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SOUTH AFRICAN STANDARD

Code of practice

Accessibility of buildings to disabled persons

SABS 0246

SOUTH AFRICAN BUREAU OF STANDARDS
CODE OF PRACTICE

ACCESSIBILITY OF BUILDINGS TO DISABLED PERSONS

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Acknowledgement

The South African Bureau of Standards wishes to acknowledge the valuable assistance of the following organizations:

Disabled People South Africa;

Workgroup Environmental Accessibility of the Department of National Health and Population Development.

Notice

This standard was approved in accordance with SABS procedures on 25 February 1993.

NOTE 1 In terms of the Standards Act, 1993 (Act 29 of 1993), no person shall claim or declare that he or any other person complied with an SABS standard unless

- a) such claim or declaration is true and accurate in all material respects, and
- b) the identity of the person on whose authority such claim or declaration is made, is clear.

NOTE 2 It is recommended that authorities who wish to incorporate any part of this standard into any legislation in the manner intended by section 31 of the Act consult the SABS regarding the implications.

This standard will be revised when necessary in order to keep abreast of progress. Comment will be welcome and will be considered when the standard is revised.

Foreword

Annex A is for information only.

Attention is drawn to the normative references given in clause 2 of this standard. These references are indispensable for the application of this standard.

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Accessibility of buildings to disabled persons

1 Scope

This standard establishes the minimum design requirements for access to and circulation in buildings and related facilities, to permit general use by disabled people, but does not purport to include all the individual specialized requirements in buildings purpose-built for partially or wholly disabled people.

1.2 This standard is to be read in conjunction with Part S of the National Building Regulations (NBR).

NOTE – Annex A gives additional information on the design and layout of toilet facilities for disabled people.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards may be obtained from the South African Bureau of Standards.

SABS 0114-1, *Interior lighting – Part 1: Artificial lighting*.

SABS 0400, *The application of the National Building Regulations*.

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 kerb cut: The link between a road traffic surface and an elevated pedestrian pavement.

3.2 NBR: The National Building Regulations made in terms of section 17 of the National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977).

3.3 regulation: The National Building Regulations.

4 General

4.1 Application

This standard is to be applied to the design of all buildings and related facilities accessible to disabled persons, as required by the National Building Regulations.

4.2 Dimensions

Unless otherwise specified, all dimensions are minimum dimensions and are given in millimetres.

5 Projections and openings

5.1 Hanging signs, lights, awnings and other projections

Hanging signs, lights, awnings and objects that protrude into circulation spaces shall have a clearance of at least 2 m above the trafficable surface. In instances where the protrusion of such objects is unavoidable, a barrier shall be provided at floor level in such a manner as to be detectable by a blind person using a cane.

5.2 Windows and doors

Windows and doors shall not so open across a walkway, corridor, stair or ramp that they obstruct circulation. Doorstops shall be so positioned that any door will open to its maximum and that they will not create a hazard to visually impaired people.

6 Car parks for disabled persons

6.1 General

Where parking is provided in or in connection with any building that has a means of access contemplated in regulation S2(1) of the NBR, space shall be provided for the parking of motor vehicles used by disabled persons, in accordance with regulation 52(2) of the NBR. A means of access suitable for the use of disabled persons shall be provided from the parking area to the ground storey of the building.

6.2 Size of parking spaces

Parking spaces shall have a flat surface of width at least 3,5 m and shall be appropriately demarcated as being intended for use by disabled persons only (see 6.5).

6.3 Access to building

The parking spaces referred to in 6.1 shall be located as close as possible to the entrance intended for disabled persons. Access between the parking spaces and the building shall be in accordance with clause 7.

6.4 Lighting in car parks

Where lighting is provided in car parks, it shall be in accordance with SABS 0114-1.

6.5 Identification signs

Parking spaces shall be identified by a vertical sign incorporating the international symbol for access by disabled people, and a sign indicating "No Parking Except For Disabled Persons", both signs being in accordance with clause 17. The vertical sign shall be readily visible from a vehicle at the entrance to the car park, or guide signs shall be provided to indicate the direction to the demarcated parking space (see 17.3). The international symbol shall also be clearly painted on the road surface.

7 Walkways and ramps

7.1 Camber

The camber or banking on walkways and ramps shall not exceed 1:40, as indicated in figure 1.

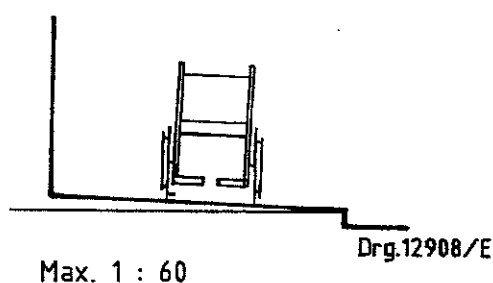


Figure 1 — Camber on walkways and ramps

7.2 Kerbs

Kerbs shall be provided at the edge of ramps since this permits persons in wheelchairs to stop on the ramp and rest one wheel against the kerb, to act as a brake. The height of a kerb at the edge of the ramp shall be at least 75 mm.

7.3 Handrails

For details on handrails, see clause 10.

7.4 Gradients

Walkways and ramps shall have a gradient, measured along the centre-line, not steeper than:

- a) 1:12 where the difference in level of the ends of the ramp exceeds 400 mm; or
- b) 1:10 where the difference in level of the ends of the ramp does not exceed 400 mm.

7.5 Landings

Landings or level rest areas that are provided in accordance with (a) and (b) below shall make allowance for any doors at the landing to be opened, as follows:

- a) where a door opens onto a ramp, a level area shall be provided as shown in figure 2; and
- b) where a door opens away from a ramp, a level area shall be provided as shown in figure 3.

Dimensions in millimetres

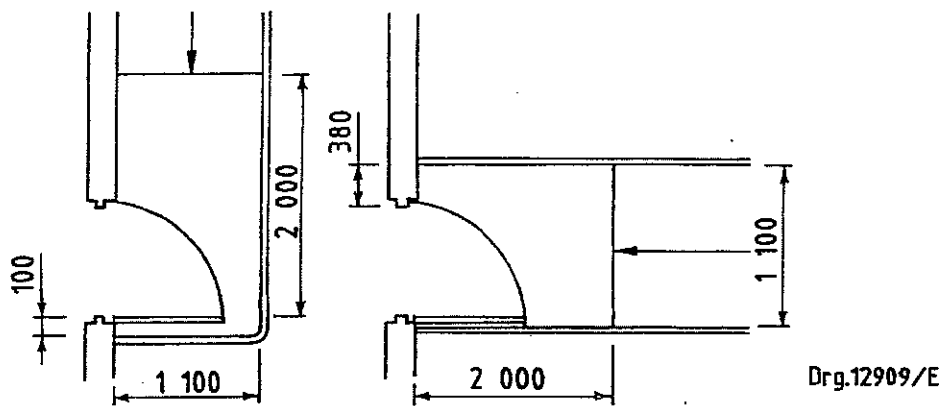


Figure 2 — Landings for doors opening onto a ramp

Dimensions in millimetres

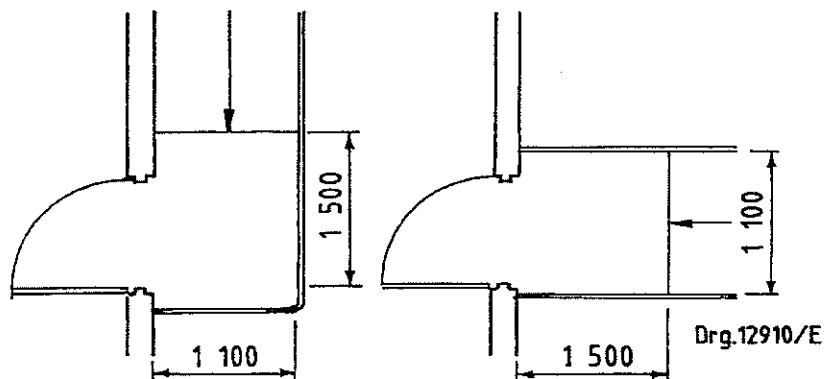


Figure 3 — Landings for doors opening away from a ramp

8 Kerb cut

8.1 Where identified parking for disabled persons is provided, a kerb cut should, if appropriate, be provided immediately adjacent to the rear of the bay.

NOTES

1 Kerb cuts should be provided where required and in conjunction with pedestrian crossings, taxi and bus ramps and parking garages.

2 Visible, audible and tactile warning devices should be considered where these are justifiable.

8.2 Kerb cuts shall have a slip-resistant finish. (See also clause 12.) The recommended surface between a pavement and roadway is a bubble ramp.

NOTES

1 A bubble ramp provides a safe and trafficable surface for wheelchair users, and the bubbles provide a detectable surface to indicate to blind people that they are leaving a pedestrian foot path and entering a traffic roadway.

2 Kerb cuts should be in line with the intended direction of travel. Avoid kerb cuts that are at 45° to the direction of travel.

9 Stairs (For use by ambulatory impaired persons)

9.1 The headroom at any point on any stairway shall be at least 2,1 m, measured vertically from the pitch line, and the width of any stairway, measured to any enclosing wall or balustrade, shall be at least 900 mm.

9.2 Any landing that serves two flights of stairs in the same straight line shall

- a) be of length at least 1,1 m, and
- b) be of a width at least that of the stairs.

9.3 No flight of stairs shall have a vertical rise between landings that exceeds 3 m .

9.4 No door shall open onto a stairway unless the door opens onto a landing. The width of the landing shall be at least that of the door.

9.5 The rise of any step shall not exceed 175 mm.

9.6 The going and width of any tread shall be at least 250 mm; where the stairway does not have solid risers, no overlap over the next lower tread shall exist.

9.7 For taper and spiral stairs, see rules MM2.5 to MM4 of SABS 0400.

NOTES

1 Open risers are dangerous for disabled persons and must be avoided.

2 Handrails, tread noses and changes of level should have a contrast in colour for the safety of the visually impaired.

3 To accommodate walking-impaired people, low risers and wide treads are preferable.

10 Handrails

The design and construction of handrails (see figure 4) shall be in accordance with the following:

- a) the design of the handrail shall allow for a firm grip;
- b) the height to the top of a handrail from the nosing of the tread of the stairs or from the surface of a ramp shall be in the range 900 mm to 1 000 mm;
- c) handrails shall be securely fixed and rigid;
- d) the clear width between a handrail and an adjacent wall surface shall be at least 40 mm;
- e) handrails should, extend 300 mm beyond the top and bottom of the ramp or staircase and shall return to the supporting structure or be otherwise so finished as not to create a hazard;
- f) handrails shall be in a colour that contrasts with that of the immediate surroundings; and
- g) ramps and stairs shall have handrails on both sides.

NOTES

- 1 Handrails extending at the top and bottom of a stairway are a tactile aid for blind people and a balancing aid for walking-impaired people.
- 2 Where possible, handrails in the centre of a stairway should conform to figure 4.

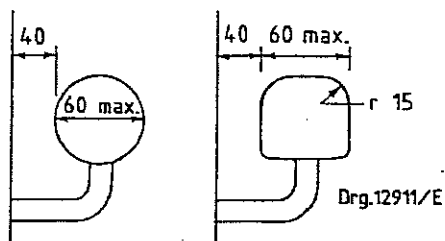
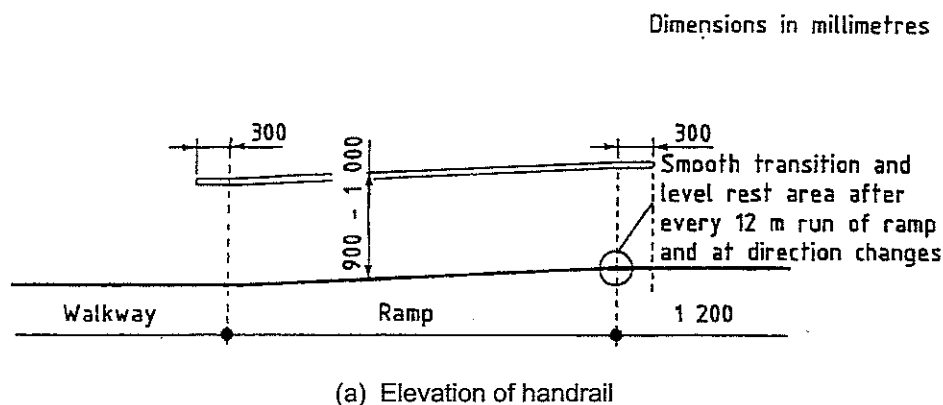


Figure 4 — Dimensions of typical handrails

11 Doorways and doors

11.1 Entrance

In any building contemplated in regulation S1 of NBR, there shall be a means of access suitable for use by disabled persons (including those persons who are obliged to use a wheelchair or who are able to walk but who are unable to negotiate steps) from the outside of the building to the ground storey in accordance with the requirements of regulation S2.

NOTES

1 At least one entrance for use by people in wheelchairs should be provided on the same level as and accessible to the lifts, if there are any.

2 When the main entrance to the building is not usable by disabled people, then a sign directing them to an alternative accessible entrance should be installed at the main entrance (see clause 17).

11.2 Doorways

11.2.1 Doorways designed for use by disabled people shall allow free access for wheelchair users. The clear opening shall be at least 750 mm, as shown in figure 5.

NOTE – A standard 813 mm door complies with this provision.

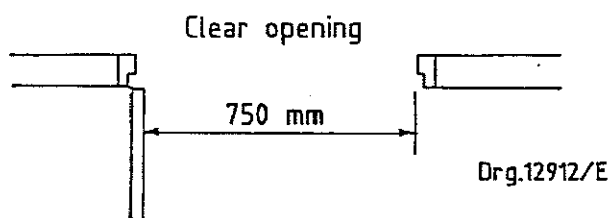


Figure 5 — Clear width of doorway

11.2.2 Where a two-leaf door is used, the clear opening provided by the leading leaf shall be at least 750 mm, as shown in figure 6.

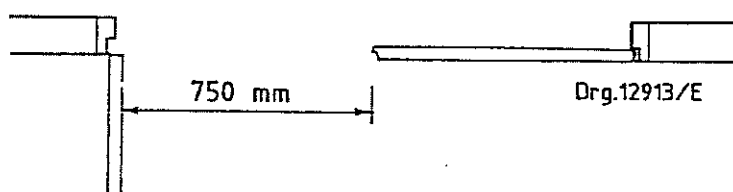


Figure 6 — Clear width of leading leaf

11.2.3 Minimum access dimensions (to enable wheelchair users to make 90° turns) shall be as shown in figure 7.

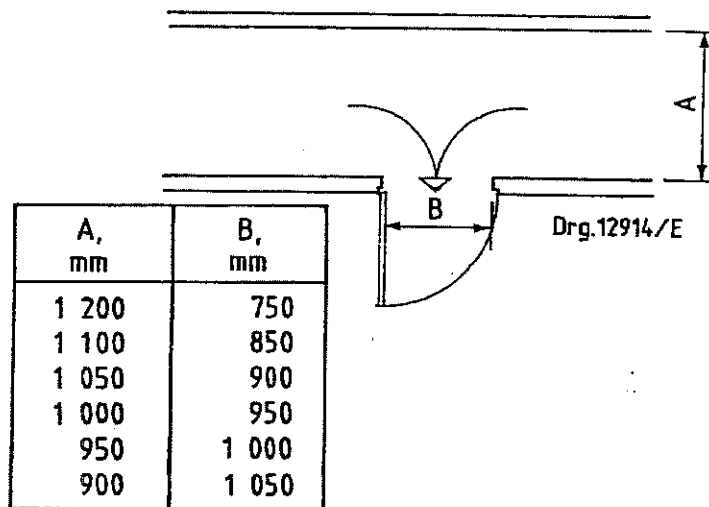


Figure 7 — Access dimensions

11.2.4 Where a person in a wheelchair has to open a door towards the wheelchair, a nib of at least 450 mm shall be provided at the handle side of the door, as shown in figure 8.

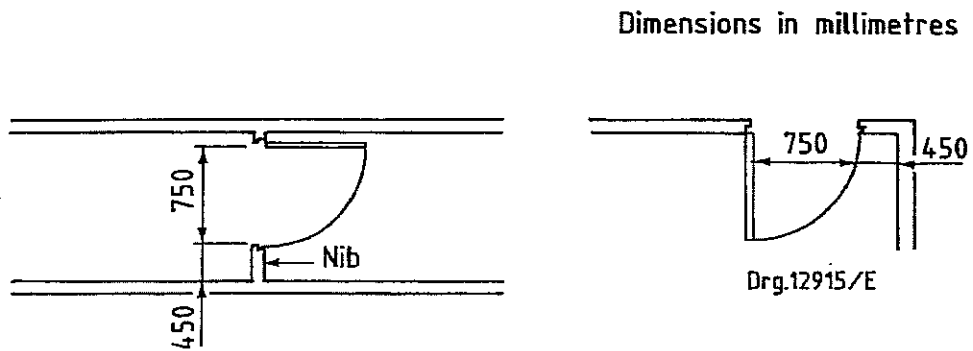


Figure 8 — Doorway in restricted space

11.2.5 The space in vestibules, when hinged doors or sliding doors are used, shall be as shown in figures 9 and 10.

Dimensions in millimetres

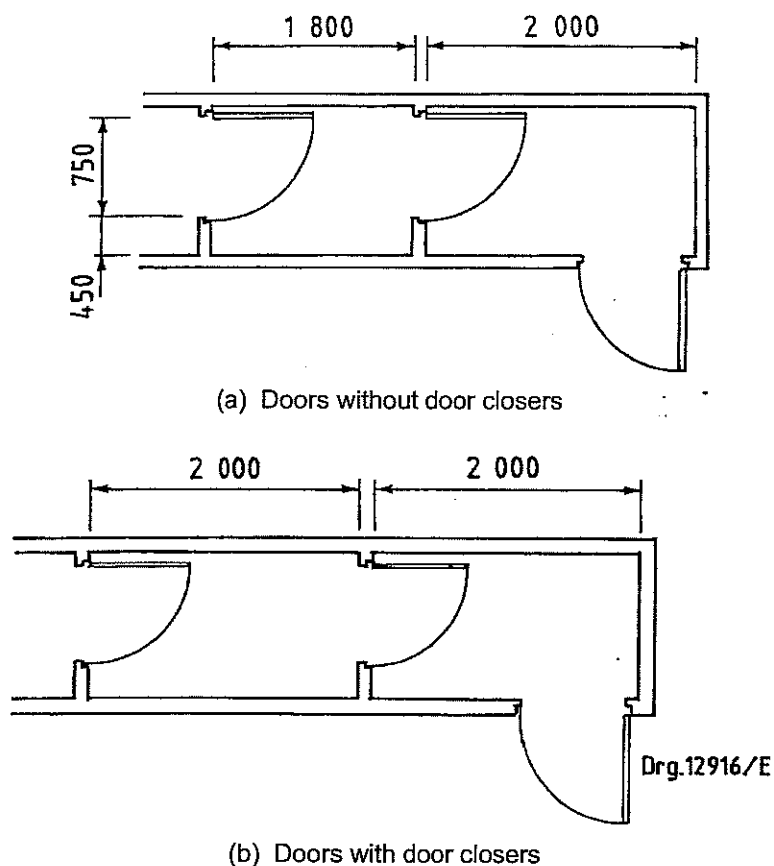


Figure 9 — Space required for hinged doors

Dimensions in millimetres

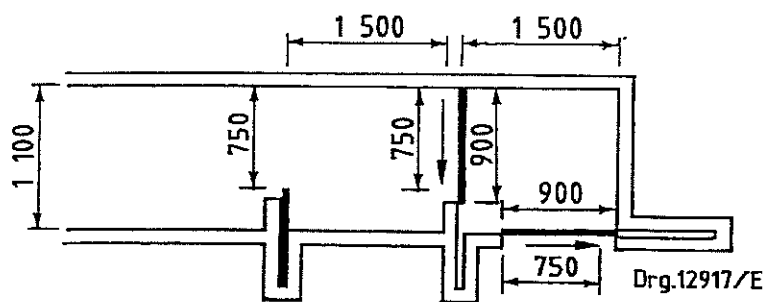


Figure 10 — Space required for sliding doors

11.2.6 Sliding doors may be installed in places where a hinged door would hinder circulation or manoeuvrability.

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11.2.7 Sliding doors shall be openable with finger-tip pressure. Handles shall project clear of the surface of the sliding door and shall provide at least 60 mm clear finger space in both open and closed positions, as indicated in figure 11.

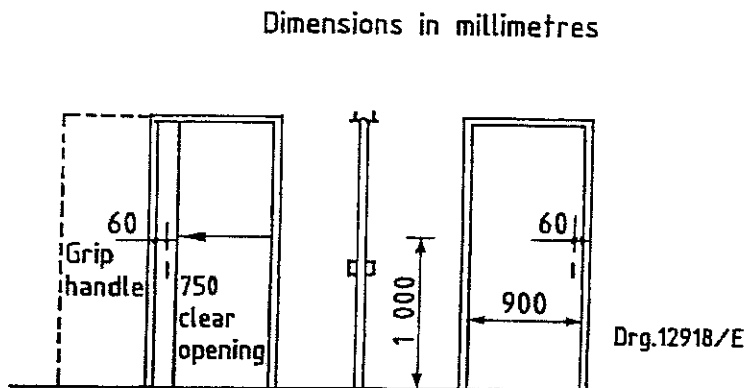


Figure 11 — Positioning of sliding door handles

11.2.8 Where revolving doors, turnstiles or other barriers are installed, an alternative exit that complies with figure 11 shall be provided.

11.3 Threshold

The height of a step at a threshold shall not exceed 15 mm or the threshold shall have a ramp of gradient not steeper than 1:10.

11.4 Door glazing

11.4.1 Door glazing shall be in accordance with rule NN3 of SABS 0400.

11.4.2 Where a person could accidentally walk into a glass surface, the glass shall be adequately marked in such a way as to be easily visible at a height between 800 mm to 1 000 mm from the floor finish.

11.5 Door handles

11.5.1 Any handle fitted to a doorleaf of any door in an emergency route or in a feeder route or in any compartment containing toilet facilities for use by disabled persons shall be of the lever type with a lever at least 150 mm long and shall be installed at a height not exceeding 1 000 mm above floor level.

11.5.2 Round door knobs do not provide an adequate grip for people with hand impairment and shall be avoided.

11.5.3 All doors shall be openable with one hand.

11.5.4 All door handles shall be horizontally aligned.

11.5.5 Door furniture with sharp protruding edges is hazardous and shall not be used.

11.5.6 Where doors are likely to be used frequently by wheelchair users (doctors' consulting rooms, clinics and the like), a vertical pull handle similar to the one shown in figure 17 shall be installed.

11.5.7 Door closers are a hindrance and their use should be avoided. Where such closers cannot be avoided, the delayed-action type shall be used.

11.5.8 Frequently used doors, such as main entrance self-closing doors should preferably open automatically.

12 Finishes

12.1 Slippery floors are hazardous to people whose mobility is impaired, and special care should be exercised in the choice of non-slip floor materials.

12.2 Propelling wheelchairs over thick pile carpets, loose sand and stone aggregate is extremely difficult and the need to do so should be strictly avoided.

12.3 For people with impaired vision, contrasting textures and colours should be used to distinguish possible hazards and changes of level.

13 Controls for use by disabled people

13.1 Windows

Locking and opening controls for windows and doors shall be of the lever type, readily accessible less than 1 200 mm above the finished floor level, operable by one hand, and not obstructed by fitments or appliances.

13.2 Light switches

13.2.1 All light switches shall be horizontally aligned with door handles and other fixtures and fittings (other than socket outlets) between 900 mm and 1 200 mm above the finished floor level, as shown in figure 12. The recommended height is 1 000 mm.

13.2.2 For visually impaired people and those with finger or hand disabilities, rocker action, toggle or push-pad switches that operate in the vertical plane should be used. Push buttons of light switches shall project clear of the switch plate and shall have a width of at least 10 mm.

13.2.3 General purpose socket-outlets (power points) shall be fixed at least 500 mm above the finished floor level, 150 mm above worktop level and at least 450 mm from corners (see figure 12).

Dimensions in millimetres

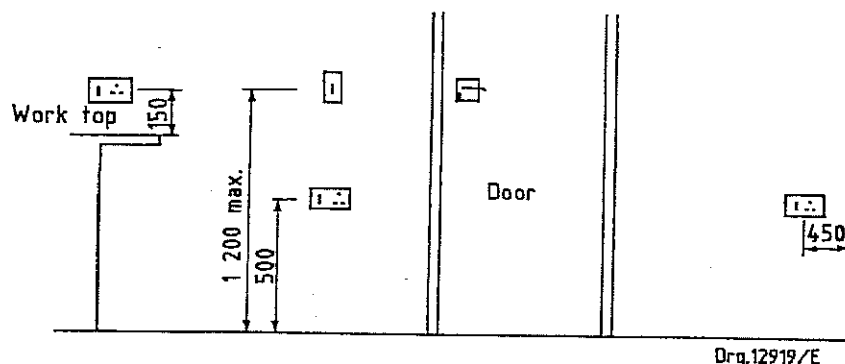


Figure 12 — Heights for switches, general purpose socket-outlets and door handles

13.3 Water taps

Taps and water-mixing controls intended for use by disabled people should be of the lever type, with a lever at least 150 mm long.

All hot water taps shall be installed on the left-hand side.

14 Toilet facilities

14.1 This clause is to be read together with regulation S2 of NBR and with the deemed-to-satisfy rule SS5 of SABS 0400. (See also annex A.)

14.2 For a layout of a cistern-type WC facility, see figure 13.

NOTES

- 1 A minimum plan dimension of 1,7 m is preferable to the 1,6 m given in subrule SS5.2(c) of SABS 0400.
- 2 It is important that the flush handle be extended.

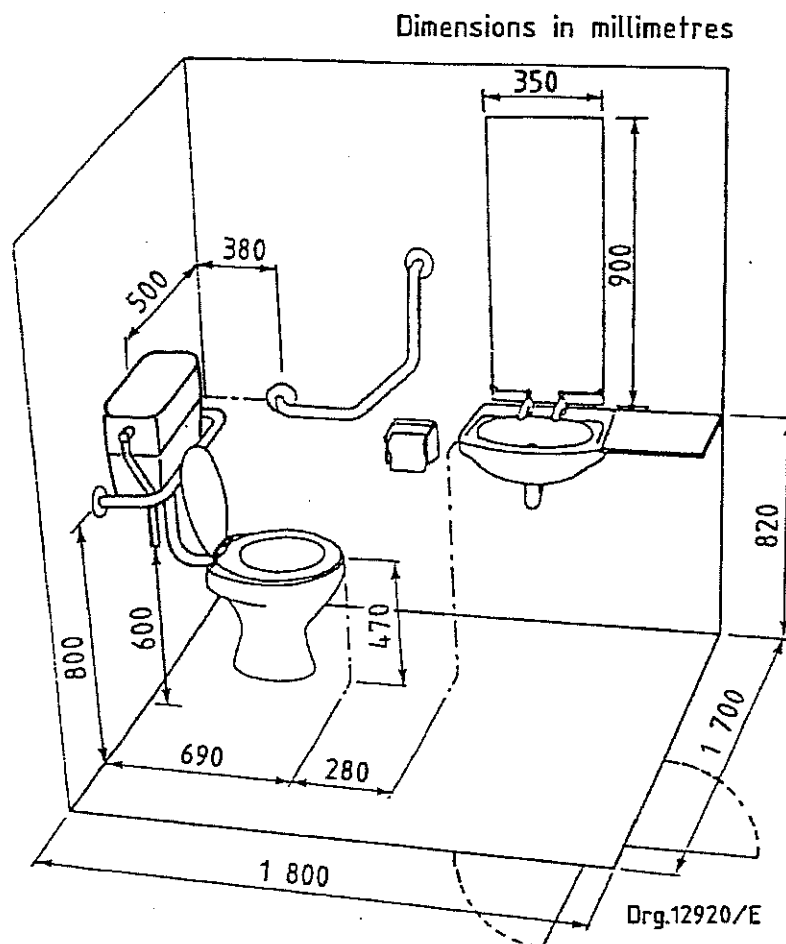


Figure 13 — Layout for cistern-type WC facility

14.3 For a layout of a flush-valve-type WC facility, see figure 14.

NOTES

- 1 A minimum plan dimension of 1,7 m is preferable to the 1,6 m given in subrule SS5.2(c) of SABS 0400.
- 2 It is important that the flush handle be extended.

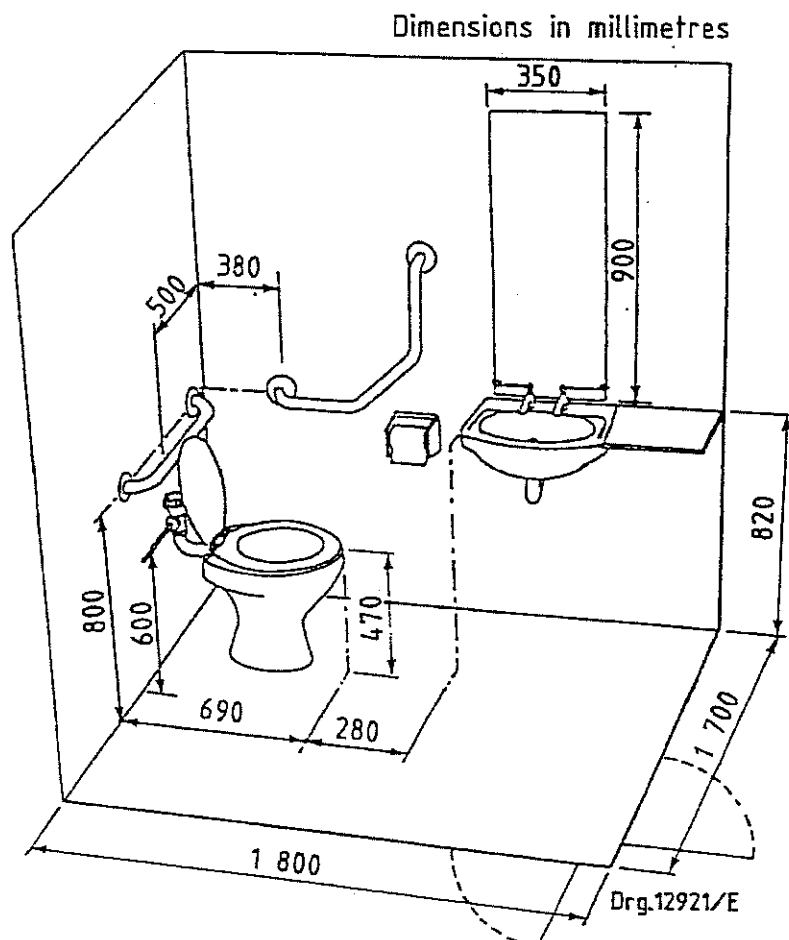
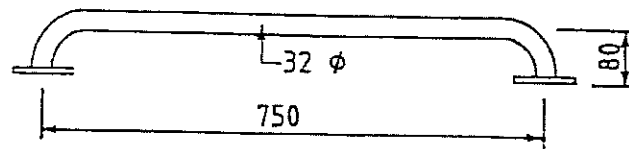
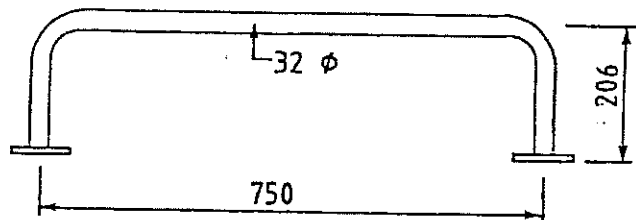


Figure 14 — Layout for flush-valve-type WC facility

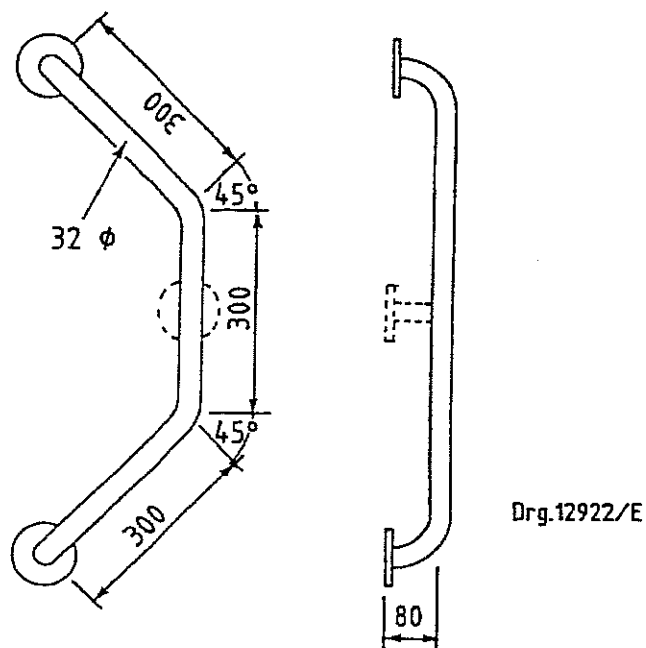
14.4 For details of standard grab-rails, see figure 15.



(a) Flush-valve back rail



(b) Cistern back rail



(c) Dog-leg side rail

Figure 15 — Details of standard grab-rails

14.5 For detailed information on hinged doors, see figure 16.

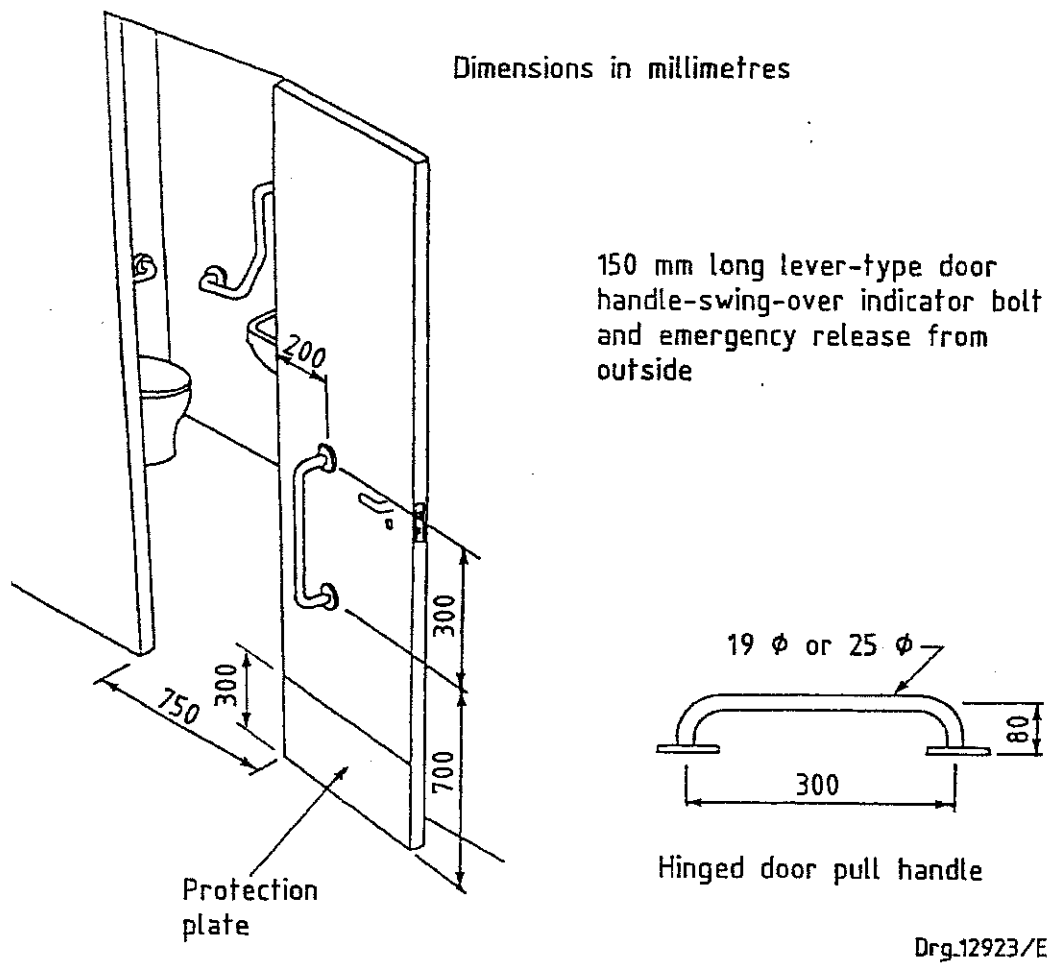


Figure 16 — Hinged door

14.6 For detailed information on sliding doors, see figure 17.

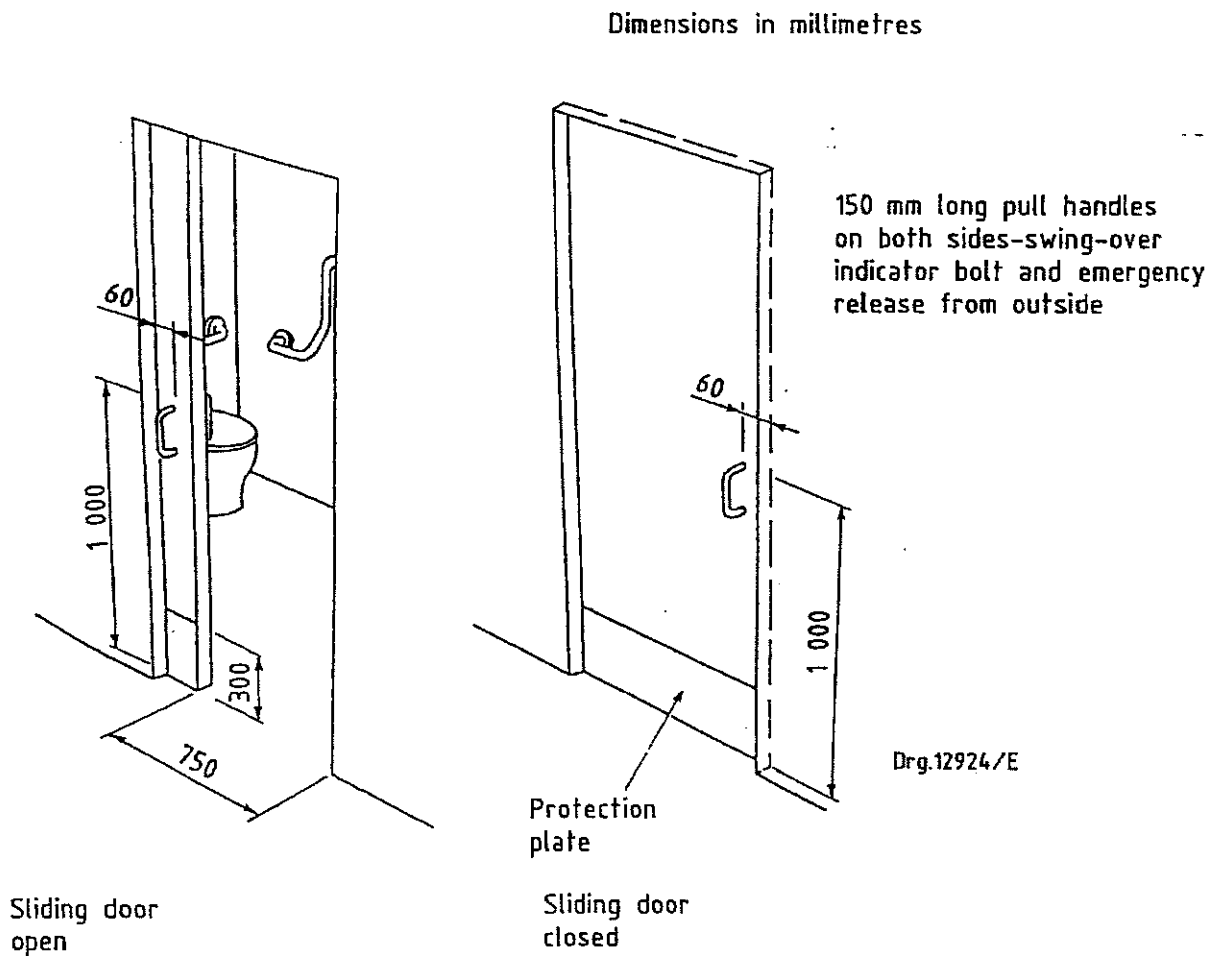


Figure 17 — Sliding door

15 Signals and warnings for people with impaired sight or impaired hearing

15.1 Signals

Emergency warning signals shall be both audible and visible. The visible emergency and fire alarm shall be as shown in figure 18, with a red flashing light behind to light up the bell sign.

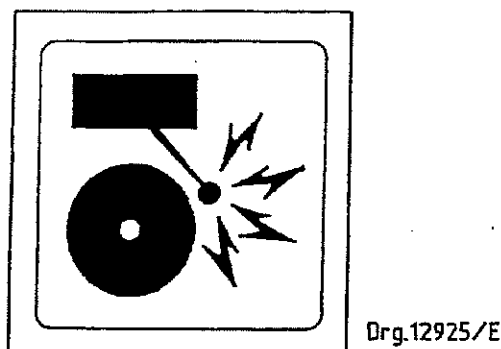


Figure 18 — Emergency and fire-alarm sign

15.2 Warnings

Where it is not possible to lock a door leading to a danger area, a method of identifying the danger area shall be used.

NOTE – The fixing of indicators to the underside of handrails to indicate the position of landings, knurling of door handles, or raised letters immediately adjacent to door handles is advocated as an aid in buildings designed for the use of blind people.

15.3 Electronic aids for the deaf

Where induction loops or other electronic aids are installed, the international loop system (deaf) sign as shown in figure 19 shall be displayed.



Figure 19 — International induction loop system sign

15.4 Public address systems

Hearing-impaired people may need to report at the information counters of all airports, railway stations, hotels, etc., to arrange for written messages or other information (or both). Such a counter and its location should be clearly identified by displaying the international loop system (deaf) sign (see figure 19). The entrance door of a room in a hotel that is occupied by a hearing-impaired person should likewise be identified for the full period of his stay.

15.5 Flasher lamps

Rooms occupied by hearing-impaired people shall be fitted with:

- a) a telephone that has a flasher lamp that is activated by the ringing of the telephone; and
- b) a general-alarm flasher lamp that is activated by the building's emergency-alarm system.

15.6 Lift callbuttons

To aid blind people to operate automatic lifts, tactile identification should be provided to the control panel. (See also subrule SS3.2 of SABS 0400.)

16 Lighting

16.1 In all buildings, the illumination levels shall be not lower than the following:

- a) passageways and walkways 150 lx
- b) stairs 150 lx
- c) ramps 150 lx
- d) lifts 150 lx
- e) toilet and locker rooms 200 lx
- f) counter tops 200 lx

NOTES

- 1 Many disabled people, especially elderly people and those with impaired vision, require higher levels of artificial lighting.
- 2 Hearing-impaired people require a higher level of illumination to facilitate lip reading.

16.2 Contrasting levels of brightness and colour assist visually-impaired people.

16.3 Night lights shall be provided in circulation areas and in bathrooms.

17 Signs

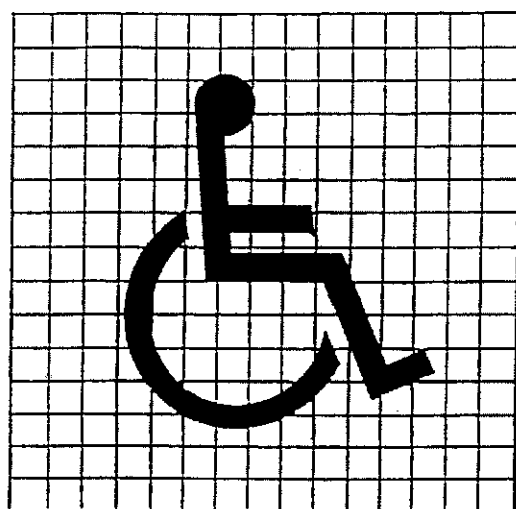
17.1 Use of international symbols

Where the international symbol for access for disabled people is used to identify buildings and facilities, the building or facility shall comply with the provisions of this standard.

17.2 Format of international symbols

The sign used to indicate facilities provided for disabled persons shall consist of two elements, i.e. a figure in a wheelchair and a plain background, as shown in figure 20.

NOTE – Grid on figure only for design layout.



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Figure 20 — Illustration of sign

NOTES

- 1 The proportional layout of the symbol of access shall be in accordance with figure 20.
- 2 The grid is for setting out purposes only.

The colour of the figure shall provide a strong contrast with the background colour, as indicated in figure 21.



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Figure 21 — Contrast of colours of sign

17.3 Typical signs

17.3.1 Clear legible signs shall indicate the direction and name of an accessible facility and shall incorporate the international symbol for access, as shown in figure 22.

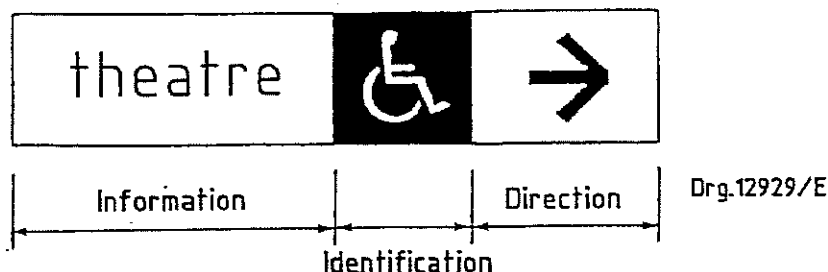


Figure 22 — Access signs

17.3.2 The height of lettering shall be not less than that given in table 1.

Table 1 — Height of letters for varying viewing distances

1	2
Required viewing distance	Minimum height of letter*
m	mm
2	10
5	20
10	40
15	50
25	80
30	100
40	140
50	160

17.3.3 The size of the symbol of access shall be not less than that given in table 2.

Table 2 — Size of symbol of access for varying viewing distances

1	2
Required viewing distance	Size of symbol
m	mm
0 - 5	60 x 60
5 - 10	110 x 110
10 +	Min. 200 x 200 Max. 450 x 450

17.3.4 To enable people with impaired vision to read the information on signs, the signs shall be placed at a height of between 1 400 mm and 1 600 mm above finished floor level.

NOTE - Raised letters and symbols assist those who are blind or who have impaired vision.

Annex A

(informative)

Notes on the design and layout of toilet facilities for disabled people

A.1 General

All dimensions are critical; the allowable tolerance is ± 10 mm. The size of a cubicle is to be at least 1 800 mm x 1 700 mm. The toilet roll holder is to be positioned as shown in figures 13 and 14. A shelf is to be fitted adjacent to the basin.

A.2 Toilet pan

A 150 mm lever extension to the flush handle is to be fitted to both cistern-type and flush-valve-type WCs, and such extension is to be located away from the side wall, as shown in figures 13 and 14. The height from finished floor level to the top of the toilet seat is to be 470 mm. The seat lid is to remain upright when raised, to act as a backrest.

A.3 Taps

All taps are to be lever action taps. Hot water is to be supplied where possible.

A.4 Stainless steel grab rails

The tube is to be of outside diameter 32 mm, and of stainless steel. The back grab-rail is to be selected for either 'cistern' or 'flush-valve'. The back and side grab-rail may be an integral unit.

A.5 Sanitaryware

Specialized purpose-made sanitaryware¹⁾ is available, and comprises:

- a) Protea pan (Code 7502) or Paragon pan (Code 4387);
- b) Magnolia basin (Code 7007/20);
- c) Hibiscus low level cistern (Code 710036); and
- d) specialized brackets and fittings for (a), (b) and (c) above.

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¹⁾ Specialized sanitaryware and detailed drawings and specifications are available from Vaal Potteries (Marketing Department), telephone: (061) 62 2221. This information is given for the convenience of users of this standard and does not constitute an endorsement by the SABS of the product named. Equivalent products may be used if they can be shown to lead to the same results.