



Southwest
New Brunswick
Service Commission

A guide to wheelchair ramps

There are many reasons why one may wish to build a wheelchair ramp, but regardless of the reason, the intent is clear: make it easy for someone with a mobility challenge to access a building. For this reason, there are requirements in the National Building Code that apply to ramps.

There are more rigid requirements for ramps being constructed for buildings other than private homes: in New Brunswick, these requirements are found in [provincial regulation 2021-03](#) that replaces section 3.8 of the National Building Code of Canada.

Here are some of the considerations and construction details relating to ramps.

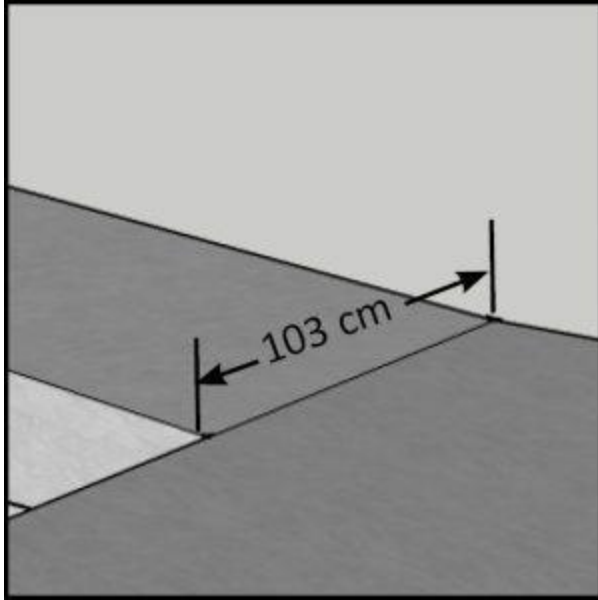
Slope

A critical factor when designing or building a wheelchair ramp is slope - the ratio between the rise (vertical measurement) and run (horizontal measurement). In a residential setting, a ramp must have a slope of 1:10, that is, for every inch (or centimetre) of vertical height, there will be 10 inches (or centimetres) of horizontal distance. Note that while 1:10 slope is allowed, it is not considered ideal. Even the 1:12 slope required in non-residential settings by the National Building Code of Canada (NBC) and provincial legislation, may be difficult for some individuals, especially those with limited strength, to navigate. Slopes of 1:15 or less are better in such cases.

Remember: the less the slope (or grade), the longer the ramp will have to be. One possible exception to this recommendation is when a ramp is being constructed solely for use as a secondary exit from your home in an emergency situation: in this case a steeper ramp may be acceptable if there is not enough space to construct a 1 in 12 ramp.

The 1:12 maximum slope allowed for commercial applications makes life really easy for builders using imperial because whatever the required height in inches may be, the necessary length is the same measurement in feet. (A will require a run of 15 feet.)

Ramp width



Because of required handrail widths and clearances a commercial ramp base has to have 103 cm width, if not more.

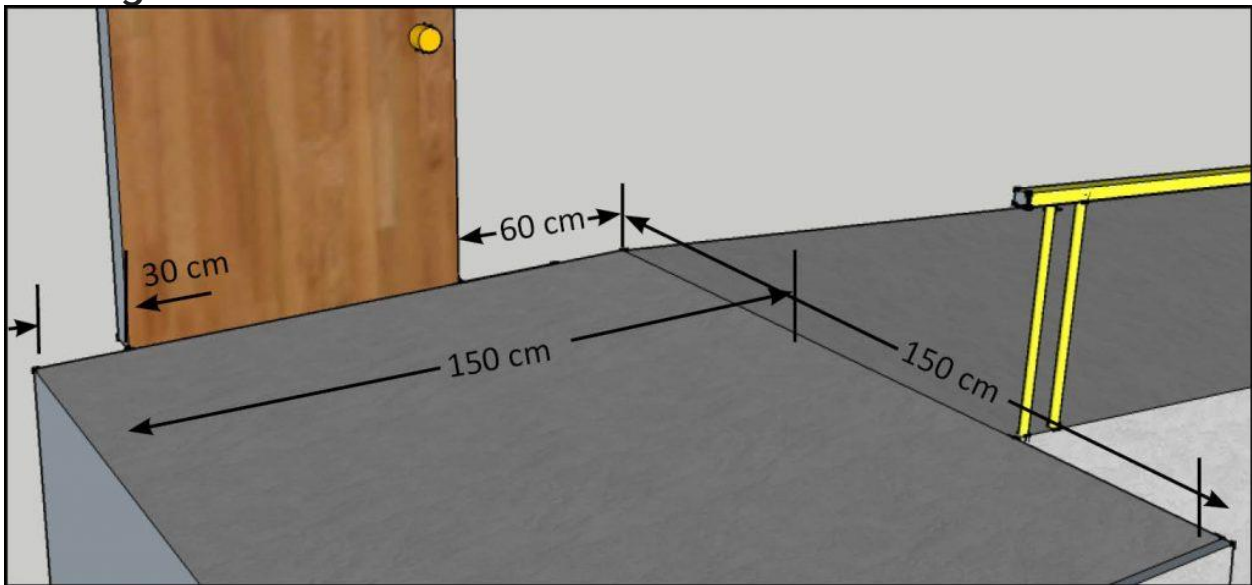
In a residential setting, the ramp should be as wide as is required for use, but no less than 86 cm (33 3/4") between any handrails.

In a commercial setting, the ramp must be at least 87 cm (34") wide between required rails. In practical terms, this means a width of about 97 cm, if not a bit more.

, Depending on the use of the building and the ramp, this may even be wider.

If any length of the ramp is greater than 9m, a level area of 1.2 m length is required as an intermediate rest area.

Landings



Landings at the top of ramps have to be 150 cm x 150cm, and doors have to have clearance on both sides to allow for ease of opening by a wheelchair or walker user.

Landings are the level areas required at the top, bottom (and, sometimes, intermediate) locations in a ramp. These areas allow a person to maintain balance while performing tasks like opening doors, transferring in or out of a vehicle, resting, or safely changing direction when a ramp makes a turn. Landing sizes are based on these functions and building codes.

Landings are required at any change in direction, and must be 1.2 m long, and at least as wide as the ramp, if not more. Consider that in a commercial setting, two wheelchair operators moving in different directions need sufficient space to pass each other.

Top Landings

Top landings should be nearly flush with the exterior door threshold. 1/2" (13mm) is the typical maximum, particularly when a wheelchair user is involved. Anything larger will halt a chair's relatively small front wheel – and represent a tripping hazard for walkers.

These landings should be 60"x60" (150 cm x 150 cm) if there is an out-swinging door, with at least 12-24" (30-60 cm) of space provided to the side of the door's handle. This is to allow a person to open the door without being in the path of the door swing.

Wheelchair users require considerable space, especially when turning or changing direction. The turning circle required is 150 cm in diameter.

Guards and rails

A "guard," in building parlance, is a mechanism designed to prevent people (or objects) from falling to a lesser height. In practical terms, most guards are also built so that they function as handrails. When dealing with wheelchair ramps, however, there are specific regulations for commercial ramps that require a bit more attention. For one, at least one of the two required handrails must be continually graspable along their entire length. If part of a guard, they can be 107 cm in height, otherwise, they must be between 86.5 and 96.5 cm in height. Further, wheelchair ramps in commercial settings require handrails on both sides of the ramp. Handrails have to be at least 5cm from the nearest wall or obstruction (6 cm if the wall is rough-textured) and have to be at least 3 cm wide (but no more than 4.3 cm wide.) That's why the base of a ramp has to be at least 103 cm wide (87 cm minimum width between handrails, plus 8 cm on either side for handrails and clearance.)



At least one of the handrails must protrude no less than 30 cm beyond the termination of the area it is serving, "in a manner which will not obstruct pedestrian travel or create a hazard." For this reason, many ramps will feature metal handrails with semi-circular closures such as shown in the image at right.

If the ramp does not require a guard - that is, its section is less than 60 cm above ground - then it's possible the ramp will require a curb. The Code reads, "have a curb not less than 50 mm high on any side of the ramp where a solid enclosure or solid guard is not provided." This prevents front wheels of wheelchairs from sliding off ramps, and also provides tactile information to blind persons using a cane. A curb is illustrated in the image above.

Ramp support

For homes on concrete foundations, the ramp ought to be firmly attached to the home and the ramp supported on some form of foundation below the frost line. In most cases, this will be a sonotube or engineered screw pile. This will avoid frost heaving (and is also required by Code.) For structures not on a permanent foundation like mobile or minihomes supported on blocks, a foundation is not required for the ramp.

While we may allow wheelchair ramps for residential use to be constructed on blocks, a foundation system of some kind is mandatory for all commercial access ramps.