

Division 5 --- RAMPS

A ramp is a sloping walkway leading from one level to another.

MANDATORY SECTION

Performance Objectives

14. Ramps of an appropriate design shall be provided at all changes in level other than those served by an accessible lift or accessible lifting mechanism accommodating the specific requirements of persons with a disability.

Obligatory Design Requirements

15. **Width**

A ramp shall not be less than 1050 mm in width.

16. **Landing**

A clear space of not less than 1500 mm x 1500 mm shall be provided at the head and foot of every ramp, i.e. door swing and alike shall not be allowed to swing onto the landing.

17. **Running Slope and Length**

No ramp shall be steeper than 1 in 12 gradient except in the following situations of minor rise : -

Maximum slope	Maximum length	Maximum rise
1:10 i.e., 10%	1500mm	150mm
1:8 i.e., 12.5%	600mm	75mm

18. **Requirements for Ramps**

Combination of ramps of minor rise as stated in paragraph 17 shall not be permitted.

(1) If the gradient of a ramp is 1 in 20 or steeper, the ramp shall be provided with :-

- (a) a landing of not less than 1200 mm long for each 10 m length of horizontal run or part thereof; (see Figure 7)
- (b) handrails complying with Division 8 on both sides; and
- (c) tactile warning strips at the head, foot and landings (see Figure 7).

(2) The above items shall not apply to ramp access to lift or ramp with a length less than 300 mm.

19. **Protection and Surface**

- (1) Any ramp with a rise greater than 200 mm, leading down towards an area where there may be vehicular traffic, shall have a railing or barrier across the full width of its lower end, and be not less than 1500 mm from the foot of the ramp.

Obligatory Design Requirements (Cont'd)

- (2) Raised traction strip shall be avoided.
- (3) A kerb of at least 100 mm high, or a rail 200 mm above ramp level shall be provided on both sides to prevent wheelchair from slipping over the edge.
- (4)&(5) No appliances, fixtures and fittings shall project beyond 90 mm from the surface of any wall below a level of 2000 mm above the ramp level unless they are unavoidable, in which case they shall also be extended downwards to the ramp level or be guided by tactile flooring materials.
- (6) The floor and wall along ramps shall be in contrasting colours.

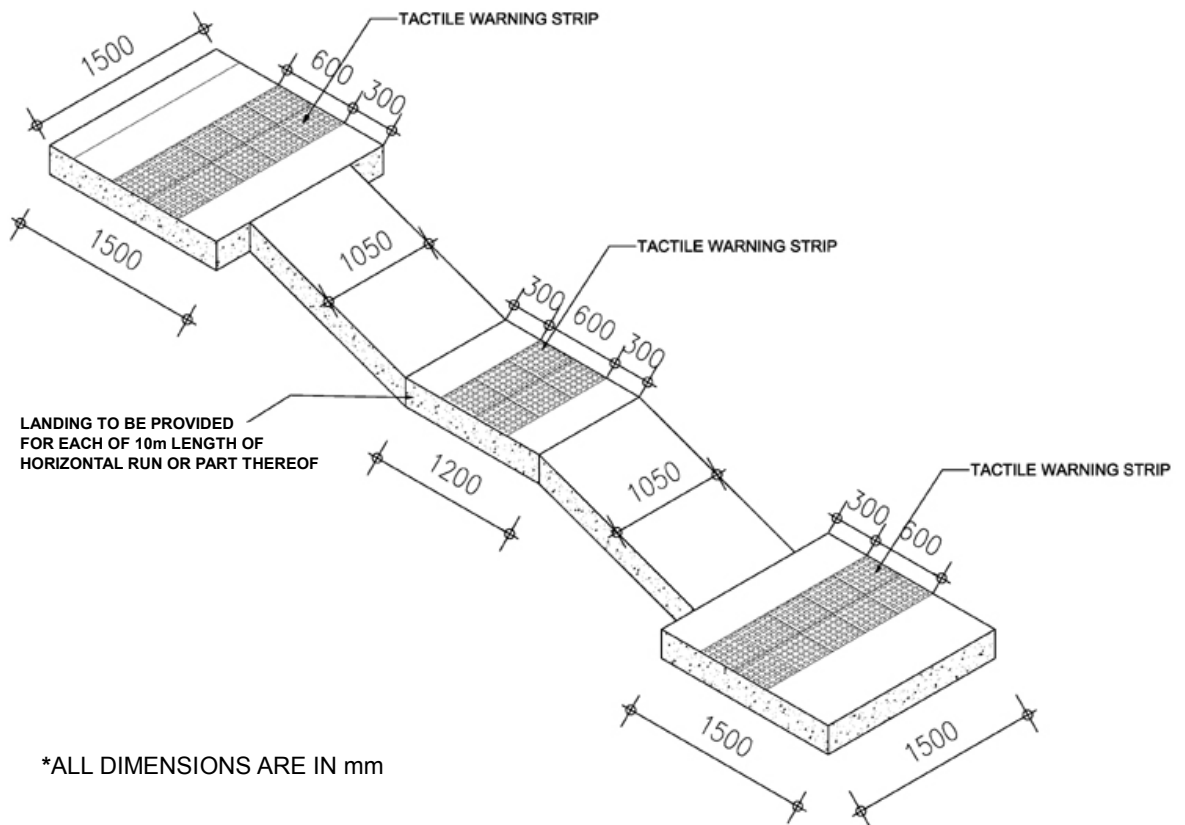


Figure 7 - Tactile Warning Strips and Landings for Ramps

BEST PRACTICE SECTION

A. Design Considerations

- (a) Where there is a change in level, the provision of a ramp is an effective method to ensure largely independent accessibility for persons with a disability and the elderly. Interior ramp is preferred as a means of egress to stair as it accommodates a wider range of building user, including wheelchair user.
- (b) The more gradual the slope of the ramp (i.e. the less steep it is) the more easily persons can use it without assistance. Therefore, slope with the ratio of 1:20 (5%) to 1:15 (6.7%) is preferred. It can take much energy to get up ramp with steep gradient, which also makes speed control difficult when going down. Steep inclines can put a wheelchair in danger of tipping backwards or forwards as many users cannot lean or adjust their balance to accommodate gradient (see Figure 8).
- (c) A level resting space outside the swing of any door at the top of a ramp should be provided to avoid the possibility of 'roll-back' for wheelchair user when trying to open the door.
- (d) A ramp should have handrails on both sides so that it can be used in both directions by people with a mobility problem on one side such as may be the case for stroke sufferers.
- (e) A ramp that surmounts a major change in level has to be very long, and requires multiple ramp and landing combinations. In such circumstances, other design solutions should be considered.
- (f) A curved ramp is not a preferred design solution. Similarly a cross fall can put a wheelchair user at risk and may adversely affect steering, particularly on manually propelled chair.

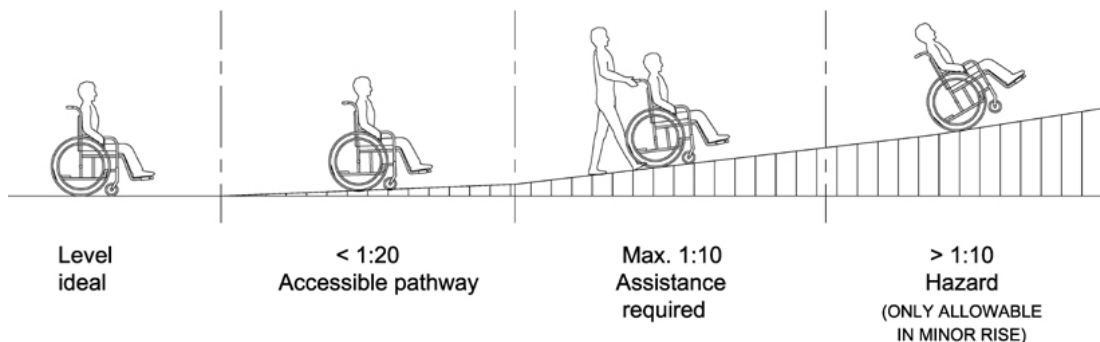


Figure 8 - Running Slope and Length

B. Recommended Design Requirements

- (a) A ramp should have a running slope 1:12 (8.33%) to 1:20 (5%).

Maximum slope	Maximum length	Maximum rise
1:20 i.e., 5.00%	10000 mm	500 mm
1:16 i.e., 6.25%	6400 mm	400 mm
1:14 i.e., 7.14%	4200 mm	300 mm
1:12 i.e., 8.33%	1800 mm	150 mm

- (b) Width should be at least 1200 mm to enable a wheelchair to turn or preferably at least 1500 mm to allow 2 wheelchairs to pass.
- (c) A ramp should have slip-resistant surface with a minimum “static coefficient of friction” of “Very Good” grading (see Appendix C).
- (d) Tactile warning strips at the head, foot and landing should have a minimum luminous contrast of 70% with the adjoining surfaces.
- (e) The floor and wall along a ramp should have a minimum luminous contrast of 30%.