



Livable Housing Provisions & Level Threshold Compliance

The Impact of the National Construction Code
2022 on Drainage Design and Specification



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INTRODUCTION

Drainage maintains a straightforward but crucial function: making sure water can be removed from the property effectively, safely, and efficiently. This is not only important in bathrooms to avoid pooling water and unsafe conditions, but also in the transition between indoor and outdoor spaces. An effective drainage system prevents water ingress by draining it away, all the while ensuring a level transition between the two spaces.

The National Construction Code (NCC) 2022 edition has new provisions that will make new Australian homes more suitable for people with mobility issues. New livable housing design requirements are included in the updated Code, changing the way we design homes to make them easier to use and more adaptable to the changing needs of occupants.

Based on the Livable Housing Design Guidelines (silver level), first published by Livable Housing Australia, these new requirements represent a significant improvement in the housing options available to older Australians and those with physical disabilities. In practice, this entails eliminating steps whenever possible, creating more room in the bathroom, enlarging doorways, and making provisions for future modifications like the installation of grab rails.

The priority for designers and specifiers is understanding the ‘nuts and bolts’ of these changes and how they will impact the design of different parts of new home builds, including the types of drainage systems that can be specified to ensure compliance.



WHAT IS CHANGING IN NCC 2022?

The NCC's livable housing provisions were previously treated as a separate set of design specifications, primarily included in the AS 1428 set of standards. Going forward, these provisions will be included in both volumes of the NCC 2022; in Volume One in the new Part G7, and in Volume Two in Part H8.

According to the Australian Building Codes Board (ABCB), these new Parts include a performance-based approach, to provide flexibility and encourage new and innovative ways to meet the requirements, and exemptions for situations where full compliance may be impractical or unreasonable.¹ They also include Deemed-to-Satisfy (DTS) Provisions that provide a standardised, prescriptive 'recipe' to meet the Performance Requirements, suitable for most common designs and construction methods.²

The ABCB Standard for Livable Housing Design (the 'ACBC Standard') is a brand-new technical standard that is referenced in the DTS Provisions.³ The 'nuts and bolts' technical information of the livable housing design

requirements is provided along with explanatory information of their purpose and how to apply them properly.⁴

The ABCB Standard covers a range of topics, but several impact drainage design and specification directly, particularly as they relate to level thresholds. Under the ABCB Standard, all dwellings need to have at least one accessible exterior entrance (unless the site is too steep, and a level entrance is not possible). In addition, the ABCB Standard requires all dwellings to have at least one ground floor accessible bathroom and shower. The details of these requirements are covered in more detail below.

There are other changes in NCC 2022 that are relevant to drainage design. Notably, in NCC 2022, no non-WaterMark products can be installed, and any product not certified as WaterMark has no path to a performance solution. In other words, any new techniques or technologies must obtain a WaterMark certification before being put to use. The WaterMark license may have limitations such as requiring a performance solution.





WHAT IS LIVABLE HOUSING?

The Livable Housing Design Guidelines, which were developed in collaboration with the community, consumer advocacy organisations, government, and business, are the only best practices guidelines for livable housing in Australia. The goal was to provide a common language and reference point for livable housing in design and construction, leading to the development of safer, more comfortable and easier to access homes for everybody.

All occupants, including people with disabilities, older Australians, those who have suffered temporary injuries, and families with young children, can use livable homes more easily and safely thanks to their inclusion of key easy-living features. A livable home is designed to:

- be easy to enter;
- be easy to navigate in and around;
- be capable of easy and cost-effective adaptation; and
- be responsive to the changing needs of home occupants.

In the Guidelines, 15 livable design components are listed. Each component outlines the performance requirements for achieving either silver, gold, or platinum level accreditation. The new NCC provisions in principle are based on the silver level of the Guidelines. Minor adjustments have been made to provide more prescriptive guidelines and to make sure the provisions do not conflict with other NCC provisions. The silver level concentrates on the essential structural and spatial components that are essential to guaranteeing the home's flexibility and adaptability in the future

LEVEL THRESHOLD REQUIREMENTS IN NCC 2022

In Performance Requirement H8P1(a) of NCC 2022, a Class 1a building must be provided with:

- (a) a 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
- (c) internal doors and corridors on the ground or entrance level 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 facilitates independent access and use; and
- (f) the walls of the sanitary compartment referred to in (d), the shower referred to in (e) and a bath (where installed, other than a freestanding bath) constructed so as to facilitate future installation of grab rails, or the like, in a way that minimises the removal of existing wall linings.

For a Deemed-to-Satisfy Solution, these requirements can be met by complying with H8D2, which entails following the ABCB Standard. Below is a summary of some of the requirements in the ABCB Standard relevant to threshold design.

- **Clause 1.1** includes the design specifications for a step-free access path.
- **Clause 2.2** provides that the threshold of an accessible entrance door must be level, have a sill height not more than 5 mm if the lip is rounded or bevelled, have a ramped threshold of specified dimensions, or have a sill with a lip height not more than 15 mm in any part of its profile if any of these specifications cannot meet the damp and weatherproofing requirements of the NCC.
- **Clause 2.4** covers the weatherproofing for external step-free entrances. Where an external step-free level entrance is provided by way of an impervious surface, a drainage channel must be provided for the length of the opening at the base of the door threshold with grating over the channel.
- **Clauses 3.1 and 3.2** require a level threshold for internal doors and corridors. This applies to doorways that connect to, or is in the path of travel to, any habitable room or laundry on the ground or entry level; attached Class 10a garage or carport that forms part of an access path required by Clause 1.1; sanitary compartment on the ground or entry level complying with Parts 4 and 6; or shower complying with Parts 5 and 6.
- **Clause 4.1** requires that there must be at least one sanitary compartment located on the ground or entry level of a dwelling. In accordance with Clauses 3.1 and 3.2, the entry to this sanitary compartment must have a level threshold.
- **Clause 5.2** requires that at least one shower must have a hobless and step-free entry. In a home with two or more showers, "at least one shower" means that only one of the showers needs to meet the requirements of this Part. It is not necessary for a shower covered by Part 5 to be situated on the ground floor or entry level of the home.

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DESIGNING FOR COMPLIANCE:

Threshold drains

The level threshold requirements in the NCC 2022 require careful consideration of the types of drainage systems that should be specified within livable homes. As they enable effective drainage while helping designers satisfy level threshold requirements, linear threshold drains are the ideal design solution wherever accessibility is a concern.

The threshold drain consists of an external linear grate which sits beside the doortrack. Water and condensation that collects around the doorway is channeled to the external drainage system by an integrated, concealed sub-sill. The streamlined design of a creates a disguised water barrier between indoor and outdoor living areas without relying on a step or raised lip. It can also be applied to showers and bathrooms to remove trip-and-slip hazards such as stepdowns and high gradient falls across doorways with rolling, sliding and bi-fold doors.

Level threshold has been increasing in popularity and over the last 10 years Stormtech has developed a particular expertise in doortrack and threshold drains since the 1990's. The level Stormtech Threshold drains are available with a stainless-steel grate or tile insert channel and are a made-to-length system ensuring they are compatible with major door manufacturers. Importantly they also comply with the access and mobility code (AS 1428).

Stormtech's Threshold systems are suitable with sliding, hinged door, door track applications, bi-fold or top hung doors. All Stormtech products are Australian-made and WaterMark certified. With a proud commitment to eco-friendly design, Stormtech offers the only linear drainage product in the world with Global GreenTag certification.

About Stormtech

As Australia's premier drainage manufacturer and supplier, Stormtech is committed to delivering superior lineal drainage solutions that meet the needs of today's residential market. As the proud pioneer of this unique drainage system, Stormtech is recognised globally as an industry leader in design, consultation and manufacture of lineal drainage – solutions that enable the creation of safe, accessible homes.



REFERENCES

- ¹ Australian Building Codes Board. "New livable housing design requirements." ABCB.
<https://ncc.abcb.gov.au/news/2022/new-livable-housing-design-requirements> (accessed 14 October 2022).
- ² Ibid.
- ³ Ibid.
- ⁴ Ibid.

All information provided correct as of October 2022