

Division 8 --- HANDRAILS

Handrails provide support for everyone and are especially helpful for persons with a disability and the elderly to use staircases, to pull themselves up inclines, check themselves on declines and to assist them in moving within the building.

MANDATORY SECTION

Performance Objectives

Handrails shall be of the correct sizes, strengths and shapes and be conveniently located to provide secure hand-grips, and be capable of taking the entire weight of the persons using them.

Obligatory Design Requirements

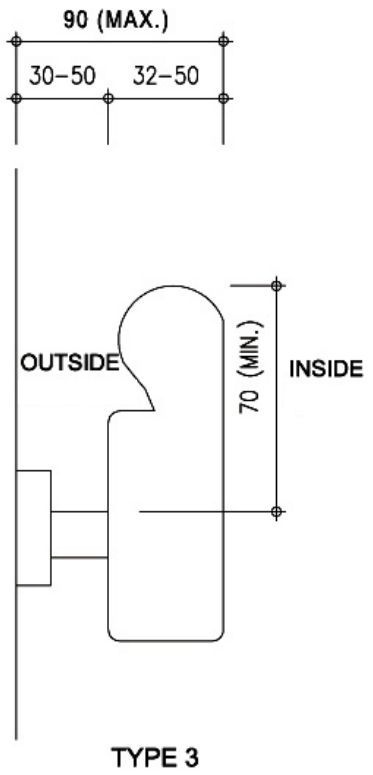
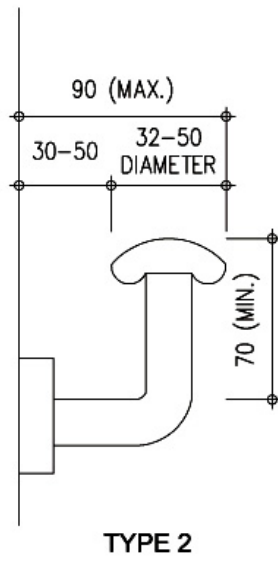
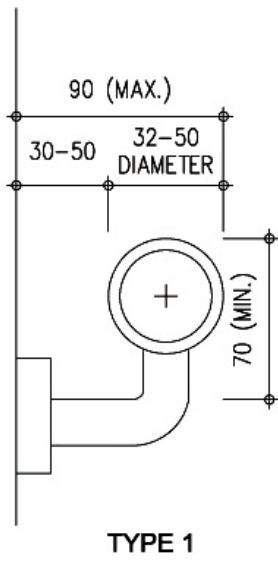
28. Dimension and Shape of Handrail

- (1) Handrail to ramp and step shall be fixed not less than 30 mm and not more than 50 mm clear of wall and with a clear height of 70 mm from the top of the bracket to the top of the handrail.
- (2) The top of handrail shall be at a height of not less than 850 mm and not more than 950 mm above any nosing, floor or landing.
- (3)&(4) Handrail shall be:
 - (i) tubular, not less than 32 mm and not greater than 50 mm in external diameter; or
 - (ii) in other shapes that can provide the user a grip similar to that specified in the case of tubular handrails.
- (5)&(6) Handrail shall extend horizontally not less than 300 mm beyond the first and last nosing of every flight of steps or beyond the ends of a ramp and terminate into a closed end which shall turn down or return fully to end post or wall face and which shall not project into a route of travel. Where a door opening is in place, a shortened extension of not less than 100 mm shall be permitted.

Typical handrail sections are shown in Figure 15.

29. Loading

- (1) Handrail shall be installed to resist a load of not less than 1.3 kN applied vertically or horizontally.
- (2) Handrail shall not rotate within its fixing fittings.



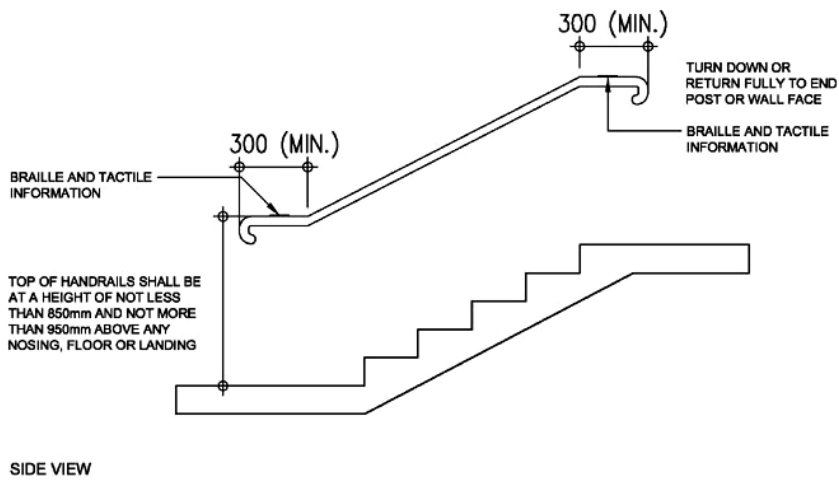
*ALL DIMENSIONS ARE IN mm

Figure 15 - Handrails

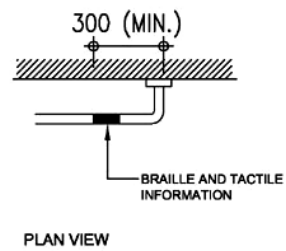
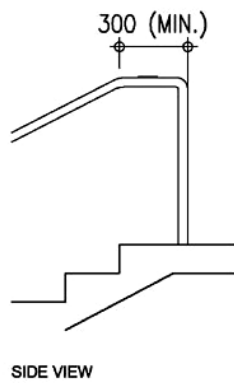
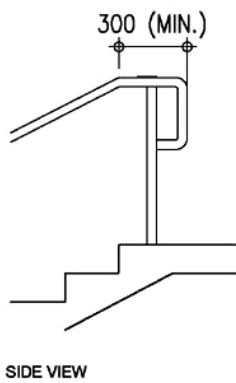
Obligatory Design Requirements (Cont'd)

30. Braille and Tactile Information

Braille and tactile information on directional arrow and floor number shall be provided on handrail on every floor at a designated location as illustrated in Figures 16A to facilitate persons with visual impairment. Where a directional sign exists on handrails, Braille and tactile information shall also be provided as illustrated in Figure 13.



Other alternatives of end of handrail



Braille Characters



UP



DOWN

*ALL DIMENSIONS ARE IN mm

Figure 16A – Handrails of Staircase

BEST PRACTICE SECTION

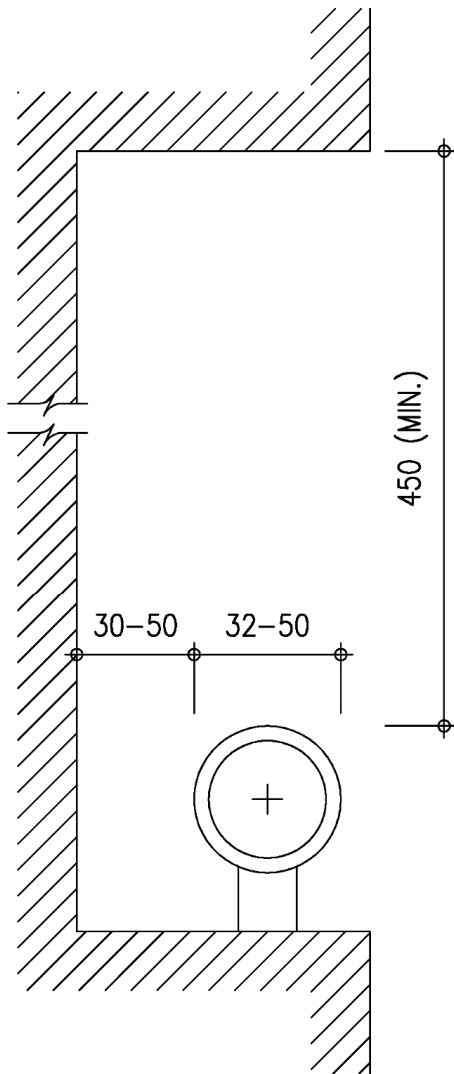
A. Design Considerations

- (a) Handrail should be designed to provide easy, firm and comfortable grip to all users and should have no obstruction when people slide their hands along the handrail.
- (b) The installation level of the handrail and clearance dimensions should facilitate a safer grip and prevent hand injuries especially for the elderly and persons with visual impairment.
- (c) Handrail finished in more noticeable colours with Braille and tactile information should facilitate self-help circulation of persons with visual impairment.
- (d) The materials and shapes of handrail should be carefully designed to suit the elderly. In addition, handrail designed with different levels of grab bars should be recommended for different users' purposes.
- (e) Handrail should be set at a height that is convenient for all users of the building and should extend safely beyond the top and bottom of a flight of steps, or a ramp, to give both stability and warning of the presence of a change in level.

B. Recommended Design Requirements

Clear Space

- (a) Where the wall has a rough surface, the clear space should be not less than 45 mm between the handrail and the wall.
- (b) A recess containing a handrail should extend not less than 450 mm above the top of the handrail as illustrated in Figure 16B.



*ALL DIMENSIONS ARE IN mm

Figure 16B – Handrail in Recess

Double Handrail

- (c) One more handrail should be provided at a height of not less than 700 mm and not more than 800 mm above any nosing, floor or landing for schools and places of public entertainment.

Luminous Contrast

- (d) Handrail should have a minimum luminous contrast of 30% with the surrounding wall surfaces.