



Australian Building  
Codes Board Livable  
Housing Design Standard:  
Implementation of  
step-free entry provisions



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## Introduction

QBuild Professional Services Architects were engaged to carry out a technical investigation of the practical implementation of, and appropriate exemptions to, compliance with the proposed Livable Housing Design Standard (the Standard) provisions in the National Construction Code (NCC).

The main focus of the investigation is the step-free path of travel required from the site entry to the dwelling entry for detached housing in a suburban context. The findings in this investigation report have been distributed to industry and government stakeholders for their comment and feedback.



## Background

On 30 April 2021, a majority of state government building Ministers agreed to include a minimum accessibility standard for new dwellings in the NCC 2022 issue, based on the Livable Housing Design Guidelines Silver Level. The Standard will apply to all new housing requiring a building permit.

The minimum accessibility standard now forms part of the NCC 2022 public comment draft, with relevant provisions in:

- Part G7 of Volume 1 (relating to Class 2 buildings, which are not applicable to this report)
- Part H8 of Volume 2 (see Appendix 3)
- [Australian Building Codes Board \(ABCB\) Standard for Livable Housing Design](#).

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**As part of the assessment of additional exemptions proposed by the private sector construction industry, the Department of Energy and Public Works (EPW) sought technical advice on how the proposed provisions are practically implemented and specific instances where an exemption is triggered under NCC Volume 2 H8D2(2).**

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The step-free access exemptions under NCC 2022 H8D2(2) apply where:

- a) it is not practicable to provide step-free access via an appurtenant garage, carport or parking space in accordance with Clause 1.1(1)(b) or (c); and
- b) one or more of the following is true:

- i) The average slope of the ground on which the access path would be constructed exceeds a gradient of 1:14.
- ii) To provide an external step-free access path would necessitate construction of ramping that exceeds the length and gradient allowed by Clause 1.1(4).
- iii) There is insufficient space available on the site on which to construct a step-free access path complying with Clause 1.1.

*Source: National Construction Code 2022 Part H8 Livable Housing Design: Deemed to Satisfy Provisions.*

These access provisions are just one part of the Livable Housing Design Standard. The option of providing a step-free entry path from the front boundary to the entry door is the first of three options for providing step-free access. The other two options include from the attached carparking space and from a step-free path on another part of the site, e.g., from a carport along the side of the dwelling to a rear attached patio with step-free access into the dwelling.

If none of these options are feasible under the Standard, an exemption from providing step-free access into the dwelling may be granted. However, the remaining provisions related to the internal dwelling design are still applicable. Refer to the exemptions section in this report for further information on permitted exemptions.

The [ABCB Livable Housing Design Standard](#) details the full list of accessibility provisions under the Standard.



## Purpose of study

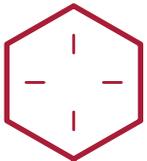
QBuild undertook case study investigations to provide private sector stakeholders greater clarity on the circumstances when proposed exemptions may apply and potential options to achieve compliance.

The case study diagrams include a variety of configurations. This technical study may also contribute to or become part of a user-friendly technical document supporting the new issue of the NCC, in the style of the Livable Housing Design Guide document.

It should be noted that these case studies are based on a defined series of parameters, using plans which are based on examples of detached housing from the private housing market. If any of those parameters are altered or the site characteristics are different, an

exemption may not apply if the provisions of H8.D2.2(a) and (b) are not met.

The purpose of the case studies is to demonstrate what an exempt development and a compliant development may look like under the department's professional interpretation of the ABCB Livable Housing Standard. In practice with a real Class 1 building project, a building surveyor or certifier will be responsible for confirming whether the project is exempt from providing a step-free entry path from the front boundary to the main entry door.



## Scope of work

The study involved preparing plan view scale drawings of a diagrammatic nature for a variety of common lot widths and setbacks, that consider the relevant requirements of the ABCB Livable Housing standard and demonstrate the practical application of this standard in providing a step-free path of travel from the front boundary to the house entry.

The plan diagrams are presented with an accompanying table showing the lot widths, setbacks and exemption status for different configurations and standard house types.

Appendix 1 contains a ramp calculation tool which uses a formula-based approach to assist designers to implement the new requirements, based on both the 1:14 and 1:20 ramp gradients proposed by the Standard. Appendix 2 is the exemption clause from the NCC 2022, and Appendix 3 is the relevant extract from Part H8 of the NCC.

Detailed investigation of stakeholder concerns regarding compliance with other proposed livable housing provisions are not part of this study e.g., waterproofing of step-free entry doors, bathroom floor set downs to achieve step-free thresholds.

Appendix 4 is a draft three-bedroom house plan which illustrates possible options for compliant access from the attached garage, and what the remaining livable housing provisions look like internally, on a 260m<sup>2</sup> block, for the purposes of demonstrating one method of compliance on a small lot.

Appendix 5 is an extract from the New Zealand Building Code about the waterproofing of step-free entry thresholds, for reference and discussion.



## Methodology

The study was based on the following methodology:

1. Drafting of diagrams in plan view using Autocad showing common range of lot widths and setbacks. These are divided into small lots and standard lots.

The proposed house types are typical of project home builder plans currently used in the marketplace, with overlays of common local government planning scheme provisions relating to street facing elevation treatments.

2. Applying the required step-free access path provisions proposed to each lot to assess whether compliance is possible or triggers an exemption. As compliance may be achieved with more than one solution, the investigation uses the method considered most cost effective and logical. Drafting of the proposed access path onto the plan diagrams, with annotations and a rating system based on a tick and cross system.
3. Collating findings in a table showing lot widths and setbacks, and achievable finished floor levels.



## Parameters for this study

- Step-free path of travel will be from an access point on the front boundary to a sheltered front entry door, not be obtained through the garage.
- Focus is on the street facing portion of the lot where access is more likely to take place.
- A straight section of ramp between the front boundary and entry door is the desirable option as the most economical access solution, with an L shaped ramp as Option B where necessary to achieve the required Finished Floor Level (FFL), where space permits. Scissor ramps are not proposed as per the explanatory information provided by the ABCB in H8.D2.
- Apart from including a minimal slope towards the front boundary to provide for adequate drainage the modelled lots will be essentially flat for the purposes of this exercise.
- Rural sites with great distances between front boundaries and dwelling entries are proposed to consider a dedicated parking space close to the dwelling as their first point of a path of access.
- The front elevation will comprise the street facing walls with a minimum of:
  - › one habitable space and the entry foyer for small lots, with vehicle access through a rear laneway, with the addition of an attached garage and driveway for other small lot sites where site width permits.
- › one habitable space, being either a bedroom or study, the entry foyer and an attached single or double garage where site width permits.
- A minimum step back in the front elevation of the width of the security door swing, i.e., 900 millimetres from the habitable space wall closest to the front setback, back to the entry door and garage, commonly required in planning schemes for detached houses.
- 600 millimetres minimum roof overhang where possible, some walls on narrow lots will not have roof overhangs but may incorporate window awnings for weather protection.
- 1.5 metre side setback to outermost projection, i.e., roof or wall.
- Garage wall may be built to boundary on narrow lots but remaining walls behind will step back 1.5 metres.
- Waffle pod concrete slab construction with a depth of slab of 300 millimetres above ground level as the default.



## Study parameter issues for ABCB clarification and discussion

1. The total (aggregate) lengths of ramp proposed are inclusive of any 1:10 gradient step ramp incorporated, i.e., the 9 metres maximum permitted length of 1:14 ramp, if incorporating 1.9 metres of step ramp, would allow 7.1 metres in total of 1:14 ramp. Refer to the ramp calculation tool in Appendix 1 for more detail.
  2. Small lots sharing a built to boundary wall may share a common landing at the front boundary site entry point.
  3. 1:8 fall to threshold combined with use of proprietary wheelchair accessible weather stops to both doors and proprietary strip drain connected to stormwater to achieve maximum height gain and best drainage outcomes. Size of strip drain may increase for higher rainfall areas.
  4. The term 'average slope of the ground on which the path is to be constructed' be linked to the existing conditions of a site after the building platform has been prepared, prior to any building work being performed. This will prevent an exemption being easily manipulated and clarify certification by a building surveyor. It will also help prospective purchasers understand the requirements of compliance and whether the design they choose will be exempt from the step-free entry requirements.
  5. >1:14 slope to undeveloped ground between front boundary and proposed base of waffle pod slab is basis of exemption trigger, as waffle pod construction sits on top of the benched ground surface. A slab on ground with excavated beams or piers would have a lower FFL in comparison.
  6. Default ramp configuration is:
    - a) L shaped ramp with first section of ramping aligned with front boundary and second section parallel with driveway rather than
      - b) the first section parallel with the side boundary/driveway and second section running along the face of the wall facing the street.
- Option B creates issues with termite inspection, masonry weep holes and drainage of ground away from the walls, unless the ramp is a raised permeable structure such as a timber walkway, independent from the house wall structure (designed in accordance with the relevant Australian Standard). Appendix 5 provides some relevant detailing from the New Zealand Building Code extract.
7. Where possible, step-free entry ramps should be separated from vehicle access driveways to avoid parked cars blocking the step-free path of travel.
  8. In the house plan showing access from garage, it is proposed that the 1 metre path of travel alongside the vehicle, and the 1.2 metres x 1.2 metres threshold landing to the doorway into the dwelling from the garage, may overlap the required 3.2 metres x 5.4 metres Person With Disability (PWD) parking space by 800 millimetres to align with a standard carpark width of 2.4 metres (see Appendix 4). This reflects the space provided by current public PWD carpark provisions in the Australian Standard i.e., a 2.4 metres wide carpark space next to a 2.4 metre shared zone for vehicle exit and circulation of carpark users with a central bollard. It also reduces the additional floor area needed to comply in an attached garage, which reduces the additional cost. This would apply to double garages where a sensible proposal would see the path of travel on the dwelling entry side of the PWD park combined with a standard adjacent park of 2.4 metres wide.

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- Step-free paths of travel should be safe. The ramp designs may require some kerbing or adjustment of adjacent ground surfaces to ensure user safety particularly step ramps at 1:10 gradient. Note that full compliance with the requirements of AS1428.1 has not been mandated in the design of the new accessibility standard provisions.
  - Proposal that rural sites with great distances between front boundaries and dwelling entries are to consider a dedicated parking space close to the dwelling as their first point of a path of access.



## Exemptions

The exemptions for step-free path of travel from the front boundary to entry under the Standard include where the:

- undeveloped slope of pathway ground is steeper than 1:14
- maximum ramping permitted or possible on site is not enough to reach the proposed finished FFL
- space on site to fit a compliant path of travel is insufficient, or ramps would be switchback style rather than straight or L shaped
- minimum FFL is set by the local or state planning scheme and is higher than that reached with the maximum ramping permitted or possible on site
- dwelling type or style is highset, suspended floor construction with the habitable spaces having a higher FFL than is reached with the maximum ramping permitted or possible on site
- dwelling is located completely above private carparking i.e., no habitable spaces at carparking level.

The next option for access is through the attached carparking, which has its own applicable exemptions. See the three-bedroom house plan in Appendix 4 for demonstrated compliance options.

Looking at the provisions in more detail and applying them in the house type diagrams, there are two circumstances where the

exemption provisions in the Standard are applied quite clearly:

- the FFL exceeds the level modelled with a 1:14 gradient between the front boundary and the slab edge at the entry, expressed as the 1:14 height gained + the slab FFL height above ground level (varying depending on type of construction)
- the FFL exceeds the level possible using the maximum aggregate length of ramp, realistically applied from the front boundary to the entry, given the site width and required setback e.g., 9 metres of 1:14 ramp incorporating a 1.9 metres step ramp and a landing top and bottom would still not be enough to reach the height of the proposed FFL i.e., 813 millimetres above the Reduced Level (RL) at the front boundary, or 15 metres of 1:20 ramp incorporating a 1.9 metres step ramp and landing top, middle and bottom would not be enough to reach the proposed FFL i.e., 961 millimetres above the RL at the front boundary.

Whichever circumstance results in the lower FFL of the two examples is the one which triggers the exemption, as only one of the circumstances need apply. For example, a 4-metre setback on a standard site with a 300-millimetre waffle slab with an FFL greater than 695 millimetres above the front boundary level, will have an existing ground gradient greater than 1:14. The exemption is triggered by the ground gradient, even though an FFL of up to 813 millimetres could be achieved with the application of the maximum length of 1:14 ramp.

If a floor level is required, by a condition set by a planning authority or a by a designated flood area (riverine or coastal inundation), to be higher than that possible using the maximum length of ramp, that site is also exempt from the requirements of clause 1.1 of the Standard. By having a floor level set at this height or over the exemption in NCC Volume 2 H8D2(2)(b) should also be met.

The defined exemptions provided for in the Standard such as high set suspended floor construction dwellings e.g., traditional Queenslander or small lot dwellings built entirely over a garage, demonstrate that the ABCB has recognised this kind of dwelling construction does not lend itself to step-free access via ramping. Also, that there is still a demand for such dwellings particularly on

steeply sloping sites, despite the proliferation of the slab on ground, single storey housing model in new suburban developments.

As stated earlier, an exemption from providing step-free access into the dwelling may be granted under the defined circumstances, however the remaining provisions related to the internal dwelling design are still applicable. This is particularly critical for Class 1 dwellings. The intent is to allow dwelling occupants to recover from illness or injury, live with an acquired disability or age in place. The residents may still have the option to build a means of access, for example, retrofitting of a lift or a temporary or permanent ramp. Class 2 dwellings would be assessed differently when determining exemption status and are not part of this study.

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**The step-free entry path is a critical first element of the new provisions, given the three options provided to design a compliant solution.**

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## Findings

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**In most site configurations, there is more than one way to achieve a compliant step-free entry from the front boundary, with the single straight section of ramp being the most economical and direct.**

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The critical parameter is the position of the entry door in relation to the front boundary and if the dwelling design has flexibility in the setback of the entry this widens the scope for compliance. The greater the length of ramp, the higher the finished floor level achieved. For waffle pod slab construction with a deeper slab due to soil conditions, small lots with limited setback depths will be more likely to trigger an exemption.

The plan diagrams demonstrate that some smaller sites won't achieve practical compliance if the setback zone and entry configuration is too limited to fit the ramping required to reach the finished floor level. However, they also illustrate that even a six metres wide site with a one metre setback can accommodate a compliant step-free path with a 300-waffle pod slab. This is demonstrated using a real-world example of a small lot plan in the Aura estate with an entry which can be positioned with some flexibility in its distance from the front boundary. The small lot compliance issues will be solved by flexibility in design, and forward-thinking project home companies will adapt their product accordingly.

The step-free entry path is not limited to hardscape construction. It can utilise raised timber decking with the required conditions for step-free travel, if levels allow, which can provide opportunities for better drainage of the ground below. The New Zealand Building Code provides examples of how this might work (see Appendix 5). However, these details would have to be adapted to our climatic and invasive termite species conditions and designed to the Australian Standard for such construction.

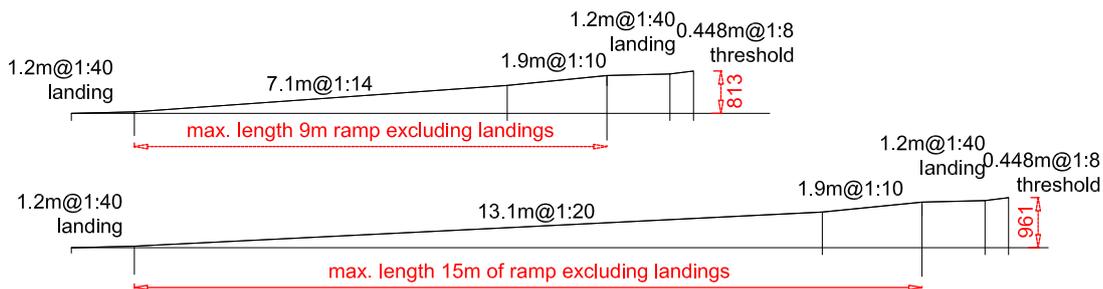
Research for this report showed that many project home builder plans would be relatively easy to adapt to the step-free entry path adjacent to a driveway. If ramp levels and gradients can be the same on the adjacent driveway which in many cases provides the required space for a tandem carpark, this is a simple and relatively economical way to achieve the dedicated step-free pathway to the entry, clear of any parked cars or vehicle movement. It also allows space for landscaped planter beds between the path and driveway or along the remaining front boundary, which is a common planning scheme requirement.

The L shaped ramp does take up the front boundary edge with hardscape. However, even with small setbacks there can be the potential for landscape integration with the necessary separation between raised planter beds with contained drainage or deep planting, and the dwelling walls/footings. Small lots with minimal setbacks by default have limited opportunity for landscaping and will draw ideas for landscape integration from contemporary medium density development with similar constraints.

## Appendix 1 – Ramp calculator tools

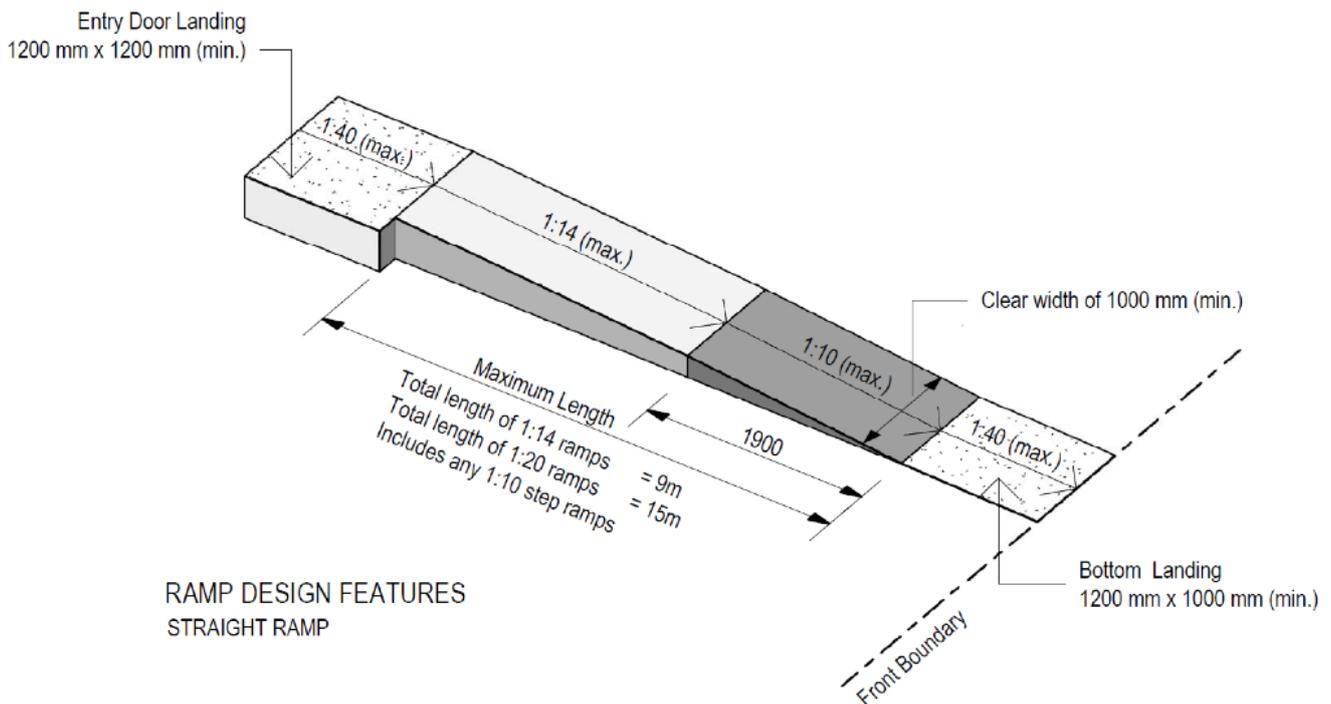
Using the following steps designers can calculate how much height is gained by a particular length of compliant ramp under the new Standard. The maximum aggregate length of ramp considered feasible without triggering an exemption for providing step-free access from the front boundary to the entry door is:

- 9 metres for ramps at 1:14
- 15 metres for ramps at 1:20
- a sliding scale for gradients in between those two values i.e., 12 metres for 1:17 gradient ramps.

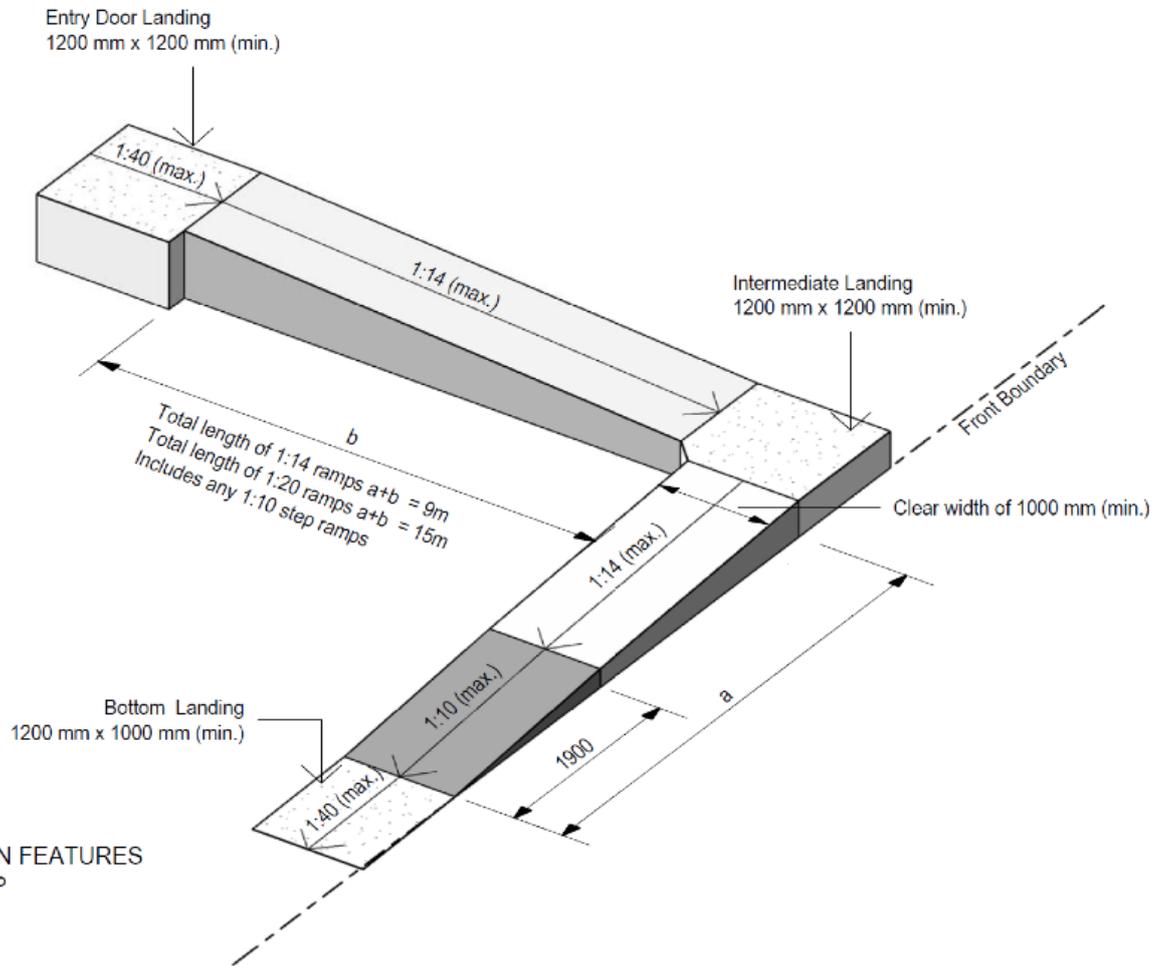


**MAXIMUM LENGTHS OF RAMP AND HEIGHTS ACHIEVED FOR COMPLIANT STEP FREE PATH UNDER THE STANDARD**

*Note: 1:8 threshold and 1:40 top landing may overlap.*



## Appendix 1 – Ramp calculator tools (cont)



## Appendix 1 – Ramp calculator tools (cont)

The fixed values highlighted in pink are the required landings (top and bottom and mid-landings if using an L shaped ramp) and ramped door threshold at lengths and gradients set out in the Standard. Also included is a provisional step ramp at 1:10 at the maximum length of 1.9 metres permitted under the Standard. This is optional but delivers more height in a shorter length of ramp. Note also that 1 and 2 ramped threshold and top landing may overlap but for the purposes of this study are adjacent.

The values in green are variable based on the length of ramp proposed. The height gained by each section of ramp is a simple calculation of the:

Measurement of ramp length in the flat ground plane divided by the ramp gradient i.e., 14 for a 1:14 ramp, 20 for a 1:20 ramp

For example, a ramp length of 3500 millimetres or 3.5 metres measured along the horizontal, flat ground plane at a gradient of 1:14 delivers 250 millimetres or 0.25 metres height is calculated as  $3500 \div 14 = 250$  millimetres.

The total length of step-free pathway will be determined by the setback to the entry door from the front boundary, and how much length of ramp can fit within the front yard with the required landings.

### 1:14 RAMPS: maximum aggregate distance 9m = 7.1m at 1:14 + 1.9m at 1:10 Height gained $\leq$ 813mm

#### Option 1: straight ramp

1. 1:8 gradient ramped threshold (448mm max) = 56mm
1. 1:40 (max) gradient top landing (1200mmx1200mm min) = 30mm
2. 1:14 (max) gradient ramp (variable distance  $\leq$  7100mm) = X (max 507mm)
1. 1:10 (max) gradient step ramp (max. distance = 1900mm) = 190mm
1. 1:40 (max) gradient bottom landing (1200mmx1000mm min) = 30mm

TOTAL: RL difference between boundary and entry door FFL:

$56+30+X(\text{max } 507)+190+30 = Y$  total height gained from start of ramp at front boundary to finished floor level at entry door (variable distance  $\leq$  813mm)

#### Option 2: L-shaped ramp

1. 1:8 gradient ramped threshold (448mm max) = 56mm
2. 1:40 (max) gradient top landing (1200mmx1200mm min) = 30mm
3. 1:14 (max) gradient ramp (a) (variable distance  $\leq$  7100mm) (noting  $a + b = \leq 7100$ mm)
4. 1:40 (max) gradient mid-landing (1200mmx1200mm) = 0mm for diagonal travel
5. 1:14 (max) gradient ramp (b) (variable distance  $\leq$  7100mm) (noting  $a + b = \leq 7100$ mm) = X(max 507mm)
6. 1:10 (max) gradient step ramp (max. distance = 1900mm) = 190mm
7. 1:40 (max) gradient bottom landing (1200mmx1000mm min) = 30mm
8. RL difference between boundary and entry door FFL:

$56+30+X(\text{max } 507)+190+30 = Y$  total height gained from start of ramp at front boundary to finished floor level at entry door (variable distance  $\leq$  813mm)

## Appendix 1 – Ramp calculator tools (cont)

**1:20 RAMPS: maximum aggregate distance 15m = 13.1m at 1:20 + 1.9m at 1:10**  
**Height gained ≤ 961mm**

### Option 1: straight ramp

- 1:8 gradient ramped threshold (448mm max) = **56mm**
- 1:40 (max) gradient top landing (1200mmx1200mm min) = **30mm**
- 1:20 (max) gradient ramp (**variable distance** ≤ 13100mm) = **X(max 655mm)**
- 1:10 (max) gradient step ramp (max. distance = 1900mm) = **190mm**
- 1:40 (max) gradient bottom landing (1200mmx1000mm min) = **30mm**

TOTAL: RL difference between boundary and entry door FFL:

**$56+30+X(\text{max } 655)+190+30 = Y$  total height gained from start of ramp at front boundary to finished floor level at entry door (variable distance ≤ 961mm)**

### Option 2: L-shaped ramp

- 1:8 gradient ramped threshold (448mm max) = **56mm**
- 1:40 (max) gradient top landing (1200mmx1200mm min) = **30mm**
- 1:20 (max) gradient ramp (**(a) (variable distance** ≤ 13100mm) (noting  $a + b = \leq 13100\text{mm}$ )
- 1:40 (max) gradient mid-landing (1200mmx1200mm) = 0mm for diagonal travel
- 1:20 (max) gradient ramp (**(b) (variable distance** ≤ 13100mm) (noting  $a + b = \leq 13100\text{mm}$ ) = **X(max 655mm)**
- 1:10 (max) gradient step ramp (max. distance = 1900mm) = **190mm**
- 1:40 (max) gradient bottom landing (1200mmx1000mm min) = **30mm**
- RL difference between boundary and entry door FFL:

**$56+30+X(\text{max } 655)+190+30 = Y$  total height gained from start of ramp at front boundary to finished floor level at entry door (variable distance ≤ 961mm).**

## Appendix 2 – Exemption clause NCC Volume 2 H8D2

The Deemed-to-Satisfy requirements to comply with the Standard and the circumstances where compliance with clause 1.1 of the Standard is not required, is defined in NCC Volume 2 H8D2 as:

1. *A Class 1a dwelling must comply with the ABCB Standard for Livable Housing Design.*
2. *Clause 1.1 of the ABCB Standard for Livable Housing Design need not be complied with if–*
  - a) *it is not practicable to provide step-free access via an appurtenant garage, carport or parking space in accordance with Clause 1.1(1)(b) or (c); and*
  - b) *one or more of the following is true:*
    - i) *The average slope of the ground on which the access path would be constructed exceeds a gradient of 1:14.*
    - ii) *To provide an external step-free access path would necessitate construction of ramping that exceeds the length and gradient allowed by Clause 1.1(4).*
    - iii) *There is insufficient space available on the site on which to construct a step-free access path complying with Clause 1.1.*
3. *Even if Clause 1.1 is not complied with, all other relevant provisions of the ABCB Standard for Livable Housing Design must still be complied with.*

## Appendix 3 – Part H8 livable housing design provisions

### Public Comment Draft Class 1 and 10 buildings

#### Part H8 Livable housing design

##### Introduction to this Part

This Part sets requirements for dwellings to include features that are designed to improve their accessibility and usability for occupants and visitors, including those with a mobility-related disability.

##### Objectives

###### H8O1 Objective

[New for 2022]

The Objective of this Part is to ensure that housing is designed to meet the needs of the community, including older Australians and those with a mobility-related disability.

##### Applications:

H8O1 only applies to Class 1a buildings.

##### Functional Statements

###### H8F1 Livable housing design

[New for 2022]

A dwelling should be designed such that it is—

- (a) easy to enter; and
- (b) easy to navigate in an around; and
- (c) capable of easy and cost effective adaptation; and
- (d) responsive to the changing needs of occupants.

##### Explanatory Information:

H8F1 only applies to Class 1a buildings.

##### Performance Requirements

###### H8P1 Livable housing design

[New for 2022]

A Class 1a building must be provided with—

- (a) a safe, continuous and step-free path to a dwelling entrance door from either—
  - (i) the pedestrian entry at the allotment boundary; or
  - (ii) an appurtenant Class 10a garage or carport; or
  - (iii) a car parking space provided for the exclusive use of the occupants of the dwelling; and
- (b) at least one level and step-free entrance door into the dwelling from the access path required by (a); and

## Appendix 3 – Part H8 livable housing design provisions (cont)

### Public Comment Draft Class 1 and 10 buildings

H8P1

- (c) internal doors and corridors which facilitate unimpeded movement between spaces; and
- (d) a sanitary compartment that—
  - (i) facilitates independent access and use; and
  - (ii) is located on the ground or entry level; and
- (e) a shower that—
  - (i) facilitates independent access and use; and
  - (ii) is located on the ground or entry level; and
- (f) the walls of the sanitary compartment referred to in (d) and the shower referred to in (e) constructed so as to facilitate future installation of grabrails, or the like, in a way that minimises the removal of existing wall linings.

#### Exemptions:

H8P1(a) need not be complied with if—

- (a) step-free access cannot be provided from an appurtenant Class 10a garage or carport or a car parking space provided for the exclusive use of the occupants of the dwelling; and
- (b) due to site conditions, there is no other suitable location on which to construct the access path.

#### Deemed-to-Satisfy Provisions

##### H8D1                      Deemed-to-Satisfy Provisions

[New for 2022]

- (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirement H8P1 is satisfied by complying with H8D2.
- (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3).

##### H8D2                      Livable housing design

[New for 2022]

- (1) A Class 1a dwelling must comply with the ABCB Standard for Livable Housing Design.
- (2) Clause 1.1 of the ABCB Standard for Livable Housing Design need not be complied with if—
  - (a) it is not practicable to provide step-free access via an appurtenant garage, carport or parking space in accordance with Clause 1.1(1)(b) or (c); and
  - (b) one or more of the following is true:
    - (i) The average slope of the ground on which the access path would be constructed exceeds a gradient of 1:14.
    - (ii) To provide an external step-free access path would necessitate construction of ramping that exceeds the length and gradient allowed by Clause 1.1(4).
    - (iii) There is insufficient space available on the site on which to construct a step-free access path complying with Clause 1.1.
- (3) Even if Clause 1.1 is not complied with, all other relevant provisions of the ABCB Standard for Livable Housing Design must still be complied with.

#### Explanatory Information: Exemptions

The exemptions listed at H8D2(2)(b)(i) and (ii) provide for situations where the ramping necessary to provide a step-free access path would become too lengthy or too steep to be used regularly by a person with limited mobility, and therefore would offer little benefit to dwelling occupants or visitors. Such situations may occur due to a number of factors.

## Appendix 3 – Part H8 livable housing design provisions (cont)

### Public Comment Draft Class 1 and 10 buildings

H8D2

including (but not limited to):

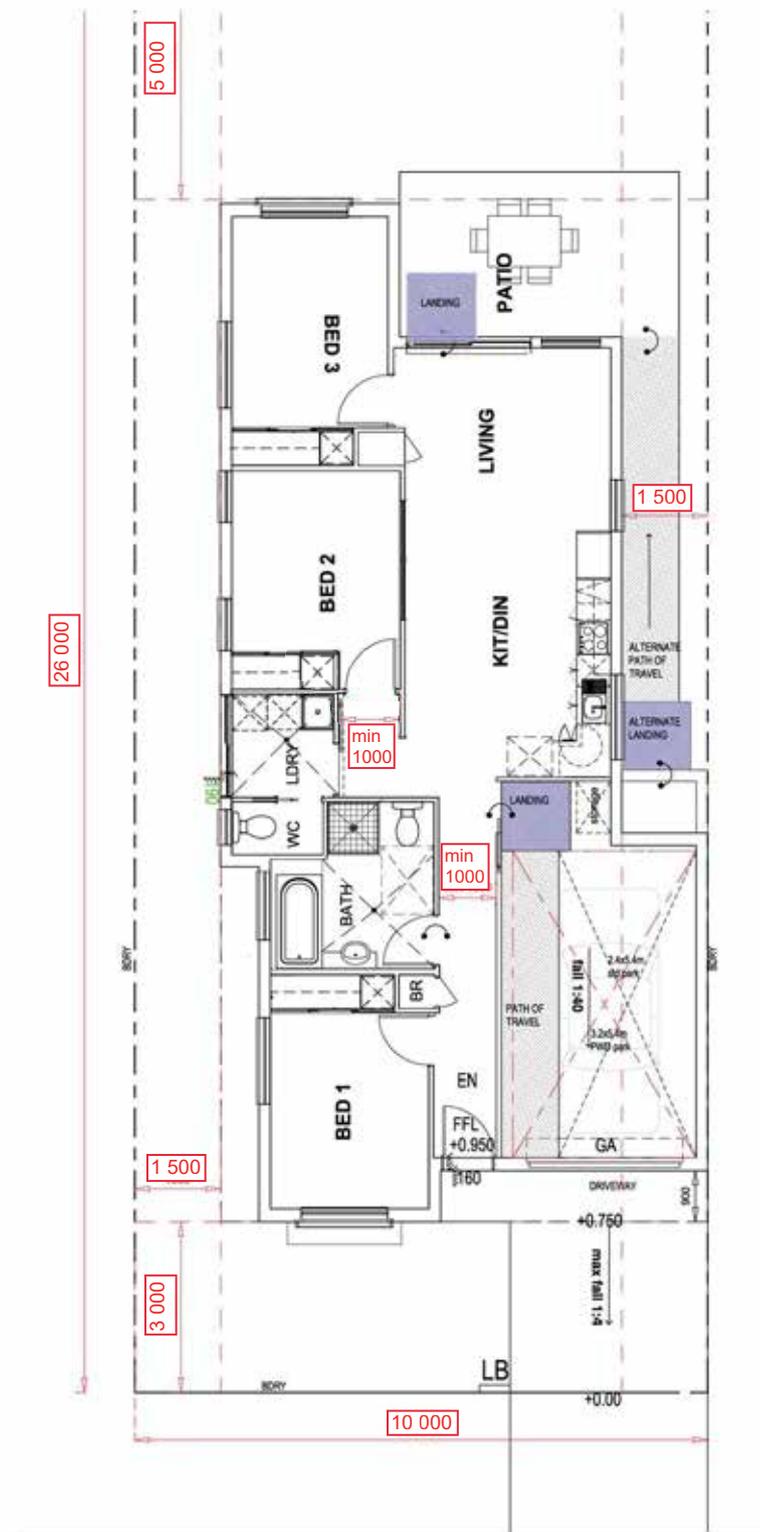
- The slope of the land upon which the ramp would be constructed. For example, where the land is too steep for the ramp to run straight up, meaning it would instead need to be cut into the slope, or run back and forth across the face of the slope, in order to stay within maximum gradient limits.
- The height of the lowest floor containing *habitable rooms* is too high to be reached by a ramp within *required length and gradient limits*. Floor heights can be influenced by factors such as *dwelling style*, *defined flood level*, *location of the dwelling in an alpine area*, or construction of the dwelling directly above a *private garage* (including *garage-top dwellings*).

The exemption listed at H8D2(2)(b)(iii) provides for situations where the amount of available space on the *site* is insufficient to accommodate a step-free access path. This may be due to the physical size of the *site*, or regulations outside of the NCC which limit the proportion of a *site* that can be covered by structures and/or impervious ground coverings.

It is important to note that under H8D2(2), an exemption may only be applied if in a particular case both (a) and (b) are applicable, not just one of the other.

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## Appendix 4 – A compliant three-bedroom plan with step-free access from the garage



**TYPE C HOUSE: standard lot: access via garage on 260sqm lot**

3 BED HOUSE ON 260m<sup>2</sup> BLOCK, 3m FRONT SETBACK, 5m REAR SETBACK, 48% SITE COVER

STEP FREE TRANSITION

# Appendix 5 – New Zealand Building Code extract

## 7.3 Level thresholds

Where provision for level access is required, this shall be provided as shown in Figure 17A and Figure 17B.

### 7.3.1 Enclosed decks

Where provision for level access is required for an *enclosed deck*, this shall be provided in Figure 17A. The underlying *membrane deck* surface shall be made *weathertight* as described in Paragraph 8.5.

#### 7.3.1.1 Removable surfaces

Amend 5 Aug 2011 | Raised removable surfaces of tiles, pavers or timber shall be provided over the underlying *weathertight enclosed deck* surface for cleaning and maintenance, as shown in Figure 17A. A minimum gap of 12 mm shall be provided against the *wall* or balustrade *cladding*.

#### 7.3.1.2 Timber removable surface

Amend 5 Aug 2011 | Timber decking shall be over *framing* supported off the *deck membrane* as shown in Figure 17A, with spacing in accordance with B2/AS1.

No fixings shall penetrate the underlying *deck membrane*.

#### COMMENT:

Amend 5 Aug 2011 | Tiled boards or structural pavers sitting on proprietary supports can be adjusted according to level changes in the underlying *deck* surface.

The pavers or tiled boards are spaced to allow free drainage and the ability to lift the top surface off when necessary.

Amend 5 Aug 2011 | The timber option allows access by fixing the timber decking with stainless steel screws, so they may be removed when necessary.

### 7.3.2 Ground floor level access

Where provision for level access is required, this may be provided as shown in Figure 17B, with exterior paving or decking that complies with the *access route* requirements of D1/AS1.

#### COMMENT:

The specific features of a *building* and its site can have a significant effect on the options available for providing level access at doors. These features include the provision of shelter, prevailing winds and ground levels. Where level access is required, it is highly recommended that the services of a designer experienced in this field be obtained.

### 7.3.2.1 Concrete slab

Where provision for level access is required from a concrete floor slab to exterior paving, this shall be as shown in Figure 17B with:

- a) A channel, together with drainage provisions, across the door opening, with:
  - i) width and depth dimensions to provide capacity that meets the requirements of NZBC Clause E1,
  - ii) a minimum width of 200 mm and minimum depth of 150 mm,
  - iii) a maximum length of 3700 mm, and
  - iv) 1:200 minimum fall along length of channel towards a drainage outlet,
  - v) the channel discharging to the surface water drainage system via a sump installed in accordance with the requirements of NZBC Clause E1,
- b) Grating, in accordance with Tables 21 and 22, over the channel, that:
  - i) is supported independently of the door frame,
  - ii) is removable to allow access for cleaning,
  - iii) is specifically designed to accommodate imposed loads,
  - iv) has gaps sized to prevent the wheels of wheel chairs or mobility aids entering or being trapped, and
  - v) has a continuous gap of 12 mm minimum from door frame and *wall cladding*, and

Amend 5 Aug 2011

Amend 10 Nov 2020  
Amend 5 Aug 2011  
Amend 2 Jul 2005

Amend 10 Nov 2020

Amend 5 Aug 2011

#### COMMENT:

The grating support must be specifically detailed to suit the condition of the *building* and site.

- c) Exterior paving that:
  - i) has a minimum fall of 1:40 away from the channel for a minimum distance of 1 m,
  - ii) together with the surrounding paving and ground levels, meets the drainage requirements of NZBC Clause E1.

Amend 5 Aug 2011

Amend 10 Nov 2020

### 7.3.2.2 Timber floor

Where provision for level access is required from a timber floor structure to the exterior, this may be provided as shown in Figure 17B, with clearances in accordance with Paragraph 9.1.3.

Amend 5 Aug 2011

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