

CHAPTER 5

BUILDING SERVICES DESIGN REQUIREMENTS

5.1 SWITCHES AND CONTROLS

This paragraph is applicable to operable part of controls such as electrical switches, wall socket outlets and controls of other electrical and mechanical equipment.

Switches, socket outlets and controls for lighting and other equipment shall be located so that they are easily reachable for all users.

BEST PRACTICE SECTION

A. Design Considerations

- (a) Ease of operation, visibility, reachable height and free from obstruction are key factors that affect the use of building services by persons with a disability.
- (b) All outlets, switches and controls should be positioned consistently in relation to doorways and corners within a building and in a logical sequence of passage through the building.
- (c) Switches close to the floor or skirting are difficult to reach and dangerous because the users have to stoop or kneel to operate them. The higher the socket outlet, the easier it is to push in or pull out the plug. However, there may be exceptions to height requirements for some socket outlets, e.g. those set into the raised flooring in open plan offices.
- (d) Operation of controls intended to be used by persons with a disability should not require the use of both hands simultaneously.
- (e) To cater for persons with visual impairment, controls should be in colour and luminous contrast with the background, and with embossed information on them for tactile reading.

B. Recommended Design Requirements

Positioning

- (a) Except as otherwise provided in Division 19 for lifts, the controls for the operation of building services or safety devices including electrical switches, light switches, thermostats, intercom switches and card reading machines which are intended to be accessible to wheelchair users should be located between 450 mm and 1200 mm above the finished floor level (see Figure 43).

Recommended Design Requirements (Cont'd)

Positioning (Cont'd)

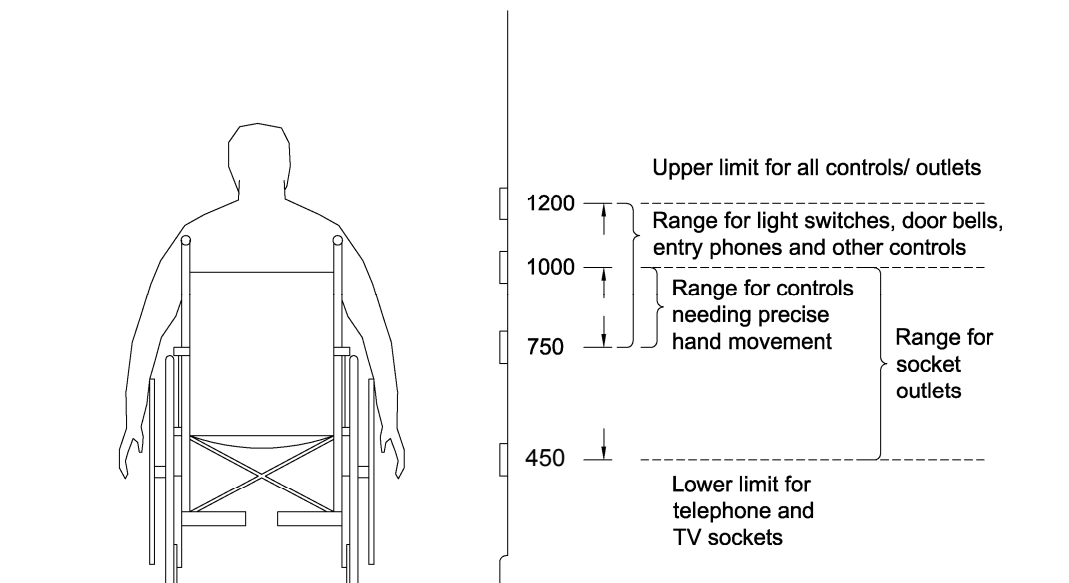
- (b) Electric sockets should be located not lower than 450 mm above the finished floor level.

Luminous Contrast

- (c) Light switches and socket outlets should have a minimum luminous contrast of 30% with their background to indicate their locations.

Controls

- (d) Controls should:
 - (i) have a minimum luminous contrast of 30% with the background finishes;
 - (ii) not require tight grasping or twisting;
 - (iii) be visible from a seated position; and
 - (iv) not be of small button type.



*ALL DIMENSIONS ARE IN mm

Figure 43 – Heights of Switches and Controls

5.2 FIRE ALARM SYSTEMS

- 5.2.1 Persons with hearing impairment depend on visual cues to alert them of emergencies. Persons with hearing impairment may need a visible as well as audible alarm which is only sufficient to deliver warning to a normal person.

MANDATORY SECTION

5.2.2 Performance Objectives

Where fire alarm systems are provided in areas of a building required to be accessible, the alarm shall emit both audible and visible signals.

5.2.3 Obligatory Design Requirements

Visual Alarm

- (a) Subject to paragraph (b), visual alarm signal shall be provided to form part of the fire alarm system in the form of a flashing red light, labelled “Fire Alarm 火警” in both English and Chinese. It shall be indicated on separate plate affixed nearby or engraved on the light cover. The alarm shall be installed at a prominent location which shall be readily noticeable when activated in the categories of buildings as specified in Table 2 in Chapter 2.
- (b) The provision of visual alarm shall not apply to all exit staircases as required under the Code of Practice for the Provision of Means of Escape in Case of Fire including the smoke lobbies adjoining the exit staircase, and the following areas: -

Domestic use	- domestic units
Office	- areas accessible to staff only, e.g. offices, store rooms, plant rooms, staff toilets, etc.
Department store and shopping complex	- areas not accessible to customers, visitors, e.g. offices, store rooms, plant rooms, staff toilets, etc.
Hotel, guesthouse, hostel and bank	- areas not accessible to guests, customers, visitors, e.g. kitchens, plant rooms, staff toilets, offices, back of house facilities, etc.
Place for worship	- areas not accessible to worshippers, visitors, e.g. offices, staff toilets, etc.

Obligatory Design Requirements (Cont'd)

Visual Alarm (Cont'd)

Cinema, theatre, concert hall, stadium, museum, theme park and purpose-built family amusement centre	- areas not accessible to the visitors, spectators, audience, e.g. projector rooms, offices, store rooms, plant rooms, staff toilets, etc.
School, college, university	- areas accessible to staff only, e.g. offices, store rooms, plant rooms, staff toilets, staff quarters, etc.
Factory, workshop and place for industrial use	- areas accessible to staff only, e.g. offices, store rooms, plant rooms, staff toilets, etc.
Sports complex and public swimming pool complex	- areas not accessible to visitors, athletes, spectators, e.g. plant rooms, offices, store rooms, staff toilets, etc.
Restaurant and food court	- areas not accessible to customers, visitors, e.g. offices, kitchens, store rooms, plant rooms, staff toilets, etc.
Indoor market and supermarket	- areas not accessible to customers, visitors, e.g. offices, store rooms, plant rooms, staff toilets, etc.
Hospital, purpose-built clinic, residential home for the elderly and welfare centre	- areas not accessible to patients, inmates, visitors, e.g. kitchens, plant rooms, staff toilets, offices, laboratories, back of house facilities, staff quarters, etc.
Club House	- areas accessible to staff only, e.g. offices, kitchens, store rooms, plant rooms, staff toilets, etc.
Transport station, interchange, passenger terminal	- areas accessible to staff only, e.g. plant rooms, station offices, regulator's offices, staff toilets, etc.
Carpark	- areas not accessible to customers, visitors, e.g. shroff offices, store rooms, plant rooms, staff toilets, etc.

Obligatory Design Requirements (Cont'd)

Positioning of Call Points

- (c) The manual fire alarm call points or activation controls, e.g. breakglass units, in places which are intended to be accessible to wheelchair users, shall be positioned at prominent and accessible locations and installed in accordance with the Code of Practice for Minimum Fire Service Installations and Equipment and the Code of Practice for Inspection, Testing and Maintenance of Installations and Equipment or Fire Services Department Circular Letter.

Audible Alarm

- (d) Audible alarm shall comply with the requirements of the Code of Practice for Minimum Fire Service Installations and Equipment and the Code of Practice for Inspection, Testing and Maintenance of Installations and Equipment published by the Director of Fire Services.

BEST PRACTICE SECTION

A. Design Considerations

Audible and visual alarm may not be appropriate for use in hospitals and some specialized medical facilities, such as operating rooms, where it is not intended to alert or alarm patients who are incapable of independent evacuation. The sudden strobe flash might disrupt a surgical operation in progress which could be catastrophic. For such facilities, the requirements for visual and audible alarm may be modified to suit the norm of industry-accepted practices.

5.3 PUBLIC TELEPHONES

This paragraph sets out the requirements for telephones intended to be used by the public.

Public telephones should be accessible by all users, including wheelchair users and persons with visual or hearing impairment.

BEST PRACTICE SECTION

A. Design Considerations

- (a) Telephones should be fixed at an appropriate height which is within easy reach and easy to use, to enable all users, including persons with a disability to make full use of them.
- (b) Other helpful features which should be provided include support rails; adequate lighting; seats; big buttons; lamp signaling; amplifying handset; inductive coupler; speakerphone; and digit 5 indicator.
- (c) The provision of a text phone enables person with hearing impairment to make calls.

B. Recommended Design Requirements

Keypad

- (a) The keypad of a public payphone, if provided with mechanical keypad, should have a digit 5 indicator (see Figure 44).

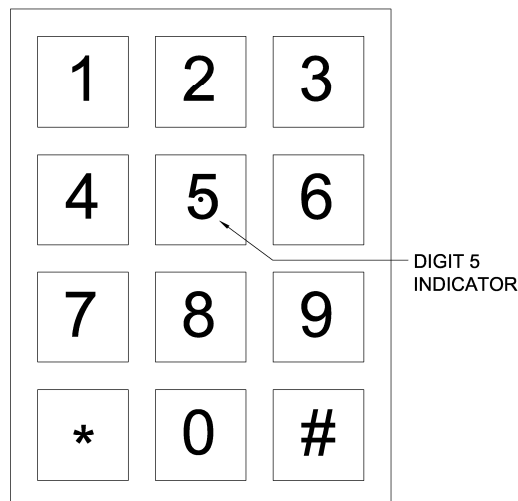


Figure 44 – Digit 5 Indicator

Recommended Design Requirements (Cont'd)

Telephone for Persons with Ambulant Disabilities and Wheelchair Users

- (b) At least one in a group of two or more payphones should be designed for access by persons with a disability and in compliance with the following: -
- (i) the approach to the accessible payphone should be free of obstacles;
 - (ii) the accessible payphone should not be placed on a stepped base unless a ramp in compliance with Division 5 is provided;
 - (iii) the cord length of the accessible payphone should not be less than 750 mm;
 - (iv) to facilitate wheelchair users, all operable parts including the coin slot of the accessible payphone should not be positioned higher than 1200 mm above the finished floor level;
 - (v) if there is an enclosure for the accessible payphone, the enclosure should begin no more than 650 mm from the finished floor level to prevent it from being a hazard to persons with visual impairment;
 - (vi) there should be a clear floor space of at least 750 mm by 1200 mm in front of the accessible payphone to allow either a forward or parallel approach by a wheelchair user;
 - (vii) if a parallel approach is adopted, the enclosure sides, if there is an enclosure, should not extend more than 250 mm in front of the face of the accessible payphone;
 - (viii) If a forward approach is adopted, the enclosure, if any, should have a clear width of at least 800 mm to provide wheelchair access; shelves or other obstructions should not extend more than 400 mm from the face of the accessible payphone; and there should be a space of 750 mm wide by 650 mm high by 430 mm deep for the footplate of a wheelchair;
 - (ix) if the accessible payphone is provided in an enclosed booth, the door of the booth should open outwards and have a clear width of not less than 800 mm between the open door and the opposite jamb or the other leaf; and
 - (x) if the accessible payphones are provided in a booth without door, the entrance to the booth should not be less than 800 mm wide.
- (c) Grab rails should be installed on each side of the accessible payphone booth to enable those on crutches or with canes to maintain balance while using the accessible payphone. Otherwise, there should be a space of not less than 900 mm in width in the phone booth for persons with a disability to enter with their crutches and canes.

Recommended Design Requirements (Cont'd)

Telephone for Persons with Ambulant Disabilities and Wheelchair Users (Cont'd)

- (d) A fold-down seat should be provided in accessible booths for the convenience of persons with ambulant disabilities.

Telephone for Persons with Visual Impairment

- (e) At least one in a group of two or more payphones should be designed for access by persons with visual impairment. Such payphone should be provided with a mechanical keypad with the digit 5 indicator and a detection system that activates a recorded sound message, giving explanations on the operational procedures to the users, as the handset is picked up.
- (f) Phone cards for payphones should bear a “notch” on the left bottom to aid orientation for persons with visual impairment.

Telephone for Persons with Hearing Impairment

- (g) At least one in a group of two or more payphones should be provided with amplifying handset or receiver with inductive coupler. If a payphone is equipped with the latter, it should be identified by the international symbol of access for persons with hearing impairment (see Figure 30).

Telephone for Persons With Speech Impairment

- (h) At least one in a group of two or more payphones should be capable of handling written messages for access by persons with speech impairment.

5.4 REMOTE SIGNAGE SYSTEMS

A remote signage system carries and transmits a voice message to the users in the form of a talking sign. The system shall provide audible information to persons with visual impairment who are equipped with proper receivers.

BEST PRACTICE SECTION

A. Design Considerations

- (a) A remote signage system normally consists of short audio signals sent by invisible infrared light beams from permanently installed transmitters to a hand-held receiver that decodes the signal and delivers the voice message through its speaker or headset.
- (b) With the hand-held receiver, persons with visual impairment can scan the environment and locate his relative position. It can work effectively in both interior and exterior applications for landmark identification and way-finding.
- (c) The system promotes more confident and independent travel throughout all major common areas.

B. Recommended Design Requirements

A remote directional signage system which transmits a voice message by means of infrared or the like detectable by a proper receiver should be provided to facilitate access and movement of persons with visual impairment.

5.5 VERTICAL LIFTING PLATFORMS

A vertical lifting platform is a mechanical lift with a platform and walls which provides vertical circulation between two levels.

A vertical lifting platform shall be designed to facilitate persons with ambulant disabilities and wheelchair users for the vertical transportation from one level to another in a building.

BEST PRACTICE SECTION

A. Design Considerations

- (a) Installation of vertical lifting platform is necessary if no other means of vertical transportation is available when the presence of persons with a disability can be envisaged.
- (b) It provides an accessible route to a performing area.
- (c) It provides access to equipment control rooms and projection booths.
- (d) Clear instructions for use and emergency alarm should be provided inside the lifting platform.

B. Recommended Design Requirements

- (a) Where it is impractical to provide a passenger lift or a ramp, a self-operated vertical lifting platform should be considered as a reasonable alternative for vertical circulation for wheelchair users, the vertical lifting platform should have the following provisions (see Figure 45): -

Door

- (i) minimum clear entrance width of 900 mm;
- (ii) Single door or 2-door design;

Platform size

- (iii) minimum size of 1100 mm (wide) x 1400 mm (deep);

Recommended Design Requirements (Cont'd)

Safety Barrier

- (iv) provision of safety barriers of not less than 1100mm in height;
- (v) provision of a flip-up ramp if a door is not provided, to act as a safety barrier and serves as an access ramp for wheelchair users;

Control

- (vi) lift buttons should comply with paragraphs 80(1) and (4) in Division 19;
- (vii) automatic homing device should be installed so that in the event of a power failure, the platform lift will descend to the entrance level;

Grab bars

- (viii) grab bars complying with paragraphs 28(3) and (4) in Division 8 should be placed at a height of 900mm from the finished floor level and be fixed on both sides and at the rear of the lift car;

Maximum Travel and Loading

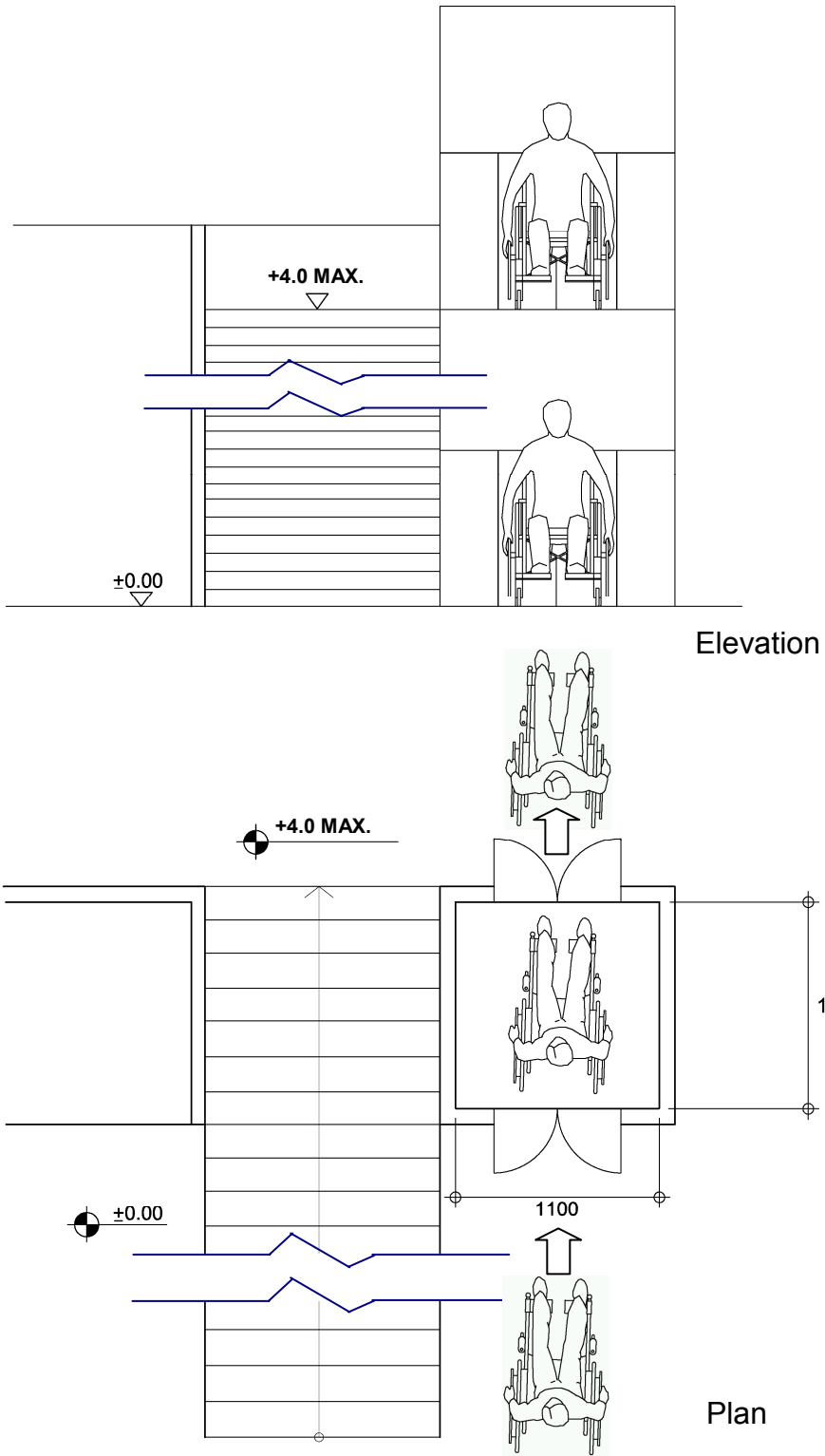
- (ix) the maximum travel should be 4000 mm;
- (x) the rated load of the lifting platform should not exceed 500 kg; and

Sign

- (xi) A sign to indicate the rated load should be provided at a prominent position next to the lift control buttons inside the lift; and

Landing

- (xii) The landings to a vertical lifting platforms at the 2 access levels should be in opposite directions so as to eliminate the need for the wheelchair to back-out.



*ALL DIMENSIONS ARE IN mm

Figure 45 – Vertical Lifting Platform

5.6 DRINKING FOUNTAINS

This paragraph sets out the requirements for provision of drinking fountains. A drinking fountain is a primary means for providing the public with sanitary water.

BEST PRACTICE SECTION

A. Design Considerations

- (a) The design and provision of drinking fountains should take into account the envisaged use of persons with a disability.
- (b) The operable controls and direction of water flow should be designed and installed in a manner to facilitate the use by persons with a disability.
- (c) Facilities for wheelchair users call for extra consideration in relation to access and manoeuvring space.

B. Recommended Design Requirements

Provision

- (a) Where drinking fountains are provided, at least one of the drinking fountains on a given floor should have a design complying with this section.

Spout

- (b) The fountain spout should: -
 - (i) have an opening located between 750 mm to 900 mm from the floor or ground surface;
 - (ii) be located near to the front of the unit;
 - (iii) direct the water flow in a trajectory that is parallel or nearly parallel to the front of the unit; and
 - (iv) provide a flow of water at least 100 mm high to allow for the insertion of a cup or glass.
- (c) Automatic controls or controls with handles of the lever type operable with a closed fist should be provided.

Recommended Design Requirements (Cont'd)

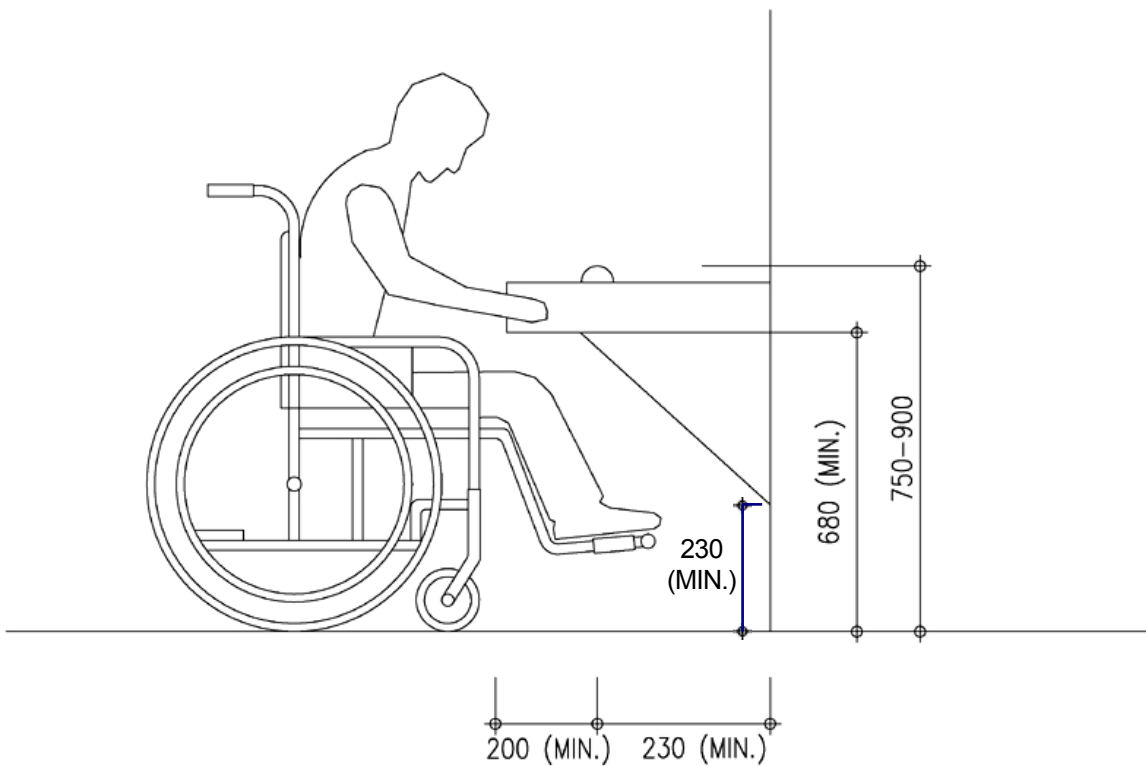
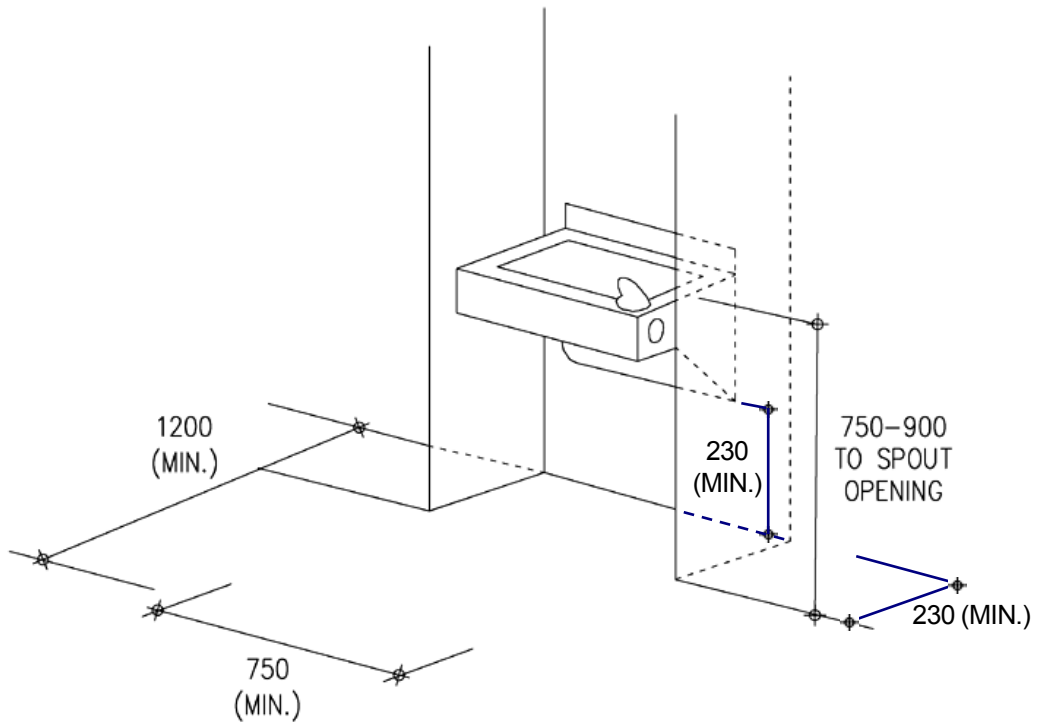
Control

- (d) Controls should: -
 - (i) be at or near to the front of the fountain;
 - (ii) be operable with one hand; and
 - (iii) require no tight grasping, pinching, or twisting of the wrist.

Spatial Arrangement

- (e) The spatial arrangement should allow for the provision of: -
 - (i) a clear floor space of at least 750 mm x 1200 mm;
 - (ii) a clear knee space of at least 750 mm wide, 200 mm deep and 680 mm high between the bottom of the apron and the floor or ground; and
 - (iii) a toe space not less than 750 mm wide, 230 mm deep and 230 mm high.
- (f) All wall-mounted drinking fountains should be placed in an alcove to eliminate the hazard of collision to persons with visual impairment.
- (g) A wall guard should be installed to protect a drinking fountain that extends into a corridor and has an open space underneath.

Dimensions relating to the design of drinking fountains are shown in Figure 46.



SPOUT HEIGHT AND KNEE CLEARANCE

*ALL DIMENSIONS ARE IN mm

Figure 46 – Built-in Drinking Fountain