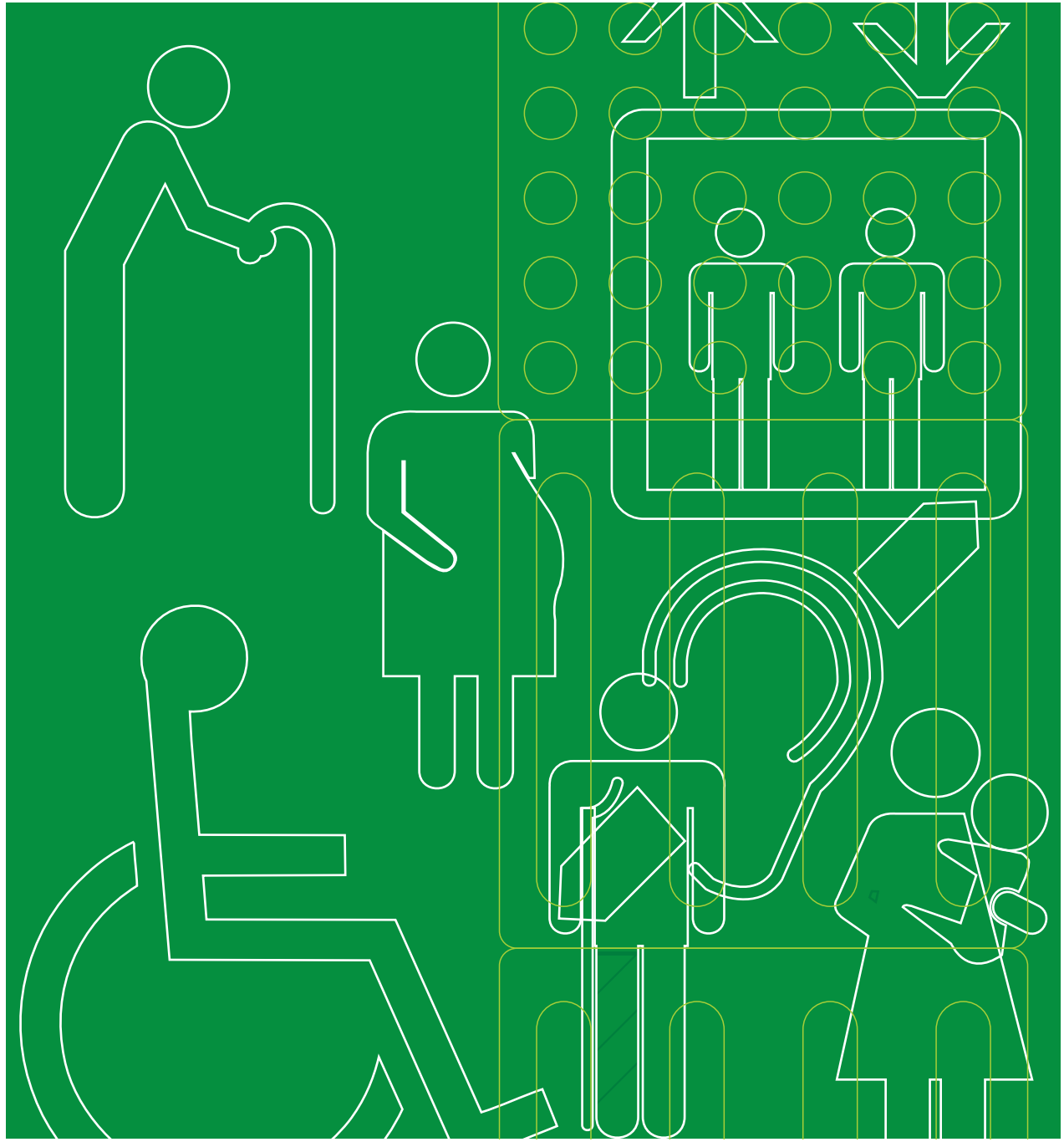
Barriers to Buildings and Community Facilities



3.1 Barriers in Accessibility
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Barriers in accessibility may be defined as an object, which could be physical or immaterial, that obstructs or impedes accessibility.

Barriers break the travel chain described in Section 2 and limits mobility. It affects public safety and makes a building or facility user unfriendly. It also means that extra resources, such as staff, is needed to assist the commuter to travel from one point to another or assist the user to access a building or facility. A barrier on information means that the user cannot find or apprehend the necessary information and has to spend much longer time or effort to get through.

Barriers may cause accidents and lead to frustration if the user fails to pass through the hurdles to gain information or access to the building. For example, the area of initial approach from the street onto the property boundary as shown in 3.1.1a and 3.1.1b is an area of concern. Such approach to the entrance is hazardous and renders part of the route inaccessible. The most common barriers and access problems are outlined below:-

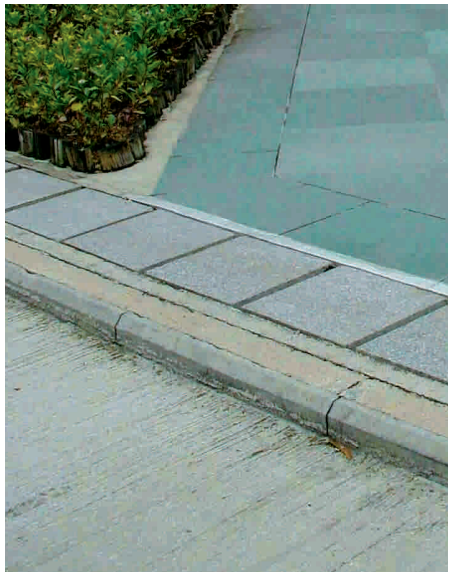
Access route:

- Indirect routing
- Lack of directional signs
- Not segregated from vehicular route
- Uneven surface (3.1.1c)
- Obstacles such as bollards, fittings (3.1.1d and 3.1.1e), trees, curbs (3.1.1f), drainage gratings positioned on access pathways

Ramps & gradient:

- Routes with gradients too steep
- Cross falls too great
- Steep and long gradients
- Inadequate or lack of landings
- Lack of appropriate handrails
- Lack of appropriate tactile ground surface indicators (3.1.1h)
- Slippery ground surface finishes

3.1.1a) Undulating pavement, uneven steps are barriers and hazardous



3.1.1b) One step difference between public footpath and property boundary

3.1.1c) Uneven surface

3.1.1d) Light fitting projecting on pathway with a potted plant placed below as remedial measure

3.1.1 Barriers

Car parking :

- Lack of designated accessible car parking
- Inadequate size of parking spaces
- Lack of dropped kerb for convenient access from the parking spaces onto the pavement

Steps & stairs:

- Steps only in the path of travel from the property boundary or the car park to a building or entry into a building
- Riser and tread of the steps not uniform or not within recommended dimensions
- Inadequate or uneven lighting throughout
- Lack of colour contrast on nosings (3.1.1g)
- Lack of handrails or handrails on one side of stairs only
- Handrails not extending beyond the bottom and top of stairs
- Lack of appropriate tactile ground surface indicators or braille signage on handrails

Entry:

- Narrow doors
- Inadequate circulation space
- Inadequate landings
- Excessive force required to open the door
- Doors opening into access route
- Thresholds not flushed with floor
- Inadequate clear wall space for maximum door swing

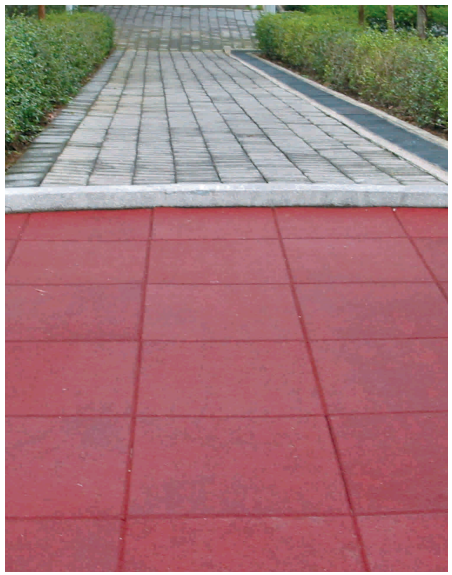
Signs:

- Use of non-international standard signs
- Lack of tactile surface and braille
- Size too small
- Lack of colour contrast

Visual and audible facilities:

- Lack of visual tactile and audible signage
- Lack of sound reinforcement where public address facilities are provided
- Inadequate lighting

3.1.1e) Protruding fitting on ramp



3.1.1f) Curb obstructing access from pathway to a facility

3.1.1g) Raised platform is an obstacle to wheelchair users and no warning on uneven step

3.1.1h) Lack of tactile at entrance, and gratings with openings placed parallel to direction of travel may trap wheelchair

3

3.2 Planning Approach to Minimise Barriers

3.2.1 Universal accessibility approach

Accessibility is the basic requirement of a building, a facility or information. Accessibility of a building and facility involves not only movement within the building but also movement from the street or parking area through the property and building entrance.

Universal accessibility is not planning a separate approach for the elderly, the wheelchair users or the visually impaired. The solution is derived from understanding the needs of people and applying inclusive design to achieve a common access. It should also facilitate users to access building independently. It is a positive design approach to cater for the widest spectrum of users. No user groups should be left to enter via the back door, the goods lift or a sub standard facility.

This approach does not impose conflict with other architectural elements or features. If the criteria are known at the onset, different elements can become an integral design. There are no bounds to innovative design.

3.2.2 Key issues :

Anthropometrics
Continuity
Connectivity
Equality
Safety
Sustainability

Anthropometrics:
The body and reach characteristics of people have a direct influence on accessibility. It is necessary to consider a broad range of population and take account of the physical build of females and males, as well as size variation and capability between different ages in achieving design for all. It is of equal importance to consider the maximum reach of people using assisted devices such as wheelchair, walking frames and crutches , guiding stick , as well as persons with baby stroller and shopping trolley. In addition, consideration of circulation and storage space must take account of these assisted devices.

Continuity:
The concept of continuity is very important when planning for universal accessibility. For example, a continuous accessible path of travel should be provided without barriers. When there are level changes along the path of travel, the continuity must be maintained by a ramp or other means such as a lift. At the same time, information must be provided at conspicuous locations and intersections and the display should be continuous to lead to the final destination. The way finding provisions should include visual, vocal and detectable surface.

Connectivity:
It is desirable to minimise distances travelled between accessible elements of buildings and facilities. Covered link bridges at upper levels are useful for connecting several blocks of building on the same site. It is a good means to connect facilities and save effort on travelling up and down between the buildings. The link bridges should be levelled as far as possible and handrails should be provided. The linkage should be accessible to all users and form a continuous path to other facilities.

Equality:
The essence of universal accessibility is to provide equitable access for all people including persons with a disability. For example, if a directory map is provided at the main entrance, it should be accessible to all users. Hence the information on the map should be accessible by all including the elderly, the physically handicapped, the visually and hearing impaired. The map should be equipped with tactile layout, text and voice information and located at a suitable height to facilitate equitable access.

Safety:
Safety in access as well as exits are of prime concern for everybody especially the elderly and the disabled as they are less capable to handle emergency and crisis situations on their own. Safety of a built environment and safety of fittings and equipment are prime considerations. Pre-planned barrier free routings, visual and audible signals/ signage would enhance the safety aspects.

Sustainability:
If a building or facility is user friendly, accessible and everybody can enjoy it, then the built environment is more sustainable. Maintenance of the elements that make the building or facility accessible must be kept in good order such that people can continue to enjoy them. In addition, if major alteration works are necessary, opportunity should be taken to further improve accessibility.

Inclusion:
There are different options to provide access to a building or a facility. The essence is to provide accessibility by inclusion. An accessible path that does not incorporate steps, humps, stairways, revolving doors, escalators or other impediments that prevents the path being utilised by all people would be an example of inclusive design. The accessible path would be user friendly to all.

3.2.3 Way forward

Apart from the key issues, design solutions should also take into consideration technological advancement. For example, the motorized wheelchair enhances mobility and capability of wheelchair users but they are also bigger and heavier with a battery, therefore appropriate loading and size allowance are necessary. Another example is the development of new materials to pick up audio information. Tactile surfaces are developed in Japan to allow people using the guiding stick equipped with a receiver to pick up information. The problems and solutions are not frozen at any time. They change with time and it is a continuous process to improve accessibility in the built environment.