II. ARCHITECTURAL DESIGN CONSIDERATIONS

1. RAMPS

1. PROBLEM IDENTIFICATION

Inaccessible building entrances due to difference between indoor and outdoor levels.

Inaccessible routes due to differences in level.

Lack of or improper design of ramps.

Very steep and/or long ramps with no resting landings.

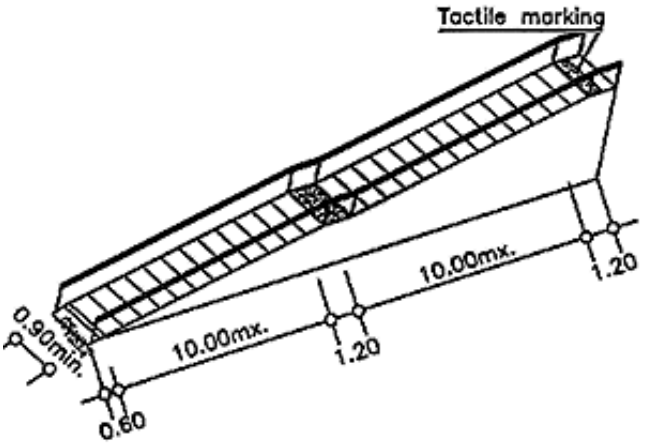

Fig. 1

2. PLANNING PRINCIPLE

To provide ramps wherever stairs obstruct the free passage of pedestrians, mainly wheelchair users and people with mobility problems.

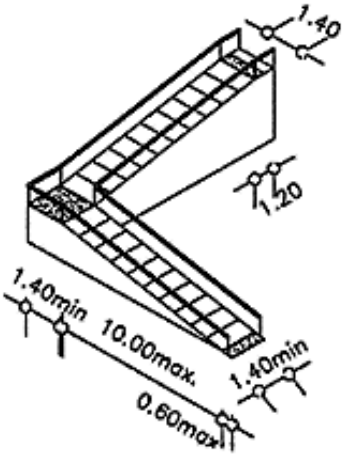

Fig. 2

3. DESIGN CONSIDERATIONS

3.1 General

- An exterior location is preferred for ramps. Indoor ramps are not recommended because they take up a great deal of space.

- Ideally, the entrance to a ramp should be immediately adjacent to the stairs.

3.2 Ramp configuration [(1)]

- Ramps can have one of the following configurations:

  (a) Straight run (fig. 1);

  (b) 90 turn (fig. 2);

  (c) Switch back or 180 turn (fig. 3).

3.3 Width

- Width varies according to use, configuration and slope.

- The minimum width should be 0.90 m.

3.4 Slope

- The maximum recommended slope of ramps is 1:20. Steeper slopes may be allowed in special cases depending on the length to be covered (fig. 4).

Maximum slope	Maximum length	Maximum rise
1:20 i.e., 9%	-	-
1:16 i.e., 6%	8 m	0.50 m
1:14 i.e., 7%	5 m	0.35 m
1:12 i.e., 8%	2 m	0.15 m
1:10 i.e., 10%	1.25 m	0.12 m
1:08 i.e., 12%	0.5 m	0.06 m

3.4 Landings

- Ramps should be provided with landings for resting, maneuvering and avoiding excessive speed.

- Landings should be provided every 10.00 m, at every change of direction and at the top and bottom

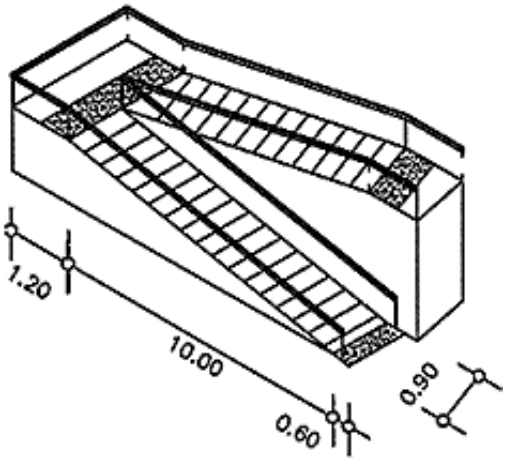

Fig. 3

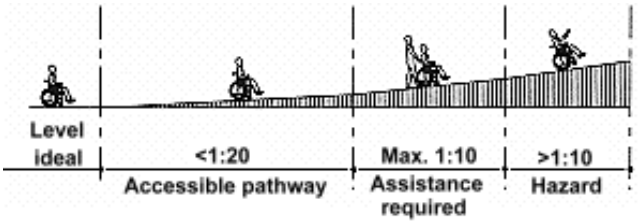

Fig. 4

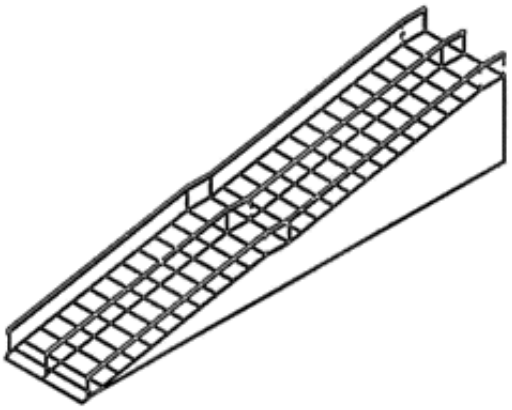

Fig. 5

of every ramp.

- The landing should have a minimum length of 1.20 m and a minimum width equal to that of the ramp

3.5 Handrail

- A protective handrail at least 0.40 m high must be placed along the full length of ramps.

- For ramps more than 3.00 m wide, an intermediate handrail could be installed (fig. 5).

- The distance between handrails when both sides are used for gripping should be between 0.90 m and 1.40 m (fig. 5).

3.6 Surface

- The ramp surface should be hard and non-slip.

- Carpets should be avoided.

3.7 Tactile marking

- A coloured textural indication at the top and bottom of the ramp should be placed to alert sightless people as to the location of the ramp.

- The marking strip width should not be less than 0.60 m.

3.8 Drainage n Adequate drainage should be provided to avoid accumulation of water.

3.9 Obstacles

- The same clearance considerations that apply to pathways apply to ramps (see Obstructions).

3.10 Mechanical Ramps

- Mechanical ramps can be used in large public buildings but are not recommended for use by persons with physical impairments.

- If the ramp is to be used by a wheelchair-confined person, the slope should not exceed 1:12.

- The maximum width should be 1.00 m to avoid slipping.

4. EXISTING CONSTRUCTIONS

If the topography or structure of the existing building is restrictive, minor variations of gradient are allowed as a function of the ramp length:

Maximum slope	Maximum length	Maximum rise
1:20 i.e., 9%	-	-
1:16 i.e., 6%	8 m	0.50 m
1:14 i.e., 7%	5 m	0.35 m
1:12 i.e., 8%	2 m	0.15 m
1:10 i.e., 10%	1.25 m	0.12 m
1:08 i.e., 12%	0.5 m	0.06 m

- A non-slip surface finish should be added to slippery ramps.

Notes:

(1) Circular or curved ramps are not recommended

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