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**Accessibility for the Disabled - A
 Design Manual for a Barrier Free
 Environment**

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I. URBAN DESIGN CONSIDERATIONS

4. PATHWAYS

1. PROBLEM IDENTIFICATION

Uneven curbs with obstacles and holes.

Inconvenient or dangerous interruptions
 in the path of travel.

Insufficient width.

Changes in level.

2. PLANNING PRINCIPLE

To provide clear, obstruction-free, level
 and wide pathways for the convenience
 of all users, especially the sightless and
 people with mobility problems.

3. DESIGN CONSIDERATIONS

3.1 General

- Street pavements, pedestrian passages in open spaces and recreational areas, pedestrian underpasses and overpasses are all considered pathways or ramps.

- Pedestrian routes in recreational areas and open spaces should be broken regularly by detectable obstructions such as plants and/or by changing the alignment to discourage bicyclists (see Obstructions).

3.2 Guide strips

- The path of travel should be easy to detect by a sightless person using a long white cane. Natural guide lines ⁽¹⁾

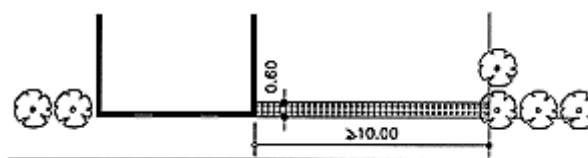


Fig. 1

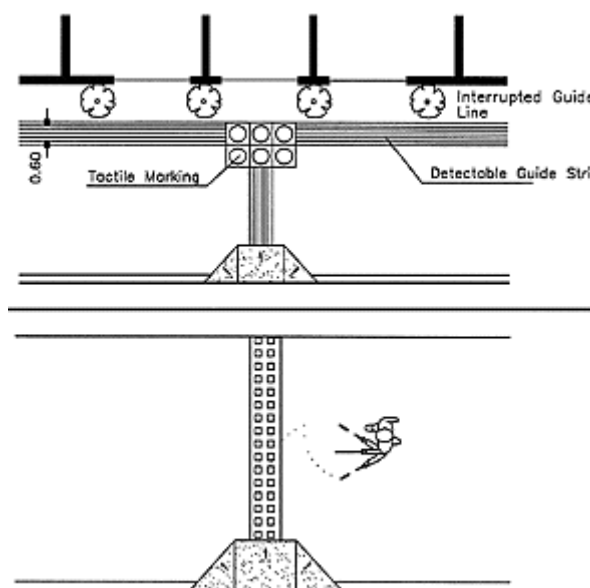


Fig. 2

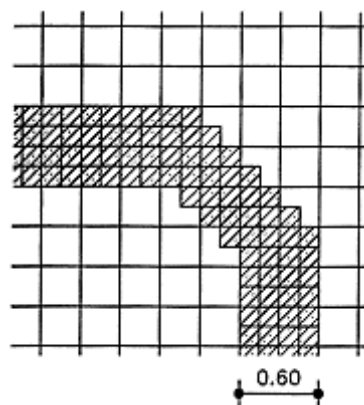


Fig. 3

and guide strips are used to help identify travel routes.

- A guide strip is a line means constructed in or on the road surface to facilitate orientation for sightless pedestrians in the following manner:

(a) To replace missing natural guidelines fill gaps of more than 10.00 m in a guide strip (fig.1);

(b) To guide to pedestrian crossings (fig.2) (see Curb Ramps; Pedestrian Crossings).

- Guide strips should be laid in a simple and logical manner and should not be located close to manholes or drains to avoid confusing sightless people.

- Guide strips should have a colour which contrasts with the surrounding surface for the benefit of people with sight problems.

- The guide strip ridge profile should be parallel to the main direction of movement and should be flush with the top layer of the adjacent road surface so as not to hinder people with mobility problems.

- Where travel routes change direction, there should be a gradual change in the direction of the guiding strip (fig. 3).

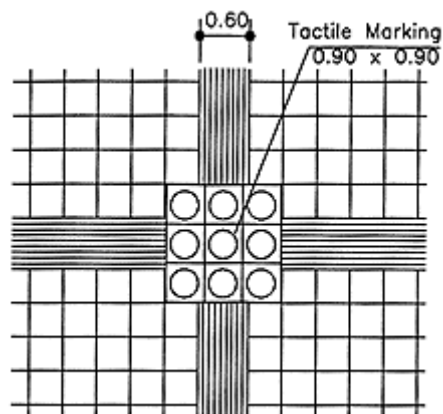


Fig. 4

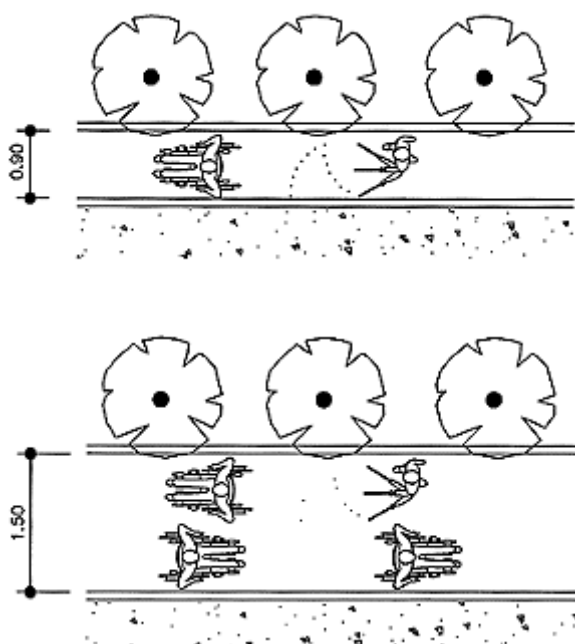


Fig. 5

3.3 Tactile marking

- Tactile tiling on the pedestrian route of travel should be placed at the following locations:

(a) On a guide strip where alternative routes exist or at a junction of guide strips (fig. 4).

(b) At a pedestrian crossing (see Curb Ramps; Pedestrian Crossings).

(c) Around obstructions which are difficult for the sightless to detect (see Obstructions).

- A tactile guiding area, preferably of rubber tiles ⁽²⁾ with minimum dimensions of 0.90 m x 0.90 m, should be constructed in a guide strip at cross

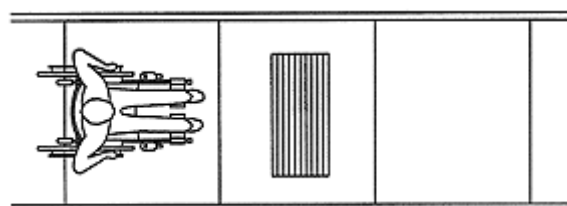


Fig. 6

pathways where the route branches off in several directions (fig.4).

3.4 Curbs

- The height of a curb should be between 0.07 m and 0.15m.
- Stepped curbs should be avoided, as they are hazardous to all pedestrians, especially in darkness.

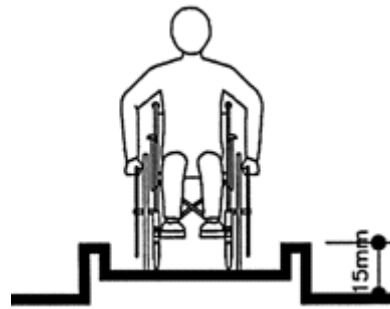


Fig. 7

3.5 Curb ramps

- Curbs should not obstruct the free passage of physically disabled people, mainly wheelchair users (see [Curb Ramps](#)).

3.6 Width (fig. 5)

- The minimum width of an unobstructed pathway should be 0.90 m.
- The minimum width of a two-way wheelchair traffic passage is 1.50 m. The preferable width is 1.80 m.

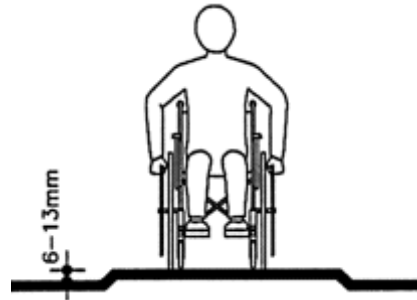


Fig. 8

3.7 Slope

- The slope of an accessible path should not exceed 1:20. Pathways with a slope of more than 1:20 should be designed as ramps (see [Ramps](#)).
- The slope across a path should not exceed 1:50.

3.8 Surface

- The surface of an accessible pathway should be smooth, continuous, non-slip and even.
- Pathways which are level and even with adjacent surfaces should be given a different texture and colour finish for differentiation.
- Intersecting pathways should blend at one common level.

3.9 Gratings (fig. 6)

- Gratings can be hazardous to wheelchair users, cane and crutch

users, parents with prams and women with high heels.

- Manholes, drains and gratings should generally be placed outside the pedestrian pathway.
- Gratings should be flush with the pathway surface and should have narrow patterns of not more than 13 mm.
- Elongated grating openings should be perpendicular to the pedestrian travel path.

3.10 Guards

- For changes in level of more than 13 mm between the pathway and the surrounding surface, guards, upstands or other types of barriers should be used.
 - Guards with a minimum height of 0.15 m should be used to separate pathways from planting areas, pools and landscape features (fig. 7).
 - The edges of the pathway should be beveled wherever changes in level between 6 mm and 13 mm exist between the pathway and the surrounding area (fig. 8).
- ### 3.11 Landscaping

- Plant varieties and locations within the travel route should be chosen with caution.
- Thorny and poisonous plants should not be used immediately adjacent to pedestrian paths.
- Plants that drop seeds and leaves creating a hazard underfoot should be avoided.
- Trees with shallow roots are hazardous as the roots may breakthrough the pathway surface.

3.12 Obstacles and Signs (see [Obstructions](#))

4. EXISTING CONSTRUCTIONS

- Textured rubber adhesive tiles can be applied to existing pavement to avoid slipping and to warn sightless people.
 - Existing curbs that obstruct the pedestrian flow should be ramped (see [Curb Ramps](#))
 - Existing pathways with steps, stairs or steep slopes need not be modified if an alternative accessible route exists.
-

Notes:

(1) A guiding line is a straight continuous line of detectable natural objects and defined edges (i.e., building frontages, grass verges, raised platforms, continuous railing, curbs, guards, low barriers, etc.).

(2) The acoustic effect of the rubber tiles as compared with the surrounding surface will provide both a tactile and audible warning of the change in direction.

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