

CHANGES IN THE NEW CODE

INTRODUCTION

1 The Code on Barrier-Free Accessibility in Buildings was first introduced in Singapore in 1990 by the then Building Control Division (BCD) of the Public Works Department. It was originally intended for wheelchair users and was written primarily with their needs in mind even though the provisions would also cater to the ambulant disabled and benefit the elderly and infirm as well.

2 Having implemented the Code for a few years and with feedback from the various professional bodies and the associations/organizations involved with physically handicapped persons, the BCD initiated a comprehensive review of the Code to update and fine-tune the provisions and technical requirements. The review was undertaken by a task force comprising BCD, Singapore Institute of Architects (SIA) and the Handicaps Welfare Association (HWA). This resulted in the publication of the second edition of the revised Code in 1995.

FORMATION OF WORKING COMMITTEE

3 Since the publication of the second edition, the Building and Construction Authority (BCA)* had received feedback from various quarters on the Code's requirements. Some have commented that certain requirements in our Singapore code are more stringent than similar provisions in other countries' codes. There are also requirements not specified elsewhere but present in the local Code. The perception is that this has contributed unnecessarily to building costs.

4 Arising from such feedback and also as it was timely for a periodical review, a Working Committee was formed in 1999 to review and rationalize the Code. The Working Committee, besides BCA, comprised representatives from the following organizations/institutions:

- a) Handicaps Welfare Association (HWA)
- b) Singapore Association for the Visually Handicapped (SAVH)
- c) Asian Women's Welfare Association (AWWA)
- d) Ministry of Community Development and Sports (MCDS)
- e) Housing and Development Board (HDB)
- f) Land Transport Authority (LTA)
- g) Singapore Institute of Architects (SIA)
- h) National University of Singapore (NUS)

SCOPE OF REVIEW

5 This review gained added impetus following the Government's acceptance of the Report of the Inter-Ministerial Committee (IMC) on the Ageing Population (1999) which aims to create, among other things, a physical environment that is conducive to the well-being of the elderly. One of the key recommendations in the IMC's report is the concept of "ageing in place", that is, growing old in the same home and community that one is familiar with. In the course of reviewing and formulating the draft, the Working Committee also looked at the needs of people with other forms of physical infirmities or limitations but who are not wheelchair bound e.g. Those with visual impairment, families with infants and young children, etc. They should also not be unnecessarily disadvantaged by the built environment and be able to access buildings, make use of its facilities and participate in activities as an integral part of the community just like any other person.

REVIEW METHODOLOGY AND APPROACH

6 The Working Committee carried out its review by comparing some of the provisions of the 1995 Code with corresponding provisions of equivalent codes of selected developed countries such as Hong Kong, Canada, New Zealand and Australia. The provisions selected for comparison were those arising from feedback received and non-compliances detected during site inspections. Where applicable, the existing standards are revised after considering local conditions.

7 The members of the Working Committee also visited HWA's premises to test mock-ups of the standards to be adopted in the revised Code. Generally, it was found that many of the standards in the current Code could not be relaxed without compromising the movement of the wheelchair users around the building or within the space.

8 In reviewing the Code, the Working Committee strove to strike a balance between competing needs of the intended users and the cost to the industry. Stringent provisions that may not be necessary are relaxed. Existing provisions that are open to interpretation are refined to remove any possible ambiguity and "innocent" infringements of the Code by designers.

9 One of the principal considerations in drafting the Code is to determine what provisions should be made mandatory and what should be left as good practice guidelines. The Working Committee prefers to have minimum mandatory requirements wherever possible. Mandatory requirements, if applied on a blanket basis, may not be suitable for all types of buildings or facilities meant for various user groups. This may lead to wastage and increased cost.

10 Therefore mandatory requirements are confined to those handicap features or facilities which are deemed to be minimum standards necessary for its intended use. This is complemented by design guidelines, which are non-mandatory and are meant to guide designers who wish to incorporate special features for specific target users. It is felt that designers are better placed to ascertain their target users and with the design guidelines in the Code, can be more responsive to their needs. This market driven approach will be closely monitored and if the need arises, selected requirements in the design guidelines can be made mandatory in future revisions of the Code.

11 Four sets of design guidelines will therefore be introduced as Appendices in the revised Code. They are design guidelines for older persons, visually handicapped, children with disabilities and family-friendly facilities.

MAIN CHANGES

12 The significant changes that will be introduced in the revised Code are as follows:

a) Scope of Code's Application

The current provisions require "all areas intended for access by public" in specified buildings to be made accessible. This has led to some ambiguity in interpretation. This will be amended to "all areas intended for access by employees, students, staff, patients or inmates" as workplaces, training institutions, hospitals, etc. Should also be made accessible to their immediate target users besides the public. This revision reflects the original intention of the Code and minimizes any potential misinterpretation by designers.

b) Accessibility to Buildings of 4 Storeys or Less

The current provision requires all communal areas in residential buildings above 4 storeys to be made accessible. It is silent on residential buildings of 4 storeys or less. In the revised Code, for residential buildings of 4 storeys or less, all communal areas and facilities at the 1st storey will be required to be made accessible. This reflects the intention of the Code and will remove any ambiguity in how it is to be applied.

c) **Transport Interchanges and Passenger Terminals**

Transport interchanges and passenger terminals are expanded to include transport stations and administration buildings in depots to avoid any misinterpretation e.g. Whether MRT or LRT stations are required to be provided with facilities for persons with disabilities. As for depots, such facilities need only be provided at administration buildings.

d) **Minimum Accessible Provisions**

The minimum accessible provisions have been revised for the following types of buildings:

- i) Hostels, halls of residence and dormitories – from at least one room to 1 in every 100.
- ii) Cinemas, theatres, concert halls, stadia or other places of public resort – from at least 2 wheelchair spaces for every 400 seats to 1 for every 150.

Item (i) is revised to 1 in every 100 rooms rather than just one accessible room irrespective of the number of rooms in hostel, hall of residence and dormitory developments. As for item (ii), the wheelchair spaces are increased from 0.5% to 0.67%. This is to cater to the increasing number of wheelchair users which is expected to rise in co-relation with the projected increase in the elderly population.

e) **Plant and Equipment Rooms**

BCA occasionally receives applications for waivers of the Code's requirements for plant and equipment rooms in, say, an office building. This could be the result of some designers interpreting the term "areas intended for access by public" to include also plant and equipment rooms. In the revised Code, it will be made explicitly clear that the Code's provisions will not apply as persons with disabilities are not expected to perform maintenance tasks or potentially hazardous operations in such rooms or areas.

f) **Toilet Clusters**

Currently, the Code requires toilets for the handicapped to be provided at each toilet cluster. This will be relaxed where two or more clusters of toilets are provided at the same level but at different locations. This relaxation will apply to factories, workshops and industrial buildings. The rationale is that users of such premises are usually employees and they should be familiar with the location of the nearest toilet for persons with disabilities at that level. This is unlike public areas like shopping and multi-purpose complexes where the majority of the public, including persons with

disabilities, may not be familiar with the surrounding and hence toilets for persons with disabilities need to be provided at every cluster at the same level.

g) Shower Facilities

Provision of shower facilities is expanded to include buildings like sport complexes, public swimming pools, boarding houses and halls of residence or dormitories. Some persons with disabilities are good in sports and with such facilities provided at sport complexes and public swimming pools, it will encourage more such persons to participate in activities. As regards boarding houses and halls of residence or dormitories, the new requirement will provide a wider choice of accommodation for persons with disabilities.

13 Other changes include design standards as follows:

a) Grab Bar and Emergency Call Bell

Additional foldable grab bar and emergency call bell are now included in the toilet for persons with disabilities. The foldable grab bar is more useful to wheelchair users than the fixed grab bars and it can be folded up when not in use. This gives better maneuvering space within the toilet. The emergency call bell would allow persons with disabilities to summon help if there is an emergency.

b) Detectable Warning Surface

A detectable warning surface where the colour and texture are contrasted with the adjacent surfaces will be introduced on kerb ramps. This will alert persons with visual impairment when there is a change in plane as he or she approaches the ramp. Similarly, tactile warning strips will be provided on top, bottom and intermediate landings of staircases if it is intended for ambulant disabled.

c) Lift

A blinking light connected to the emergency bell in a lift intended for disabled will need to be provided. This is to alert and give assurance to the hearing impaired that the emergency bell has been activated and they should await help. Braille and tactile markings are also added to assist persons with visual impairment.

d) Platform Lift

Details are added for designers who wish to install such lift.

- e) **Colour Contrasted Floor/Wall Surfaces**
Floor surfaces must have colour and tone that are contrasting with the wall, otherwise the skirting must provide a clear distinction between the floor and wall. As for rough walls, trailing bars are introduced at a height of 840mm from the floor level so that persons with visual impairment can trail along it without hurting their hands.
- f) **Protruding Objects**
Objects protruding into paths of access or movement, which are potential hazards especially to persons with visual impairment, are defined in detail. The maximum protrusion of such object depends on the height of the leading edges measured from the floor level. For example, if a person is using the wall or an edge as a guide, a protrusion of not more 100 mm is acceptable where the leading edge of the protrusion is at any height above 580 mm from the floor level.
- g) **Bollards**
Besides a minimum clear distance of 900 mm between the bollards, more details are added so that the designers would be able to install it correctly, especially at the accessible route to avoid any obstructions for wheelchair users and also allow persons with visual impairment to detect it upon approaching.
- h) **Glass Doors**
Unframed full-height glass door is to be provided with markings or motifs within two horizontal bands i.e. Upper and lower bands. This is to alert persons with visual impairment on the glass door ahead.
- i) **Passenger Alighting and Boarding Point**
The access aisle of at least 1500 mm wide by 6000 mm long for passenger alighting and boarding point is revised to 1500 mm wide by 4500 mm long. This is to prevent the access aisle, which is intended for wheelchair users to board or alight a vehicle, from being used as a carpark by other motorists, thereby causing obstruction to wheelchair users.
- j) **Shower Facilities**
The dimensions of roll-in-showers have been revised from 1500 mm X 750 mm to 1500 mm X 1500 mm. Where an individual washroom is designed to include shower facility, the dimension is 2000 mm X 1750 mm.

14 The four sets of design guidelines with non-mandatory requirements that will be introduced as Appendices in the revised Code include the following:

a) Design guidelines for older persons

These guidelines set out design features in housing which are elderly-friendly. It explains the level of ability as a person gets older and the potential hazards he encounters. It recommends basic elderly-friendly design features covering the following:

- i) Barrier-free and level floors
- ii) Floor surfaces
- iii) Control and operating mechanisms
- iv) Lighting and services
- v) Doors and warning system
- vi) Space standard

b) Design guidelines for persons with visual impairment

These guidelines help to create a conducive environment to meet the needs of persons who are visually impaired. It enables persons with visual impairment to move about independently, safely and with dignity. In these guidelines, the concept of visual contrast in building interiors and tactile ground surface indicators are elaborated in detail. Examples of the former are contrast between building elements, luminance/brightness contrast, colour contrast, glare and lighting. The latter concerns physical or other sensory cues, landmarks and mind maps. Tactile ground surface indicator is one form of tactile indicator that provides the visually impaired a physical cue.

c) Design guidelines for children with disabilities

These guidelines are intended to apply to buildings or premises, such as kindergartens, pre-schools or primary schools, where children are the principal or predominant users. Where such buildings or premises are to be made accessible, it is recommended that the provisions and facilities should be designed in accordance with the details and specifications in these guidelines. The guidelines cover the following:

- i) Handrails/grab bars
- ii) Seating spaces e.g. Clear floor space, clear knee space
- iii) Sanitary provisions e.g. Water closet seat height, grab bars
- iv) Children's reach ranges
- v) Height of lift control panel

- vi) Height of the operable parts of a telephone
- vii) Height of tables or counters

d) Design guidelines for family-friendly facilities

These guidelines are on the provision of family-friendly facilities to buildings that may be frequented by families with infants and young children e.g. Shopping complexes and supermarkets, restaurants and eating establishments, sport complexes, food centres, etc. The recommended features cover the following:

- i) Child-friendly sanitary facilities;
- ii) Child protection seat;
- iii) Family room;
- iv) Children's activity corner or playroom;
- v) Locker provision and other heavy belongings;
- vi) Pram and wheelchair rental facility;
- vii) Flexible arrangement of tables and chairs;
- viii) Seating or resting area.

PUBLIC CONSULTATION

15 The draft Code was circulated to the industry as well as posted on BCA's website on 1 Mar 2002 for the public and interested organizations to provide their feedback by 30 Apr 2002. The comments received were evaluated by the Working Committee and the Code amended where appropriate. The implementation date will be announced later.

CONCLUSION

16 The revised Code strives to strike a balance between the competing needs of developer/owners and persons with disabilities. Through the consultative process in developing the Code, it is hoped this fine balance can be achieved. The mandatory requirements are the minimum standards buildings will have to satisfy whereas the design guidelines serve to educate designers by increasing their awareness of the special needs of specific users. It is hoped that designers, aided by market forces or demand, will apply this knowledge by incorporating the desirable features in their design to make buildings more user friendly to all intended users. By adopting this inclusive design approach, designers will go beyond merely providing buildings that meet only the barest minimum standard. The barrier free buildings they design will also help foster greater community and social integration, which is consistent with the Code's objective.

* BCA was established on 1 April 1999 as a result of the merger between the Construction Industry Development Board (CIDB) and the Building Control Division (BCD) of the Public Works Department