

8 Ramps

8.1 General

Ramps allow persons in wheelchairs to move from one level to another. However, many ambulatory persons with disabilities negotiate steps more easily and safely; thus, accessibility by both steps and ramps is preferred.



The slope should be as gentle as possible. The steeper the ramp the more likely it is that persons in wheelchairs will require some assistance. Most wheelchair users can manage a slope of 1:15 to 1:20. For a ramp where there is a large change in elevation that requires more than two switch-backs and landing combinations, other solutions should be considered such as lifts, elevators or alternate entrances. Any part of an exterior or interior accessible route with a slope greater than 1:20 should be considered a ramp.

(NOTE: The requirements for curbs or curb ramps are in Section 3.)

8.2 Ramp Slopes

8.2.1 The maximum ramp slope shall be 1:12 (OBC 3.7.3.4.(1b)). See Figure 8.1.

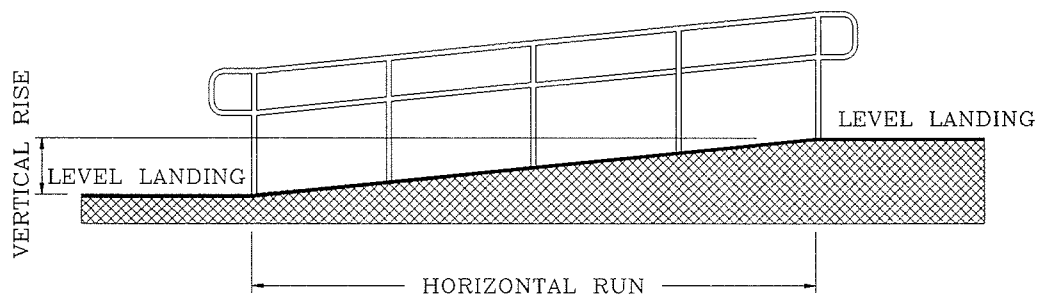


8.2.2 The least possible slope shall be used where possible. A ramp to accommodate a rise of less than 150 mm can have a slope between 1:10 - 1:12. The preferred ramp slope is 1:16 to 1:20.

8.2.3 Slopes should have gradients and maximum lengths conforming to Table 8.1. It is not permissible to have a 1 in 10 ramp of 6 m, a landing and then another 1 in 10 ramp.

Table 8.1

Height	Gradient	Maximum Length	Maximum Landing Intervals	HANDRAILS REQUIRED
Greater Than 150 mm	1:12 - 1:20	None	9 m	BOTH SIDES
Less Than 150 mm	1:10 - 1:12	6 m	—	CURB OR LIP



$$\frac{\text{VERTICAL RISE}}{\text{HORIZONTAL RUN}} = \text{RAMP SLOPE}$$

Ramp Slope

FIGURE 8.1

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8.3 Cross Slope

The maximum cross slope of ramp surfaces shall be 1:50.

8.4 Width

The OBC allows a width of 870 mm between handrails (OBC 3.7.3.4.(1a)) but the minimum clear width of a ramp shall be 920 mm.



While the OBC requirement allows paraplegics to pull themselves up a ramp using both hands, it is too narrow to accommodate some larger power chairs.

Ramps shall be free of obstruction for the full width of the ramp to a height not less than 2000 mm. Storage of bicycles on ramps is not permitted.

8.5 Landings

A level landing is required at the bottom and top ends of ramps to permit persons in wheelchairs to slow down and, if necessary, to stop. Landings are also necessary at changes in direction as it is extremely difficult to change the direction of a wheelchair when on a slope. Intermediate landings, which serve as resting points, are required at various intervals along the slope of the ramp.

Ramps shall have level landings at the top and bottom of each run and also where the ramp changes direction (Figure 8.2), and at intervals of not more than 9 m long its length (OBC 3.7.3.4.(1d)(i)).



8.5.1 Landings shall be at least as wide as 1500 x 1500 mm (See Figure 8.2.). Where a door is located off a landing, the level area should extend at least 600 mm beyond the latch side of the door opening.



8.6 Detectable Warning Surfaces

Detectable warning surfaces of contrasting colour (yellow preferred) and texture shall be provided at the top and bottoms of ramps as per Section 9, Stairs. Care should be taken not to use paint that will create a slippery surface.

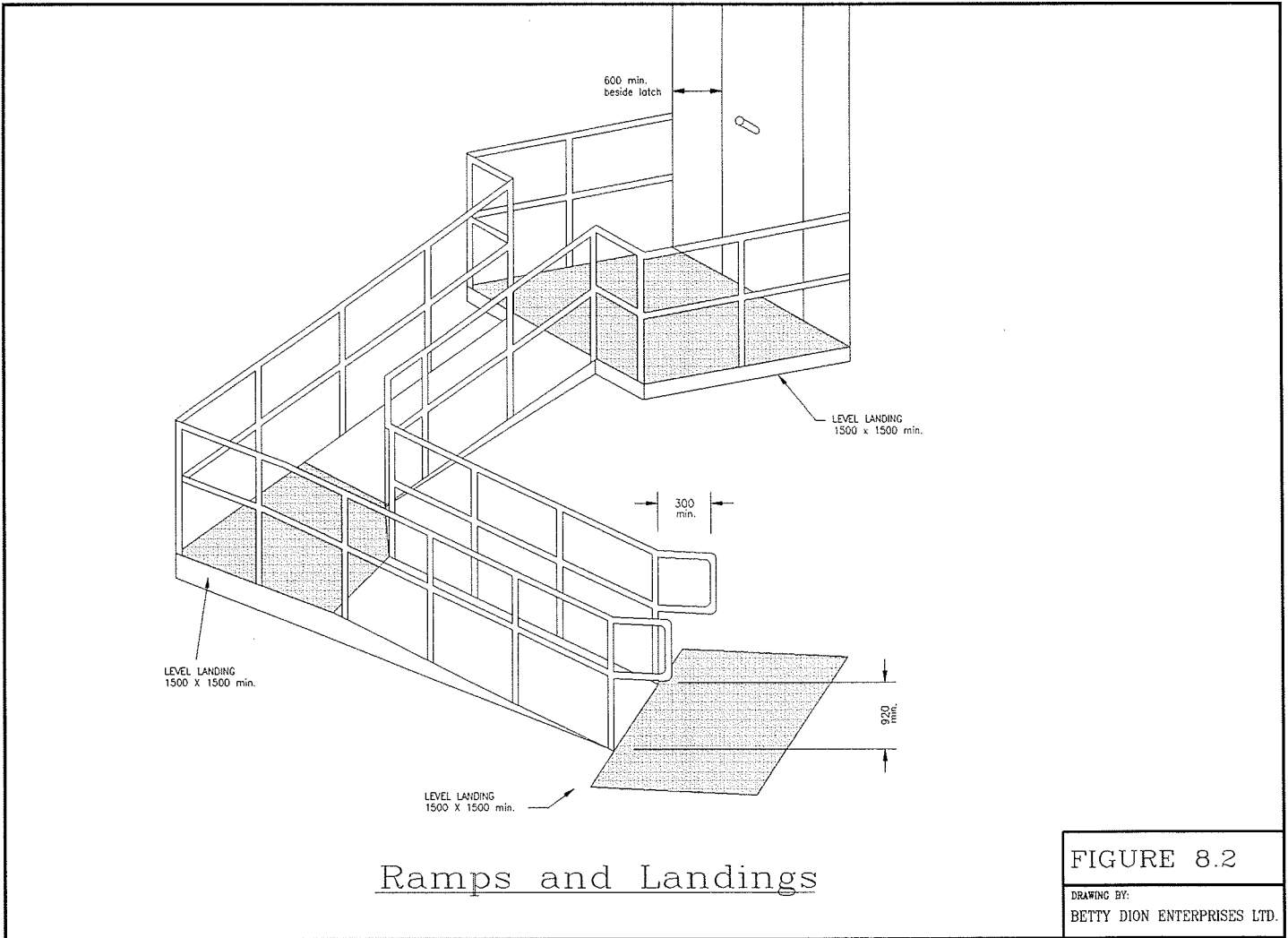


Detectable warning surfaces should be used consistently throughout the campus. Materials such as a textured rubberized surface are acceptable.

8.7 Ramp Surfaces

A ramp may be constructed of interlocking pavers, wood, concrete or asphalt, and thus the surface will vary. Interlocking pavers should have a textured surface and should be installed as





flush as possible (no rise over 6 mm permitted) and have a smooth transition from the ramp and adjacent surfaces. Wooden ramps should be treated with non-slip paint or a rubberized surface, if indoor. The surface of concrete ramps should be textured to provide traction. Maintenance is important to ensure the safe use of ramps.

Ramp and landing surfaces shall be slip-resistant.

(See Section 2, General Requirements, for additional guidance on slip-resistance.)

8.8 Edge Protection

Ramps and landings not at grade or adjacent to a wall and less than 150 mm in height shall have edge protection such as a

- a) curb with a minimum height of 75 mm. (See Figure 8.3(a)). The OBC minimum is 50 mm (OBC 3.7.3.4.(1f)); or
- b) raised barrier with its lower edge not more than 75 mm from the ramp or landing surface. (See Figure 8.3(b)); or
- c) rail with the bottom edge not more than 75 mm from the ramp or landing surface. (See Figure 8.3(c)).



8.9 Ramp Handrails

Handrail extensions at the top and bottom of ramps provide tactile cues for persons with visual impairments and provide support for people who need help to negotiate ramps.



Handrail extensions should not project into another path of travel, and handrail should return to the wall, floor, or post so as not to constitute a hazard to pedestrians.

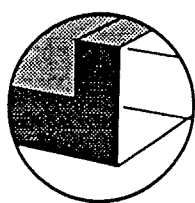
A ramp rise greater than 150 mm in height shall have handrails that

- a) are on both sides;
- b) comply with Section 9.6, handrails;
- c) are continuous (OBC 3.4.6.4.(5)) on the inside of switchback or dogleg ramps;
- d) when not continuous, extend horizontally at least 300 mm beyond the top and bottom of the ramp (OBC 3.4.6.4.(7)) and return to the wall, floor, or post (OBC A-3.4.6.4.(5)). (See Figure 8.2); and
- e) have their top between 800 & 920 mm from the ramp surface (OBC 9.8.7.5) **and another handrail at a height of 450 mm above the surface.**



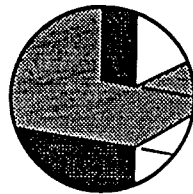
8.9.1 Where a ramp serves as an aisle-way for fixed seating, such as in lecture halls, the requirements for handrails need not be met. **If the ramp is located beside a wall, handrails should be provided on the wall as per Section 9.** In new construction, ramps should be located against the walls so that handrails can be provided.

In a classroom or lecture hall with fixed seating on a sloped floor, where wheelchair



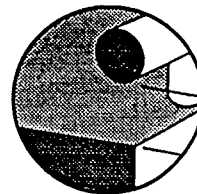
(a)

75 min.



(b)

75 max.



(c)

75 max.

Edge Protection

FIGURE 8.3

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platforms and some seats are provided on level areas at both the top and bottom of the lecture hall to which there is a barrier-free path of travel, the floor slope can exceed the maximum slope of 1:12. Appropriate signage directing people to the wheelchair platforms and warning of the steep slope (if applicable) should be provided.

8.9.2 Ramps shall comply with Section 9.7, for guards.

8.10 Illumination

Illumination shall comply with Section 5.



8.11 Exterior Ramps

Exterior ramps should be protected from the elements as much as possible and should be well maintained free of ice and snow.

8.11.1 Exterior ramps with a slope of 1:12 or greater shall be constructed to meet the above requirements. See Section 3 Sidewalks and Walkways for additional requirements.

