PRIVATE SPACE: PROVISION AND CONFIGURATION

#### Rationale

Occupancy rates in Kāinga Ora properties are typically higher than that of private market housing, and a house may see around six different customers or families call it home over the life of the building. Designing for two occupants per bedroom and ensuring the home is adequately sized ensures we are flexible and able to meet a broad range of customer needs.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B2.1.1</b></p> <p><b>Adequate and well-organised internal space</b> is provided to allow customers comfortable living and quiet enjoyment of their home.</p>	<p><b>A. Space sizing</b></p> <ul style="list-style-type: none"> <li>i. Aligns with requirements listed in Table B2.1-1.</li> <li>ii. Allows a ceiling height of 2.4–2.7m above FFL for all habitable rooms and circulation routes.</li> </ul> <p><b>B. Living and dining area</b> is combined with the kitchen and includes direct access to private outdoor living areas.</p> <p><b>C. Bedrooms</b> are provided with at least one wardrobe sized in accordance with Table B2.4-2.</p> <p><b>D. Circulation routes and stairs</b> meet the requirements of B2.2 Private space: access, egress and circulation.</p> <p><b>E. Kitchens, bathrooms and laundries</b> meet the requirements of B2.3 Private space: kitchens, bathrooms and laundries.</p> <p><b>Additional requirements for Full Universal Design</b></p> <p>A. Appropriate and adequately sized spaces are provided on the main living level including:</p> <ul style="list-style-type: none"> <li>• a 12m<sup>2</sup> bedroom</li> <li>• a bathroom and toilet.</li> </ul>
<p>Relates to Kāinga Ora Homestar targeted points under EF1: Resource Efficiency, EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation and LV1: Inclusive Design. Refer to Appendix C.</p>	

**Guidance**

- For further guidance regarding Full Universal Design requirements, refer to Appendix B.

**TABLE B2.1-1: MINIMUM REQUIREMENTS FOR GROSS FLOOR AREAS**

Maximum occupants	DWELLING SIZE BY BEDROOM NUMBER					
	1	2	3	4	5	6
	2	4	6	8	10	12
<b>MINIMUM TOTAL FLOOR AREA (EXCLUDING GARAGE, DECKS AND PATIOS) – ALL DWELLINGS</b>						
Single-storey	50m <sup>2</sup>	70m <sup>2</sup>	95m <sup>2</sup>	118m <sup>2</sup>	143m <sup>2</sup>	160m <sup>2</sup>
Double-storey	–	82m <sup>2</sup>	107m <sup>2</sup>	130m <sup>2</sup>	155m <sup>2</sup>	175m <sup>2</sup>
<b>MINIMUM COMBINED LIVING-DINING-KITCHEN SPACE (EXCLUDING HALLS, ENTRY LOBBIES AND CORRIDORS) – ALL DWELLINGS</b>						
Minimum floor area	27m <sup>2</sup>	36m <sup>2</sup>	46m <sup>2</sup>	52m <sup>2</sup>	61m <sup>2</sup>	67m <sup>2</sup>
<b>MINIMUM BEDROOM SIZES (EXCLUDING WARDROBES) – STANDARD DWELLINGS</b>						
Minimum floor area	x1 10m <sup>2</sup>	x1 10m <sup>2</sup> x1 9m <sup>2</sup>	x1 10m <sup>2</sup> x2 9m <sup>2</sup>	x1 10m <sup>2</sup> x3 9m <sup>2</sup>	x1 10m <sup>2</sup> x4 9m <sup>2</sup>	x1 10m <sup>2</sup> x5 9m <sup>2</sup>
<b>MINIMUM BEDROOM SIZES (EXCLUDING WARDROBES) – FULL UNIVERSAL DESIGN AND ACCESSIBLE DWELLINGS</b>						

Refer to Appendix B – Universal Design and Accessibility

Kitchens, bathrooms and laundries must meet the spatial requirements outlined in B2.3 Private space: Kitchens, bathrooms and laundries.

**B2.1 PRIVATE SPACE: PROVISION AND CONFIGURATION CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
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**B2.1.2**

**Privacy and Māori cultural practices** are facilitated and maintained through the organisation of internal spaces.

- A. Physical and visual separation is provided between:
- i. bathroom, toilet and laundry facilities and living, dining, kitchen and bedrooms
  - ii. bedrooms and kitchen.

**Guidance**

Certain household functions are kept separate from others in order to preserve their tapu (sacred/prohibited) or noa (common/profane) nature. For example, all food-related facilities must be separate from bathrooms, toilets and laundries. For further guidance, see Table B2.1-2.

**TABLE B2.1-2: TAPU AND NOA PLANNING MATRIX**

	Main entry	Laundry	Toilet	Bathroom	Living	Dining	Kitchen
Bedroom	✗	~	~	~	~	✗	✗
Kitchen	~	✗	✗	✗	✓	✓	
Dining	~	✗	✗	✗	✓		
Living	✓	✗	✗	✗			
Bathroom	✗	~	✗				
Toilet	✗	✗					
Laundry	✗						
~ Neutral		✗ Conflict		✓ Desirable			

**B2.2 PRIVATE SPACE: ACCESS, EGRESS AND CIRCULATION****Rationale**

Kāinga Ora is committed to ensuring homes are safe for our customers, their whānau/family and manuhiri/visitors. Design of circulation routes, thresholds and doors and selection of hardware are key to ensuring ease of movement and prevention of slips, trips and falls.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B2.2.1</b></p> <p>The <b>main entry</b> is clearly signalled, accessible and welcoming while facilitating privacy, safe access and egress.</p>	<p>A. The design prevents access by unauthorised people.</p> <p>B. The <b>main entry</b> includes:</p> <ol style="list-style-type: none"> <li>i. a safe, sheltered landing (typically 1.2 x 1.2m)</li> <li>ii. a 910mm wide entry door with minimum clear opening of 810mm that is <b>not</b> a sliding door</li> <li>iii. a level threshold</li> <li>iv. a means for identifying visitors without the need to open the door.</li> </ol>

Relates to Kāinga Ora Homestar targeted points under LV1: Inclusive Design and LV3: Eco-Friendly Living. Refer to Appendix C.

**Guidance**

The level threshold must comply with the requirements set out in NZBC D1/AS1 Clause 1.3.2 (i.e. maximum 20mm). Generally, security will be provided through provision of adequate door hardware and security stays as well as gates, barriers and access control. Features of the site or surrounds such as climbable landscape features should be considered and any risk of unauthorised access mitigated.

- Typically, visual panels/sidelights and/or door viewers provide the most appropriate means of identifying visitors.
- Ideally, there should be no direct line of sight from the main entry into the main living areas.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B2.2.2</b></p> <p><b>Circulation routes and doors are adequately sized</b> to enable ease of movement of people, furniture and equipment.</p>	<p>A. All circulation routes are at least 1050mm wide (measured from the face of the wall linings).</p> <p>B. All internal and external doors (except storage) provide a minimum clear opening width of 810mm.</p> <p>C. The design facilitates access for building or services inspection or maintenance. Access hatches and doors are not located in private bedrooms or cupboards or above stairs.</p> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• All external doors have a level threshold.</li> </ul>

**B2.2 PRIVATE SPACE: ACCESS, EGRESS AND CIRCULATION CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B2.2.3</b></p> <p><b>Stairs</b> are designed to be safe and user-friendly.</p>	<p>A. <b>Stair design</b></p> <p>i. Uniform riser height and tread in one flight: 190mm maximum riser height, 280mm minimum tread) within the tolerance of <math>\pm 5</math> mm measured at the centreline (maximum pitch 37°).</p> <p>ii. Does <b>not</b> include stair winders.</p> <p>B. At least one <b>handrail</b> is located on one side of all stairs.</p> <p>C. Where there is a fall risk of 500mm or higher, a (minimum) 1.1m high, child-safe, non-climbable barrier is provided.</p> <p>D. Stair design allows the installation of child-restrictor gates at the top and bottom of stairways.</p>
<p><b>B2.2.4</b></p> <p><b>Thresholds and transitions</b> do not pose a safety hazard, and enable ease of access for customers and visitors.</p>	<p>A. Transitions between different floor finishes are designed to prevent slips, trips and falls.</p> <p>B. There is step-free access from the main entry to the primary living area.</p>
<p><b>B2.2.5</b></p> <p><b>Doors and door hardware</b> specified are durable, robust, safe and enable ease of movement.</p>	<p>A. All door handles are lever-type and fitted 1.0m above FFL.</p> <p>i. This excludes those on internal-access garage doors which, where provided, are fitted with a door-closer and a handle located at 1.2m about the FFL.</p> <p>B. Customers are able to exit the dwelling through all exterior doors in an emergency without the use of a key.</p> <p>C. All exterior doors to a dwelling are keyed alike.</p> <p>D. All doors include door stops.</p> <p>E. Bathrooms and separate toilets have a privacy-lock that can be accessed from outside the room.</p> <p>F. High-risk, high-maintenance design details, door types and hardware are avoided.</p>

Relates to Kāinga Ora Homestar targeted points under LV1: Inclusive Design. Refer to Appendix C.

**Guidance**

- Single steps should be avoided.
- Where possible, landings should be provided to break up stairways that are equal to or greater than 2.5m high.
- Circulation routes, including stairwells, should allow the movement of household furniture (for example, to accommodate moving a bed of at least queen size with a solid base).

**Doors**

- Hinged doors are preferred – bi-folding and sliding doors typically require greater maintenance.
- Where internal sliding doors are used (for example, for accessible bathrooms or wardrobes), surface-sliding doors should be used with easy-to-access tracking for maintenance purposes.
- Internal-access garage doors should open into the house. Doors between habitable spaces and the garage should have seals to avoid ingress of fumes and pollutants.

Refer to Appendix A for further requirements and guidance relating to product and materials specification.

**B2.3 PRIVATE SPACE: KITCHENS, BATHROOMS AND LAUNDRIES**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B2.3.1</b></p> <p><b>Kitchens</b> are adequately sized and located, optimally laid out and designed to be safe and to minimise risks.</p>	<p><b>A. Kitchen layout</b></p> <ol style="list-style-type: none"> <li>i. Allows for at least 1.5m clearance in front of benches and appliances.</li> <li>ii. Prevents residents and/or visitors from using the kitchen as a main thoroughfare.</li> <li>iii. Can accommodate the size requirements listed in Table B2.3-1.</li> <li>iv. Includes storage for waste and recycling.</li> <li>v. Allows at least 300mm between internal corners and the opening edge of appliances.</li> </ol> <p><b>B. Free-standing stoves are fitted with anti-tip devices and drop bolts.</b></p> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• Under-bench storage is comprised of at least 50 percent drawers.</li> <li>• All benchtops and cabinets use contrasting colours.</li> </ul>
<p><b>B2.3.2</b></p> <p><b>Bathrooms</b> are adequately sized and located, optimally laid out and designed to be safe and to minimise risks.</p>	<p><b>All dwellings</b></p> <p><b>A. Adequate bathrooms/toilets are provided.</b></p> <ol style="list-style-type: none"> <li>i. Refer to TABLE B2.4-3 Minimum requirements for bathroom, toilets, fittings and fixtures.</li> </ol> <p><b>Multi-storey homes</b></p> <p><b>B. Bathrooms/toilets are appropriately located.</b></p> <ol style="list-style-type: none"> <li>i. Where the home includes 3 or more bedrooms, 1 toilet is provided on each level.</li> <li>ii. Showers are located on the same level(s) as bedrooms.</li> </ol> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• There is a bathroom and toilet on the main living level that can be converted to a fully accessible space if required.</li> </ul>
<p><b>B2.3.3</b></p> <p><b>Laundries</b> are adequately sized and located, optimally laid out and designed to be safe and to minimise risks.</p>	<p><b>A. Laundries can accommodate the requirements of Table B2.3-1.</b></p> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• There is at least 1.05m clearance in front of all fittings and appliances.</li> <li>• There is enough space provided in the laundry for a tub, washing machine and dryer at floor level <b>OR</b></li> <li>• In Full Universal Design homes with 1–3 bedrooms, there is enough space for a tub and washing machine at floor level and space for a wall-mounted dryer.</li> </ul>



**B2.3 PRIVATE SPACE: KITCHENS, BATHROOMS AND LAUNDRIES CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<b>B2.3.4</b> Bathrooms, kitchens and laundries are located to facilitate <b>efficient provision of services</b> .	A. Wherever possible, kitchens, bathrooms and laundries are located in close proximity to each other to enable efficient provision of services (such as potable and hot water, heating and ventilation) but without compromising privacy and cultural considerations.
<b>B2.3.5</b> <b>Overflow protection</b> is provided in vulnerable areas.	A. Floor wastes are provided in bathrooms, separate toilets and laundries above ground floor. B. A non-trip barrier is provided at the entry to bathrooms or shower rooms to contain any overflow.
<b>B2.3.6</b> Cabinetry hardware enables <b>ease-of-use and child safety</b> .	A. All cabinetry includes includes D-style handles that are easy-to-grip with a minimum finger clearance of 25mm. B. Secure, child-resistant cupboards are provided to the laundry, kitchen and bathroom.

Relates to Kāinga Ora Homestar targeted points under EF3: Water Use, EF4: Energy Use and LV1: Inclusive Design. Refer to Appendix C.

**Guidance**

- Generally, grouping wet areas and locating them to south façades will enable efficient provision and layout of services and free up west, north and east façades for living spaces.
- For additional storage, fitting and fixture requirements, refer to B2.4 Private space: finishes, fittings and furnishings.
- Refer to Appendix A for further requirements and guidance relating to product and materials specification.
- For further guidance on Full Universal Design requirements, refer to Appendix B.

**TABLE B2.3-1: MINIMUM SIZE REQUIREMENTS FOR KITCHEN AND LAUNDRY COMPONENTS<sup>1</sup>**

	DWELLING SIZE (BY BEDROOM NUMBER)			
	1-2	3	4	5-6
<b>KITCHENS<sup>1</sup></b>				
Wet bench (including sink)	1.5m (L) x 0.6m (D)	1.6m (L) x 0.6m (D)	1.8m (L) x 0.6m (D)	1.8m (L) x 0.6m (D)
Total bench space <sup>2</sup>	2.6m (L) x 0.6m (D)	4.0m (L) x 0.6m (D)	4.6m (L) x 0.6m (D)	5.4m (L) x 0.6m (D)
Fridge space	0.75m (W) x 0.7m (D)	0.85m (W) x 0.7m (D)	0.85m (W) x 0.7m (D)	0.85m (W) x 0.7m (D)
Pantry	0.45m (W) x 0.6m (D)	0.6m (W) x 0.6m (D)	0.6m (W) x 0.6m (D)	0.9m (W) x 0.6m (D)
Stove and extract	x 1	x 1	x 1	x 1
Drawer banks	x1 0.6m (W)	x2 0.6m (W)	x2 0.6m (W)	x2 0.6m (W)
Distance between benches	1.2m	1.5m	1.5m	1.5m

**Guidance continued**

**TABLE B2.3-1: MINIMUM SIZE REQUIREMENTS FOR KITCHEN AND LAUNDRY COMPONENTS CONTINUED**

<b>DWELLING SIZE (BY BEDROOM NUMBER)</b>				
	<b>1-2</b>	<b>3</b>	<b>4</b>	<b>5-6</b>
<b>LAUNDRIES<sup>1</sup></b>				
Laundry tub unit	0.35m (W)	0.56m (W)		0.56m (W)
Washing machine/ dryer space	0.65m (W) x 0.7m (D)		1.4m (W) x 0.75m (D)	
Shelf <sup>3</sup>	0.7m (W) x 0.2m (D)	0.7m (W) x 0.2m (D)		0.7m (W) x 0.2m (D)

Notes

1. For additional Full Universal Design or accessible requirements, refer to Appendix B.
2. The total bench space includes the wet and dry benches. All benches are set at 900mm above FFL.
3. Shelf is to be mounted minimum 1.2m above FFL.

**B2.4 PRIVATE SPACE: FINISHES, FITTINGS AND FURNISHINGS****Rationale**

Kāinga Ora maintains over 70,000 dwellings. Replacement and repair of finishes, fittings and furnishings within these homes can be disruptive for our customers, particularly if the finishes, fittings or furnishings are difficult to source, fix or replace within a short timeframe. Finishes, fittings and furnishings need to be durable, robust and easy to maintain while providing our customers with the amenity they need. The use of pre-assessed National Supply Agreement products simplifies maintenance by ensuring consistency, availability of replacements and parts, and robustness of products.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B2.4.1</b></p> <p>Products and materials for <b>floors, walls and ceilings</b> are durable, robust, easy to maintain, healthy and safe and consider whole-of-life costs and impacts.</p>	<p>A. Finishes align with <b>Table B2.4-1</b>.</p> <p>B. To support installation of hardware and appliances, wall reinforcement (for example, blocking) is included in bathrooms to allow for future installation of grab rails.</p> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>Flooring has a slip resistance value that aligns with <b>D1/AS1 Table 2</b>.</li> <li>All walls and doors use contrasting colours.</li> </ul>
<p><b>B2.4.2</b></p> <p>Specification of floor, wall and ceiling products and materials <b>minimises the potential for damage</b>.</p>	<p>A. Finishes align with Table B2.4-1.</p> <p>B. To minimise the risk of damage from movement of furniture/ equipment and general wear and tear:</p> <ul style="list-style-type: none"> <li>skirtings, architraves and cornices are installed</li> <li>additional reinforcement is provided to damage-prone areas</li> <li>an impervious, heat-resistant, easy-to-clean wall overlay is placed on the kitchen wall between the stove and extract fan.</li> </ul>

Slip resistance and colour contrast relate to Kāinga Ora Homestar targeted points under LV1: Inclusive Design. Plasterboard or fibre-cement linings, applied coatings and floor coverings relate to EN3: Sustainable Materials. Applied coatings and floor coverings also relate to HC7: Healthy Materials. Refer to Appendix C.

**Guidance**

The following are examples of wet-area specifications that can reduce the risk of water damage to walls and adjacent rooms/spaces:

- Running resilient sheet flooring continuously under fittings and coving up walls.
- Introducing a non-trip barrier or drain to prevent water exiting the wet area.
- Using water-resistant/waterproof wall linings in areas that are vulnerable to water damage.
- Specifying windows, doors, cabinetry and wall finishes in close proximity to sources of water to avoid water damage.

Refer to Appendix A for supplementary requirements and guidance relating to products and materials specification.

**TABLE B2.4-1: PRIVATE DWELLING FLOOR, WALL AND CEILING FINISHES SCHEDULE**

SPACES	FLOOR FINISHES	WALL AND CEILING FINISHES
Dwelling entry (lobby)	Resilient sheet-flooring (min. 900mm in from front door) <sup>1,2</sup>	
Halls and circulation spaces	Fitted carpet and underlay <sup>1</sup>	Paper-faced plasterboard Paint finish – acrylic, low sheen
Bedrooms		
Living areas		
Dining areas	Resilient sheet flooring <sup>1</sup>	Paper-faced plasterboard Paint finish – acrylic, semi-gloss
Kitchen <sup>3,4</sup>		
Bathrooms		Water-resistant, paper-faced plasterboard Paint finish – acrylic, semi-gloss
Separate toilets and laundries		
Splash-backs and wet-area linings	N/A	Pre-finished impermeable sheet lining.

**Notes**

1. Reveals, architraves, skirtings and door to be finished in gloss water-based enamel.
2. Apartments require acoustic-rated underlay or flooring to all spaces.
3. Carpet is acceptable for apartment entry where accessed off a protected internal corridor.
4. Kitchen flooring is laid to facilitate kitchen retrofitting – take flooring under joinery and appliances.
5. All sealants must be mould-resistant and anti-bacterial – refer to Kāinga Ora Interior Colour Choices (M-248a).

**B2.4 PRIVATE SPACE: FINISHES, FITTINGS AND FURNISHINGS CONTINUED****PERFORMANCE REQUIREMENT****ACCEPTABLE SOLUTION****B2.4.3**

Customers are provided with adequate, safe and accessible **storage**.

- A. Kitchen and laundry storage is provided in line with Table B2.3-1.
- B. General storage is provided in line with Table B2.4-2.
- C. Bathroom storage and fixtures are provided in line with Table B2.4-3.
- D. Storage for hot water cylinders:
  - i. facilitates inspection and maintenance work.
  - ii. where appropriate for the storage type, facilitates air circulation.

**B2.4.4**

**Cabinetry hardware** enables safe and easy access.

- A. All cabinetry includes D-style handles that are easy-to-grip with a minimum finger clearance of 25mm.
- B. Secure, child-resistant cupboards are provided to the laundry, kitchen and bathroom.

Slip resistance and colour contrast relate to Kāinga Ora Homestar targeted points under LV1: Inclusive Design. Plasterboard or fibre-cement linings, applied coatings and floor coverings relate to EN3: Sustainable Materials. Applied coatings and floor coverings also relate to HC7: Healthy Materials. Refer to Appendix C.

**Guidance**

For door hardware, refer to B2.2.5.

Refer to Appendix A for further requirements and guidance relating to product and materials specification.

**TABLE B2.4-2: MINIMUM REQUIREMENTS FOR HOUSEHOLD STORAGE**

	DWELLING SIZE (BY BEDROOM NUMBER)					
	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 bedrooms	6 bedrooms
Linen	0.6m x 0.6m	0.6m x 0.6m	0.6m x 0.6m	1.3m x 0.6m	1.9m x 0.6m	3.6m x 0.6m
General storage	0.6m x 0.6m	0.6m x 0.6m	0.6m x 0.6m	1.4m x 0.6m	2.0m x 0.6m	2.0m x 0.6m
Wardrobe storage	1.2m x 0.6m	2.4m x 0.6m	3.6m x 0.6m	4.8m x 0.6m	6.0m x 0.6m	7.2m x 0.6m
HWC storage	0.7m x 0.8m	0.7m x 0.8m	0.7m x 0.8m	0.7m x 0.8m	1.4m x 0.8m	1.4m x 0.8m
<b>Total storage area</b>	<b>2.0m<sup>2</sup></b>	<b>2.7m<sup>2</sup></b>	<b>3.4m<sup>2</sup></b>	<b>5.0m<sup>2</sup></b>	<b>7.0m<sup>2</sup></b>	<b>8.8m<sup>2</sup></b>

Refer to Appendix A for detailed requirements and guidance relating to shelving details.

Notes:

1. One wardrobe per bedroom.
2. Width dimension for wardrobes is total for household.
3. Minimum width 1.2m per wardrobe.

**B2.4 PRIVATE SPACE: FINISHES, FITTINGS AND FURNISHINGS CONTINUED**

Guidance continued

**TABLE B2.4-3: MINIMUM REQUIREMENTS FOR BATHROOM AND TOILET FITTINGS AND FIXTURES**

DWELLING SIZE (BY BEDROOM NUMBER)					
FIXTURES & FITTINGS	1-2	3		4	5-6
			SEPARATE TOILET		
Toilet pan and toilet roll holder	✓	See note 2	✓	✓ ✓	✓ ✓
Small hand basin			✓		
Towel ring			✓		
Mirror			✓		
Shower <sup>3</sup>	✓	✓		✓	✓ ✓
Bath		✓		✓	✓
Vanity	✓	✓		✓	✓ ✓
Medicine cabinet and mirror	✓	✓		✓	✓ ✓
Towel rail(s)	✓	✓		✓	✓

**Notes**

- 1 Full Universal Design and accessible dwellings may have additional requirements. Refer to Appendix B
- 2 Multi-storey homes with 3 or more bedrooms must include one toilet per floor. In homes with more than one bathroom toilet pans can be in bathroom/s
- 3 Showers must be located on the same level as the majority of bedrooms
- 4 In multi-storey homes, the bath should be located with the majority of the bedrooms
- 5 Refer to Appendix A
- 6 Tapu and Noa is not reflected in this table

**PERFORMANCE REQUIREMENT****ACCEPTABLE SOLUTION****B2.4.5**

**Window treatments** provide customers with privacy.

- A. Lined curtains are provided to all spaces (excluding wet areas and kitchens) that are
- at least 300mm away from fixed heaters
  - at least 1m away from the stove/oven
  - are able to open clear of glazing
  - within reach of occupants.

**Guidance**

Full-length curtains should finish 5-15mm from the finished floor level (FFL).

Where privacy is an issue, a blind is acceptable for installation at the kitchen window providing all required clearances are met.

Refer to Appendix A for further requirements and guidance relating to product and materials specification.



B3

## SHARED SPACE

The following requirements relate to the shared and communal spaces within multi-unit developments, excluding spaces for Kāinga Ora staff.

The requirements for Kāinga Ora staff workspaces should be designed to comply with the New Zealand Government Procurement **workplace standards for office space** and Kāinga Ora Physical Security Technical Standards.



Examples of community greenspace at Hampton Court development in Eponi, Lower Hutt. Courtesy of Isthmus architects.

### B3.1 SHARED SPACE: PROVISION AND CONFIGURATION

#### Rationale

As we continue to increase the density of our housing portfolio, it is important that we design multi-unit sites to include necessary communal and operational spaces to meet our strategic goals and customer needs. Communal spaces provide the opportunity for our customers to connect with each other and their community to form bonds and a sense of belonging. Developing relationships and networks make communities safer places to live, and the activities and behaviours facilitated within spaces can help improve customer health and wellbeing.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B3.1.1</b> <b>Adequately sized and appropriate</b> communal spaces, storage and space for building services are provided for multi-unit developments.</p>	<p>A. Communal spaces are provided in accordance with the project brief. The type and size of communal facilities takes into consideration:</p> <ol style="list-style-type: none"> <li>i. size of the development</li> <li>ii. number of people anticipated to use the space</li> <li>iii. age and ability of the anticipated user group</li> <li>iv. location of the development and availability of facilities in the surrounding area.</li> </ol> <p>B. Shared spaces are designed to commercial standards and meet all regulatory requirements for accessibility.</p> <p>C. Adequate service space is provided, as appropriate, including:</p> <ol style="list-style-type: none"> <li>i. a safe, secure utilities room</li> <li>ii. for building services and ducting without infringing on usable/habitable area</li> <li>iii. cleaner’s cupboard(s).</li> </ol>

#### Guidance

Consultation with the applicable Kāinga Ora place-based team, the Kāinga Ora Health, Safety, Security and Facilities team and the local community may assist to determine the potential uses and needs for the space.

Shared/communal spaces may include:

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• security/concierge</li> <li>• multi-purpose rooms</li> <li>• meeting rooms</li> <li>• kitchenettes/kitchens</li> </ul> | <ul style="list-style-type: none"> <li>• playrooms</li> <li>• storage rooms (for example, for play equipment, chairs)</li> <li>• utility rooms</li> <li>• bathrooms and shared laundries</li> </ul> |
|---|---|

Where **meeting rooms** are provided, these should be sized for the number of intended occupants – at least 1.25m<sup>2</sup> per occupant with a minimum size of 5m<sup>2</sup>. For larger meeting rooms, ceiling height should be at least 2.7m.

**B3.1 SHARED SPACE: PROVISION AND CONFIGURATION CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B3.1.2</b></p> <p><b>Location and arrangement</b> of dwellings and communal spaces within multi-unit developments facilitates safety, security, passive surveillance and privacy.</p>	<p>A. <b>Arrangement of dwellings</b> within the development facilitates a sense of safety, security and privacy by considering:</p> <ol style="list-style-type: none"> <li>i. the number of dwellings and total occupants using each accessway</li> <li>ii. staggering of dwellings and staggering of entry doors where on a double-loaded accessway</li> <li>iii. acoustic privacy (refer to B1.6 Acoustics)</li> <li>iv. location of private outdoor living spaces and private dwelling windows in relation to other dwellings, public and communal space (refer to B1.5 Windows).</li> </ol> <p>B. <b>Arrangement of shared and communal spaces</b> within the building ensures:</p> <ol style="list-style-type: none"> <li>i. <b>security</b> by locating security and concierge facilities (where provided) to have good visibility to the main entry of the building or complex</li> <li>ii. <b>ease of access and use</b> by locating communal spaces (as appropriate): <ol style="list-style-type: none"> <li>a. near the main entry</li> <li>b. adjacent or in close proximity to each other (for example, toilets easily accessed from communal rooms, kitchen adjacent to multi-purpose rooms)</li> <li>c. adjacent to outdoor communal areas</li> </ol> </li> <li>iii. <b>passive surveillance</b> by providing visual and physical connection between communal spaces and outdoor public and shared space</li> <li>iv. <b>efficient provision of services</b> (such as potable and hot water, heating and ventilation) by locating shared facilities in close proximity to each other.</li> </ol>

Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation, HC5: Natural Light. LV1: Inclusive Design and LV3: Eco-Friendly Living. Refer to Appendix C.

**Guidance****Arrangement of dwellings**

As a guide, the number of dwellings serviced by any accessway should be limited to:

- 5 dwellings per single-loaded accessway
- 6 dwellings per double-loaded accessway
- 24 customers living off any accessway (based on 2 customers per bedroom)
- 12 dwellings per floor.

**Arrangement of shared spaces**

Drying rooms should be located to facilitate passive surveillance of communal circulation spaces, outdoor drying areas and children's play areas.

**B3.2 COMMUNAL ACCESS, EGRESS AND CIRCULATION****Rationale**

Kāinga Ora is committed to ensuring developments are safe for our customers, their whānau/family and manuhiri/visitors to move around. Design of circulation routes, doors and hardware are key to ensuring we are able to provide equitable access and use.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B3.2.1</b></p> <p>The <b>building entry</b> is clearly signalled, accessible and welcoming.</p>	<p><b>Apartments and three-level walk-ups</b></p> <p>A. The main entry to the building includes:</p> <ol style="list-style-type: none"> <li>i. a safe, sheltered landing</li> <li>ii. an appropriately sized lobby</li> <li>iii. a level threshold.</li> </ol>
<p><b>B3.2.2</b></p> <p>The design enables <b>safe access and egress</b>, while preventing access by unauthorised people.</p>	<p><b>Access</b></p> <p>A. The design prevents access by unauthorised people, and where appropriate, building access control systems are provided.</p> <p>B. Where the building has multiple units accessed via a single principal entrance, there should be a secure lobby that limits visitor access to no more than 6 units.</p> <p>C. Utility rooms, service areas and building systems are able to be easily accessed as required for maintenance purposes.</p> <ol style="list-style-type: none"> <li>i. Doors are secured with a key lock keyed to a 197 service key.</li> <li>ii. Access doors and hatches match the requirements (fire rating, acoustic and thermal performance) of the wall/ceiling in which they are installed and are as airtight as possible to prevent heat loss.</li> </ol> <p><b>Egress</b></p> <p>D. Multi-purpose rooms, meeting rooms, consultation rooms, satellite offices, security and concierge facilities have two means of egress.</p> <p>E. For buildings with 3 or more storeys, fire-rated refuge zones are provided in accordance with fire engineering design.</p>
<p>Relates to Kāinga Ora Homestar targeted points under LV1: Inclusive Design and LV3: Eco-Friendly Living. Refer to Appendix C.</p>	
<p><b>Guidance</b></p> <p>For exterior wayfinding, refer to Section A. Site.</p> <ul style="list-style-type: none"> <li>• Access control should be provided to the main entry and indoor communal spaces (kitchens, multi-purpose rooms etc.) as appropriate. Refer to Section C. Services.</li> <li>• Access-controlled communal doors should include door closers and an audible alarm to indicate if the door has not locked on closure.</li> </ul>	

**B3.2 COMMUNAL ACCESS, EGRESS AND CIRCULATION CONTINUED**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B3.2.3</b></p> <p><b>Communal accessways</b> are designed to be safe and secure and to enable ease of movement of people, furniture and equipment.</p>	<p>A. The design of communal accessways:</p> <ul style="list-style-type: none"> <li>i. prevents entrapment</li> <li>ii. prevents disturbance to customers from impact sounds and flanking to adjacent spaces (refer to B1.6 Acoustics)</li> <li>iii. mitigates the creation of cold, wet, windswept areas that let in water, dirt, leaves and similar detritus</li> <li>iv. facilitates natural lighting, ventilation and surveillance.</li> </ul>
<p><b>B3.2.4</b></p> <p><b>Stairs</b> are designed to be safe and user-friendly.</p>	<p>A. Communal stairs that will be used frequently as access routes align with the requirements for accessible stairs set out in <b>D1/AS1</b> sections 4.1 and 6.0.</p> <p>B. All stairs within or on internal and external communal circulation routes:</p> <ul style="list-style-type: none"> <li>i. do not include stair winders</li> <li>ii. include at least one handrail located on one side of the stairs (regardless of the number of risers).</li> </ul> <p>C. Where there is a fall risk of 500mm, provide a handrail. Where there is a risk of falling over 1.0m, include a (minimum) 1.1m high, child-safe, non-climbable barrier.</p>
<p><b>B3.2.5</b></p> <p><b>Thresholds and transitions</b> do not pose a tripping safety hazard.</p>	<p>A. Level thresholds are provided:</p> <ul style="list-style-type: none"> <li>i. at the building main entry</li> <li>ii. into all communal rooms</li> <li>iii. between communal circulation routes and front entry of private dwellings.</li> </ul>
<p><b>B3.2.6</b></p> <p><b>Lifts</b> are provided as required.</p>	<p>A. Where a building has 4 or more storeys, ensure there is at least one commercial quality lift is provided.</p> <p>B. Ensure lift cars and lift doors are sized to support everyday activities and emergency situations.</p> <p>C. Ensure lift design allows all customers and visitors to use the facility, regardless of their ability.</p> <p>D. Minimum lift capacity 1000Kg or 13 persons, 1 m/s, lift car dimensions minimum 1400 x 1600mm, door 1000 x 2100mm.</p> <p>E. Lift car and lift landings are designed to be vandal resistant to improve availability.</p> <p>F. Lift design and operational control will be impacted by the fire design and should be coordinated.</p>

**B2.2.7**

**Doors and hardware** specified are durable and robust and enable ease of movement.

- A. All door handles are lever-style handles placed at 1.0m above FFL.
- B. Door and cabinetry handles and hardware are easily operated, including by those with impaired or restricted hand strength or hand movement.

Relates to Kāinga Ora Homestar targeted points under EF4: Energy Use, HC1: Winter Comfort, HC2: Summer Comfort, HC3: Ventilation, HC5: Natural Light, LV1: Inclusive Design and LV3: Eco-Friendly Living. Refer to Appendix C.

**Guidance**

- For exterior wayfinding, refer to Section A. Site.
- Access control should be provided to the main entry and indoor communal spaces (kitchens, multi-purpose rooms etc.) as appropriate. Refer to Section C. Services.
- In deciding how many lifts are required for a building, consider the impact on customers of a lift being out of service for repair.
- Lifts should include a GSM module for two-way emergency communications.

Refer to Appendix A for further requirements and guidance relating to product and materials specification.



**B3.3 COMMUNAL KITCHENS, BATHROOMS AND LAUNDRIES****Rationale**

Kitchen, bathroom and laundry areas require careful consideration to avoid hazards and risks and to enable safe and easy use. These spaces typically have higher risks and maintenance requirements compared to other areas, given they are frequently used spaces that involve water use, cooking, repetitive movement and use of fixtures and fittings.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<b>B3.3.1</b> <b>Communal kitchens</b> are adequately sized and located, optimally laid out and designed to be safe and to minimise risks.	A. Layout and design of communal kitchenettes and kitchens: <ol style="list-style-type: none"> <li>i. allows for 1.5m clearance in front of cupboards and appliances</li> <li>ii. prevents residents and/or visitors from using the kitchen as a main thoroughfare</li> <li>iii. ensures they are physically, visually and acoustically separate from bathroom, toilet and laundry facilities (and vice versa).</li> </ol>
<b>B3.3.2</b> <b>Communal area toilets</b> are adequately sized and located, optimally laid out and designed to be safe and to minimise risks.	Where communal area toilets are provided: <ol style="list-style-type: none"> <li>A. the <b>number of fixtures and fittings</b> provided is suitable for the number of occupants the community facility serves</li> <li>B. the space is <b>conveniently located</b> with clear signage</li> <li>C. at least one separate and <b>accessible toilet facility</b> is provided that includes grab rails and a change table.</li> </ol>
<b>B3.3.3</b> <b>Communal laundries</b> are adequately sized and located, optimally laid out and designed to be safe and to minimise risks.	A. Washers/dryers are seismically restrained.
<b>B3.3.4</b> Bathrooms, kitchens and laundries are located to facilitate <b>efficient provision of services</b> .	A. Wherever possible, kitchens, bathrooms and laundries are located in close proximity to each other to enable efficient provision of services (such as potable and hot water, heating and ventilation), however, this should not compromise privacy and cultural considerations..
Relates to Kāinga Ora Homestar targeted points under LV1: Inclusive Design. Refer to Appendix C.	
<b>Guidance</b> Refer to B3.1.2 for guidance regarding arrangement of communal spaces.	

**B3.4 SHARED SPACE: FINISHES, FITTINGS AND FURNISHINGS****Rationale**

Kāinga Ora maintains over 70,000 dwellings over their life. Replacement and repair of finishes, fittings and furnishings within these homes can be disruptive for our customers, particularly if the finishes, fittings or furnishings are difficult to source, fix or replace within a short timeframe. Finishes, fittings and furnishings need to be durable, robust and easy to maintain while providing our customers with the amenity they need.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>B3.4.1</b> <b>Products and materials</b> for communal area floors, walls and ceilings are durable, robust and easy to maintain.</p>	<p>A. Commercial grade finishes are provided to communal space floors, walls and ceilings, and floor finishes should allow for movement of furniture and equipment on castors.</p>
<p><b>B3.4.2</b> <b>Fittings, fixtures and equipment</b> in communal areas are specified that are adequate, robust, safe and easy to maintain.</p>	<p>A. Where a <b>kitchen</b> is provided, it includes:</p> <ol style="list-style-type: none"> <li>i. storage area for waste and recycling</li> <li>ii. secure/child-proof storage</li> <li>iii. stainless steel benchtop with upstand and integral sink</li> <li>iv. two heights of benches for accessibility (as appropriate)</li> <li>v. at least 50 percent of under-bench storage as drawers</li> <li>vi. a floor waste within the kitchen space.</li> </ol> <p>B. Where provided, <b>furniture</b> is commercial grade with fire-retardant fabric (where relevant).</p> <p>C. Adequate <b>storage</b> is provided to communal rooms and sized to suit the size and use of the room.</p> <p>D. Cupboards, handles and other <b>hardware</b> are commercial grade.</p> <p>E. Adequate <b>services</b> such as HVAC, electrical and lighting are provided to suit the space and intended use. Refer to Section C. Services.</p>

Where a whole-development approach is used under Homestar, this section relates to Kāinga Ora Homestar targeted points under EN3: Sustainable Materials. Refer to Appendix C and the [Homestar v5 Technical Manual](#) (pages 101 and 103).

**Guidance**

- Rooms containing services such as cleaner's cupboards, backflow devices and fire sprinkler rooms should have water-resistant linings.
- Secure storage could be provided through controlled access to the space or lockable cupboards provided within the space.
- An emergency and/or civil defence kit should be provided as appropriate for the space type and number of anticipated occupants.
- Design storage areas to facilitate maintenance. This will include providing a utilities space for cleaners in buildings with communal areas and ensuring hot water cylinders can be easily accessed.
- Window treatment may be provided as part of fit-out in a project specific basis. [Consider ligature risk in product selection.]

# C

# NGĀ RATONGA WHARE SERVICES

## C1 Three waters

- C1.1 Stormwater
- C1.2 Wastewater
- C1.3 Water supply
- C1.4 Water metering
- C1.5 Water fixtures, fittings, hydraulics and hot water

## C2 Energy and electrical

- C2.1 Energy supply and metering
- C2.2 Electrical distribution
- C2.3 Lighting
- C2.4 Data, communications and controls
- C2.5 Access controls and security systems

## C3 Heating, ventilation and air conditioning

- C3.1 Heating, ventilation and air conditioning

## C4 Fire protection systems

- C4.1 Fire protection systems



# C1 THREE WATERS

## C1.1 STORMWATER

### Rationale

Local councils around New Zealand typically set requirements for developments, which may include rainwater retention/detention tanks or other design features to manage stormwater and control sediment on site.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C1.1.1</b> <b>Stormwater management</b> systems are designed to be safe, reliable, easy to maintain and suitable for current and anticipated future needs.</p>	<p>A. Wherever possible, stormwater is discharged to the public network using a gravity-fed system.</p> <p>B. Access chambers are not located within play or recreation areas and have lockable covers or grilles.</p> <p>C. Where required, on-site soak pits are not installed under driveways or footpaths or within play or recreation areas.</p> <p><b>Where retention/detention tanks are required</b></p> <p>D. If above ground, tanks:</p> <ul style="list-style-type: none"> <li>i. are located independent of the main dwelling(s) to allow maintenance of cladding</li> <li>ii. are seismically restrained</li> <li>iii. do not infringe upon outdoor living, recreation, services or access space. (Refer to Section A. Site.)</li> </ul> <p>E. If underground, tanks are not located under the building and design and location considers future maintenance.</p>

### Guidance

- Particularly on constrained sites, underground tanks may be preferable so as not to reduce outdoor functional space.
- Locate cleaning eyes at the base of stacks and at the ends of any pipes passing below the building. Cleaning eyes should be easily accessible without damaging the building finishes.
- Access chamber covers should be installed level with finished grade to avoid being buried or becoming a trip hazard.

**C1.2 WASTEWATER**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C1.2.1</b></p> <p>Wastewater management systems are designed to be safe, reliable, easy to maintain and suitable for current and anticipated future needs.</p>	<p>A. Wherever possible, wastewater is discharged to the public network using a gravity-fed system.</p> <p>B. Access chambers are not located within play or recreation areas and have lockable covers or grilles.</p> <p>C. Where any on-site treatment system or pumping is required:</p> <ol style="list-style-type: none"> <li>i. it has a separately metered power supply where it serves multiple dwellings</li> <li>ii. the system is easily accessible for maintenance</li> <li>iii. it is connected to a back-up standby or portable generator where available.</li> </ol>

**Guidance**

- **Access chamber** covers should be installed level with finished grade to avoid being buried or becoming a trip hazard.
- **Cleaning eyes** should be located at the base of stacks and at the ends of any pipes passing below the building. Cleaning eyes should be easily accessible without damaging the building finishes.
- To reduce foaming issues, do not connect laundry tubs or washing machines directly into **floor waste gullies**.
- **Interceptors** reduce the risk of drain blockage and should be used in instances where liquid waste may contain one or more of:
  - grease
  - flammable waste
  - sand
  - solids
  - acidic or alkaline substances
  - other harmful elements.
- A **floor drain** should be provided in rooms that house liquid products, including (but not limited to):
  - equipment with drain pans
  - equipment that creates condensate.
- **Tundish drains** should be included where a heat pump or heat-recovery ventilation system is required.

### C1.3 WATER SUPPLY

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C1.3.1</b></p> <p><b>Potable water supply</b> is safe, reliable and allows ease of maintenance.</p>	<p><b>Public supply</b></p> <p>A. Wherever possible, potable water is supplied by public water mains.</p> <p>B. Water is supplied at a consistent water pressure to all dwellings.</p> <p>C. Where required to achieve required water pressure:</p> <ol style="list-style-type: none"> <li>i. one or more booster pumps are provided and/or</li> <li>ii. pressure-reducing valves are provided.</li> </ol> <p><b>Pumps</b></p> <p>D. Any pump serving private reticulated networks:</p> <ol style="list-style-type: none"> <li>i. is easy to access for maintenance</li> <li>ii. has a back-up system in the event of pump failure</li> <li>iii. includes a separately or independently metered power supply</li> <li>iv. is connected to an emergency power system (such as a portable generator) where one is provided.</li> </ol>
<p><b>Guidance</b></p> <p><b>Water pressure</b></p> <ul style="list-style-type: none"> <li>• Water should be delivered to each dwelling within a pressure range of 200–500kPa.</li> <li>• Header tanks are not permitted.</li> </ul>	
<p><b>C1.3.1 Alternative Solution</b></p> <p><b>Rainwater</b></p> <p>A. Where public potable water supply is not available, a roof-based rainwater collection system is provided that includes a first-flush diverter.</p> <p>B. Rainwater collection tanks used for potable water supply must:</p> <ol style="list-style-type: none"> <li>i. be above ground</li> <li>ii. include a level gauge</li> <li>iii. include an overflow system that feeds into the stormwater disposal system</li> <li>iv. be located independent of the main dwelling(s) to allow maintenance of cladding</li> <li>v. be seismically restrained.</li> </ol> <p><b>Bores</b></p> <p>C. Bores are only used when all other supply options have been explored and ruled out. Where used, the system:</p> <ol style="list-style-type: none"> <li>i. aligns with the requirements of the Ministry of Health <a href="#">Design and Operation of Bores for Small Drinking-Water Supplies (2010)</a></li> <li>ii. includes a sample tap at source in accordance with resource consent conditions.</li> </ol> <p><b>Filtration</b></p> <p>D. Where rainwater or bore systems are used, a whole-of-house filtration or treatment system is installed.</p>	



**C1.4 WATER METERING**

**PERFORMANCE REQUIREMENT**

**ACCEPTABLE SOLUTION**

**C1.4.1**

**Metering** is configured to enable future private ownership of dwellings and is safe to access.

- A. An accessible local water-supply meter and check valve:
  - i. are provided for each dwelling
  - ii. are accessible via clear pedestrian access from the road.

**Buildings with 1–3 storeys (see Figure C1.4-1)**

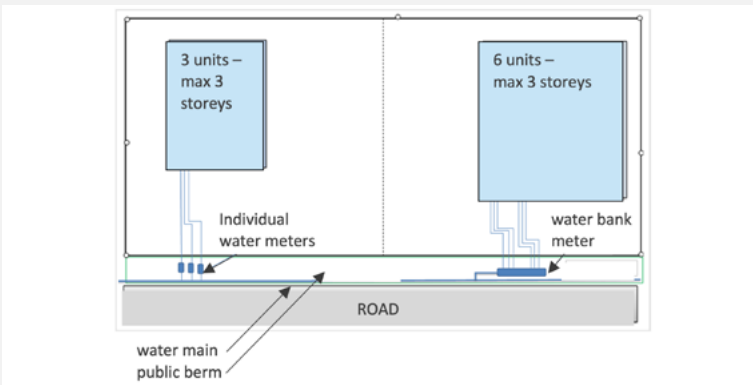
- B. Individual water meters with isolation check valves are located in an accessible valve chamber in the public berm.
- C. Bulk water meters are not used.

**Buildings with 4 or more storeys (see Figure C1.4-2)**

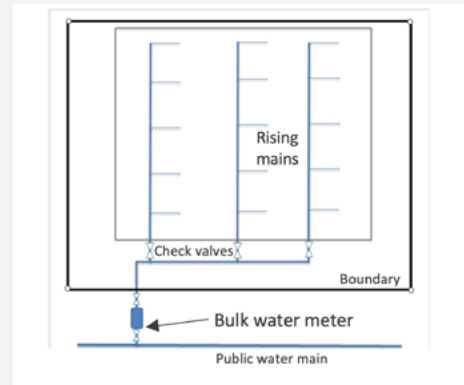
- D. A bulk water meter and strainer/filter is provided between two isolation valves. Individual water meters with isolation check valves are located in an accessible valve chamber.
- E. A single cold water rising main is included that can be isolated from the main water supply at each dwelling via an external check valve, located in a service shaft.

**Guidance**

**FIGURE C1.4-1: BUILDINGS WITH 1–3 STOREYS**



**FIGURE C1.4-2: BUILDINGS WITH 4+ STOREYS**



**C1.5 WATER FIXTURES, FITTINGS, HYDRAULICS AND HOT WATER**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C1.5.1</b> <b>Water fixtures and fittings</b> promote efficient use of water and are safe and easy to use.</p>	<p>A. Fixture flow rates comply with the requirements of the required Homestar® rating.</p> <p>B. All tapware has lever-style handles for ease of use by people with limited hand use.</p>
<p><b>C1.5.2</b> <b>Hot water</b> supply is adequate to meet customer needs and is safe and energy efficient.</p>	<p>A. Storage type hot water heaters</p> <ul style="list-style-type: none"> <li>i. are provided sized in accordance with Table C1.5-1</li> <li>ii. are easily accessible for maintenance and replacement</li> <li>iii. are provided with drainage trays that are positioned so that any leaks are easily visible with anti-vermin traps fitted to the tray's drain points</li> <li>iv. have a dedicated electrical circuit.</li> </ul> <p>B. Gas-fired hot water heating (natural or LPG) is not permitted as an energy source.</p> <p>C. Hot water supply is tempered to between 45°C and 50°C at the outlet.</p> <p>D. Tempering valves are protected by an anti-tampering device.</p> <p>E. Hot water supply to hand basins in communal facilities is tempered to 45°C at the outlet.</p> <p>F. All pipework from the hot water tank within the cupboard space is insulated to reduce heat loss and protect occupants. All pipework in recirculating hot water systems shall also be insulated.</p>
<p><b>C1.5.3</b> <b>Layout and design of hydraulic systems</b> is efficient, quiet, reduces the risk of water damage and enables ease of maintenance.</p>	<p>A. Hydraulic system design considers the possibility of future divestment of individual dwellings.</p> <p>B. System design and placement minimizes:</p> <ul style="list-style-type: none"> <li>i. Noise, including for neighbours</li> <li>ii. Risk of frost damage during prolonged power outages.</li> </ul> <p>C. Outdoor taps are provided for ground-level outdoor private spaces to facilitate gardening and for vehicle washing.</p> <p>D. Provide taps for wash down of areas liable to contamination (for example, communal refuse storage areas).</p>
<p><b>C1.5.4</b> Where used, <b>Heat Pump Hot Water Systems</b> are efficient, quiet, easy to maintain, and external units are well-located.</p>	<p>A. <b>Heat Pump Hot Water systems:</b></p> <ul style="list-style-type: none"> <li>i. Have a similar ability to meet peak and overall daily demand to the electric resistance hot water heaters listed in Table C1.5-1</li> <li>ii. Have storage cylinders located within the thermal envelope.</li> </ul> <p>B. External fan units must not pose a risk to falling (not facilitate climbing over balustrades) where installed on balconies.</p> <p>C. Condensate from heat pump outdoor units must not flow across areas subject to foot traffic.</p>

Relates to Kāinga Ora Homestar targeted points under EF3: Water Use, EF4: Energy Use and LV1: Inclusive Design. Refer to Appendix C.

**Guidance**

- Typically, hot water is provided via one or more electric hot water cylinders.
- The prevailing water quality (hardness) should be considered when designing and selecting products for hot water supply systems to reduce the frequency of maintenance.
- Each dwelling should have a separate, easily accessible isolation valve (toby) for water supply.
- In common areas where cleaner’s cupboards are likely to be infrequently used, consider using an on-demand water heating solution.
- Avoid using 3-phase systems for individual dwellings, as this limits customers’ choice of retailer, especially if they rely on prepaid electricity.

**Heat Pump Hot Water Systems**

Fan units should:

- Be easily accessed for maintenance
- Be securely fixed and placed to avoid damage and/or vandalism
- Not obstruct external pathways
- Be placed and specified to minimise noise and reverberation nuisance to occupants and neighbours.
- Only have covers where these have been approved by the heat pump manufacturer.
- Refer to EECA’s Good Practice Installation Guide to Heat Pump Installation for more detailed information on placement of fan units.

**TABLE C1.5-1: MINIMUM REQUIREMENTS FOR THE CAPACITY OF HOT WATER CYLINDERS**

DWELLING SIZE (BY BEDROOM NUMBER)					
	1	2	3-4	5	6
Cylinder capacity (litres)	90L	135L	180L	270L	x2 180L
Element size	2kW	2kW	2-3kW	3kW	2-3kW (each cylinder)

## C2 ENERGY AND ELECTRICAL

### C2.1 ENERGY SUPPLY AND METERING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C2.1.1</b></p> <p><b>Energy supply</b> to the site and buildings is safe, reliable, low-carbon and suitable for current and anticipated future needs.</p>	<p>A. Grid-supplied electricity is the primary energy source for all dwellings.</p> <p>B. Natural gas is <b>not</b> used as an energy source.</p> <p>C. Where on-site renewable energy systems are installed:</p> <ol style="list-style-type: none"> <li>i. clearly labelled switches are installed in an accessible location to electrically isolate all photovoltaic hardware</li> <li>ii. signage is included to warn of the electrical shock posed by photovoltaic panels.</li> </ol> <p>D. Conduits and/or cables are not placed under footpaths or driveways.</p> <p>E. Any earth stakes are protected by a non-conductive toby box.</p> <p><b>Back-up supply – apartments and multi-unit developments</b></p> <p>F. A source of back-up power is provided for essential services.</p>
<p><b>C2.1.2</b></p> <p><b>Metering</b> is designed to be safe, easy to access and configured to allow for future private ownership of buildings.</p>	<p>A. Each dwelling has an individual utility-supplied smart meter. Communal electrical loads shall be connected to a separate smart landlord meter.</p> <p>B. The metering system includes easy-to-read labelling that identifies the ICP number and which dwelling, common area or user the meter is associated with.</p> <p>C. Meter and distribution boards are placed in areas such that they:</p> <ol style="list-style-type: none"> <li>i. do not obstruct or restrict circulation</li> <li>ii. are not prone to water damage</li> <li>iii. are not exposed to moisture or dampness.</li> </ol> <p><b>Private dwellings</b></p> <p>D. Meters are placed in the hall or garage accessible for maintenance with the meter face flush with the wall lining to avoid restricting circulation.</p> <p><b>Apartments and multi-unit developments</b></p> <p>E. Meters are placed in a secure utilities room or cabinet that can be accessed from communal areas.</p> <p>F. Separate distribution boards are provided for essential services</p>

#### Guidance

Essential services include (but are not necessarily limited to):

- lifts
- fire detection and protection services (including associated exhaust or ventilation systems)
- security systems
- water-pressure/potable water supply pumps
- sewerage or stormwater pumps
- exit lighting
- building management and control systems (BMS).

**C2.2 ELECTRICAL DISTRIBUTION****PERFORMANCE REQUIREMENT****ACCEPTABLE SOLUTION****C2.2.1**

Electrical distribution is safe, easy to access and adequate to meet customers' current and future needs.

- A. Power outlets are provided in line with Table C2.2-1.
- B. Wherever possible, electrical layout minimises the need for extension cords and multi-plug adaptors.
- C. Internal distribution boards have 20% spare capacity.
- D. Power and data outlets are located 500mm above FFL and/ or 250mm above benchtops and at least 500mm away from internal corners.

**RELATES TO KĀINGA ORA HOMESTAR TARGETED POINTS UNDER LV1: INCLUSIVE DESIGN. REFER TO APPENDIX C.**

**TABLE C2.2-1: MINIMUM REQUIREMENTS FOR DISTRIBUTION OF POWER OUTLETS INSIDE THE DWELLING**

SPACE	REQUIREMENT	NOTES
Living and dining area (combined)	x4 double-socket outlets	Place to facilitate communications, TV use and housekeeping.
Kitchens	x3 double-socket outlets and x1 dedicated outlet (each) for fridge, stove and microwave	Place above bench height and at least 400mm away from cooking surfaces.
Bedrooms 9m <sup>2</sup> or less	x2 double-socket outlets	One outlet per bedside.
Bedrooms more than 9m <sup>2</sup>	x3 double-socket outlets	One outlet per bedside.
Bathrooms	All dwellings: x1 double-socket outlet Accessible dwellings: x2 double-socket outlets	Adjacent to the bathroom vanity and 1.0m above FFL.
Hallways	x1 double-socket outlet	
Star wiring boxes	x1 double-socket outlet	
Private garages	x2 double-socket outlets	One placed on the ceiling for the garage door opener. Additional outlets will be required where garage accommodates the laundry.
Laundries	x1 double-socket outlet	Suitable for a washing machine and dryer.
Communal areas	As per relevant project brief, fed from communal power (landlord meter)	Additional outlets will be required where the design provides for mobility scooters, electric wheelchairs etc. fed from communal power (landlord meter) – refer to the project brief.

## C2.3 LIGHTING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C2.3.1</b> <b>Energy-efficient lighting</b> solutions are provided to the interior and exterior of the building to meet customer needs and facilitate maintenance.</p>	<p>A. <b>Lighting levels</b> align with those set by the <b>Illuminating Engineering Society</b> (see Table C2.3-1).</p> <p>B. <b>Task lighting</b> is provided to kitchen benches and vanities.</p> <p>C. <b>Interior lighting:</b></p> <ul style="list-style-type: none"> <li>i. is 'warm white' LED</li> <li>ii. eliminates strong, contrasting patterns of light and dark</li> <li>iii. highlights any step or level change</li> <li>iv. is located no more than 2.7m above FFL.</li> <li>v. includes two-way switching to all hallways and stairs</li> <li>vi. includes large rocker-style switches located 1.0m above FFL</li> <li>vii. includes occupancy controls for common area lighting.</li> </ul> <p>D. <b>Exterior lighting:</b></p> <ul style="list-style-type: none"> <li>i. is LED</li> <li>ii. is integrated with passive and active security measures and natural surveillance</li> <li>iii. does not cause disturbance to neighbours</li> <li>iv. includes controls that include photocells and motion detection to reduce energy consumption.</li> </ul> <p><b>Additional requirements for apartments and multi-unit developments</b></p> <p>E. Where lighting is provided to public areas, emergency lighting and wiring is vandal-resistant to IK10.</p> <p>F. Batteries (where included) can be replaced without changing the whole fitting.</p> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• Three-way switching is provided to the 12m<sup>2</sup> bedroom provided on the main living level.</li> </ul>

RELATES TO KĀINGA ORA HOMESTAR TARGETED POINTS UNDER EF4: ENERGY USE, LV1: INCLUSIVE DESIGN AND LV3: ECO-FRIENDLY LIVING. REFER TO APPENDIX C.

**Guidance**

Consider solar-powered solutions for common areas, long pathways and driveways.

**TABLE C2.3-1: MINIMUM INTERIOR LIGHTING (LUX) LEVELS**

AREA	STANDARD	FULL UNIVERSAL DESIGN AND ACCESSIBLE
Living and dining areas <sup>5</sup>	150lx (floor)/300lx (task <sup>3</sup> )	Lighting that is upgradeable without wiring alterations to meet the requirements of <b>CIE Guide to Increasing Accessibility in Light and Lighting</b> and ISO/IEC <b>Guide 71:2014 Guide for addressing accessibility in standards</b> to address the needs of older persons and persons with disabilities
Bedrooms <sup>1</sup>	50lx (floor)/150lx (bed)	
Kitchens <sup>4</sup>	300lx (work surfaces)	
Bathrooms <sup>1</sup>	100lx (work surfaces)	
Separate toilets <sup>1</sup>		
Laundries		
Hallways and landings	150lx (floor)	
Stairways <sup>2</sup>	100lx (treads)	
Offices/meeting rooms	300lx (task <sup>3</sup> )	
Garages	50lx (floor)/300lx (bench)	

Notes

1. Additional task lighting is recommended for kitchens and for bathroom mirrors.
2. Screen areas of high luminance from the view of individuals ascending/descending stairs – it is recommended lights are mounted at a lower level.
3. Allow for adjustable light fittings and/or install a power outlet close by for task lighting.
4. Where storage is built into a dwelling or apartment, ensure adequate lighting is provided. Stand-alone sheds do not require lighting.
5. Light switching must allow for different areas of multi-storey apartments to be separately switched.



## C2.4 DATA, COMMUNICATIONS AND CONTROLS

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C2.4.1</b> Access to high-quality, free-to-air <b>television</b> is provided to each dwelling and communal areas.</p>	<p>A. A TV aerial is provided to individual dwellings or MATV to apartments (in service room on common power) and is:</p> <ol style="list-style-type: none"> <li>wall mounted (not through the roof)</li> <li>located to minimise visual impact.</li> </ol>
<p><b>C2.4.2</b> <b>Phone and internet services</b> are provided to each dwelling and, where relevant, communal areas and utilities rooms.</p>	<p>A. Where <b>available</b>, all dwellings are connected from an external termination point (ETP) to the optical network terminal (ONT) and then to a fibre-optic network.</p> <ol style="list-style-type: none"> <li>ONT is located in star wiring box ready for connection to internal network and not in a wardrobe.</li> <li>Data cabling from the star wiring box uses a CAT6 copper cable and designated switch sockets.</li> <li>Star wiring box design shall comply with Chorus' requirements.</li> <li>Star wiring boxes shall be recessed into corridor or main living area walls.</li> </ol> <p>B. Where fibre is <b>unavailable</b>, a high-speed copper service is provided from the ETP to the building's master jack point in:</p> <ol style="list-style-type: none"> <li>50Ø ducting for up to 12 units</li> <li>100Ø ducting for 12+ units.</li> </ol> <p>C. Conduits and/or cables are not placed under footpaths or driveways.</p>
<p><b>C2.4.3</b> Where required, <b>building control and management systems (BMS)</b> facilitate operation of building systems and services.</p>	<p>A. <b>Control systems</b> for mechanical services and electrical systems are provided that:</p> <ol style="list-style-type: none"> <li>facilitate operation of building systems</li> <li>are simple to operate and program.</li> </ol> <p>B. A <b>BMS system</b> is provided when local control is inadequate (thermostat, sensor, time switches) or as required by the project brief.</p>

RELATES TO KĀINGA ORA HOMESTAR TARGETED POINTS UNDER LV3: ECO-FRIENDLY LIVING. REFER TO APPENDIX C.

### Guidance

#### General

- Locate TV, data and power outlets with consideration of planned furniture layout.
- Where provided, each storey of a dwelling should have at least one TV and CAT6 connection located in:
  - Combined kitchen/dining/living areas
  - Main bedroom(s)

#### Communications

- Where a lift is provided, provide a phone port that can be activated via voice calling over broadband (VoIP). This will provide the facility needed for a lift-emergency communication system

**C2.5 ACCESS CONTROLS AND SECURITY SYSTEMS**

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C2.5.1</b></p> <p><b>Access-control, intercom and CCTV systems</b> provide security, while supporting safe access and egress. Systems are durable and be easy to maintain.</p>	<p><b>Buildings with a communal access route</b></p> <p>A. <b>Electronic access control</b> is provided that provides secure, programmable, 24/7 access at each level of a building and/or accessway and to all communal areas, including:</p> <ol style="list-style-type: none"> <li>i. stairwells</li> <li>ii. lifts and lift lobbies</li> <li>iii. hallways and accessways</li> <li>iv. common rooms/spaces (such as multi-purpose rooms)</li> <li>v. all entrances to the building or complex</li> <li>vi. other shared spaces (such as communal drying rooms).</li> </ol> <p>B. Systems must allow easy access for emergency services to all areas.</p> <p>C. <b>Intercom systems</b>, where provided, are voice only and shall allow customers to release the entry lock. This will give visitors access to the entry lobby.</p> <p>D. Intruder detection systems are not permitted.</p> <p>E. Wireless CCTV and intercom systems are not permitted.</p>

**Guidance**

On-site manager and regular on-, or off-site monitoring is not typically provided.

**CCTV**

- CCTV should support natural surveillance not substitute for it.
- Select and design the CCTV system alongside the lighting design to ensure the two are integrated and mutually supportive.
- To address privacy concerns, include appropriate signage that alerts customers and visitors to the presence and use of CCTV and ensure the signage is clearly visible and well lit.
- Where system components are located in publicly accessible areas, improve the durability of the system by using components that are weather-resistant and vandal-resistant.
- The CCTV system should not be an analogue signal type.
- Cameras should provide a clear view of lift lobbies and lift car floor selection panels.
- CCTV systems should not be connected to the electronic access management system.

**Intercom systems**

- Where included, communal entries should have a wired transmission remote communication and access intercom system that is connected to each dwelling. Such a system gives customers the ability to restrict access to their guests and/or other approved visitors.
- Ensure that, when customers release the lock, visitors are not granted access to lifts, stairwells or accessways. Where such access is required, customers will need to use their key fob/card. Ensuring this design feature is in place will prevent visitors from having free rein to access the building.
- Ensure the intercom system is hard wired and independent of the telephone and electronic access systems and can be easily operated by all customers.
- Intercom controls should include a mute function for occupant use.
- Relevant system equipment should be stored in a utilities and services room.

### **Access control**

- Use electronic access control systems where a building has a communal access route. Such systems should provide secure, programmable, 24/7 access at each level of a building and/or accessway and to all communal areas.

### **Proximity readers and keypads**

- When using an access control system, ensure it includes a proximity reader that can be activated by a key fob/ card. Select proximity readers and keypad controls that can be easily used by all customers regardless of their ability. Place proximity readers and, where used, keypads at 0.9–1.2m above FFL.
- Keypads should be used wherever emergency services may require access.
- Access controls should include audible alarms to warn of secure doors being wedged open.

### **Emergency release and exit buttons**

- Include hard-wired emergency release and 'request to exit' buttons where necessary – 'free to exit' would be preferable. Where a fire alarm system is in place, ensure these buttons are interconnected with that system.
- Select emergency release/exit buttons that can be used by all customers and ensure they are located at an accessible height. These should be placed on the secure side of the door or gate and integrated with the path of travel of the relevant accessway. Also include clear labelling that facilitates the use of these features.
- All access controlled doors should use self-closing components to prevent tailgating and unauthorised access.

## C3 HEATING, VENTILATION AND AIR CONDITIONING

### C3.1 HEATING, VENTILATION AND AIR CONDITIONING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C3.1.1</b> Active <b>heating</b> meets legislative requirements and complements passive strategies to ensure healthy and comfortable indoor environments and reduced operational energy costs for our customers.</p>	<p>A. Thermal modelling is undertaken to calculate heating and cooling demand (refer to B1.4 Thermal performance).</p> <p>B. Heating calculations are undertaken to calculate required heating capacity (refer to B1.4 Thermal performance).</p> <p>C. Heat pumps each have a dedicated electrical circuit.</p> <p>D. Adequately sized heaters are subsequently specified and installed to each bedroom, and other habitable spaces over 12m<sup>2</sup> in line with the calculated outputs, noting that:</p> <ul style="list-style-type: none"> <li>i. gas (LPG or natural gas), pellet or multi-fuel heating is <b>not permitted</b></li> <li>ii. if the heater size required is more than 2.4kW, a heat pump is specified</li> <li>iii. for homes with 5 or more bedrooms a whole-home centralised system should be considered.</li> </ul> <p>E. If the ECCHO calculator demonstrates that overheating is a risk and overheating cannot be designed out, consideration is given to provision of active cooling systems (e.g. heat pumps).</p>

### C3.1 HEATING, VENTILATION AND AIR CONDITIONING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C3.1.2</b></p> <p><b>Mechanical ventilation</b> systems promote a healthy and comfortable indoor environment while minimising risks associated with internal moisture.</p>	<ul style="list-style-type: none"> <li>A. Kitchen, bathroom, and whole-of-house ventilation systems (where used) must comply with Healthy Homes requirements.</li> <li>B. Extract fans are fitted with in-line backdraft dampers at the outlet of the fan. This includes ducted rangehoods.</li> <li>C. In bathrooms, boost mechanical extract ventilation is provided with an adjustable run-on timer.</li> <li>D. Lint filtration is required for mechanical extract fans serving spaces with laundry facilities and drying rooms. This includes bathrooms containing laundries (if not separately ventilated), and common utility spaces.</li> <li>E. Where used, continuous mechanical ventilation systems (taking into account static resistance of (as installed) ductwork, grilles, and diffusers) achieves the greater of the following three criteria: <ul style="list-style-type: none"> <li>i. 0.35 ACH</li> <li>ii. 7.5 L/s/person based on one person per bedroom plus one person (e.g. 2 bedrooms = 3 people).</li> <li>iii. The sum of: <ul style="list-style-type: none"> <li>a. 12 L/s in the kitchen</li> <li>b. 10 L/s in bathrooms</li> <li>c. 8 L/s in laundries (unless separately ventilated)</li> <li>d. 10 L/s for a combined bathroom/laundry</li> <li>e. 6 L/s separate toilet</li> </ul> </li> <li>iv. Minimum high (boost) ventilation rate should be at least 7.5 L/s/person based on two people per bedroom, or E.iii (in which case no boost is required).</li> </ul> </li> <li>F. Kitchen rangehoods: <ul style="list-style-type: none"> <li>i. are separately ducted to the outside, or;</li> <li>ii. Where there are no trickle or wall vents, recirculating rangehoods with charcoal filters are permitted.</li> </ul> </li> <li>G. Where CO<sub>2</sub> sensors are used, <ul style="list-style-type: none"> <li>i. Sensors on central units shall be set to 800ppm to trigger boost ventilation (where available), or;</li> <li>ii. Sensors located in main bedrooms trigger boost ventilation (where available) at 1000ppm.</li> </ul> </li> <li>H. Airflow throughout the habitable areas is enabled by Homestar v5 compliant door undercuts/vents (permanent openings)</li> <li>I. Positive pressure ventilation systems are not permitted.</li> </ul>

### C3.1 HEATING, VENTILATION AND AIR CONDITIONING

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C3.1.3</b></p> <p>Where used, <b>Mechanical extract ventilation systems</b> have adequate make-up air provided by deliberate vents in the building envelope</p>	<p>In household units with three or more external walls, and/or with a built air permeability of more than 3.0m<sup>3</sup>/h/m<sup>2</sup> @ 50 Pa,</p> <p>A. Wall or trickle vents:</p> <ol style="list-style-type: none"> <li>i. have at least 4000mm<sup>2</sup> equivalent area of opening per bedroom and other habitable spaces.</li> <li>ii. are placed to avoid short circuiting of air flow (e.g. away from extract points, and not in wet-rooms)</li> <li>iii. are installed at 1.7m or higher from FFL and placed/specified to avoid discomfort to occupants (external noise and draughts)</li> <li>iv. are secured to keep pests and insects out</li> <li>v. are suited to the local environment, taking into account airborne and noise pollution</li> <li>vi. are easily accessible for maintenance where used in multi-storey buildings, are engineered to the applicable wind pressures, and accessible for maintenance (where needed).</li> </ol> <p>B. Aluminium trickle vents are thermally broken.</p> <p>C. Wall vents are placed to avoid obstruction by furniture or window treatments.</p> <p>D. External wall vent cowls are:</p> <ol style="list-style-type: none"> <li>i. protected from the prevailing wind</li> <li>ii. placed to avoid obstructing passers-by, accidental damage, and vandalism.</li> </ol>

RELATES TO KĀINGA ORA HOMESTAR TARGETED POINTS UNDER HC3: VENTILATION; EF4: ENERGY USE; LV1: INCLUSIVE DESIGN. REFER TO APPENDIX C.

#### Further Information

Note that the Kāinga Ora Whole-of-Home Heating Calculator should be used to demonstrate compliance with the heating standard contained within the Residential Tenancies (Healthy Homes Standards) Regulations 2019.

**Documentation demonstrating compliance must be submitted to Kāinga Ora for future use.**

#### Heating

- Where the heating requirement of a space exceeds 2.4kW, electric resistance heaters are not permitted. In this instance, a heat pump or an ultra-low-emission solid fuel burner capable of meeting the Performance Requirements provided above should be installed.
- Hard-wired electric heating should be separately switched – include a wall-mounted or integral manual thermostat.
- Heaters installed in an accessible bathroom should be controlled via a wall-mounted on/off switch.
- Thermostats should be located in a central location not directly influenced by solar or internal heat gain.

In certain circumstances:

- a solid fuel burner may be appropriate
- centralised heating and cooling systems may be more suitable than spot heating.

Any Alternative Solution needs to be proposed for consideration to ensure the solution will meet customer and Kāinga Ora business needs.



## Heat Pumps

Refer to [EECA's Good Practice Installation Guide to Heat Pump Installation](#) for more detailed information.

### Exterior heat pump units

- Placement of heat pump outdoor units must not reduce safety from falling when located on balconies.
- Covers for outdoor units should only be installed where approved by the heat pump manufacturer.
- Condensate from heat pump outdoor units should not be allowed to flow across areas subject to foot traffic.
- Sound levels of outdoor heat pump units must not exceed local body noise bylaws. Do not locate where noise can cause a disturbance to home occupants or neighbours.

### Indoor heat pump units

- Indoor heat pump units be placed where they can easily be maintained, i.e. not above stairs.

### Central and solid fuel heating systems

In certain circumstances:

- a solid fuel burner may be appropriate (i.e. where energy security is an issue)
- centralised heating and cooling systems may be more suitable than spot heating (i.e. larger homes).

Any Alternative Solution needs to be proposed for consideration to ensure the solution will meet customer and Kāinga Ora business needs.

### Continuous mechanical ventilation

- Balanced mechanical ventilation with heat recovery and a summer bypass function is the preferred solution.

### Continuously operating mechanical ventilation systems

- Boost ventilation is intended to manage indoor air quality and is not intended for purge ventilation or to address overheating.
- Mechanical equipment is placed in an area that:
  - Is easily accessible for maintenance (preferably from common areas in apartment buildings)
  - Discourages tampering
  - Any condensate drains should not discharge across areas subject to foot traffic.
- All continuously operating mechanical ventilation systems should be designed to operate at low and high volume. At low volume, the noise level measured 1.0m from the inlet/grille should not exceed 35dBA in bedrooms and 40dBA in other habitable areas. Where background noise exceeds this, systems should not have a sound level greater than 1dB above the background noise level.
- Controls should be located at an accessible height (i.e. between 900mm and 1200mm above FFL). Hand-held remote controls should be provided with a wall mount.
- Where balanced ventilation and/or mechanical heat recovery ventilation is being provided:
  - Ensure that the ventilation does not become contaminated with grease from cooking.
  - It is recommended that these are commissioned and balanced on installation. Reports should be provided to the applicable Kainga Ora representative.

### **Wall or Trickle Vents**

- Trickle vents are preferred, but wall or ducted vents may be used if required.
- Where wall or trickle vents are used, consideration should be given to their impact on thermal performance, occupant comfort (prevention of draughts), acoustic performance, reliability and ease of maintenance.
- Where a vent is automatically actuated, the equivalent area of opening should be measured on the minimum opening setting.
- Trickle vents should be easily reached and operated.
- Consider acoustic performance while in both open and closed positions.
- Well-considered design and specification can reduce the impact of external noise and its impacts on occupants. This is particularly important for dense urban areas and/or areas close to roads, businesses, and/or educational facilities etc.

## C4 FIRE PROTECTION SYSTEMS

### C4.1 FIRE PROTECTION SYSTEMS

#### Rationale

The incidence of fires in Kāinga Ora homes is greater than for the general population. Also, many of our customers have infirmities and many spend longer in their homes than average. Consequently, we have requirements for fire protection that are over and above statutory requirements.

PERFORMANCE REQUIREMENT	ACCEPTABLE SOLUTION
<p><b>C4.1.1</b></p> <p><b>Fire services</b> are designed to protect and promote customers’ safety, health and wellbeing.</p>	<p>A. Smoke and/or heat detectors and alarms are provided in:</p> <ol style="list-style-type: none"> <li>i. all habitable spaces, including bedrooms, circulation spaces and living and dining areas</li> <li>ii. garages when these are connected to a dwelling</li> <li>iii. internal communal areas where provided in apartment blocks and multi-unit developments.</li> </ol> <p>B. The design of “relevant buildings” must satisfy the <b>Fire and Emergency New Zealand Act 2017</b> and be able to obtain a FENZ- approved evacuation scheme.</p> <p>C. Fire services align with the requirements set out in Table C4.1-1.</p> <p>D. Systems are designed to minimise unnecessary disturbance to occupants.</p> <div style="background-color: #f8d7da; padding: 5px;"> <p><b>Additional requirements for Full Universal Design</b></p> <ul style="list-style-type: none"> <li>• Interconnected smoke detectors combined with a domestic fire alarm panel have the capability to be easily upgraded to include visual and/or vibrating functions.</li> <li>• Fire services align with the requirements set out in Table C.4.1-1.</li> </ul> </div>
<p><b>C4.1.2</b></p> <p>Sprinkler systems for community group housing are designed to meet the specific needs of the intended customer group.</p>	<p>A. Fire sprinkler systems are required where occupants:</p> <ol style="list-style-type: none"> <li>i. are fully dependent, require 24-hour full care or are non-ambulant, severely disabled or non-communicative</li> <li>ii. have varying levels of dependence, are ambulant (or ambulant with support), require full-time supervision or sleep-over care, have moderate disability, are psychiatric residential or disability residential or have progressive disability.</li> </ol>
<p><b>C4.1.4</b></p> <p>Where required, <b>sprinkler systems</b> are designed to minimise tampering and the chance of accidental damage.</p>	<p>A. Sprinkler heads in habitable spaces are concealed with a cover plate.</p> <p>B. Sprinkler heads provided in common areas (such as service spaces or parking areas) are fitted with protective cages.</p>

FULL UNIVERSAL DESIGN FEATURES RELATE TO KĀINGA ORA HOMESTAR TARGETED POINTS UNDER LV1: INCLUSIVE DESIGN. REFER TO APPENDIX C.

## Guidance

### Specific system requirements

- Some customers, particularly those residing in dwellings classified as Full Universal Design or accessible, will have particular challenges that affect their ability to communicate and/or exit a dwelling in the event of a fire. The design should address challenges and consider mounting heights for devices.
- The design of all fire services (except for single dwellings) should be undertaken (or at the very least reviewed) by a fire engineer. This review should be carried out during the preliminary design phase.
- Different dwelling types have different requirements as shown in Table C4.1-1. These requirements reflect the specific Kāinga Ora environment where the day-to-day usage of buildings affects what fire systems can be used without causing undue issues for our customers.

### Manual call points

- Due to the high frequency of malicious activations of call points placed in common or shared areas, manual call points are recommended for use in private dwellings and are fitted with tamper-proof covers.

### Smoke and heat detectors

- The location of detectors affects early warning of fire and is an important consideration.
- Smoke and heat detectors give the ability to check whether an existing fire system is functioning correctly by providing information about the location and status of individual system components.
- Use **encapsulated heat detectors** in areas prone to accidental activation, including kitchens, bathrooms or laundries (where steam may activate a detector), open circulation spaces (where dust may activate a detector) or areas such as stairways or the underside of balconies (where moisture from cleaning or waterblasting may activate a detector).

### Fire-rated refuge areas

- Where recommended by the fire report, include a fire-rated refuge area on each floor level. The refuge area shall provide an additional space within the safe path on each floor above the ground floor no less than 800mm wide and 2.0m<sup>2</sup> in area and shall not intrude into the specified width of the escape route or be reduced by any door in or opening into the safe path. A refuge area shall have the same level of fire protection (passive and active) as applies to the vertical safe path with which it is associated. Refuge areas also allow slow-moving persons to rest and others to pass.

### Smoke alarms

- Select and place smoke alarms within dwellings so they provide maximum coverage while minimising the occurrence of false alarms.
- In larger multi-unit buildings or developments, such as those with 3 or more storeys, using an interconnected alarm system ensures all customers are notified in the event of a fire. (Refer to the fire report.)
- To facilitate use of hush functionality, maintenance and testing, limit the ceiling height of dwellings to 2.7m.

#### **Fire risers and extinguishers**

- Locate fire hydrant systems so that, as much as possible, their placement removes the risk of vandalism or tampering, particularly in public areas. You may wish to consider installing hydrants in recessed cabinets.
- As firefighting is best left to trained professionals employed by Fire and Emergency New Zealand, only provide fire extinguishers to meet requirements under the New Zealand Building Code.
- Wherever possible, to minimise the risk of vandalism, tampering or misuse, locate extinguishers in restricted areas or areas the public cannot easily access.

#### **Fire evacuation equipment**

- Where required by the building evacuation plan, include equipment such as evacuation chairs in buildings. This provides staff or emergency personnel support with evacuating customers with a physical disability. Such equipment should be provided with vandal-resistant wall-brackets and storage covers accompanied by appropriate signage and located to minimise the risk of vandalism or tampering.

#### **Emergency lighting**

- Support evacuation with vandal-resistant emergency lighting

#### **Fire dampers**

- Where fire dampers are required for a given property, ensure they can be easily accessed from the outside of dwellings. This will facilitate inspection and maintenance, minimising disruption to customers.

#### **Access doors/hatches**

- Where access doors or hatches are required for maintenance, ensure that they require specialist service tools to open and supply the necessary tools.

#### **Hazard-activated power isolators**

- These devices may be installed to provide protection from accidental cooking fires. In some applications, isolator equipment is not installed but interfaces in terms of audio/visual and tactile alerting devices are installed to provide adequate warning for those hard of hearing or visually impaired.

**TABLE C4.1-1: FIRE PROTECTION REQUIREMENTS FOR SPACES**

This table highlights specific requirements above those required by legislation.

		Battery Smoke Detector		Interconnected smoke Detectors		Analogue addressable or Conventional Photoelectric smoke detector connected to fire alarm		Interconnected encapsulated conventional fixed temp (57C) heat detector		Hush button connected to residential alarm panel		Strobe		Commercial fire alarm panel		Manual fire alarm call point		Sounder (65dB Sound Pressure Level minimum required)		Sounder (75dB Sound Pressure Level minimum required)		
		Std	FUD	Std	FUD	Std	FUD	Std	FUD	Std	FUD	Std	FUD	Std	FUD	Std	FUD	Std	FUD	Std	FUD	
Stand-alone/Terrace Homes	Hallways	█			█																	
	Stairways																					
	Bedrooms	█			█																	
	Bathrooms																					
	Living-areas	█			█																	
	Dining-areas	█			█																	
	Kitchens																					
	Laundries																					
	Garages (connected to dwelling)	█																				
	Separate sleep-outs	█	█																			
Multi unit/Apartments	Hallways					█	█			█	█						█	█	█	█		
	Stairways					█	█											█	█	█	█	
	Bedrooms					█	█							█							█	█
	Bathrooms							█	█					█						█	█	
	Living-areas					█	█							█						█	█	
	Dining-areas					█	█							█						█	█	
	Kitchens							█	█					█						█	█	
	Laundries							█	█											█	█	
	Circulation Spaces (enclosed)					█	█										█	█	█	█		
	Circulation Spaces (open)							█	█											█	█	
	Lift lobbies					█	█													█	█	
	Communal stairways					█	█													█	█	
	Communal area kitchen							█	█											█	█	
	Multi-purpose rooms					█	█													█	█	
	Meeting/Consultation rooms					█	█													█	█	
	Satellite offices							█	█								█	█	█	█		
	Security and concierge facilities					█	█										█	█	█	█		
Communal drying rooms							█	█											█	█		
Utilities and services rooms					█	█										█	█	█	█			



## APPENDIX A: PRODUCTS AND MATERIALS SUPPLEMENTARY REQUIREMENTS

### FOREWORD

This Appendix provides product details for Kāinga Ora National Supply Agreement (NSA) products relevant to new construction. Kāinga Ora has a number of specific requirements for products and materials used in both new and existing homes that go above and beyond what is strictly required by legislation. This is to improve customer wellbeing, health and safety, and user amenity, along with creating durable, easily maintainable, and sustainable homes.

Products selected for the NSA have been pre-assessed by the Quality Homes Advisory team as meeting Kāinga Ora requirements, including specific functionality, levels of performance, and robustness for public housing. The use of pre-assessed NSA products simplifies maintenance by ensuring consistency, availability of replacements and parts, and robustness of products.

The latest Product Guides referenced within this Appendix are uploaded on our [Product Information Teams Site](#). For access to this

Teams Channel, please send a request to [supplychain@kaingaora.govt.nz](mailto:supplychain@kaingaora.govt.nz).

Whilst NSA products are not mandatory for new construction, their use is strongly encouraged. Not all products are covered by the NSA, notably specialised products and systems.

When a new or alternative product or system is proposed and has not yet been reviewed, the QHAT team reviews products/systems against the measurable criteria below and consider the product or system's use in the given context. To check whether a specific product has already been reviewed, please contact [qualityhomesqueries@kaingaora.govt.nz](mailto:qualityhomesqueries@kaingaora.govt.nz).

### Product and System Review Process

If you wish a product to be reviewed, please contact [qualityhomesqueries@kaingaora.govt.nz](mailto:qualityhomesqueries@kaingaora.govt.nz) explaining why you require a new product to be reviewed and the team will respond to your request within 1-3 days with further information.



## PRODUCTS, MATERIALS AND SPECIFICATION DETAILS

### A1: Site response

#### FENCING

Design Requirement Reference	A1.3.2 Design Features, <b>Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</b>	
<b>Fencing and Gates</b>	<p><b>Timber Fence – Palings</b></p> <p>2330991 (900mm), 2331007 (1200mm), 2331015 (1500mm), 2331023 (1800mm) – <b>150 x 25mm</b> Fence Paling Rad H3.2 Rough Sawn</p> <p><b>Timber Fence – Posts</b></p> <p>2332450 (1200mm), 2332336 (2400mm), 2332344 (2700mm), 2332807 (3000mm) – <b>100 x 100mm</b> H4 Fence Post Radiata, Rough Sawn</p> <p>2330694 (1500mm), 332583 (1800mm), 332302 (2100mm), 332351 (2400mm), 2332369 (2700mm), 2332815 (3000mm) – <b>100 x 75mm</b> H4 Fence Post Radiata, Rough Sawn</p> <p><b>Timber Fence – Rails</b></p> <p>1072321 – <b>100 x 50mm</b> NO2 G3.2 Rough Sawn Radiata</p> <p><b>Miscellaneous</b></p> <p>4507687 (160mm), 4500237 (170mm), 4507901 (180mm) – M12 Galvanised Coach Bolts</p> <p>4508305 – Washer Square M12 50mm 3mm Galvanised</p> <p><b>Gates (Pool Gates self-closing / keyless)</b></p> <p>29100096 (Left Hand), 2910097 (Right Hand) – Edgesmith Fencelab Res Gate incl, Base / Post / lock / hinges 1250 x 1030m</p> <p>2910098 (Left Hand), 2910099 (Right Hand) – Edgesmith Fence Lab Gate incl, in ground posts / lock / hinges 1250 x 1030mm</p> <p><b>Pool Fencing</b></p> <p>2910020 Anchor Res Panel Fence 1250 x 1800mm includes 4 x Clips</p> <p>2910021 Anchor Res Panel Fence 1250 x 2400mm includes 4 x Clips</p>	PlaceMakers Product Guide 2023-24

<b>Measurable Criteria</b>	<p>New fencing <b>must</b> comply with Resource Consent conditions.</p> <p>Refer to <b>Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</b> for design requirements for fencing.</p> <p>A. Safety fencing is at least 1.2m-high, with a durable, corrosion-resistant finish.</p> <p>B. Have a maximum of 100mm between fence base and natural ground.</p> <p>C. Gates should:</p> <ol style="list-style-type: none"> <li>i. Swing open <b>into</b> the secure children’s play-area.</li> <li>ii. Have self-closing hinges and an automatic magnetic latch set at 1.5m above ground level.</li> <li>iii. Not have a keyed lock.</li> </ol> <p><b>Note</b> that sharp tops, spikes, or verticals that protrude above the top-rail of the fence or gate are <b>not permitted</b>.</p>
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Refer to Section C: Services for **Exterior Lighting**

## A2: Amenity provision and configuration

### DECKS, PATIOS, AND STEPS

<b>Design Requirement Reference</b>	<i>A1.2 Site Response: Building Form and Orientation, A1.2.2 Solar Access, Guidance A2.3 Outdoor Service Areas, A2.3.2 Clothes-drying facilities Table B2.1-1: Minimum requirements for gross floor areas, A2.1.1 Private Outdoor spaces, Table A2.1-1: Minimum requirements for private outdoor living areas, A2.4.3 Site layout, maintenance</i>
<b>Decks and steps</b>	For Timber decking and components refer to PlaceMakers Product Guide 2023-24. For composite decking and components refer to Quality Homes Advisory team for reviewed products.
<b>Measurable Criteria</b>	<p>A. Decking and steps are concrete, timber or composite material.</p> <p>B. Ramps and steps have a non-slip finish.</p> <p>C. All composite decks must include:</p> <ol style="list-style-type: none"> <li>i. Concealed fixing needs to be durable and suitable for all corrosion zones, easy to install and maintain</li> <li>ii. Acceptable Wet Slip resistance required (R11)</li> <li>iii. UV and Moisture protected</li> <li>iv. Contains a minimum of 80% recycled material.</li> </ol>

<b>CLOTHES-LINES AND LETTERBOXES</b>		
<b>Design Requirement Reference</b>	<i>A1.2 Site Response: Building Form and Orientation, A1.2.2 Solar Access, Guidance A2.3 Outdoor Service Areas, A2.3.2 Clothes-drying facilities</i>	
<b>Clothes-Lines</b>	<p><b>Tasman Range (heavy duty)</b></p> <p>3590201 – Rotary Clothesline Galvanised (40m line space)</p> <p>3590218 – T-Bar Heavy Duty TCL-350</p> <p><b>Austral Range</b></p> <p>3590198 – Compact Folddown 2.4 x 0.94m Woodland Grey KOHC (28.5m line space)</p> <p>3590199 – Standard 28 Folddown 2.4 x 1.4m Woodland Grey KOHC (28.5m line space)</p> <p>3590200 – Retractable 40 Woodland Grey KOHC (40m line space)</p> <p>3590322 – Austral Balcony 14 Fold Down Clothesline Woodland Grey</p>	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	<p>Clothes-lines should:</p> <p>A. Be wall-mounted drop-down; or a rotary line; or a T-bar type, comprised of galvanised steel.</p> <p>B. Have a line capacity in accordance <b>A2.3.2 Clothes-drying facilities</b></p>	
<b>Design Requirement Reference</b>	<i>A2.3 Outdoor Service Areas, A2.3.4 Letter box</i>	
<b>Letterboxes</b>	<p>2910046 (Black NLB7), 2910047 (Beige NLB8), 2910048 (Mountain Blue NLB9) – Wilson Letterbox KOHC</p> <p>2910049 (Black SLM1), 2910050 (Mountain Blue SLM2), 2910051 (Dark Grey SLM3) – Wilson Letterbox Slimline KOHC</p> <p>3525134 – Metware Slimline Letterbox Black</p>	Currently not in PlaceMakers Product Guide 2023-24 but are procured items.
<b>Measurable Criteria</b>	<p>All Letterboxes should:</p> <p>A. Include a latch, clearly legible numbers, and hinges.</p> <p>B. Have a facility for locking the letterbox with a padlock. Note keyed letterboxes are not acceptable.</p> <p>C. Be weather-tight, resistant to corrosion.</p> <p>D. Be securely fence-mounted or integral to the post system, at the street frontage or laneway.</p> <p>E. Meet New Zealand Post's Mailbox Specification</p> <p>F. All house numbers are clearly visible from the road-entrance.</p>	

**EXTERNAL STORAGE**

<b>Design Requirement Reference</b>	<i>A2.3 Outdoor Service Areas, A2.3.3 Safe and secure storage. Refer to Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</i>	
<b>External Secure Storage</b>	<p><b>Garden Master Sheds</b></p> <p><b>1.53×1.08m Range</b></p> <p>5615909 – GM1511 ALU-ZINC KOHC, colour Zinalume</p> <p>5615910 (Desert Sand), 5615912 (Gull Grey), 5615914 (Karaka Green) – GM1511 COLOURED KOHC</p> <p>5615916 <b>Wooden floor</b>, to be used with all 1.53×1.08m shed</p> <p><b>1.83×1.5m Range</b></p> <p>5615917 – GM1815 ALU-ZINC KOHC, colour Zinalume</p> <p>5615922 (Gull Grey), 5615924 (Karaka Green) – GM1815 ALU-ZINC KOHC</p> <p>5615926 <b>Wooden floor</b>, to be used with all 183 x 153 sheds</p> <p><b>Note:</b> For smaller storage options refer to Quality Homes Advisory Team.</p>	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	<p>A. Storage sheds are fixed down to avoid wind up-lift.</p> <p>B. Refer to <b>Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</b> for specific design details.</p>	

**A3: Site movement and circulation****DRIVEWAYS / PAVING / PLANTING (NON-PROCURED PRODUCTS)**

<b>Design Requirement Reference</b>	<p><i>A3.2 Driveway safety</i></p> <p><i>A3.5.3 Products and materials</i></p> <p><i>C1.1 Stormwater Management</i></p> <p>Refer to <b>Toitū Te Whenua Toitū Te Kāinga: Landscape Design Guide For Public Housing</b> for additional design guidelines.</p>
<b>Measurable Criteria</b>	<b>Note</b> that local consent conditions may require alternative systems to be used (e.g. stormwater management).

## B1: Building envelope and overall performance

ROOFING	
<b>Design Requirement Reference</b>	<i>B1.2 Weathertightness, B1.4.2 Thermal Performance, B1.6 Acoustics, C1.3 Water supply</i>
<b>Roofing</b>	Refer to Steel & Tube Product Guide 2023-24
<b>Measurable Criteria</b>	<p>A. Is pre-painted to suite the environment in which it is used i.e. geothermal and marine environments.</p> <p>B. Coated-steel panels and flashings have a minimum BMT of 0.55mm.</p> <p>C. Zinc- or aluminium-alloy coatings must be at least 150g/m<sup>2</sup>.</p> <p>D. Wash-down requirements must be able to be met by the annual New Zealand rain-fall range.</p>
CLADDING	
<b>Design Requirement Reference</b>	<i>B1.2 Weathertightness, B1.3 Interstitial moisture, B1.5 Windows</i>
<b>Cladding</b>	<p><i>Masonry Brick</i> PlaceMakers Product Guide 2023-24</p> <p><i>Timber Weather-Board Cladding</i></p> <p><i>Metal Wall Cladding</i></p> <p><i>Fibre Cement Cladding</i> Steel &amp; Tube Product Guide 2023-24</p> <p><i>Other Cladding</i> – email <a href="mailto:qualityhomesqueries@kaingaora.govt.nz">qualityhomesqueries@kaingaora.govt.nz</a></p>
<b>Measurable Criteria</b>	<p><b>Masonry Veneer Cladding</b></p> <p>A. The size of the cavity is designed to be at least 50mm.</p> <p>B. There is a step-down of 90-100mm and a sloping fillet at the base of the cavity that is placed to direct water to the outside.</p> <p><b>Timber Weather-Board Cladding</b></p> <p>A. Use components that are supplied pre-sanded and pre-primed on all sides/edges.</p> <p>B. Has a level of durability that is established through treatment of hazard class H3.1 or equivalent.</p> <p>C. Fixings and soakers must be: compatible with timber-treatment; and corrosion-resistant.</p> <p><b>Note</b> that direct fixing of cladding is <b>prohibited</b>.</p> <p><b>Metal Wall Cladding</b></p> <p>A. Coated-steel panels and flashings have a minimum BMT of 0.55mm.</p> <p>B. Zinc/aluminium-alloy coatings must be at least 200g/m<sup>2</sup>.</p> <p>C. The colour-range has a limited light reflectance value (LRV) of 20-56%.</p> <p>D. Aluminium used for the manufacture of profiled aluminium wall cladding:</p> <ol style="list-style-type: none"> <li>i. Has a minimum BMT of 0.7mm.</li> <li>ii. Is at least 5000-series.</li> <li>iii. Wash-down requirements can be satisfied by the annual New Zealand rain-fall range.</li> </ol>

**CLADDING****Measurable Criteria****Fibre cement cladding**

- A. The system is supplied with all side-edges pre-primed, with pre-priming finish.
- B. Vertical joints are with either uPVC or timber battens or equivalent.
- C. Horizontal joints are with 'Z' flashings.
- D. All fixings are compatible and corrosion-resistant.

**Note** that direct fixing of cladding is **prohibited**.

**INSULATION****Design Requirement Reference**

*B1.3 Interstitial moisture, B1.4 Thermal performance, B1.6.1 Minimising noise transfer, B1.7 Whole-of-Life Carbon (no current requirements)*

**Insulation****Mammoth Range Ceiling Blanket**

- 3402162 – R2.9 Ceiling Blanket 870mm 15m<sup>2</sup>
- 3402163 – R3.2 Ceiling Blanket 870mm 15m<sup>2</sup>
- 2910057 – R3.3 Ceiling Blanket 870mm 15m<sup>2</sup>
- 3402164 – R3.6 Ceiling Blanket 870mm 13m<sup>2</sup>

**Wall section and Multi Range**

- 3401314 – R2.5 560W 2.55m<sup>2</sup> Wall Sections
- 3401165 – R1.9 Polyester Multi 370mm 6.75m<sup>2</sup>
- 3401166 – R1.9 Polyester Multi 425mm 7.75m<sup>2</sup>
- 3401167 – R1.9 Polyester Multi 475mm 7.58m<sup>2</sup>
- 3401168 – R1.9 Polyester Multi 580mm 7.93m<sup>2</sup>

**Pink®Batts®**

- 3400072 – R7.0 Pink® Superbatts® – Ceiling 1200×460mm Single Layer
- 3401023 – R2.6 Pink®Batts® Classic – Ceiling 1220×432mm Double Layer
- 3400048 – R4.5 Pink® Superbatts® – Ceiling 1220×460mm Double
- 3680315 – R2.8 Pink®Batts® Ultra® Wall 1140×560mm
- 3680302 – R2.8 Pink®Batts® Ultra® Narrow Wall 1140×360mm
- 3680317 – R4.0 Pink®Batts® Ultra® Wall 1140×560mm
- 3680301 – R4.0 Pink®Batts® Ultra® Narrow Wall 1140×360mm
- 3400073 – R3.2 Pink®Batts® Snugfloor® Narrow 1220×480mm
- 3400070 – R3.2 Pink®Batts® Snugfloor® Wide 1220×580mm

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Mammoth Product Guide 2023-24



**INSULATION****Measurable Criteria**

Rigid or semi-rigid insulation is used with walls, ceilings and ground-level floors, including slab edge. The following *performance requirements* must be met:

- A. The thermal-resistance (“R-value”) of insulation must be established through testing, using test methods equivalent to AS/NZS 4859.1:2018 – Materials for the Thermal Insulation of Buildings: Part 1 – General Criteria and Technical Provisions.
- B. Slab perimeter insulation is specified in accordance with section 10.3 in NZS 4246:2016.
  - i. Slab perimeter insulation is protected against water absorption, ultraviolet (UV) exposure, and impact damage.
  - ii. Encapsulation of slab perimeter insulation must not trap moisture.
  - iii. **Note** that exterior plaster cladding systems are **not permissible**.
- C. Insulation:
  - i. Is certified under a New Zealand Green Building Council-recognised Indoor Air Quality scheme or eco-label, and is non-toxic.
  - ii. Is electrically non-conductive (unless electrically isolated/well away from electrical wiring)
  - iii. Does not readily release loose fibre particles, and resists displacement from wind gusts.
  - iv. Is protected against or resistant to damage by vermin where installed under suspended floors.

**Measurable Criteria****Acceptable Solutions**

Products must fully comply with the above *performance requirements* and be used within the scope outlined by the Manufacturer/Codemark/Appraisal.

Some products made with the following insulation materials have been reviewed and deemed to meet the *Kāinga Ora Product Requirements*:

- Polyester
- Glasswool
- Slab-edge extruded polystyrene foam board insulation system

**WINDOWS AND GLAZING**

**Design Requirement Reference** *B1.5 Windows, A1.2.2 Solar Access, B1.4 Thermal performance*

**Measurable Criteria****External Windows and Sliding Doors Measurable Criteria****1. All windows and sliding-doors**

- a. Are suitable for use in:
  - i. Wind zones up to and including “extra high” zones as defined in NZS 3604:2011 – Timber Framed Buildings or to 2.5kPa.
  - ii. All corrosion zones as defined in “Section 4: Durability” of NZS 3604:2011 – Timber Framed Buildings.
- b. **Window accessories** include heavy duty lever window fasteners, safety/restrictor-stays that limit window opening to 100mm
- c. **Sliding door hardware** includes:
  - i. An internal lockable, easy graspable (D Shape) handle that allows a key-less exit, mounted at 900-1200mm above the bottom –edge of the door
  - ii. Where used as a main access door, include a keyed external locking mechanism.
  - iii. Easy-to-access tracks.
  - iv. Easily replaceable and durable door-rollers.
- d. Provide for a suite of door openings, including French-doors, sliding (ranch-slider), internal swing and external swing doors with appropriate flush sill detailing.
- e. Have a minimum R-value of 0.46m<sup>2</sup>K/W.
- f. Include an installation guide, product specifications, technical details and relevant warranty information.

**2. All aluminium framing is, as a minimum, thermally broken.**

- a. Differential thermal expansion between inner and outer sides must not cause bending that makes opening windows or doors hard to open or close.

**3. All sliding doors**

- a. Are secured in place to prevent easy removal.
- b. Sliding doors have a clear opening width of at least 810mm.

**4. All aluminium joinery is custom-fabricated and powder-coated.**

- a. Powder-coating aligns with AAMA 2605: Voluntary Specification, Performance Requirements, and Test Procedures for Superior Performing Organic Coatings on Aluminium Extrusions and Panels or equivalent.

**5. All uPVC joinery:**

- a. Uses seals and gaskets that are co-extruded EPDM.
- b. Is comprised of uPVC formed for use in countries with high UV-exposure levels.
- c. Have profiles that incorporate internal structural-core profiles.
- d. All internal components that may be exposed moisture will not corrode.
- e. Is assembled from uPVC profiles selected according to the window- or door-sizing.

**WINDOWS AND GLAZING****Measurable Criteria**

(continued)

6. Timber reveals
  - a. Are H31 treated (or equivalent), finger-jointed, dressed solid timber supplied pre-primed on all sides/edges using a pre-primed finish, applied in accordance with AS/NZS 2311:2017 Specification for Performance of Windows, or equivalent. The coating must be compatible with a water-based paint system.
7. Glazing
  - a. Conforms to NZS 4223: 2016 – Glazing in Buildings.
  - b. Includes, when the glazing panel is higher than 1.5m, a horizontal vision-rail that conforms to NZS 4223.3: 2016 – Glazing in Buildings: Human Impact Safety Requirements.
  - c. Is clear or, where privacy is required, obscure.

**B2: Private space****EXTERNAL DOORS AND HARDWARE****Design Requirement Reference***B2.2.2 Circulation routes and doors, B2.2.5 Doors and door hardware***External Doors & Door Hardware****Note: External doors are currently not procured items****Lockwood Lock Range**

4582533 – Lockwood Deadlatch lever single cylinder open in, LOO2-1L1SP

2910052 – Lockwood Deadlatch lever single cylinder open out, LOO2-41SP

\*\* Install a non-locking latch set in conjunction with the chosen lock above.

**Yale Securi Viewer Range**

4612412 – Yale Securi Viewer Brass MC96PB

4612404 – Yale Securi View Satin Chrome MC96SC

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Guide 2023-24

**EXTERNAL DOORS AND HARDWARE****Measurable Criteria**

- A. **All** exterior doors:
- i. Have at least three hinges.
  - ii. Are solid-core exterior quality timber thermally insulated aluminium or composite fibreglass.
  - iii. H3.1-treated timber with a paint finish or aluminium powder-coated.
  - iv. Where provided, glazing is toughened.
  - v. Timber jamb-liners are H3.1 with a paint finish.
- B. Where used side-lights must only be fixed-lights

**Notes**

It is **not permitted** to:

1. Use a sliding door as the main-entry door.
2. Provide glazing below 1m on exterior hinged doors.
3. Bi-folding doors

**Entry Door Hardware**

- A. All exterior doors: have a lever-type handles, key-less exit
- B. All aluminium doors are fitted with a euro-cylinder lock or equivalent.
- C. All timber doors are fitted with a single-cylinder dead latch
- D. Where there is no sidelight provided, the main-entry door must have a fitted door-viewer with a 200° viewing-angle.

**Note** that patio/sliding bolts are **not permitted** on exterior doors.

**INTERNAL DOORS AND HARDWARE****Design Requirement Reference**

*B2.2.2 Circulation routes and doors, B2.2.5 Doors and door hardware*

**Internal Doors & Door Hardware****Door Range**

Superior Doors 1980 x 38mm Solid Core EPS PP 4mm Skin KOHC – 2910082 (460mm), 2910083 (510mm), 2910084 (560mm), 2910085 (610mm), 2910086 (660mm), 2910087 (710mm), 2910088 (760mm), 2910088 (810mm), 2910090 (860mm), 2910091 (910mm)

**Door Stop**

4584793 – Air Cushion Doorstops White EA 70107265

**Schlage Medio Centra Door Hardware Range**

4551683 – Quickfix Furniture SCP (pair of handles, for cupboard or wardrobe doors with no barrel or latch)

4551687 / 4578166 (16 pack) – Quickfix Dummy Lever BSC (as per above but is a single handle)

556374 – Miles Nelson Door Magnet 22mm 332CP KOHC (used on wardrobe and cupboard doors in conjunction with the handles listed above)

PlaceMakers Product Guide 2023-24

**INTERNAL DOORS AND HARDWARE**

<b>Internal Doors &amp; Door Hardware</b>	4551684 / 4578164 (8 pack) – Quickfix Passage Lever BSC – (handles with a barrel and latch for use for use everywhere excluding bathrooms, toilets and cupboards/wardrobes) 4551686 / 4578165 (8 pack) – Quickfix Privacy Lever BSC (has a snib to lock the door in a bathroom or toilet)	Plumbing World Product Guide 2023-24
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<b>Measurable Criteria</b>	<p>All internal doors:</p> <p>A. Have a solid polystyrene or equivalent core and a 4mm, MDF skin.</p> <p>B. Are hung on at least x3 hinges.</p> <p>C. Are paint finished</p> <p>D. All internal doors (except wardrobe, cupboard, or storage doors) are 860mm (W) x 1.98m (H).</p> <p>The following are <b>not permitted</b>:</p> <ol style="list-style-type: none"> <li>1. Bi-folding and/or hollow-core doors</li> <li>2. Locks other than privacy locks</li> </ol>
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**KITCHEN AND LAUNDRY FITTINGS AND COMPONENTS**

<b>Design Requirement Reference</b>	<i>Table B2.3-1: Minimum size requirements for kitchen and laundry components</i>	
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<b>Kitchen Wet Bench</b>	<p><b>Sink bench</b></p> <p>BP341018 – Classicline S/S 1675mm x 600mm with overflow</p> <p>BP341030 – Classicline S/S 1825mm x 600mm with overflow</p> <p>C2-600 – Classicline Sink Bench 1250x600</p> <p>WBP341008 – Classicline C3-600-DL 1525 x 600 Sink Bench With Pressed Drainer On Left</p> <p>WBP341020 – Classicline C4-600-DL 1675 x 600 Sink Bench With Pressed Drainer On Left</p> <p>WBP341035 – Classicline C5-600-DL 1825 x 600 Sink Bench With Pressed Drainer On Left</p> <p><b>Wastes</b></p> <p>90DB'CP – Tub &amp; sink waste 40mm CP on brass</p> <p>96X40'CP Basin &amp; sink long tail waste 40mm CP on brass</p>	Plumbing World Product Guide 2023-24
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<b>Measurable Criteria</b>	<p>A. Polished 304-grade stainless-steel sink</p> <p>B. At least 410 (W) x 355 (D) x 170mm (H) sink with integral over-flow and minimum 440 x 390mm drainage tray.</p> <p><b>Note</b> that top-mounted sink bowls are <b>not permitted</b>.</p>
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<b>KITCHEN AND LAUNDRY FITTINGS AND COMPONENTS</b>		
<b>Kitchen Lever Type Tap-ware</b>	LEVSNKAPCP – Kitchen Sink Mixer LeVivi Classic Sink Mixer A/P Cr	Plumbing World Product Guide 2023-24
<b>Measurable Criteria</b>	Kitchen tap-ware must be able to achieve a 4-Star WELS-rating by providing a maximum flow-rate of 7.5l/min.	
<b>Benches</b>	<b>Benchtops are non-procured items</b>	
<b>Measurable Criteria</b>	<p>A. Bench-tops:</p> <ul style="list-style-type: none"> <li>i. Must be burn-, cut-, water and stain-resistant and provide an easy- to-clean hygienic surface.</li> <li>ii. Have a leading edge that is resistant to impact damage.</li> </ul> <p><b>Note:</b> Straight square edge is <b>not permitted</b>.</p>	
<b>Kitchen Cabinetry</b>	<b>Kitchen cabinetry are non-procured items</b>	N/A
	<b>Child-Proof Safety Catch</b>	
	4611562 – Holdfast Drawer Safety catch 81000 (through PlaceMakers)	
<b>Measurable Criteria</b>	<p>A. <b>Cabinetry</b></p> <ul style="list-style-type: none"> <li>i. Minimum: 18mm moisture-resistant pre-finished carcass, doors and drawers with water-resistant edging.</li> <li>ii. Must include at least 100mm high-toe-kick.</li> <li>iii. Two cupboards directly beneath the sink must include a child-resistant safety catch.</li> <li>iv. All cabinetry includes D-style handles that are easy-to-grip with a minimum finger clearance of 25mm.</li> <li>v. The pantry has 5 x full-width fixed shelves</li> </ul> <p>B. <b>Cabinet doors</b></p> <ul style="list-style-type: none"> <li>i. i. Are no more than 450mm wide</li> <li>ii. ii. Hinges provide a 115-170° opening and are recess-mounted; x3 per under-bench leaf and x4 to full height (e.g. pantry) doors.</li> </ul> <p>C. <b>Drawers</b></p> <ul style="list-style-type: none"> <li>i. The underside of the bench has at least one bank of drawers with 2 x smaller above, 2 x larger drawers at the bottom.</li> <li>ii. Provide a cutlery insert tray for the top drawer.</li> </ul> <p>D. <b>A space for a microwave</b> must be located at bench-height with an adjacent power outlet.</p> <p><b>Notes</b></p> <p>The following is <b>not permitted</b></p> <ul style="list-style-type: none"> <li>1. Sliding, bi –folding, or double –hung (corner) doors.</li> <li>2. A fixed-end panel that unduly restricts the fridge space.</li> <li>3. Melamine edge tape.</li> </ul>	

KITCHEN AND LAUNDRY FITTINGS AND COMPONENTS		
<b>Free-Standing Stoves</b>	<p><b>Freestanding Cookers</b></p> <p>WLE624WC – 60cm white electric freestanding cooker with a conventional electric oven 910 (H) x 596 (W) x 620 (D), Total height 1150mm</p> <p>**Associated Plug, lead, and switch are available through JA Russell</p> <p>For accessible oven and separate hob options email <a href="mailto:qualityhomesqueries@kaingaora.govt.nz">qualityhomesqueries@kaingaora.govt.nz</a></p>	Electrolux Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Electric free-standing ovens and hobs</b> have:</p> <p>A. An anti-tip device, including a drop-bolt seismic movement limiting-device.</p> <p>B. At least 80-litre capacity.</p> <p>C. An integral storage drawer.</p> <p>D. Controls set at a child-safe height.</p>	
<b>Laundry Tub</b>	<p>A. ST3101KOHHC – Robinhood Laundry Tub Standard Size 56cm, includes lever tap</p> <p>B. STSLIMITAPKOHHC – Robinhood Laundry Tub Slim Size 35cm includes lever tap</p>	Plumbing World Product Guide 2023-24
TIMBER FLOORING		
<b>Design Requirement Reference</b>	<p>B1.4 Thermal performance</p> <p>B1.6.1 Minimising noise transfer</p>	
<b>Timber Plywood Flooring</b>	2420371 (19mm) 2420560 (21mm) – Construction Ply H3.2 CD 2400x1200mm	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	<p>Suspended timber floors are H3.2 plywood; at least 19mm-thick.</p> <p><b>Note</b> that all timber bottom plates are treated to H3.2.</p>	
WALL-CEILING LININGS		
<b>Design Requirement Reference</b>	Table B2.4-1: Private Dwelling Floor, Wall and ceiling Finishes Schedule	



WALL-CEILING LININGS		
<b>Plasterboard Wall-Linings</b>	<p><b>Plasterboard Aqualine Wallboard</b></p> <p>2801876 (2400×1200mm), 2801934 (2700×1200mm), 2801942 (3000×1200mm), 2801959 (3600×1200mm) – Gib Aqualine <b>13mm</b> Wallboard</p> <p>2801884 (2400×1200mm), 2801892 (2700×1200mm), 2801900 (3000×1200mm), 2801918 (3600×1200mm), 2801920 (4800×1200mm – Gib Aqualine <b>10mm</b> Wallboard</p> <p><b>Plasterboard Standard Wallboard</b></p> <p>2800076 (2400×1200mm), 2800084 (2700×1200mm), 2800092 (3000×1200mm), 2800381 (3300×1200mm), 2800100 (3600×1200mm), 2802866 (4200×1200mm), 2802874 (4800×1200mm), 2800101 (6000×1200mm) – Gib Standard <b>13mm</b> Wallboard</p> <p>2800027 (2400×1200mm), 2800035 (2700×1200mm), 2800043 (3000×1200mm), 2800357 (3300×1200mm), 2800050 (3600×1200mm), 2800373 (4200×1200mm), 2800423 (4800×1200mm), 2800051 (6000×1200mm) – Gib Standard <b>10mm</b> Wallboard</p>	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Wall-linings:</b></p> <p>A. Are paper-faced gypsum plasterboard that</p> <ol style="list-style-type: none"> <li>is stopped for a level-4 finish</li> <li>has an environmental performance eco-label from an approved 3rd-party scheme recognised by the NZ Green Building Council.</li> </ol> <p>B. Have a <b>paint finish</b>.</p> <p><b>Note</b> that specialised interior wall-finishes (for example, ceramic tiles, or wallpaper) are <b>not permitted</b>.</p> <p>** Refer to <b>Bathroom and Toilet Fixtures and Fittings</b>, for shower lining and splash back requirements.</p>	
TIMBER TRIM		
<b>Design Requirement Reference</b>	Table B2.4-1: Private dwelling floor, wall and ceiling finishes schedule (notes)	
<b>Timber Trim</b>	2293529 – Timber skirting 60×10mm SGL BEV FJ PRECOATED 5.4M	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	<p>A. All interior trims, skirting board are timber with a paint finish.</p> <p><b>Note</b> that it is <b>not permitted</b> to use fibre-board, MDF, particle or chip board.</p>	

PAINT FINISHES		
<b>Design Requirement Reference</b>	<i>Table B2.4.1: Private Dwelling Floor, Wall and Ceiling Finishes Schedule, <b>Kāinga Ora Interior colour choices July 2020, M-248a</b></i>	
<b>Interior Paint</b>	<p><b>Plasterboard, Walls &amp; Ceilings Dry Areas</b></p> <p>399xxxx – Resene®Broadwall D403, Waterborne Wallboard Sealer 120xxxx – Resene®Zylone Sheen D302, Waterborne Low Sheen</p> <p><b>Plasterboard, Walls &amp; Ceilings Wet Areas</b></p> <p>385xxxx – Resene®Sureseal D42, Solvent-based Pigmented Sealer 148xxxx – Resene®Lustacryl Kitchen &amp; Bathroom D310K Waterborne Enamel</p> <p><b>Timber Doors, joinery and trim</b></p> <p>369xxxx – Resene®Quick Dry D45, Waterborne Acrylic Primer Undercoat 152xxxx – Resene®Enamacryl D309, Waterborne Enamel</p> <p><b>Additional Products</b></p> <p>129xxxx – Resene®Lumbersider Waterborn Low Sheen 108xxxx – Resene®Sonyx 101 Waterborne Semi-Gloss 738xxxx – Resene®X-200 Acrylic Weathertight Membrane 371xxxx – Resene®Concrete Primer 191xxxx – Resene®Colourwood Natural Wood Stain 381xxxx – Resene®ConcreteSeal 3 in 1 Concrete primer, sealer and dust coat 385xxxx – Resene®Sureseal Pigmented Sealer</p> <p>** Colour can be seen in <b>Kāinga Ora Interior colour choices July 2020, M-248a</b></p>	Resene Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Interior paint</b> must:</p> <p>A. Possess a current Level A eco-label approved by the New Zealand Green Building Council</p> <p>B. Be resistant to water-damage, staining, and heat</p> <p>C. State Fire Group ratings for substrates</p> <p>D. Have mould and bacteria-resistant qualities</p> <p>E. Have low-VOC levels</p> <p>F. Not be harmful or toxic</p> <p>G. Provide adequate cover with no more than two finish coats.</p>	

FLOOR COVERINGS – CARPET AND VINYL		
<b>Design Requirement Reference</b>	Table B2.4-1: Private Dwelling Floor, Wall and Ceiling Finishes Schedule, <b>Kāinga Ora Interior colour choices July 2020, M-248a</b>	
<b>Carpet</b>	<p><b>Godfrey Hirst Carpet</b></p> <p>44810/750 (Oxide), 44810/970 (Jade), 44810/570 (Clay) – Tucson Graphics 100% Solution Dyed, Loop Pile Carpet</p> <p>**Colours can be seen in the Godfrey Hirst Product Guide and in M-284a.</p> <p>374018 – Carpet Underlay, 8mm 69kg/m<sup>3</sup> 1800 x 15m Roll</p> <p>374021 – Carpet Gripper, Concrete / Wood dual nail</p> <p><b>Polyflor NZ (threshold strips)</b></p> <p>GALT and GAT-C Aluminium Threshold Strips 2440mm Silver and Champagne</p> <p>GANT and GANT-C – Trim Bar 2440mm Silver and Champagne</p>	<p>Godfrey Hirst Product Guide 2023-24</p> <p>Polyflor Product Guide 2023-24</p>
<b>Measurable Criteria</b>	<p>A. <b>Underlay</b> is installed with:</p> <ul style="list-style-type: none"> <li>i. Zero VOC adhesive.</li> <li>ii. Smooth-edge to the perimeter.</li> <li>iii. Threshold bars at junctions with other flooring types.</li> </ul> <p>B. Floor coverings must have an <b>environmental performance eco-label</b> from an approved 3rd-party scheme recognised by the NZ Green Building Council.</p> <p>C. Where they are adjacent, floor coverings must extend into <b>wardrobes and storage and linen cupboards</b>.</p> <p>D. For <b>accessible homes</b>, double stick carpet.</p> <p>E. <b>Nylon carpet</b> must be 100% solution -dyed and manufactured from nylon-six fibres with a minimum pile weight of 550-6000g/m<sup>2</sup>.</p> <p>F. <b>Wool carpet</b> must:</p> <ul style="list-style-type: none"> <li>i. Contain wool-fibres with an average fibre-diameter of approximately 33 micron.</li> <li>ii. Be a level loop-pile, 100% wool carpet on woven jute backing with a minimum pile weight of 850g/m<sup>2</sup>.</li> <li>iii. Have an appropriate rating from the Australian Carpet Classification Scheme, Woolmark™, or the Wool Board.</li> </ul> <p>G. <b>Synthetic, natural fibre, or a carpet-blend</b> must have a minimum pile-weight to suit the principal fibre-type.</p> <p><b>Notes</b></p> <p>It is <b>not permitted</b> to:</p> <ol style="list-style-type: none"> <li>1. Use specialist flooring finishes such as polished concrete or timber strip-flooring.</li> <li>2. Provide floor covering in the hot water cylinder cupboard.</li> </ol>	

FLOOR COVERINGS – CARPET AND VINYL		
<b>Vinyl</b>	<p><b>Polysafe Standard PUR</b> = (Wet-area Bathrooms) 4140 (Autumn Beige), 4520 (Elmwood), 4540 (Ash Grey) – 2mm Safety Sheet Vinyl Flooring</p> <p><b>Polyflor XL PUR</b> = (Bathroom; Laundries/Separate Toilets) &amp; (Kitchen; Dinning Areas; Entries) 3880 (Porcelain), 3720 (Flint), 3900 (Sablee Beige) 2mm Homogeneous Sheet Vinyl Flooring with PUR Top Surface</p> <p><b>Polyflor Forest FX PUR</b> = (Kitchens; Dining Areas; Entries) 4011 American Oak (3380) – 2mm Heterogeneous Sheet Vinyl Flooring</p> <p>**Colours can be seen in the Polyflor Product Guide and M-284a.</p> <p><b>Miscellaneous Associated Products</b></p> <p>4084 – Weld Rod</p> <p>GALC-H – Aluminium Cove Capping 2.4m (vinyl coving required in all bathrooms, laundries and toilets)</p> <p>GBEV5 – 5mm Tile Reducer, Bevel Edge (install in all bathrooms, toilets and laundries)</p> <p>GALT and GALT-C Aluminium Threshold Strips 2440mm Silver and Champagne</p> <p>GANT and GANT-C – Trim Bar 2440mm Silver and Champagne</p> <p>KE-S-F333 (4.75kg), KE-S-F333 (12.5kg) – Floor Levelling Compound – Kiesel ServoFine</p> <p>GPLY – Plywood Underlay 5.2mm x 1.22m x 1.22m (packs of 5)</p> <p>KE-O-Star100 – Vinyl flooring adhesive zero solvent content, 15 Litre</p>	Polyflor Product Guide 2023-24
<b>Measurable Criteria</b>	<p>A. Commercial-grade flooring system (minimum: Vinyl homogenous 2mm with matching vinyl welding rod) complete with aluminium threshold's</p> <p>B. <b>All</b> flooring must:</p> <ol style="list-style-type: none"> <li>i. Be water-, abrasion-, and slip-resistant; easy-to-clean with a hygienic surface; continuous; and impervious.</li> <li>ii. Where appropriate, extend into adjacent storage-areas (including linen cupboards).</li> </ol> <p>C. Bathrooms, separate toilets, and laundries have:</p> <ol style="list-style-type: none"> <li>i. Continuous vinyl flooring to the full extent, including under toilets, vanities, and basins (but not baths or showers).</li> <li>ii. 100mm-high coving to all walls with: <ul style="list-style-type: none"> <li>• Aluminium coved capping strip to exposed top-edge</li> <li>• 'Pencil cove' with butterfly mitres to all external and internal corners.</li> <li>• Bevel-edge tile reducer under flooring to form a wet flooring-well at the bathroom-entry.</li> </ul> </li> <li>iii. 150mm coving in wet-area bathrooms behind impervious sheet wall linings.</li> <li>iv. Fillet coves for safety flooring.</li> </ol>	

HOUSEHOLD STORAGE		
<b>Design Requirement Reference</b>	<i>Table B2.4-2: Minimum Requirements for Household Storage, B2.4.3 Storage, fittings and fixtures, B2.2.5 Doors and door hardware</i>	
<b>Shelving and Storage Hardware</b>	<p><b>Door Hardware</b></p> <p>4584793 – Air Cushion Doorstops White EA 70107265</p> <p>4551683 – Quickfix Furniture SCP (pair of handles, for cupboard or wardrobe doors with no barrel or latch)</p> <p>4551687 – Quickfix Dummy Lever BSC (as per above but is a single handle)</p> <p>4556374 – Miles Nelson Door Magnet 22mm 332CP KOHC (used on wardrobe and cupboard doors in conjunction with the handles listed above)</p>	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Linen Cupboards</b> include:</p> <p>A. at least x5 full-width, 400mm-deep shelves made up of securely fixed 70mm x 20mm (minimum) solid timber slats with 10mm gaps, vertically-spaced at 360mm, OR:</p> <p>B. at least three-fixed full-width, 400mm deep shelves vertically spaced at 360mm, with 10mm gaps between boards.</p> <p>C. A bottom shelf placed at 1.25m above FFL.</p> <p><b>Wardrobes</b> include:</p> <p>A. x1 400mm-deep pre-finished or solid timber shelf with ‘stiffener’ under the front edge at 1.65m above FFL and</p> <p>B. x1 hanging-rail at 1.55m above FFL and 300mm from the wardrobe’s rear wall.</p> <p>C. <b>Accessible bedroom</b> wardrobes include an adjustable hanging-rail (see <b>Appendix B</b>).</p> <p>D. Where a rail or shelf is longer than 1.2m long, support is required to prevent sagging.</p> <p><b>Hot water cylinder storage</b> include:</p> <p>A. at least x1 full-depth, full-width shelf made up of screw-fixed 70mm x 20mm (minimum) solid timber slats with 10mm gaps.</p> <p><b>Note that</b> where apartments are served by central hot water systems, HWC storage space is not required within each dwelling.</p> <p><b>General Storage</b> includes:</p> <p>A. at least x3 full-width, 400mm-deep shelves vertically-spaced at 360mm;</p> <p>B. bottom shelf placed at 1.25m above FFL.</p> <p><b>Note</b> that this may be provided as 2 or more separate cupboards; each individual cupboard must be at least 600mm-wide.</p> <p><b>Hardware</b></p> <p>A. Handles are horizontal, dummy-lever-type.</p> <p>B. Soft-close, counter-sunk magnetic catches are flush-finished into the top-edge of the door and frame.</p>	

<b>BATHROOM AND TOILET FITTINGS AND FIXTURES</b>		
<b>Design Requirement Reference</b>	<i>Table B2.4-3 Minimum requirements for bathroom and toilet fittings and fixtures</i> <i>C1.5.1 Water Fixtures and Fittings</i>	
<b>Medicine Cabinet (wall hung)</b>	LEVPRESHCABWH – LeVivi Preston Shaving cabinet c/w mirror glued to solid backing. 400w x 730h x 115deep. Incl 2 shelves	Plumbing World Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Medicine cabinets:</b></p> <ul style="list-style-type: none"> <li>A. Have a moisture-resistant carcass</li> <li>B. A mirror front.</li> <li>C. Two shelves.</li> <li>D. Are set 1.2m above FFL</li> <li>E. Are placed to avoid clashing/interference with basin/vanity use.</li> </ul>	
<b>Bathroom Vanities</b>	<p><b>Wall Hung Vanity – LeVivi Preston Range</b></p> <p>LEVPRE600WHWH – 600 W/Hung 2Dr 1TH c/w O/Flow Waste</p> <p>LEVPRE750WHWH – 750 W/Hung 2Dr 1TH c/w O/Flow Waste</p> <p>LEVPRE900WHWH – 900 W/Hung 2Dr 1TH c/w O/Flow Waste</p> <p><b>Free Standing Vanity – LeVivi Preston Range</b></p> <p>LEVPRE600FSWH – 600 F/Standing with S/Steel Plinth 1TH c/w O/Flow Waste</p> <p>LEVPRE750FSWH – 750 F/Standing with S/Steel Plinth 1TH c/w O/Flow Waste</p> <p>LEVPRE900FSWH – 900 F/Standing with S/Steel Plinth 1TH c/w O/Flow Waste</p> <p><b>Child-Proof Safety Catch</b></p> <p>4611562 – Holdfast Drawer Safety catch 81000</p> <p><b>Wall Hung Vanity (TOP ONLY no storage) – KOHC Zintec Wall Range</b></p> <p>11001/01 – Vanity – 600x400 Hung w/- O/F, SS on HDPE Wst,</p> <p>10601-STM – Vanity – 750x460 Hung w/- O/F, SS on HDPE Wst</p> <p>11101/01 – Vanity – 900x460 Hung w/O O/F, SS on HDPE Wst</p> <p>**Accessible vanity is currently not procured (wall hung vanity top only, may be a suitable option), additional storage will be required</p>	Plumbing World Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Cabinets:</b></p> <ul style="list-style-type: none"> <li>A. Have a moisture-resistant carcass</li> <li>B. Are wall-hung with heavy-duty wall-brackets <b>OR</b> floor- mounted with a waterproof plinth.</li> <li>C. Include adjustable, self-closing hinges</li> </ul> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Vanities <b>must not</b> be positioned within 100mm of a shower or bath.</li> <li>2. Install childproof catches on all opening doors to vanity cabinets.</li> </ol>	

<b>BATHROOM AND TOILET FITTINGS AND FIXTURES</b>		
<b>Basins (Separate toilets only)</b>	KOHC-SINBASPEDW – Toto® ‘Sintra’ basin, 500 Wall Basin with Semi-Pedestal incl waste 30302.04 KOHC Series 500x250 2Dr W/Hung Vanity White Velvet c/w Overflow Waste Kit 73715W – Luna Hand Wall Basin 1TH O/Flow White 450x250mm	Plumbing World Product Guide 2023-24
<b>Vanity &amp; Basin Lever Type Tapware</b>	<b>Basin Mixer – Vanities</b> LEVBSNAPCP – LeVivi Classic Basin Mixer A/P Chrome <b>Basin Mixer – Basins</b> LEVMBMAPCP – LeVivi Classic 35mm Mini Basin Mixer A/P DR	Plumbing World Product Guide 2023-24
<b>Bathtub</b>	01HC0000161 – Bath – <b>1525mm</b> c/w Overflow, Plug, S/S on HDPE waste, high lip no bath frame 01HC0000061 – Bath – <b>1655mm</b> c/w Overflow, Plug, S/S on HDPE waste, high lip no bath frame	Plumbing World Product Guide 2023-24
<b>Measurable Criteria</b>	<b>Notes</b> The following are <b>not permitted</b> : 1. Showers over baths 2. Contact between the splash-back wet-wall-lining and the bath 3. Solvent-based adhesives for fixing fibre-cement sheet-linings	
<b>Bath Lever Type Tapware</b>	LEVBSNAPCP – LeVivi Classic Basin Lever-style Mixer A/P Chrome LEVBATHSP45CP – LeVivi Classic Round Bath Spout 45deg combined with LEVSHRAPCP LeVivi Classic Shower Mixer	Plumbing World Product Guide 2023-24
<b>Splash-Backs</b>	3141199 (900mm), 3141207 (1200mm) – Hardieglaze Smooth 4.5x2400mm White	PlaceMakers Product Guide 2023-24
<b>Measurable Criteria</b>	Splash-backs are required to all laundry tubs, basins, vanities and around baths Refer Shower Linings for product criteria <b>Note</b> that specialised interior wall-finishes (for example, ceramic tiles, or wallpaper) are <b>not permitted</b> .	



**BATHROOM AND TOILET FITTINGS AND FIXTURES****Shower****Stainless Steel Shower Trays**

BP151143 – ACERO, KOHC K4 Shower Tray Single Threshold Step  
w Welded In Bottom **Outlet Centre Waste**

BP151140 – ACERO, KOHC K4 Shower Tray Single Threshold Step  
w Welded In **Side Outlet** Centre Waste

**HardiGlaze Shower Linings**

3141199 – HardieGlaze Smooth White 4.5MM 2400 X 900, 400225

3141207 – HardieGlaze Smooth White 4.5MM 2400 X 1200, 400221

\*\*Associated jointers and mouldings are available  
through PlaceMakers

**Shower Curtains and rails**

3670424 – Cloud 9 Shower Curtain White

3699345 – Miles Nelson 19mm End Flange Chrome 107CP19BP

3692621 (1200mm), 3692621 (900mm) – Miles Nelson 19mm  
Towel Rail Chrome 025CP191800 (shower curtain rail)

M25SCWC2012 – Mactrac Shower Curtain 2000mm Drop x  
1200mm Wide

M25SCWC1812 – Mactrac Shower Curtain 1800mm Drop x  
1200mm Wide

M25SCWC2024 – Mactrac Shower Curtain 2000mm Drop x  
2400mm Wide

M25SCWC2027 – Mactrac Shower Curtain 2000mm Drop x  
2700mm Wide

2910056 – Watertight Shower Curtain 2200 x 2000 Weighted  
(Accessible shower curtain)

96X40'CP – Basin & Sink long tail 40mm CP on Brass

LEVFDUPSHWR8 – LeViviWall Mounted Shower Seat Wall  
Mounted Shower Seat 845mm

MACBTH12X12'WH Mactrac 1200x1200mm Track Complete  
White

812831 – Waste – PVC easy clean Trap 40mm CP (for shower floors)

Plumbing World  
Product Guide  
2023-24

PlaceMakers Product  
Guide 2023-24

**BATHROOM AND TOILET FITTINGS AND FIXTURES****Acrylic Shower Enclosures**

ADN9827 – Newline Adina 2s 915x915mm Flat Wall White Offset Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN9995 – Newline Adina 2s 915x915mm Side Mould White Offset Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN9834 – Newline Adina 2s 1000x1000mm Flat Wall White Offset Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN0007 – Newline Adina 2s 1000x1000mm Side Mould White Offset Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN9841 Newline Adina 3s 900x900mm Flat Wall White Centre Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN0021 Newline Adina 3s 900x900mm Side Mould White Centre Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN9851 Newline Adina 3s 1000x1000mm Flat Wall White Centre Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

ADN9851 Newline Adina 3s 1000x1000mm Side Mould White Centre Waste – includes L7689 Easy Clean Waste with Brass Cap in a Chrome finish

**BATHROOM AND TOILET FITTINGS AND FIXTURES**

**Measurable Criteria**

**Shower Tray**

- A. Comprised of pressed, polish, stainless-steel three sided base with rebated flanges that are higher than threshold, sits on a polystyrene base
- B. Include a fabricated stainless-steel threshold, and threshold flanges suitable to fit behind the wall lining.
- C. Easy-to-clean with a hygienic surface
- D. Have a load-capacity of 200kg
- E. Minimum of 925 x 925mm in size

**Shower Linings**

- A. Are water-proof
- B. Have an easy-to-clean hygienic surface

**Shower Enclosures**

- A. Are three-sided
- B. The showerhead is positioned at 1700mm above FFL and 450mm from the back of the mixer to the finished wall lining.
- C. Shower curtains are weighted and machine washable
- D. Shower curtains fall to 5-20mm above the bottom of the shower tray.
- E. Silicon sealant must have a mould inhibitor

**IMPORTANT** always install the shower tray and linings in accordance the manufacturer’s instructions; these have been designed specifically by Acero for Kainga Ora.

Refer to M-215a Standard Detail Drawings for examples of **wet area shower details**.

**Notes**

1. The following are **not permitted**:
  - a. Solvent-based adhesives for fixing fibre-cement sheet-linings
  - b. Contact between the wet-wall-lining and the up-stand of the shower tray
  - c. Specialised interior wall-finishes (for example tiles or wallpaper) are not permitted.
  - d. Sharp edges.
2. Wherever possible, **do not** install shower mixers on the wall opposite the shower curtain.

**Shower Mixers**

**Standard Shower Rose Mixer**

Plumbing World  
Product Guide 2023-24

LEVSHRAPCP LeVivi Classic Shower Mixer

DHSKCSR – Accessible Shower Only – Felton Sgle Spray Slide Shower Set CP. Hose, hand piece, slide, wall rail, brackets.

LEVSHRAPCP LeVivi Classic Shower Mixer

<b>BATHROOM AND TOILET FITTINGS AND FIXTURES</b>		
<b>Toilet Suite</b>	<p><b>Suites</b></p> <p>LEVUTAHS – Utah Close Coupled S Suite, Water saving – 4.5/3L Flush</p> <p>LEVYORKCARE – York Care Rimless Back To Wall Toilet Suite</p> <p>TOT-DISSET*WH – Toto Valdes Care Suite, Water saving – 4.5/3L Flush. Bottom Entry.</p> <p><b>Toilet Cistern Tap</b></p> <p>LEVMERBHTHTCP – LeVivi Merton 20mm DR Bath Tap Chrome All Pressure</p> <p><b>Toilet Roll Holder</b></p> <p>7713729 – Raymore Projex <b>Toilet Roll Holder</b> Chrome</p> <p>LEVBELTPC – LeVivi Bella Toilet Roll Holder</p>	<p>Plumbing World Product Guide 2023-24</p> <p>PlaceMakers Product Guide 2023-24</p>
<b>Measurable Criteria</b>	<p>A. Floor mounted, vitreous china</p> <p>B. Rigid shatterproof double-flap toilet seat</p> <p>C. Low-flow, smart- and dual-flush 3/4.5 litre cistern.</p>	
<b>Bathroom/Toilet Fixtures</b>	<p><b>Towel Rails and Brackets</b></p> <p>3699303 – Miles Nelson 19mm Towel Rail Bracket Chrome 024CP19TBP</p> <p>3692639 (1800mm), 3692621 (1200mm), 3692621 (900mm) – Miles Nelson 19mm Towel rail Chrome</p> <p><b>Grab Rails</b></p> <p>7726221 – Raymore Care Classic Grab Rail 300mm Accessibility Knurled</p> <p>7726227 – Raymore Care Classic L-Rail 750 x 750mm Accessibility Knurled</p> <p>LEV750SHAPEDS - LeVivi 750mm L Shaped Safety Grab Rail S/Steel</p> <p>LEV300STGHTS - LeVivi 300mm Straight Safety Grab Rail S/Steel</p> <p>** Towel ring and mirror are not procured items</p>	<p>PlaceMakers Product Guide 2023-24</p>

**BATHROOM AND TOILET FITTINGS AND FIXTURES**

<b>Measurable Criteria</b>	Ensure all fixtures and fittings are secured to solid blocking.
	A. <b>Towel rails</b> are: <ul style="list-style-type: none"> <li>i. Minimum length is 900mm per bedroom.</li> <li>ii. Securely-fix at a min 850mm above FFL. In larger dwellings, towel rails may be stacked (maximum of two rails set 400mm apart. Mid-rail support is required for rails longer than 1.2m.</li> <li>iii. Towel rail ring to be set a min 850mm above FFL (for separate toilets).</li> </ul> <p><b>Note</b> that heated towel-rails are <b>not permitted</b>.</p>
	B. <b>Separate Mirrors</b> <ul style="list-style-type: none"> <li>i. Are screw-fixed with proprietary stainless-steel counter-sunk head- screws, fitted with black neoprene washers with fine threaded upstands to receive chrome-plated dome screw-covers.</li> <li>ii. Larger mirrors (0.3-0.6m<sup>2</sup>) are screw-fixed with white powder- coated aluminium mounting channel top and bottom edges only with end caps.</li> <li>iii. To be set above the vanity or hand basin 1000-1200mm above FFL.</li> <li>iv. Adhesive fixing for mirrors is <b>not permitted</b>.</li> </ul>

**WINDOW TREATMENTS**

<b>Design Requirement Reference</b>	<i>B2.4 Private space: finishes, fittings and furnishings</i>	
	<i>B2.4.5 Window Treatments</i>	
<b>Curtains and Tracks</b>	<p><b>Curtain Tracks</b></p> <p>KOFFT2 – Superfit (or equivalent) 2 metre length of face-fixed Kāinga Ora-specified curtain track, including end-caps and glides.</p> <p>KOFFT2.5 – Superfit (or equivalent) 2.5 metre length of face-fixed Kāinga Ora-specified curtain track, including end-caps and glides.</p> <p>KOFFT3 – Superfit (or equivalent) 3 metre length of face-fixed Kāinga Ora-specified curtain track, including end-caps and glides.</p> <p><b>Curtains</b></p> <p>Refer to Harvey Furnishings Product Guide</p>	Harvey Furnishings Product Guide 2023-24
<b>Measurable Criteria</b>	<p><b>Curtains</b> are provided to external glazing in all spaces (excluding kitchens and wet areas such as laundries and bathrooms). Curtains:</p> <ul style="list-style-type: none"> <li>A. Are fire-resistant and triple woven</li> <li>B. Are hung on a face-fixed curtain track</li> <li>C. Have a minimum underhang of 150mm or to the nearest restriction, if there is one, within the 150mm allowance (e.g. FFL)</li> <li>D. Are neutral colours.</li> </ul> <p>The following are <b>not permitted</b>:</p> <ul style="list-style-type: none"> <li>i. Pull-cords to curtains</li> <li>ii. Extendable curtain tracks.</li> </ul>	

## C1: Three waters

For bathroom and kitchen fixtures and fittings, refer to **Kitchen and Laundry Fittings and Components** and **Bathroom and Toilet Fittings and Fixtures**.

### HOT WATER SUPPLY

**Design Requirement Reference** C1.5.2 Hot water supply, Table C1.5-1: Minimum requirements for the capacity of hot water cylinders

Hot Water Cylinders	135L Mains Pressure Range	Plumbing World Product Guide 2023-24
	31213513 – HWC – Mains Pressure 135L 488x1335H 2kW side entry	
	31213515 – HWC – Mains Pressure 135L 488x1335H 3kW side entry	
	32213515 – HWC – Mains Pressure 135L 580x935H 3kW side entry	
	<b>180L Mains Pressure Range</b>	
	31218013 – HWC – Mains Pressure 180L 488x1720H 2kW side entry	
	31218015 – HWC – Mains Pressure 180L 488x1720H 3kW side entry	
	32218015 – HWC – Mains Pressure 180L 580x1166H 3kW side entry	
	<b>Alternative Sizes Mains Pressure</b>	
	31209015SIMKIT – 90L Rheem M/P Electric Water Heater 926Hx488W plus hot water cylinder seismic restraint kit	
	31225015SIMKIT – Mains Pressure 250L 580x1560H 3kW plus Hot water cylinder seismic restraint kit	
	91330025 – 300L Rheem Optima M/P 1825Hx580W 2 & 3kW	
	<b>Associated NEFA Valves</b> for hot water cylinders are available through Plumbing World	
	<b>Seismic Restraints</b>	
	SIMKIT/STY – HWC – Hot water cylinder seismic restraint kit	
	<b>Cylinder Safe Trays</b>	
	KOHCTRAY450 – HWC Safe Tray Plastic Safe Tray 450x450 w/- 40mm plastic Waste	
	KOHCTRAY540 – HWC Safe Tray Plastic Safe Tray 540x540 w/- 40mm plastic Waste	
	KOHCTRAY640 – HWC Safe Tray Plastic Safe Tray 640x640 w/- 40mm plastic Waste	
	MIVT40 – DWV Vermin Trap 40mm (16740)	

**HOT WATER SUPPLY****Measurable Criteria**

Refer to C1.5.2 Hot water supply

1. All water heaters:
  - a. Are vitreous enamel-lined mild steel or stainless-steel with an electrical element and a combined temperature/pressure-relief valve.
  - b. Water heaters can reheat water within a reasonable period without relying on back-up heating methods (where applicable), i.e.:
    - i. Cylinders up to 180 litre storage have at least 2kW heat input.
    - ii. Cylinders over 180 litre storage have at least 3kW heat input.
    - iii. The night recovery time (11pm to 7am to re-heat the entire hot water storage volume is a maximum of six hours.
  - c. Cylinders are available in a range of height and width configurations.
  - d. Include:
    - i. Thermostats and elements.
    - ii. Standard inlet and outlet connections.
    - iii. For electric resistance water heaters, an access-panel is included for temperature control device by maintenance providers.
    - iv. Energy cut-off devices for automatic temperature control.
    - v. A visible, legible, fixed sign that reads “No Scrap Value”.
  - e. Have safe trays that are available in plastic or sheet-metal to fit all water heater cylinder-sizes., in addition for Heat pump water heaters refer below -
2. Heat pump water heaters:
  - a. Have a minimum set-point temperature setting of 60°C.
  - b. Have a minimum Coefficient of Performance (COP) of 3 when tested under Low temperature A conditions in AS/NZS 5125.1:2014 Appendix G (or equivalent with a hot water temperature of 45°C).
  - c. Have a water delivery volume at 45°C of a minimum of 120% of the rated storage volume when tested under Low temperature A conditions in AS/NZS 5125.1:2014 Appendix G (or equivalent).
  - d. Incorporate electric resistive heating for back-up purposes.
  - e. The heat pump component will continue to operate down to -10°C external temperature (or colder)
  - f. Have simple-to-use controls that are capable of being locked or sealed against tampering.
  - g. Uses a refrigerant with a maximum global warming potential (GWP) of 675 (e.g. R32, R744/CO<sub>2</sub>).
  - h. Have rust-resistant coatings.



## C2: Energy and electrical

### ELECTRICAL

<b>Design Requirement Reference</b>	<i>C2.2 Electrical Distribution</i>	
<b>Power Outlets</b>	ED777EL30WE – Outlet Double Ed 10A 2G EI WH 30mA RCD Excel Life Legrand 2P2H – Outlet Double 10A H WH Vynco Home 2P2V – Outlet Double 10A V WH Vynco Home 2P1V – Outlet Single 10A V WH Vynco Home 2P2VX – Outlet Double 10A V & Sw WH Vynco Home 2P2HX – Outlet Double 10A H & Sw WH Vynco Home ED787U/32WE – Outlet Single 32A H WH Excel Life Legrand P2PC1 – 30010020 – Perm Connect Unit 16A WH Vynco Home 88FBP – Flush Box Plastic Thread Logix	JA Russell Product Guide 2023-24
<b>Distribution Boards</b>	V20 – Vynco Dist Board 20Way Flush Mt Bare V30 – Vynco Dist Board 30Way Flush Mt Bare V40 – Vynco Dist Board 40Way Flush Mt Bare **Nominated wiring listed in JA Russell Product Guide 2023-24	JA Russell Product Guide 2023-24
<b>Measurable Criteria</b>	Distribution boards to be sized to provide a minimum of 20% spare load capacity and 20% spare spaces for breakers.	
<b>Design Requirement Reference</b>	<i>C2.3 Lighting</i> <i>Table C2.3.1: Minimum Interior Lighting (LUX) Levels</i> <i>A1.3.2 Design feature (d), A2.2.2 Location and arrangement</i>	
<b>Lighting Range</b>	<b>Exterior Lighting</b> LHT0269 – Floodlight LED 2x8W 31K PIR BK (black) LHT0270 – Floodlight LED 2x8W 31K PIR WH (white) <b>Interior Lighting</b> ACL25W-3T / Q5010110 – Ceiling Light LED 25W 3-4-5K ACL25W-3TMIC / Q5010130 – Ceiling Light LED 25W 3-4-5K ADLEDAC12W165-3T / Q5070230 – Downlight LED 12W 3-4-5K 160mm ADLED8QCW-92DV2 / Q5070585 – Downlight LED 8W 3K 86mm WH Dr ADLEDAC8W-3T / Q5070810 – Downlight LED 8W 3-4-5K 90mm <b>Lighting Lamps</b> ALAE1230 / Q6020380 – Lamp LED 12W Es 3K A60 200D ALAB1230 / Q6020400 – Lamp LED 12W Bc 3K A60 200D	JA Russell Product Guide 2023-24

**ELECTRICAL****Lighting Range****Switches**JA Russell Product  
Guide 2023-24

2S1/32 – 30000080 – Switch 1G 32A WH

EC770/2IPWE – 29411200 – Switch Ec 2G 16A Ip66 WH

2S1 – 30000010 – Switch 1G 16A WH

2S2 – 30000020 – Switch 2G 16A WH

2S3 – 30000030 – Switch 3G 16A WH

\*\* Nominated wiring listed in JA Russell Product Guide 2023-24

**C3: Heating ventilation and air conditioning****HEATING, VENTILATION AND AIR CONDITIONING****Design Requirement  
Reference***C3: Heating, Ventilation and Air Conditioning***Heater Range**GCW220 – Goldair high-wall fan-heater 2kW, ceramic.  
SM2400BMS Weiss high-wall fan-heater 2.4kW with  
H-T4360G1006 Honeywell wall-mounted room thermostat.  
3508W – Goldair bathroom fan heater 2.4kW WhiteJA Russell Product  
Guide 2023-24**Measurable Criteria**

Heaters must be installed in accordance with manufacturer's requirements, including the required clearances to fittings, fixtures, curtains, and taking into account the expected placement of furniture.

Electric heaters should:

- A. Be hard-wired and separately-switched
- B. Include a wall mounted or integral manual thermostat
- C. Be permanently wall-mounted
- D. Include internal over-heat protection
- E. Be rust-resistant
- F. Have surface temperatures that minimise risk of injury when positioned within reach of children
- G. Be designed to prevent fires occurring if detritus and/or foreign objects are able to enter the case of the heater (e.g. posting paper into vents)

**Notes:**

1. Provided there is available capacity, electric resistance heaters may be wired into existing circuits.
2. Electric resistance heaters **must not** have a capacity that exceeds 2.4kW. Where a higher capacity is required, a more efficient form of heating (e.g. heat pump) is required.

3. In Accessible homes, heaters should be controlled via a wall-mounted on/off switch.

**HEATING, VENTILATION AND AIR CONDITIONING****Heat-Pump Range****Haier Quartz Series**

AS25QCEHRA-SET – High-Wall, 2.5kW Cooling / 3.2kW Heating  
 AS35QCEHRA-SET – High Wall, 3.5kW Cooling / 3.7kW Heating  
 AS50QEEHRA-SET – High Wall, 5kW Cooling / 6kW Heating  
 AS60QDEHRA-SET – High Wall, 6kW Cooling/7.2kW Heating  
 AS71QEEHRA-SET – High Wall, 7.1kW Cooling / 8kW Heating  
 AS90QFDHRA-SET – High Wall, 9kW Cooling / 9.5kW Heating

**Haier Smart Power Ducted Range**

ADHI140M1ERG – Med Static Ducted 14kW Cooling /  
 16kW Heating  
 AD140S2SH5FRA – High Static Ducted 14kW Cooling /  
 16kW Heating

Fisher & Paykel  
 Product Guide  
 2023-24

**Measurable Criteria****Heat pumps** must:

- A. Be installed in accordance with manufacturer's requirements, including (but not limited to) the required clearances to fittings, fixtures and curtains.
- B. Refer to EECA's Good practice guide – Heat pump installation March 2022
- C. Be included on the Energy Efficiency and Conservation Authority's Approved Heat Pump Products for Council Funding Programmes. <https://www.eeca.govt.nz/assets/EECA-Resources/Co-funding/Approved-heat-pump-list.pdf>.

Heat pumps must use a refrigerant with a maximum Global Warming Potential (GWP) of 675 (e.g., R32, R744/CO<sub>2</sub>).

All **heat pumps** should:

- D. Each have a separate, dedicated circuit.
- E. Be rust-resistant and anti-freezing.

**Centralised heat pump units** with a wall-mounted thermostat should have the thermostat located in a central location not directly influenced by solar or internal heat gain.

It is **not permitted** to place an outdoor unit on a balcony where it will reduce safety from falling (e.g. within 1m of a balustrade).

**Heat pumps** should **not** have:

- F. Covers over outdoor units unless approved by the heat pump manufacturer.
- G. Condensate from outdoor units flow across areas subject to foot traffic.
- H. A compressor unit within 500mm of any planting.
- I. A condensate discharge from a soffit, over a pathway, or where it can form air-borne droplets.

**HEATING, VENTILATION AND AIR CONDITIONING**

<b>Ventilation</b>	<b>Range Hood (Electrolux) &amp; Ducting</b>	Electrolux Product Guide 2023-24
	WRC604WC – Westinghouse White Wall Mounted 600mm Canopy 1003 (H) x 600 (W) x 450 (D) ULX150 – Unilux Range hood Ducting Wall / Eave – KIT ULX152 – Unilux Range hood Ducting Roof – Metal Roof – KIT	Homotech Product Guide 2023-24
	<b>Range Hood Alternatives (HomeTec)</b>	
	RH-FILPAN-TR – Ceiling Filter Box, Kitchen Range hood ALTERNATIVE RHBOXWHT- 90-TW – Kitchen Fan Box Ventilation – Ground Level install of two storey property	
	<b>Bathroom Fan</b>	
	EX-BUCKM-TR-HF-T – Bathroom Mechanical Ventilation With Delay Timer EX-2IL-TR-HF-T – Bathroom Mechanical Two Room Extract Ventilation EXILTRHFT – Bathroom Mechanical Extract Ventilation – Flat Roof EX-SURM-TW-HF-T – Bathroom Mechanical Extract Ventilation – Through Wall	

<b>Measurable Criteria</b>	<p>All mechanical ventilation systems must comply with the Healthy Homes Ventilation Standard requirements.</p> <p><b>Kitchen rangehoods</b> must have:</p> <ul style="list-style-type: none"> <li>A. A minimum extraction rate of 50L/s.</li> <li>B. Fire-resistant ducting discharging to the exterior.</li> <li>C. Washable filters.</li> <li>D. A maximum noise level of 60dB at high speed.</li> </ul> <p><b>Kitchen rangehoods</b> should be adaptable to recirculation mode.</p> <p><b>Intermittent bathroom and laundry extract fans</b> must:</p> <ul style="list-style-type: none"> <li>E. Have a minimum extraction rate of 25L/s.</li> <li>F. Have a run-on timer and be linked to the bathroom light.</li> <li>G. Be ducted to discharge to the exterior.</li> <li>H. Be mounted over the shower (where provided).</li> <li>I. Have a maximum noise level of 60dB.</li> <li>J. Have a lint filter where positioned in a laundry or drying room.</li> </ul> <p><b>Note</b> that where a laundry is located in a garage, an openable window may be specified in place of mechanical extraction.</p>
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## HEATING, VENTILATION AND AIR CONDITIONING

### Measurable Criteria

**Continuously operating mechanical ventilation systems** must have:

- A. Kitchen rangehoods are separately ducted to the exterior independently of other extract systems.
- B. A continuous ventilation rate of:
  - i. At least 10l/s from each bathroom, and
  - ii. At least 12 l/s for kitchen rangehoods.
- C. High speed activated either through automatic (e.g. humidistats in bathrooms) or manual controls.
- D. Controls located at an accessible height.

1. The **Continuous Mechanical Extract Ventilation (CMEV)** fan(s):
  - a. Has a minimum fan-efficacy of 0.57l/s/W.
  - b. Has EC (Electronically Commutated) motors to minimise the noise produced by normal system operation.
  - c. a maximum low-speed noise-level of 35dBA at a distance of 1m from the unit.
  - d. Is appropriately -sized for the dwelling to provide:
    - i. The air change rate required by C3.1.2 Mechanical Ventilation.
    - ii. Required airflows against the static resistance of (as installed) ductwork, grilles, and diffusers.
  - e. A tailed-plug for power connection that allows easy-disconnection for servicing.
2. The CMEV system:
  - a. Is comprised of corrosion-resistant componentry.
  - b. Provides facility for fans to be manually switched to high-speed (boost function).
  - c. Has a maximum low-speed noise-level 1m from the inlet of 40dBA in living areas, and 35dBA in bedrooms.
  - d. Where a system has no bathroom humidistat, the boost function has a variable fan run-on timer function that provides a delay before setting back to low-speed (to allow purging of moisture and odours)
3. CMEV systems are not intended to be connected to kitchen range-hood systems and/or directly to clothes dryers.
4. CMEV systems require lint filters where installed in spaces containing laundry facilities.
5. The CMEV system includes:
  - a. A wall-mounted control panel that;
    - i. provides facility for easy user-control to enable boost
    - ii. tamper-proof controls to prevent occupants turning systems off
  - b. Terminals for:
    - i. A relay interlink that connects boost control with a remote CO<sub>2</sub> sensor, bathroom humidistat, or bathroom lights.
    - ii. A laundry power-sensing module linked to clothes dryers' power-supply (so the CMEV is switched to high-speed when the dryer is operating).
  - c. All components (e.g., ducting, grilles, filters, cowls, and diffusers) needed for CMEV system installation and operation.

**HEATING, VENTILATION AND AIR CONDITIONING**

<b>Measurable Criteria</b>	<ol style="list-style-type: none"> <li>1. <b>Trickle vents</b> are: <ol style="list-style-type: none"> <li>a. Suited to all corrosion and wind zones.</li> <li>b. Suited to the local environment, including UV exposure and local pollution (airborne and noise).</li> <li>c. Thermally broken if aluminium.</li> <li>d. Able to be manually fixed in a closed position.</li> </ol> </li> </ol>
<b>Measurable Criteria</b>	<ol style="list-style-type: none"> <li>1. <b>Wall vents</b> must: <ol style="list-style-type: none"> <li>a. Be suited to highly exposed sites and all corrosion zones</li> <li>b. External hoods must be robust, impact and UV resistant</li> <li>c. Accessible for maintenance and simple to maintain.</li> <li>d. Prevent entry by pests and insects.</li> <li>e. Not create noise issues in windy conditions or when continuous mechanical extract ventilation systems are operating on high flow rate.</li> </ol> </li> </ol>
<b>Measurable Criteria</b>	<ol style="list-style-type: none"> <li>1. <b>The Mechanical Ventilation Heat Recovery (MVHR):</b> <ol style="list-style-type: none"> <li>a. Has a minimum sensible heat-recovery efficiency of 75%.</li> <li>b. Has a minimum fan-efficacy of 0.57l/s/W.</li> <li>c. Has a maximum low-speed noise-level of 35dBA, when measured at 1m from the unit.</li> <li>d. Has a summer bypass function that allows hot inside-air to be vented to the outside without heat-recovery.</li> <li>e. Is comprised of corrosion-resistant componentry.</li> <li>f. Provides facility for fans to be manually switched to high-speed.</li> <li>g. Has a fan run-on timer function that provides an adjustable delay on speed change (to allow purging of moisture and odours).</li> <li>h. Provides required airflows against the static resistance of (as installed) ductwork, grilles, and diffusers. <ol style="list-style-type: none"> <li>i. Has a condensate drain and is suitable for extraction from wet areas (bathrooms).</li> </ol> </li> </ol> </li> <li>2. The MVHR includes: <ol style="list-style-type: none"> <li>a. A wall-mounted control panel that provides facility for easy user-control, and includes a fault warning/maintenance indicator.</li> <li>b. A tailed plug for power connection that allows easy disconnection for servicing.</li> <li>c. Terminals for: <ol style="list-style-type: none"> <li>i. A relay interlink that connects boost control with a remote CO<sub>2</sub> sensor, bathroom humidistat, or bathroom lights.</li> <li>ii. A laundry power-sensing module linked to clothes dryers' power-supply (so the MVHR is switched to high-speed when the dryer is operating).</li> </ol> </li> <li>d. Filters with a minimum rating of "G4" (AS1324.1-2001 &amp; AS4260-1997 or EN779/EN1882), "EU 4" (BS EN ISO 16890:2016), "MERV 6-8" (ASHRAE 52.1 &amp; 52.2), or equivalent.</li> <li>e. All components (e.g., ducting, grilles, filters, cowls, and diffusers) needed for MVHR installation and operation.</li> </ol> </li> </ol>

## C4: Fire protection systems

### ELECTRICAL

**Design Requirement Reference** *C4: Fire Protection Systems*

<b>Smoke Alarms</b>	141402C – Smoke Alarm Photoelectric HM-626PHS – EPI Smoke Detector HM-SMOKE230 – Smoke Alarm 230V Photoelectric	JA Russell Product Guide 2023-24
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**Measurable Criteria**

A. All **domestic smoke alarms**

- i. Are photo-electric and 'Type A' (i.e. do not contain radioactive materials).
- ii. Inter-connected alarms can transmit and receive RF signals from other alarms so that, when one alarm is activated, all alarms on the property are activated via the RF network.
- iii. Include test and 'hush' buttons:

## APPENDIX B: UNIVERSAL DESIGN AND ACCESSIBILITY

### INTRODUCTION

Kāinga Ora – Homes and Communities uses three different dwelling classifications<sup>1</sup>: ‘standard’; ‘full universal design’; and ‘accessible’.

While all three categories include features of universal design, those dwellings classified as ‘full universal design’ and ‘accessible’ include unique design features that support customers and their whānau/family.

These features help those customers who may require additional support to live well in their home.

### DEFINITIONS

Our Accessibility Policy: 2019 -2022 sets a target of ensuring at least:

*“15 percent of our public housing new builds will meet our full universal design standards, and the rest will meet as many of our universal design standards as possible [and that we will] support our customers to live in homes that are customised to their needs [sic]”<sup>2</sup>*

To achieve this target, it is important to understand the three dwelling classifications used in our homes. The figure below illustrates the main differences.

**FIGURE 1: DWELLING CLASSIFICATIONS USED BY KĀINGA ORA<sup>3</sup>**

STANDARD	FULL UNIVERSAL DESIGN (FUD)	ACCESSIBLE
Homes that meet our ‘typical’ requirements and include some universal design features but – for a range of reasons – cannot meet FUD requirements	Homes considered to be more liveable for the entire population and are – or can be made to be – fit-for-purpose for <b>most</b> customers. These homes include all universal design features seen in ‘standard’ homes.	Include all features of universal design seen in FUD homes but go <i>above and beyond</i> those requirements to support customers living with a disability.

In addition to these three main classifications, there is an additional sub-category of our accessible homes – ‘**customised accessible**’; these homes are bespoke designs intended to meet a specific customer’s individual needs.

1. These are different from the dwelling-typologies (e.g., ‘stand-alone’ or ‘terraced’) used by Kāinga Ora.

2. Kāinga Ora (2019, p.7). *Accessibility Policy: 2019-2022*. Kāinga Ora – Homes and Communities: Wellington, NZ.

3. Adapted from Silver, J. (May, 2020). *Defining What Meets the Target of 15% New Builds Meeting Universal Design Standards: 101 Factsheet*. Kāinga Ora – Homes and Communities; Wellington, NZ.



## GENERAL GUIDANCE

Homes classified as 'full Universal design' or 'accessible' should:

- Supports key principles of universal design for all customers and visitors.
- Attend to customers' health and safety.
- Meet **legislative requirements**.
- Aligns with best-practice articulated in **relevant standards and guidance documents**.

By ensuring the design meets these requirements, this will support:

*"independent use of the built environment, enhanced usability of buildings, and [have a common sense] implication for promoting well being and reducing the possibility for injury by accident [sic]"<sup>4</sup>.*

A key benefit of universal design is that, while it supports all customers, the approach supports those living with a disability and associated impairments. This includes disabilities that are short or long-term, or acquired or developmental.

Homes classified as 'accessible' provide an additional level of support. In addition to meeting universal design requirements, 'accessible' homes should include design features that are above and beyond universal design elements, supporting a wide range of disabilities and, where appropriate, be-spoke features that support an individual's specific needs<sup>5</sup>.

However, while particular impairments have specific design requirements, the design should aim to facilitate dwelling-use and –access for the **widest** range of impairments.

In tackling this challenge, it is essential to consider that users may live with a range of acquired and/or developmental disabilities that present as sensory, physical, neurological, intellectual, or psychological impairments, or a combination thereof.

As a starting point, the design needs to include **the minimum performance indicators listed below**, as well as reflecting the overarching performance requirements (that is, the principles of universal design).

By adopting a creative, innovative approach to dwelling-design the lived experience of users can be enhanced.

Such enhancements may include adding design features that extend beyond the minimum requirements listed below. This may include, but is not limited to:

- increasing the floor-area in bathrooms
- including rest-spaces on external circulation routes; or
- placing light switches at a consistent distance from door-edges.

## PERFORMANCE REQUIREMENTS

To support users, you should aim to provide a design that aligns with the performance requirements listed below; these are framed as principles of universal design<sup>6</sup>.

These are supported by **the minimum performance indicators presented below**.

By incorporating these requirements into a creative, innovative approach, ensures all customers are able to benefit from 'full universal design' and 'accessible' dwelling-designs that are safe, healthy, fit-for-purpose, and sustainable.

4. Barrier Free NZ (2013, p13). Barrier Free Built Environments. Barrier Free New Zealand Trust: Wellington, NZ.

5. Be-spoke design features may be present in any dwelling-classification, including 'standard' homes.

6. National Disability Authority (2020). *What is Universal Design? The 7 Principles* [online]. Retrieved from: <http://universaldesign.ie/What-is-Universal-Design/The-7-Principles/>.

## 1. Promote equitable use among all building-users

The design should include features that allow everyone to use and access the building from the position of a 'level playing field', without introducing elements or features that might single-out or stigmatise anyone.

In some instances, this might include providing alternative design features (for example, providing storage space for mobility scooters alongside space for bicycles).

This principle is particularly important in the context of the definition of universal design used by Kāinga Ora, which highlights the need for ensuring all customers are able to access regularly-used features.

## 2. Facilitate flexibility by accommodating a range of preferences and abilities

Design features such as adjustable wardrobe-rails or slide-shower-mixers provide customers with choice and flexibility. This is supported by adopting an approach whereby dwelling-elements or design features are easy-to-modify at a later date.

The changing nature of customers' needs over their lifetime and the variation in disabilities and associated impairments underscores the need for adaptation and flexibility in the design.

## 3. Ensure designs are simple and intuitive to use for all building-users

The design should anticipate how customers and visitors will 'interpret' the building and the features provided therein. Importantly, the design of the dwelling needs to support customers' ability to easily navigate, access, and use the building.

Simplicity, consistency, logic, and intuitiveness are key elements to incorporate in design. Common features of universal design, such as consistent placement of fittings and fixtures, are simple examples of how design can facilitate dwelling-use for all.

## 4. Include perceptible information that effectively communicates information to building-users.

As with the third principle above, ease-of-access and use are essential to how information is communicated to all building-users.

Use design features such as lighting design, material selection, and multi-modal technologies to support residents and visitors. It is important to incorporate design elements that support 'legibility' through simple, intuitive design (for example, way-finding strategies).

In some instances, such as shared or communal spaces, consider features such as the ability to support those with sensory impairments.

Regardless, as with other principles, communicating information effectively will support all building-users, not just those who require additional support.

## 5. Include a high level of error-tolerance that minimises hazards and manages risks, as well as their associated consequences.

Promoting and protecting the health, safety, and well-being of customers is a key design principle for all homes; in this regard, dwellings classified as 'full universal design' or 'accessible' may require additional features.

For example, the way in which car parks are designed and external areas, stairs, wet-areas, and service features has the potential to significantly affect customers' exposure to hazards and risks.

The design should minimise or, preferably, eliminate hazards and manage risks in a way that supports all building-users. This includes incorporating fail-safe features and warning systems that can be understood and/or interpreted by everyone.

## 6. Facilitate efficient, comfortable use that requires low physical effort.

Wherever possible, the design should seek to maximise comfort while facilitating easy, efficient use.

Paying particular attention to layout, material or product-selection, and placement of fittings and fixtures, helps ensure everyone can use and access the dwelling with a minimal amount of effort.

While some impairments (for example, those caused by a stroke) may be significantly exacerbated by repetitive, physical actions, also consider the age and stage of life of customers. For example, avoid design features that require older customers to bend down or expend unnecessary effort to undertake tasks.

## 7. Provide an appropriately-sized space for approach and use.

Often, when considering universal design or accessibility, people often think of physical disabilities such as being confined to a wheelchair. While the design needs to accommodate for the full breadth of potential requirements, physical impairments are an important consideration for the design-decisions.

Ensuring elements of the home are within easy-reach, selecting products that will allow for differences in dexterity and strength, and providing enough space to facilitate access and use need to be essential components of the design.

As noted earlier, given such design-decisions will benefit all customers, it will be beneficial to adopt a more creative and/or generous approach in the design.

## PERFORMANCE INDICATORS

The tables below list the minimum performance indicators that should be demonstrated in homes classified as 'full universal design' or 'accessible'.

These minimum performance indicators listed are supported by guidance statements that provide further clarification and/or rationales to support the ability to deliver 'full universal design' and 'accessible' homes.

### PLEASE NOTE

For a dwelling to be classified as 'full universal design' or 'accessible', your design needs to demonstrate **all** the 'full universal design' and 'accessible' performance indicators listed on the table below.

The tables<sup>7</sup> are divided into specific dwelling-features or spaces as follows:

1. Car-parks
2. Access-ways and Entrances
3. External Service-areas
4. Internal Circulation
5. Bedrooms
6. Bathrooms and Toilet Facilities
7. Kitchens
8. Laundries
9. Fittings and Fixtures
10. Finishes

**Contact the Quality Homes Advisory Team** for support regarding these indicators or design requirements.

7. In the tables, "FUD" denotes 'full universal design', while "A" denotes 'accessible'.

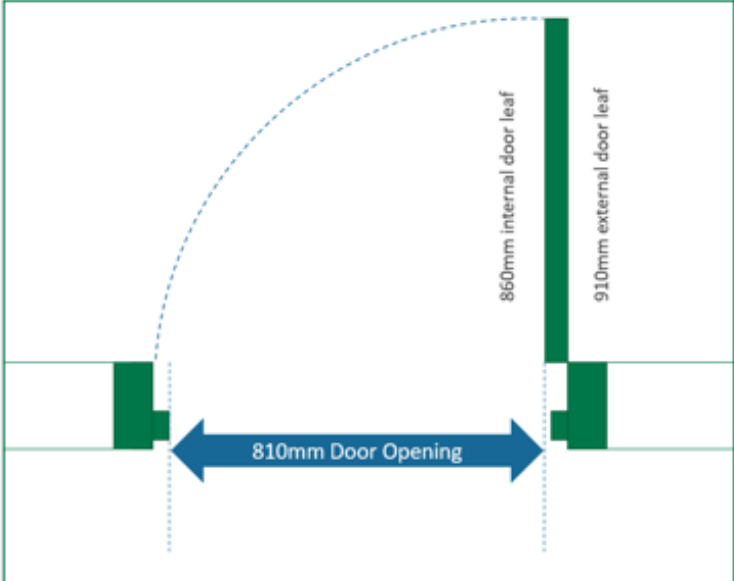
## 1. CAR-PARKS

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
<p>a. For stand-alone and terraced housing, there is at least one 'standard' 2.5 x 5m car-park that can be adapted to be 3.5m-wide.</p> <p><b>OR</b></p> <p>For properties with shared car-park facilities, there is at least one standard car-park per 'full universal design' dwelling.</p> <ul style="list-style-type: none"> <li>Ensure at least 25% of these car-parks are 'accessible' (that is, 3.5 x 5m).</li> </ul> <p><b>OR</b></p> <p>For apartment complexes and multi-unit developments, there is a drop-off zone that is suitably located for customers' use.</p> <ul style="list-style-type: none"> <li>This must be supported by easily-accessible alternative public transport options and/or other services that support independent living.</li> </ul>	<p>Ensure car-parking areas support customers' ease-of-movement in and around vehicles.</p> <p>Ensure the car-park and associated vehicle manoeuvring areas are designed to prevent water ponding (that is, they have a cross-fall of 1:100 – 1:50 and a slip-resistance value that conforms to <b>D1/AS1</b>). Exceeding this maximum slope will make it difficult for those using a mobility aid to enter/exit their vehicle.</p> <p>Typically, best-practice is to provide all dwellings with a 'standard' car-park that can be adapted to be upgraded to an 'accessible' park as required. This approach facilitates flexibility of design while promoting equitable use for all customers.</p> <p>For higher density sites where parking is restricted, a safe, formed drop-off zone may be provided. Drop-off zones need to provide space where a vehicle can park to pick-up or drop-off a customer or whānau/family member, that includes step-free access to a footpath, while ensuring people do not need to navigate moving or parked traffic.</p> <p>Wherever possible, drop-off zones should be located near the main-entry to the building to facilitate access and promote equitable use.</p> <p>Depending on the size of the development (for example, where there are multiple apartment buildings on-site), it may be appropriate to provide one drop-off zone per building.</p> <p>Regardless of the number, drop-off zones should only be used when there are alternative forms of transport (for example, public transport) available that can be easily accessed by all customers; if such alternative forms of transport are not available, you should provide allocated car-parks.</p> <p>Whether a drop-off zone is an appropriate solution, and the number of such zones required, should be identified early in the development process and articulated in the relevant <i>Project Brief</i>.</p>	<p>✓</p>	

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
<p>b. For stand-alone and terraced housing, there is at least one 'accessible' (3.5 x 5m) car-park.</p> <p><b>OR</b></p> <p>For properties with shared car-park facilities, there is at least one 'accessible' car-park per accessible dwelling.</p> <p><b>OR</b></p> <p>For apartment complexes and multi-unit developments, there is a drop-off zone that is suitably located for customers' use.</p> <ul style="list-style-type: none"> <li>This must be supported by easily-accessible alternative public transport options and/or other services that support independent living.</li> </ul>	<p>Ensure car-parking areas support customers' ease-of-movement in and around vehicles.</p> <p>Ensure the car-park and associated vehicle manoeuvring areas are designed to prevent water ponding (that is, they have a cross-fall of 1:100 – 1:50 and a slip-resistance value that conforms to <b>D1/AS1</b>).</p> <p>Typically, it is best-practice to provide all dwellings with an 'accessible', 3.5 x 5m car-park; this ensures equitable use for all customers, while providing an appropriate amount of space that supports a range of disabilities and impairments.</p> <p>Garages or car-ports should provide a minimum clear-height of 2.5m to allow for roof-mounted equipment. Similarly, ensuring this space is at least 3.5m-wide and 6m-long will support customers' ease-of-movement into and out of a vehicle.</p> <p>For higher density sites where parking is restricted, a safe, formed drop-off zone may be provided. Drop-off zones need to provide space where a vehicle can park to pick-up or drop-off a customer or whānau member, that includes step-free access to a footpath, while ensuring people do not need to navigate moving or parked traffic.</p> <p>Wherever possible, drop-off zones should be located near the main-entry to the building to facilitate access and promote equitable use.</p> <p>Depending on the size of the development (for example, where there are multiple apartment buildings on-site), it may be appropriate to provide one drop-off zone per building.</p> <p>Regardless of the number, drop-off zones should only be used when there are alternative forms of transport (for example, public transport) available that can be easily accessed by all customers; if such alternative forms of transport are not available, you should provide allocated car-parks.</p> <p>Whether a drop-off zone is an appropriate solution, and the number of such zones required, should be identified early in the development process and articulated in the relevant <i>Project Brief</i>.</p>		✓

## 2. ACCESS-WAYS AND ENTRANCES

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. Pathways and access-ways from the street and the driveway to the main-entry are safe and are <b>at least</b> 1.2m wide.	<p>Access on and around the property should be safe and easy-to-use.</p> <p>Wide pathways provide an appropriately-sized space for customers to move around the property and, in doing so, promote equitable use. In particular, a wider access-way supports all customers, including: wheelchair-users; people on mobility scooters; individuals pushing prams; and children, elderly, or customers with a disability who may need to have someone walk next to them.</p> <p>All users are supported by removing risks and hazards. Consequently, it is important the design includes access routes that meet the slip-resistance requirements of <b>D1/AS1</b> ('considered wet in normal use'). Design paths to have a maximum cross fall of 1:50 to prevent water ponding.</p> <p>On larger properties, provide signs at each change of direction, and ensuring all signs provided on-site include pictures. This, combined with a logical design/layout, will ensure users can find their way around the property with ease.</p>	✓	✓
b. There is a safe, sheltered landing at the main-entry (typically 1.2 x 1.2m).	<p>Provide a slip-resistant, sheltered waiting-area outside the main-entry, to protect the health, safety, and well-being of all customers. This space minimises the risk of slips, trips, and falls, while also protecting users from inclement weather.</p>	✓	✓
c. The main-entry door is 910mm-wide (with a clear-opening of <b>at least</b> 810mm).	<p>Customers should be able to safely and easily access the main-entry. Ensuring the dwelling includes wide doorways provides equitable use, removing barriers, and providing an appropriately-sized space for customers to access the dwelling. In addition, these features will support everyday activities, such as moving furniture or large items into and out of the home, for all customers.</p> <p>When checking the width of clear-openings, measure these in accordance with <b>Figure 1</b> (below).</p> <p>While not a requirement, access and use can be supported by including design elements that act as 'markers' for those with visual impairments. Examples include tactile cues, such as a change in surface-textures outside dwelling-entries; colour-contrasting to make doors easily-identifiable; and enhanced artificial lighting to support 'findability' (see also <b>10: Finishes</b>).</p> <p>When combined with supporting strategies and universally-designed fittings and finishes, wider entrances can facilitate access and use for all customers.</p>	✓	✓

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
<p>d. All other external doors are <b>at least</b> 860mm-wide (with a clear-opening of 810mm).</p>	<p><b>FIGURE 1: MEASUREMENT GUIDANCE FOR CLEAR-OPENING OF DOORWAYS</b></p>  <p>The diagram illustrates the measurement for a clear opening in a doorway. It shows two door leaves: an internal door leaf on the left and an external door leaf on the right. The internal door leaf is labeled '860mm internal door leaf' and the external door leaf is labeled '910mm external door leaf'. A blue double-headed arrow between the two leaves is labeled '810mm Door Opening'. A dashed blue arc indicates the swing path of the internal door leaf, showing that the clear opening is maintained even when the door is partially open.</p>	<p>✓</p>	<p>✓</p>
<p>e. In apartment buildings/ complexes, there is lift access to dwellings located above the ground floor.</p>	<p>Providing a lift that all customers can use and access will promote equitable use and support ease-of-access. Ensure lift-design meets legislative requirements and, where an accessible dwelling is located above the ground floor, provide an approved evacuation plan. Lifts should be designed in partnership with Fire and Emergency New Zealand, to ensure all compliance and legislative requirements are met.</p>	<p>✓</p>	<p>✓</p>
<p>f. Where provided, stairs are designed to be 'Accessible' (as defined in <b>D1/AS1</b>, with a <b>maximum</b> rise of 180mm, a <b>minimum</b> tread of 310mm), and a hand-rail on at least one side.</p>	<p>By ensuring any external and common or shared stairs align with Clause 4.1 of <b>D1/AS1</b>, the design will protect customers' health and safety.</p> <p>Providing a smooth, grasp-able handrail that conforms to Fig.26(b) of <b>D1/AS1</b> on at least one side of the stairway further minimises the risks of slips, trips, and falls while also facilitating efficient, comfortable use, supporting those customers who may have difficulty ascending or descending stairs and/or difficulties with balance.</p>	<p>✓</p>	
<p>g. <b>All</b> exterior doors have a level threshold.</p>	<p>Including level thresholds that align with Clause 1.3.2 of <b>D1/AS1</b> (that is, they are no more than 20mm-high) facilitates ease-of-access for users, while reducing hazards and risks such as trips or falls.</p>	<p>✓</p>	
<p>h. Access-ways can be easily adapted to be step-free if required.</p>	<p>To support ease-of-access on the property and promote equitable use for all customers and their whānau, the design should demonstrate how access-ways can be adapted via the use of accessible ramps, landscaping, or similar features to be step-free to meet customers' needs if required in the future.</p> <p>Importantly, if there are multiple access routes on the property, ensure at least one can be adapted to meet the needs of wheelchair users.</p>	<p>✓</p>	

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
i. For gradients <b>above</b> 1:20: there is an accessible ramp with a <b>maximum</b> slope of 1:12 and an accessible 'graspable' hand-rail that aligns with Section 3 of <b>D1/AS1</b> .	<p>Providing an accessible ramp and accompanying handrail supports customers' access and, in doing so, promotes equitable use. Accessible ramps support all customers, including (but not limited to): wheelchair-users; people on mobility scooters; individuals pushing prams; and customers who use a mobility aid.</p> <p>Similarly, an accessible ramp and handrail minimises risks and hazards while reducing the physical effort customers need to expend to navigate the property.</p>		✓
j. There is step-free access from car-parks and/or the drop-off zone to the main-entry door.	<p>Accessible homes are most-likely provided to support customers and/or whānau living with a permanent or long-term physical disability. To ensure those using a wheelchair, mobility scooter, or similar mobility aid can safely and easily pass between their home and car-parking areas, ensure access-ways are step-free. Providing these step-free access-ways is a prerequisite for supporting safe, accessible, and independent living.</p> <p>Such design will have wider benefits for other customers, including those pushing a pram, young children, those living with a temporary physical impairment, and elderly users.</p>		✓
k. All exterior doors have a level threshold with a flush sill.	<p>To reduce hazards and risks, promote equitable use, and provide appropriate access for all customers, accessible homes should ensure all exterior doors provide a level-threshold with a flush sill. Max 20 mm height change.</p> <p>Importantly, removing any level-change will facilitate customers' ability to easily and safely enter and exit the dwelling. In particular, this supports those using a wheelchair or other wheeled mobility device.</p>		✓
l. There is a wheel-stop provided on access-ways and ramps where there is a fall-height of $\geq 20$ mm to a lower level.	<p>Providing a wheel-stop in appropriate locations incorporates an element of error-tolerance into your design, reducing the hazards those using a wheeled mobility device may encounter when navigating ramps and access-ways. In doing so, you are protecting the health and safety of these customers.</p>		✓



### 3. EXTERNAL SERVICE-AREAS

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. Access-ways can be easily adapted to be 1.2m-wide and step-free where required.	<p>There should be safe, easy-to-use access between the dwelling and service-areas.</p> <p>Access-ways to service areas may initially be 800mm-wide; this will reduce the amount of hard surfacing used on a property. Ensuring access-ways can be adapted to be wider, however, supports flexibility-in-use for our customers.</p> <p>When designing these paths, take note of the percentage of maximum impermeable surfacing in the event the path is widened in the future.</p>	✓	
b. There is a path from the dwelling to rubbish collection and clothes-drying areas that is <b>at least</b> 1.2m-wide.	<p>There should be safe, easy-to-use access between the dwelling and service-areas.</p> <p>Wider pathways support access and use for the greatest number of customers. For accessible properties, a wider path will ensure those using a mobility aid are able to access regularly-used service areas.</p> <p>It is important the design includes access routes that meet the slip-resistance requirements of Table 2 of <b>D1/AS1</b> ('considered wet in normal use').</p> <p>Customers' safety and well-being can be further protected by designing paths to have a maximum cross fall of 1:50 to prevent water ponding.</p>		✓

### 4. INTERNAL CIRCULATION

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. There is step-free access from the main-entry to the main living-area.	<p>Circulation should be designed to support movement in and around the dwelling.</p> <p>These features support customers' ability to easily-access commonly-used areas and facilities within the dwelling, while providing an appropriate amount of space for manoeuvring.</p>	✓	✓
b. All internal doors are <b>at least</b> 860mm-wide (with a clear-opening of 810mm).	<p>In doing so, all users have equitable access and use, as well as less-restricted freedom of movement.</p> <p>When checking the width of clear-openings, measure these in accordance with <b>Figure 1 (above)</b>.</p>	✓	✓
c. Circulation routes are <b>at least</b> 1.05m-wide and include at least 800mm clearance between items of furniture.	<p>Designing the dwelling to include wider corridors – and doors – while providing enough space to facilitate access between, for example, a coffee table and a couch, will support access and use for most customers.</p> <p>These design elements will make life easier for parents pushing prams or customers using a walking frame.</p>	✓	

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
d. Any internal stairs have: a <b>maximum</b> rise of 190mm; a <b>minimum</b> tread of 280mm; and include a handrail on at least one side	<p>Stairs are often a particular point of difficulty for our customers, regardless of whether or not they live with a disability of physical impairment. The risk of slipping, falling, or tripping on stairs becomes higher as we get older. Consequently, designing internal stairs to align with Table 6 (“Common and Main Private”) of <b>D1/AS1</b> is important in protecting customers’ health and safety.</p> <p>Ensure the handrail is a ‘graspable’ rail that aligns with Figure 26(b) of <b>D1/AS1</b>.</p> <p>Consider additional design features – such as limiting the total rise of a flight of stairs to no more than 12 steps – to provide further support to as many customers as possible.</p>	✓	
e. Circulation routes are <b>at least</b> 1.2m-wide and provide at least 900mm clearance between furniture-items.	<p>In multi-level dwellings, providing wider circulation routes and greater clearance between items of furniture on an accessible main living-level ensures those customers using a wheelchair are afforded the same ease-of-access as others.</p> <p>Upper levels should be designed to include circulation routes that are at least 1,050mm-wide and with 800mm of clearance between items of furniture.</p>		✓
f. On primary living-levels there is a 300mm return- wall on the door-handle edge of all doorways (when doors swing <i>toward</i> the user).	<p>To further support equitable use and access in an accessible home include a 300mm return-wall; doing so will ensure those using a wheelchair can more easily reach the door handle.</p>		✓
g. All rooms on the main living- level ( <b>except</b> the laundry, hallways, and any secondary bedrooms) include a 1.5m <sup>Ø</sup> turning-circle that is clear of all furniture.	<p>Including this feature supports customers using a wheelchair by ensuring they have space to turn in room without having to reverse in or out. This facilitates access, while reducing the risk of injury for these customers.</p> <p>While this requirement is limited to specific rooms on the main living-level, consider including this feature in all rooms on the main living-level, thereby facilitating equitable use throughout a customer’s home.</p>		✓

## 5. BEDROOMS

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
<p>a. There is a 12m<sup>2</sup> bedroom on the main living-level that includes space for 900mm clearance around both sides and the foot of a Queen-size bed (1.55 x 2.0m (nominal))</p> <p><b>Note:</b> where <i>all other spatial requirements can be demonstrated, a tolerance of -15% may be applied to the floor-area requirement.</i></p>	<p>There should be a safe, easily-accessible room suitable for sleeping provided on the main living-level that supports ease-of-movement.</p> <p>These features will support access and use for all customers, promoting equitable design, reducing hazards, and limiting the amount of physical effort customers need to expend to undertake everyday activities.</p> <p>Providing a bedroom on the main living-level supports customers who may be living with a temporary injury, as well as those with a long-term injury who may struggle to get to a higher level or storey. The size and layout of this room should ensure customers living with a physical disability can safely and comfortably use the room, while providing enough space for equipment that may be required as people's needs change.</p> <p>Placing easy-to-use light-switches on either side of the bed reduces the risk of trips or falls, while also accommodating the needs of customers with restricted range and/or strength of movement (see <b>Fittings and Finishes</b>).</p>	✓	
<p>b. There is a 12m<sup>2</sup> bedroom on the main living-level that includes space for:</p> <p>i. 900mm clearance around 3 sides of a Queen-size bed (1.55 x 2.0m (nominal))</p> <p><b>AND</b></p> <p>ii. a 1.5m<sup>Ø</sup> turning-circle</p>	<p>Where a King-single bed (1 x 2.0m (nominal)) is used (instead of a Queen bed) in a FUD home, we recommend providing a 1.5m<sup>Ø</sup> turning-circle and 900mm of clear-space around both sides and the foot of the bed.</p> <p>Providing a larger amount of clear-space around three sides of the bed supports ease of access and storage of commonly used equipment. In some situations, a FUD bedroom originally planned for use by a couple may be used by single customer with specific access needs (for example, a wheelchair or other mobility aid); ensuring the room can accommodate a 1.5m<sup>Ø</sup> turning-circle.</p> <p>For dwellings with two or more bedrooms, it is best practice, for the 12m<sup>2</sup> bedroom to be <b>in addition</b> to the 10m<sup>2</sup> main bedroom.</p> <p>Please note:</p> <ul style="list-style-type: none"> <li>For FUD homes <b>only</b>, where all other spatial requirements can be demonstrated, a 15% tolerance may be applied to the floor-area requirement. This <b>does not</b> apply to accessible dwellings.</li> <li>Bedroom floor-areas <b>do not</b> include wardrobes.</li> </ul>		✓
<p>There is a height-adjustable hanging-rail provided in the wardrobe.</p>	<p>Providing a height-adjustable rail in wardrobes supports flexibility-in-use, ensuring those with limited range of movement or a similar disability can easily access hanging items in the wardrobe.</p>		✓

## 6. BATHROOMS AND TOILET FACILITIES

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. There is a bathroom and toilet on the main living-level that can be converted to a fully-accessible space if required.	<p>There should be a safe, easily-accessible toilet and bathing facilities on the main living-level that can be used by all users.</p> <p>Ensuring there is a bathroom and toilet on the main living-level supports equitable access for all customers. Note: the toilet may be in the same room or may be in a separate, adjacent space.</p> <p>Designing the space to be adaptable provides a degree of flexibility in use, while ensuring customers' changing circumstances can be accommodated if or when required. It is important to demonstrate how this space can be adapted to an accessible bathroom if required.</p>	✓	
b. Flooring has a slip-resistance value that aligns with Table 2 of <b>D1/AS1</b> ('considered dry in normal use').	It is important the design includes access routes that meet the slip-resistance requirements of <b>D1/AS1</b> .	✓	
c. There is an accessible bathroom (including toilet) on the main living-level that includes:	<p>Providing an accessible – or 'wet-area' – bathroom ensures all customers, including those living with a disability have access to appropriately-sized, safe, and functional bathroom facilities.</p> <p>Support customers' ease-of-use of showering and toilet facilities by providing grab-rails. We recommend using Section 10 of NZS 4121:2001 – <i>Design for Access and Mobility: Buildings and Associated Facilities</i> as guidance for placement of toilets, grab-rails, and similar fittings.</p>		
i. Grab-rails installed in the shower and beside the toilet.	A 1.2 x 1.2m level-entry shower with a gently-sloping floor and an appropriate level of slip-resistance will facilitate access while minimising the risk of slips, trips, or falls. Please note, however, a fixed shower-seat should not be installed.		✓
ii. A level-entry shower with the entire bathroom floor falling (by at least 1:100) to the floor-waste.	Installing a slide-shower and mixer unit gives customers easy-to-access fittings that supports their ability to bathe unassisted.		✓
iii. A slide-shower and mixer.	Using flush drain-covers rather than channel or recessed drains will further protect customers' health and safety. Similarly, a fixed source of heating will provide additional health benefits for customers.		✓
iv. Flooring with a slip-resistance value that aligns with Table 2 of <b>D1/AS1</b> ('considered wet in normal use') and which incorporates flush drain-covers.	To support adaptability and flexibility-in-use, using the specified wall-lining will allow installation of additional fittings to support customers' needs.		✓
v. A fixed heating source.			✓
vi. A smooth, pre-finished, impermeable wall-lining glued to CCA-treated H3.2 plywood that is at least 17mm-thick on all walls.			✓

## 7. KITCHENS

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. There is <b>at least</b> 1.5m of clearance in front of benches and appliances.	<p>The kitchen should be easy-to-use and move around in for all customers.</p> <p>Facilitating access to and within the kitchen is important for promoting customers' independence and, in larger homes, a greater sense of belonging. Consequently, it is important the design promotes equitable use by providing enough space to support all customers, including those using a wheelchair or other mobility aid.</p>	✓	✓
b. <b>At least</b> 50% of under-bench storage (measured at the front of the bench, excluding appliances and the pantry) is comprised of drawers that allow for a range of storage-depths.	<p>The kitchen should be easy-to-use and –access for all customers.</p> <p>To promote ease-of-use and -access, and reducing the need for customers to bend down and/or reach into storage areas, the design should maximise accessible storage by providing drawers, rather than cupboards in the kitchen. Under-bench storage is measured at the front of the bench, excluding appliances and the pantry.</p> <p>It is recommended drawer-banks are 600 – 800mm-wide and include two to four drawers per bank.</p>	✓	✓
c. There is <b>at least</b> 300mm between internal corners and the opening-edge of appliances.	<p>Providing an appropriate number of drawers of suitable width ensures there is a range of storage heights suitable for small items such as cutlery, crockery, and dry goods, as well as tins, pots, and pans.</p>	✓	✓
d. All cabinetry includes easy-to-use handles (with a finger grip).	<p>If it improves the total achievable storage, consider using a single cupboard under the sink bowl and vertical tray storage cupboards. Also, to maximise drawer-storage, limit the use of cupboards to corner units and under the sink.</p> <p>Customers' access to appliances is supported by providing a minimum amount of space between internal corners and appliances.</p> <p>Customers with limited hand-use or range of movement are supported by using D- or bow-style handles with kitchen cabinets.</p>	✓	✓
e. Flooring has a slip-resistance value that aligns with Table 2 of <b>D1/AS1</b> .	<p>As with other areas of the home, protect customers' health and safety by providing flooring with a level of slip-resistance that aligns with 'considered dry in normal use' in D1/AS1.</p>	✓	✓
f. Kitchen benching is continuous (rather than 'galley'-style).	<p>Minimising the amount of lifting needed between surfaces and appliances by providing continuous benching will further protect customers' health and safety, while also reducing the amount of physical effort customers need to expend when undertaking kitchen-based tasks.</p>		✓

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
g. The kitchen includes a side-opening wall-oven; and a separate hob.	<p>All customers should have access to a safe kitchen that provides ease of use, access, and movement.</p> <p>Kitchens in all accessible dwellings should include a side-opening wall-oven and separate hob to support customers confined to a wheelchair.</p> <p>In addition, kitchens provided in these dwellings need to be large enough to allow adaptation that includes customer-specific or bespoke design elements such as higher toe-kicks, knee-space under benches, and/or adjustable or differing bench-heights.</p> <p>Such requirements require assessment and advice from a registered health professional (most often, an Occupational Therapist).</p>		✓

## 8. LAUNDRIES

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
<p>a. There is enough space provided in the laundry for:</p> <p>i. a tub, washing machine, <b>and</b> dryer at floor-level <b>OR</b></p> <p>ii. In FUD homes with 1-3 bedrooms, a tub and washing machine at floor-level, and space for a wall-mounted dryer.</p> <p><b>Note:</b> performance indicator 8(a(ii)) is <b>not</b> acceptable in FUD homes with 4+ bedrooms or in accessible dwellings.</p>	<p>All customers should have access to a laundry that supports ease of use, access, and movement.</p> <p>In smaller homes (1-3 bedrooms), the dryer may be hung on the wall or placed at floor-level, supporting flexibility-in-use.</p> <p>Where a dryer is wall-mounted ensure the power supply and switching is suitably located for a range of appliance options including top-loading washing machines; close-coupled front-loading washing machines and dryers; and combination washing/drying machines.</p> <p>Providing space for the dryer at floor-level in larger homes ensures a range of customers, including those with limited range-of-movement or similar physical limitations, can access the dryer.</p>	✓	✓
b. Flooring has a slip-resistance value that aligns with Table 2 of <b>D1/AS1</b> .	Protect customers' health and safety by providing flooring with a level of slip-resistance that aligns with 'considered dry in normal use' in D1/AS1.	✓	✓
c. There is at least 1.05m-clearance in front of all fittings and appliances.	<p>To customers' ability to access and use laundry facilities, ensure there is sufficient space in front of washing machines, dryers, and storage.</p> <p>It is important to note the usable circulation space is typically borrowed from the adjoining space when the laundry is located in a cupboard.</p> <p>This performance indicator can be met if the laundry is located in a garage and there is <b>an external FUD car-park</b> provided.</p>	✓	

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
d. There is at least 1.2m-clearance in front of all fittings and appliances.	<p>To further support access and use in accessible homes, provide 1.2m of clearance space; this will support all customers, including wheelchair-users. Where space permits, you can further support customers by including a 1.5m<sup>Ø</sup> turning-circle.</p> <p>It is important to note the usable circulation space is typically borrowed from the adjoining space when the laundry is located in a cupboard.</p> <p>This performance indicator can be met if the laundry is located in a garage and there is <b>an external accessible car-park</b> provided.</p>		✓

## 9. FITTINGS AND FIXTURES

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. All door handles are lever-style handles placed at 1m above the FFL.		✓	✓
b. All windows include lever-style handles that can be easily-opened with one hand.	Fittings and fixtures should be easy-to-use, while supporting access, use, and movement around the dwelling.	✓	✓
c. All tap-ware has lever-style handles.	Implementing these requirements supports all customers by ensuring they can complete tasks simply and intuitively, and with low physical effort, while also removing barriers that prevent equitable use.	✓	✓
d. All light switches are aligned with door handles (at 1m above the FFL).		✓	✓
e. All power and data outlets are located 500mm above the FFL and <b>at least</b> 500mm away from internal corners.		✓	✓
f. 12m <sup>2</sup> bedrooms provided on the main living-level have three-way light-switching located by the door and both sides of the bed-head.	Providing three-way switching in the 12m <sup>2</sup> bedroom provided on the main living-level and two-way switching in all halls and stairways will reduce the risk of trips and falls, thereby protecting customers' health and safety.	✓	✓
g. There is two-way switching for lights in all hallways and stairways.	Meeting these requirements will also facilitate ease-of-use and reduce the amount of physical effort customers will need to expend.	✓	✓
h. Smoke alarm systems can be adapted to provide audio <b>and</b> visual warnings.	<p>This design feature protects the health, safety, and well-being of all customers, while accommodating a range of abilities (for example, supporting customers with a hearing loss).</p> <p><b>Please note:</b> there are no special requirements for Type 1 systems. In addition, where an interconnected system may be required, work closely with a Fire Engineer to ensure all customers can be appropriately supported.</p>	✓	✓

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
i. Window sills in the living-area are placed at a maximum height of 1m above the FFL.	By including this requirement, the well-being of all customers, including those who use a wheelchair is supported by improving customers' visual awareness of the outside.		✓
j. On accessible floors, openable windows have lever-style handles placed at a maximum height of 1.2m above the FFL.	Ensuring they can easily access and use controls that provide natural ventilation.		✓

## 10. FINISHES

PERFORMANCE INDICATOR	GUIDANCE/RATIONALE	FUD	A
a. All walls and doors use contrasting colours.	Finishes used throughout the property should support customers' safety, movement, and ease-of-use and -access.	✓	✓
b. All bench-tops and cabinets use contrasting colours.	Using contrasting colours will support customers with a visual impairment, facilitating access and use, while accommodating a range of abilities. In addition, this feature protects customers' health and safety by, for example, ensuring customers do not place hot items on the wrong part of a kitchen bench. Contrasting fittings, for example, light switches, from their surroundings support visually impaired customers.	✓	✓
c. The floor-finish is suitable for castors.	Using finishes that are suitable for castors (for example, double-stick carpet) can protect customers health and safety by reducing the chance of carpet-stretching, which will often become a trip hazard. At the same time, using this type of floor-finish will provide additional comfort to customers.		✓



## SUPPORTING RESOURCES

The resources listed below will provide additional support in designing homes classified as ‘full universal design’ and ‘accessible’.

### LEGISLATION AND COMPLIANCE DOCUMENTS

**New Zealand Building Code** (1992)

**Public Health and Disability Act** (2000)

**Fire Safety & Evacuation of Buildings Regulations** (2006)

**Human Rights Act** (1993)

**Building Act** (2004)

Acceptable Solutions and Verification Methods for the New Zealand Building Code. Ministry of Business Innovation and Employment (MBIE).

- **D1: Access Routes**
- **D2: Mechanical Installations for Access**
- **E2: External Moisture**
- **F7: Warning Systems**
- **F8: Signs**
- **G1: Personal Hygiene**
- **G2: Laundering**
- **G3: Food Preparation and Prevention of Contamination**
- **G5: Interior Environment**
- **G9: Electricity**
- **G12: Water Supplies**

**Compliance Schedule Handbook: Building (Specified Systems, Change the Use and Earthquake-prone Buildings) Regulations 2005.** MBIE (2014).

### STANDARDS

*NZS 4121:2001 – Design for Access and Mobility: Buildings and Associated Facilities*

*NZS 4332:1997 – Non-domestic Passenger and Goods Lifts*

*NZS 4334:2012 – Platform and Low Speed Lifts*

*AS/NZS 1680:2006 – Interior and Workplace Lighting*

*AS/NZS 1428.4:2009 – Means to Assist the Orientation of People with Visual Impairment: Tactile Ground Surface Indicators*

*AS/NZS 2890.6:2009 – Parking Facilities: Off-street Parking for People with Disabilities*

### OTHER RESOURCES

**Buildings for Everyone: Designing for Access and Usability.** MBIE (2019).

**Guidelines for Facilities for Blind and Vision-impaired Pedestrians (3rd Edition).** NZTA (2015).

**Homes without Barriers: A Guide to Accessible Houses.** BRANZ (2001).

**The International Symbol of Access.** Department of Building and Housing (2007).

**Lifemark® Design Standards Handbook.** Lifetime Design Limited (2012).

## DOCUMENT CONTROL

<b>Title</b>	Design Performance Requirements (M-134): Appendix B – Universal Design and Accessibility
<b>Version / Date</b>	v3 / October 2022
<b>Primary Authors</b>	Quality Homes Advisory Team
<b>Editor</b>	Matt Walker (Senior Technical Writer)
<b>Version Control</b>	

*Changes since the previous version*

SECTION	SUB-SECTION	DETAILS
General guidance	N/A	Formatting change
Performance indicators	Access-ways and Entrances: <b>2(c)</b>	Requirement for clear-opening of main-entry door reduced from 860mm to 810mm. Figure 1 added for reference.
	Access-ways and Entrances: <b>2(f)</b>	Error corrected (minimum tread for stairs).
	Internal Circulation <b>4(b)</b>	Figure 1 added for reference.
	Bedrooms: <b>5(a)</b>	Requirement for light switches moved to Fittings and Finishes sub-section (9). Nominal size for Queen bed added. Note for allowance of tolerance added. Additional guidance provided for: King-single beds in FUD bedrooms; tolerance for FUD bedrooms; provision of 12m <sup>2</sup> bedroom; and consideration of wardrobe requirements.
	Kitchens: <b>7(b)</b>	Change in requirement for under-bench storage (from all as drawers to at least 50% of storage); measurement guidance added in support. Prompt to allow for a range of depths added. Guidance added around drawer-width, number of drawers per bank, and design suggestions for storage choice.
	Kitchens: <b>7(g)</b>	Requirement for components of accessible kitchens clarified.
	Laundries: <b>8(a)</b>	Variation in requirements for FUD 1-3 bedroom homes added. Guidance added to support use of wall-hung dryers in smaller FUD homes.
	Laundries: <b>8(c)</b>	New guidance added for provision of laundry in a garage.
	Laundries: <b>8(d)</b>	New guidance added for provision of laundry in a garage.
	Fittings and Fixtures: <b>9(f)</b>	Requirement for additional light-switching in bedrooms moved to this section; guidance updated to reflect.

## APPENDIX C – KĀINGA ORA HOMESTAR VERSION 5 TRANSITION STANDARD

### For Construction and Innovation Group Projects only.

#### OVERVIEW

Developed by the New Zealand Green Building Council (NZGBC), Homestar is an independent benchmarking tool that rates the health, efficiency, and sustainability of New Zealand homes. Kāinga Ora adopted Homestar for new homes under version 4.1 in 2019.

Homestar helps us achieve mandated outcomes for public housing, reduces customer energy bills, and delivers healthier, more comfortable, lower carbon homes; in doing so, this raises the standard of public housing in New Zealand.

In 2021-2022, **the NZGBC introduced version 5 (v5) of the Homestar tool** [external site] that includes updated requirements, such as accounting for embodied carbon.

While Kāinga Ora actively supports the NZGBC and the Homestar standard, rather than making an immediate transition next year, the Construction and Innovation Group has chosen to take a 'step-change' approach in adopting Homestar v5. We have worked closely with the NZGBC to develop an interim pathway: the *Kāinga Ora Homestar Version 5 Transition Standard*. Through this approach, we'll be delivering good-quality homes that are warmer, drier, and more energy-efficient than ever.

#### WHAT IS THE KĀINGA ORA HOMESTAR VERSION 5 TRANSITION STANDARD?

The *Kāinga Ora Homestar Version 5 Transition Standard* equates to:

1. The current Kāinga Ora requirements under 6 Homestar v4.1.
2. The **requirements for the New Zealand Building Code: Clause H1 (5th Edition)**<sup>1</sup>,
3. Adopting Homestar v5 tools and processes during the design phase – but we are not designing to 6-Homestar v5 yet.

Kāinga Ora Targeted Points will continue to apply.

#### KĀINGA ORA TARGETED POINTS

Kāinga Ora has its own way of applying Homestar, as some credits and points align better with our organisational strategies. We target the points that best meet our customers' needs, and provide homes that are sustainable and easy to maintain. The following is a summary of the *Kāinga Ora Homestar Version 5 Transition Standard* targeted points by Homestar Version 5 Credit.

#### QUESTIONS?

Please get in touch with the Kāinga Ora Homestar team at [homestardesign@kaingaora.govt.nz](mailto:homestardesign@kaingaora.govt.nz).

1. This has been required for all Kāinga Ora redevelopment projects from 1 October 2022.

## Kāinga Ora Homestar® v5 Transition Standard Targeted Points

CATEGORY & CREDIT	NUMBER OF POINTS TARGETED	KĀINGA ORA HOMESTAR® V5 TRANSITION STANDARD CRITERIA
<b>EFFICIENT</b>		<b>POINTS AVAILABLE – 39</b>
<b>EF1</b> Resource Efficiency	2	Dwelling's conditioned floor area is relative to the number of bedrooms as per the Homestar® v5 Technical Manual
<b>EF2</b> Urban Density	0	Not currently a Kāinga Ora Targeted Point
<b>EF3</b> Water Use	5	Estimated daily indoor water consumption ≤ 138 litres per person per day, achieved through the use of flow rates aligning with Kāinga Ora requirements (5 pts)
<b>EF4</b> Energy Use	Prescriptive requirements as per v4.1 - no set score to achieve under v5	N/A, Kāinga Ora current buildable standards do not cross reference to EF4 Energy Use
<b>HEALTHY AND COMFORTABLE</b>		<b>POINTS AVAILABLE – 47.5 (STANDALONES), 49 (OTHER)</b>
<b>HC1</b> Winter Comfort	Prescriptive requirements as per v4.1 – no set score to achieve under v5	<ul style="list-style-type: none"> <li>Thermal performance is in accordance with H1 Fifth Edition Schedule Method (or equivalent level of performance)</li> <li>Fixed heating to main living area that must align with Healthy Homes Heating Standard requirements</li> </ul>
<b>HC2</b> Summer Comfort		<ul style="list-style-type: none"> <li>Openable area of windows in dwelling at least 5% of conditioned space</li> <li>At least 30% of openable windows must be on adjacent/opposite facades or different floors</li> <li>100mm restrictor stays installed on all openable windows accessible to intruders</li> </ul>
<b>HC3</b> Ventilation		<ul style="list-style-type: none"> <li>Dedicated rangehood for the cooking hob vented to outside</li> <li>Dedicated bathroom extract system vented to outside. Include delayed timer to ensure effective moisture removal</li> <li>Net opening windows 5% of floor area</li> </ul>
<b>HC4</b> Moisture Control		<ul style="list-style-type: none"> <li>Minimise thermal bridges – walls and ceilings (excluding window frames). Timber frame building with no concrete or steel penetration through insulation layer, OR outside face of thermal bridge is insulated with EPS/ XPS as per the NZGBC Homestar® v4.1 Technical Manual pg. 59</li> <li>Minimise condensation within building envelope. Ground cover for suspended floor or DPC in slab</li> </ul>
<b>HC5</b> Natural Lighting		<p>Window areas in external walls are no less than:</p> <ul style="list-style-type: none"> <li>15% of the floor areas for living areas and bedrooms where the windows are not significantly shaded</li> <li>20% of the floor areas for living areas and bedrooms where the windows are significantly shaded, e.g. by eaves, balconies, purpose designed shading, etc.</li> </ul>

### Kāinga Ora Homestar® v5 Transition Standard Targeted Points

CATEGORY & CREDIT	NUMBER OF POINTS TARGETED	KĀINGA ORA HOMESTAR® V5 TRANSITION STANDARD CRITERIA
<b>HC6</b> Acoustic Performance	0	Not currently a Kāinga Ora Targeted Point
<b>HC7</b> Healthy Materials	2	80% of the material used in each of the following groups meet VOC limits as specified by a NZGBC recognised IAQ scheme or eco-label: <ul style="list-style-type: none"> <li>Applied coatings by volume (l) within the interior of the dwelling (1 pt)</li> <li>Floor coverings by area covered (m<sup>2</sup>) within the interior of the dwelling (1 pt)</li> </ul>
<b>LIVEABLE</b>		<b>POINTS AVAILABLE – 11</b>
<b>LV1</b> Inclusive Design	3 (when designed to FUD)	Fully comply with the Kāinga Ora FUD requirements (3 pts)
<b>LV2</b> Occupant Amenities	1	Template for Home User Guide (HUG) provided to all new occupants, explaining the energy, water and waste strategies for the properties and providing information to ensure continuous maintenance and performance of those features (1 pt)
<b>LV3</b> Eco-Friendly Living	1.5	Can be made up of the following: <ul style="list-style-type: none"> <li>Main Entrance – Well-defined and well-labelled main entrance with the house number clearly visible from the road entrance (0.5 pts)</li> <li>Street surveillance – One living room or kitchen window or glass door is clearly visible from the road (0.5 pts)</li> <li>Defensible Boundary – The dwelling and property boundary is clearly defined between public and private areas to create a defensible space for the home owner (0.5 pts)</li> <li>Security Lighting – All exterior lights are LED lamp type with motion sensors and daylight cut off (0.5 pts) For all apartments CPTED report from a professional is required (2 pts)</li> </ul>
<b>LV4</b> Sustainable Transport	0	Not currently a Kāinga Ora Targeted Point

### Kāinga Ora Homestar® v5 Transition Standard Targeted Points

CATEGORY & CREDIT	NUMBER OF POINTS TARGETED	KĀINGA ORA HOMESTAR® V5 TRANSITION STANDARD CRITERIA
<b>ENVIRONMENTALLY RESPONSIBLE</b>		<b>POINTS AVAILABLE – 31</b>
<b>EN1</b> Renewable Energy	0	Not currently a Kāinga Ora Targeted Point
<b>EN2</b> Embodied Carbon	0	Not currently a Kāinga Ora Targeted Point <i>Note: expected to be targeted from mid-2023.</i>
<b>EN3</b> Sustainable Materials	7.5	At least 50% of the following material groups is reused, eco-preferred or responsibly sourced <ul style="list-style-type: none"> <li>Interior plasterboard and fibre cement lining (wall and ceiling) (1.5 pts)</li> <li>Insulation (soft insulation including thermal and acoustic and rigid insulation such as XPS and EPS) (1.5 pts)</li> <li>Floor covering (e.g. carpet, linoleum, floor tiles) (1.5 pts)</li> <li>Applied coatings (internal and external applications, whether exposed or concealed, but only that which is applied within the site boundary or in a prefabrication yard) (1.5 pts)</li> <li>Roof cladding (e.g. long run steel roofing, shingle roofing, etc.) (1.5 pts)</li> </ul>
<b>EN4</b> Construction Waste Minimisation	1.5	<ul style="list-style-type: none"> <li>Complete and implement a Site Waste Minimisation Plan (SWMP) as per REBRI guidelines. (required)</li> <li>A minimum of three waste streams on site (0.5 pts)</li> <li>Generate less than 20kg/m<sup>2</sup> (GFA) of waste during the construction phase of the project (1 pt)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>50-69% of the total waste generated is reused and/or recycled and/or recovered for the whole construction/ refurbishment project (off-site waste sorting is accepted) (1 pt)</li> </ul>
<b>EN5</b> Water Sensitive Design & Ecology	0	Not currently a Kāinga Ora Targeted Point
<b>EN6</b> Responsible Contracting	0.75	<ul style="list-style-type: none"> <li>A contractor on site holds an accreditation recognised by the NZGBC (0.25 pts)</li> <li>An Environmental Management Plan (EMP) is in place for the construction works in accordance with the Homestar® template (0.5 pts)</li> </ul>
<b>INNOVATION</b>		<b>POINTS AVAILABLE – 10</b>
<b>IN1</b> Innovation	1	100% of the development is social housing units. Note – can't be claimed if project is mixed-use or mixed tenure.

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