



RAMPS AND PATHS FOR ACCESSIBILITY

All buildings accessed by the public must have an 'accessible route' which is usable by people with disabilities. With an ageing population, designing houses to be universally accessible makes sense as well.

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When a person is unable to visit a building or live in their house because of physical barriers, the building is inadequate and requires modification. The New Zealand Building Code refers to the need to provide, both to and within buildings, means of access and facilities so that people with disabilities can enter and carry out normal processes.

What the NZBC requires

Clause D1 *Access routes* cites Acceptable Solution D1/AS1 as a means of compliance. It also cites compliance with NZS 4121: 2001 *Design for access and mobility: Buildings and associated facilities* as an Acceptable Solution for accessible routes but comments that it may exceed the requirements of D1/AS1. The answer probably lies between the two, with a common sense approach to each situation.

NZS 4121 gives a complete list of building types to which the standard applies. Appendix C of NZS 4121 requires alterations to existing buildings to provide accessibility to the fullest extent possible.

All buildings which are used by the public must have an 'accessible route' which is usable by people with disabilities. It must extend from the street boundary or car park to the building entrance and must be negotiable by an unaided wheelchair user.

An important aspect of accessibility and safety is the design of footpaths, ramps and landings that form part of the accessible route. So what is the difference between a footpath and a ramp and what type of safety features are required?

Footpaths or ramps?

Under NZS 4121 a footpath forming part of an accessible route that is steeper than 1 in 20

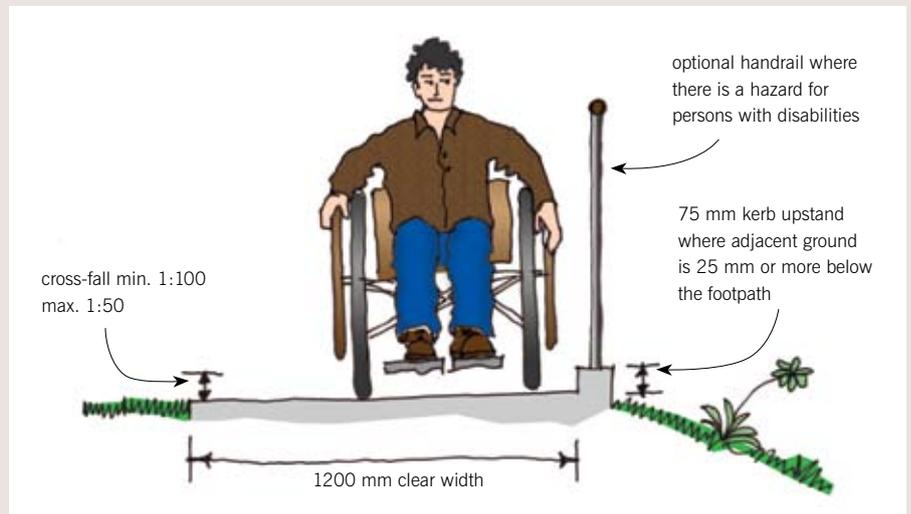


Figure 1: Footpath on an accessible route.

must be treated as a ramp. Under the standard, criteria for footpaths require them to have a minimum clear width of 1200 mm and be free from obstructions such as projecting windows (see Figure 1).

The natural ground level on either side of the path should be as flush as possible with the footpath surface in case people veer off the path. Where the adjacent ground is 25 mm or more below the footpath, it must have a 75 mm high kerb to prevent a wheelchair from running off the path. Where there is a slope or some other hazard, a handrail in addition to the kerb will provide better security than a low barrier.

To drain surface water there should be a cross-fall of not less than 1 in 100 but not exceeding 1 in 50. The restriction on the cross-fall is important. Too much cross-fall can cause wheelchairs to pull to one side and blind people to veer off line.

The accessible route may cross a variety of different surfaces, all of which must be

slip resistant even when wet. Slip resistance means a coefficient of friction of not less than 0.4 when tested in accordance with AS/NZS 3661.1: 1993 *Slip resistance of pedestrian surfaces*. Table 2 of Clause D1 gives an indication of the acceptability of a range of surfaces.

When the gradient of the path is steeper than 1 in 33, wheelchair users will tire quickly and the maximum rise must not exceed 750 mm between 1200 mm long level landings.

Ramps

Wherever possible, ramps should be avoided and a longer path with a lower gradient provided. As well as being easier for the user it will often cost less. But ramps are sometimes the only option for accessible routes, particularly in urban situations. When this is the case the gradient should be as low as possible – 1 in 14 is the preferred user-friendly slope with a maximum of 1 in 12.

When any part of an accessible route exceeds a gradient of 1 in 20, it is treated as a ramp (see Figure 2). As with footpaths, ramps must have a clear width of 1200 mm. They must be provided with 1200 mm level landings at top and bottom, with a maximum rise between the landings of 750 mm. Handrails must be fitted on both sides. If there is a drop-off of up to 1000 mm there must be an upstand or edge rail as well as handrails.

Barriers to prevent falling

Confusion often arises over the need for a barrier to prevent people falling from ramps. The Building Code Clause F4/AS1 requires a barrier to be provided where a ramp has a drop-off of 1000 mm or more. This barrier is different from the usual handrail and edge rail on ramps to assist people with disabilities.

Barriers to prevent falling must be designed principally to discourage children from climbing over or through them. They must have handrails, an upstand kerb or edge rail and some sort of infill. Barriers can be designed to fulfil both needs (see Figure 3).

Safe access to houses

The statutory requirements for access do not apply to private homes. But it makes sense to design all new houses so that they are universally accessible and will meet people's needs throughout their lives.

A house that is designed to be accessible to people with disabilities is easier and safer

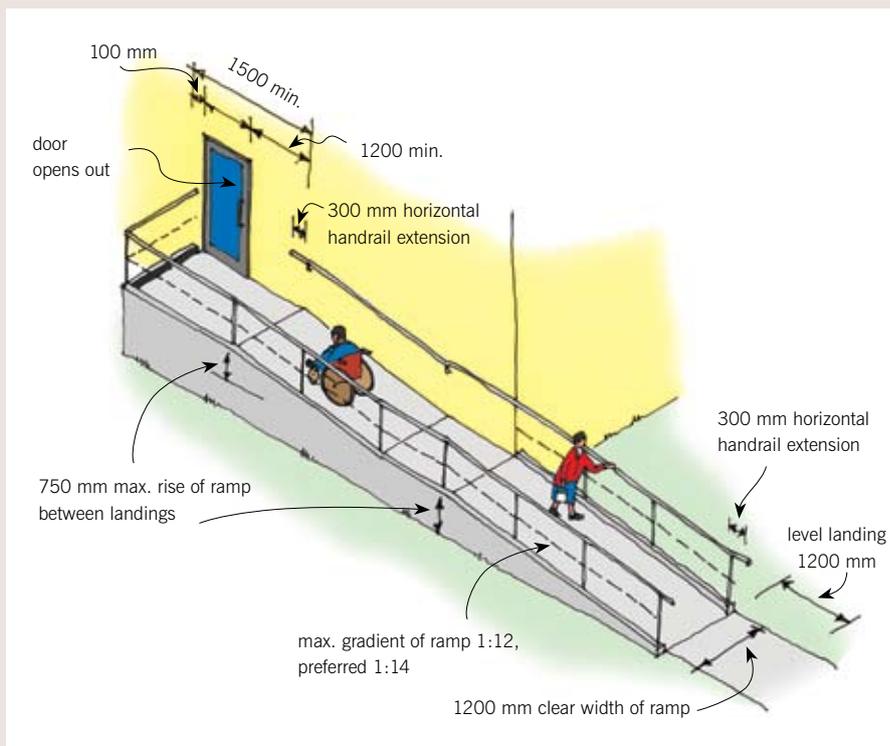


Figure 2: An accessible ramp.

for all users. It will have a wider range of possible purchasers, from people with young children to the elderly, and a higher resale value. It will also be suitable for able-bodied people with short-term injuries and even make moving the furniture an easier task.

Increased safety is very important. The majority of personal injuries occur in homes.

Many of these could be prevented if houses and their access routes were safer.

For more universal design details see 'Homes without barriers...a guide to accessible houses' available from the BRANZ Bookshop www.branz.co.nz for \$39.95. ♦

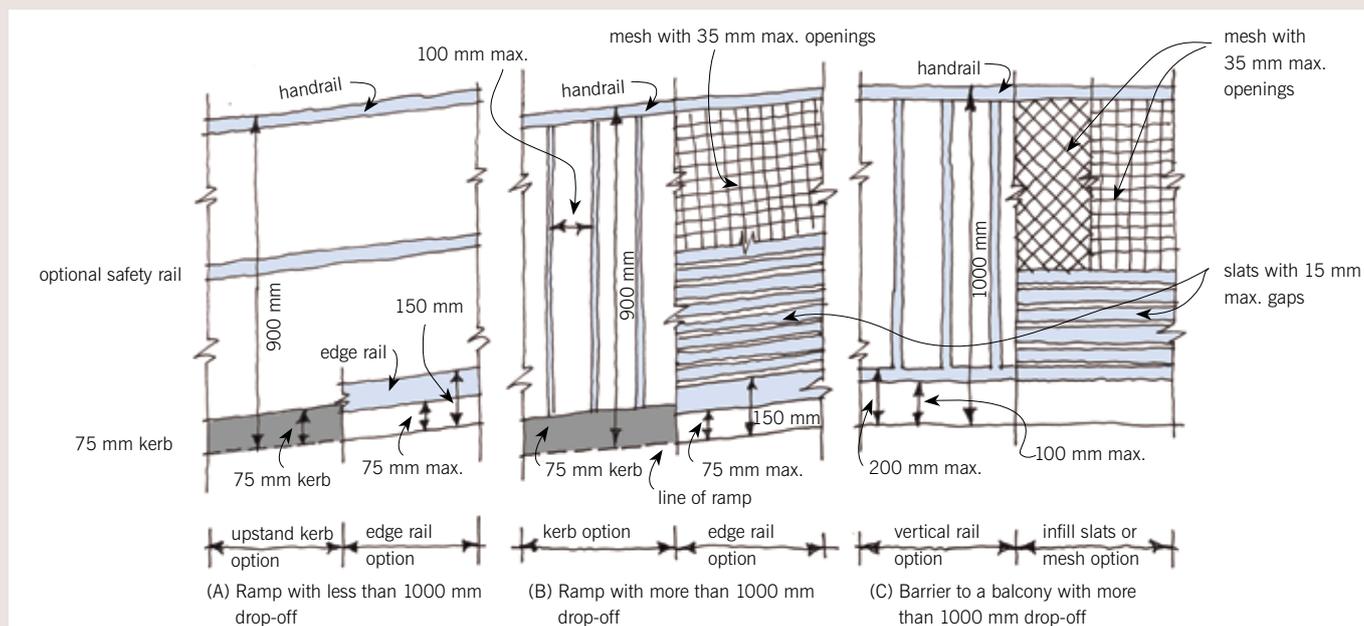


Figure 3: Handrail and barrier options.