

CHAPTER 6

DESIGN GUIDELINES FOR THE ELDERLY AND ELDERLY WITH FRAILITY

6.1 GENERAL

Many aspects of design for persons with a disability are already covered in the Mandatory Sections of this Design Manual and can be usefully applied to the design of both interiors and exteriors of all structures and buildings to make them more friendly to the elderly. The guidelines set out in this Chapter aim to provide additional design recommendations for building a more comfortable, healthy and safe built-environment for older persons.

“Ageing-in-Place” is a universal concept accepted as fundamental to new housing design, the creation of elderly-friendly homes and environment will allow the elderly to enjoy life with autonomy which is essential in achieving the goal of healthy ageing.

Ageing is a gradual process. The level of ability of a person declines in a progressive manner as ageing progresses. To minimize the potential risks leading to injuries or accidents, the following design guidelines are recommended in consideration of the common habitual actions as well as the declining abilities of many older persons.

6.2 DESIGN CONSIDERATIONS

	Common Habitual Actions of the Elderly	Recommended Design Guidelines
6.2.1	The elderly may be unstable in their gait and unable to recognise changes in level of floor surfaces.	<p>Barrier free access should be without steps, thresholds, small ramps or kerbs, wherever possible. Where changes in level are unavoidable, handrails or grab bars should be provided, no matter how slight the level change may seem.</p> <p>Steps and staircases should be designed with wider treads and lower risers.</p> <p>Floor surfaces should comply with Division 4. Slip-resistant floor finishes should be used, shiny and reflective floors such as marble, glazed tiles and the like should be avoided.</p>

6.2 DESIGN CONSIDERATIONS (Cont'd)

	Common Habitual Actions of the Elderly	Recommended Design Guidelines
6.2.1 (Cont'd)		<p>Escalators should be designed with slower speed.</p> <p>Open jointed pavers or aeration paver blocks with uneven or very rough surface should be avoided at external open spaces.</p>
6.2.2	<p>The elderly may be unable to see clearly and may have problems in accommodating dramatic changes of lighting levels.</p>	<p>Where changes in level are unavoidable, the floor and wall surfaces along the level difference shall be in luminous contrast.</p> <p>All common areas of a building should have an illumination level of not less than 120 lux measured at the finished floor level, and uniformity of illumination level should be maintained for any space.</p> <p>Alternative or stand-by light sources should be provided to illuminate any space in case of power failure.</p> <p>Double-switching system should be considered. Switches should be installed near to bedside to avoid needing to cross the room in the dark.</p> <p>Consideration should be given to ensure gradual transition of lighting levels from one place to another.</p> <p>The use of natural lighting or ambient artificial white light should be encouraged.</p> <p>The use of wall-mounted light or peripheral lighting from floor lamps are superior to a central ceiling source as the formation of shadows can be avoided.</p> <p>Bare light bulbs producing glare which would cause painful to the aging eyes should be avoided.</p>

6.2 DESIGN CONSIDERATIONS (Cont'd)

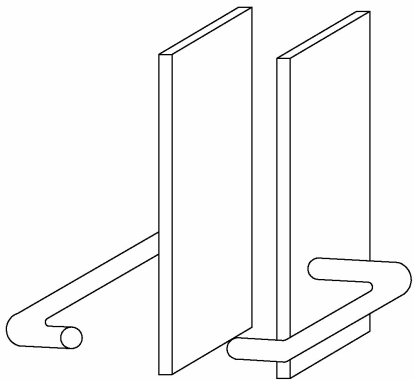
	Common Habitual Actions of the Elderly	Recommended Design Guidelines
6.2.2 (Cont'd)		<p>All interior spaces should be lit at a consistent and even level, from floor to ceiling and from wall to wall. High contrast between shadow and light creating confusion and disorienting patterns should be avoided.</p> <p>As the lens thickens and yellows with age, it becomes less sensitive to colours having shorter wavelengths (blues, greens and violets). Warm colours with longer wavelengths (reds, oranges and yellows) are easier to differentiate. The use of the bright primary colour as contrast or highlight is therefore recommended.</p> <p>Monotone colour should be avoided.</p> <p>The colour combination of signage - yellow figure on black background or white figure on blue background is recommended.</p>
6.2.3	The elderly would have decreased stamina.	<p>Resting places such as fold-down seats on stair landings or in long corridors should be provided.</p> <p>Resting places in external recreation spaces should be adequately provided.</p>
6.2.4	The elderly may have difficulties in way finding.	<p>Different colours should be used for different floor levels, zonings or areas of different functional purposes.</p> <p>Different floor surfaces should be considered for tactile cues for navigation.</p> <p>Auditory input at lift helping the elderly to locate themselves should be used.</p> <p>Control panel or switch at the lift lobby should be located at 1050 mm above the finished floor level. It should be easily operated and have a minimum luminous contrast of 30%.</p>

6.2 DESIGN CONSIDERATIONS (Cont'd)

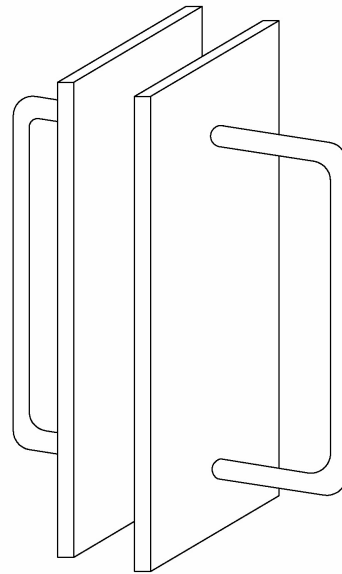
	Common Habitual Actions of the Elderly	Recommended Design Guidelines
6.2.5	The elderly may fall due to bending, stooping and stretching.	<p>Switches and controls should be installed at reachable heights preferably at the same level as door handles.</p> <p>Handrails to corridors, steps and staircases should be lowered to a height between 810 mm and 900mm from the finished floor level to the top of the handrails.</p> <p>Cupboards should not be installed at high levels. Overhead cabinets should be avoided.</p> <p>Outdoor drying rack systems with laundry poles should be avoided.</p>
6.2.6	The elderly may be weak in gripping, and may have difficulties in turning and manipulating taps, switches, door handles and the like.	<p>Handrails should be of materials such as timber or plastic-coated surfaces for easier grip.</p> <p>Lever-type controls and handles with limited grip should be used. Knob handles, push operated and self-closing type faucet controls should be avoided (see Figure 47).</p>
6.2.7	The elderly may have difficulties in pushing open heavy doors.	Sliding door is a good choice. Should door closing devices be used, they should be designed to allow external and internal doors to be opened with horizontal forces of not more than 28N and 18N respectively.
6.2.8	The elderly require safety design provisions for bathrooms and toilets.	<p>Doors of bathrooms and toilets should open outward or both ways. Locks and latches should be of larger sizes and be able to open from outside with a coin.</p> <p>Emergency alarm system should be installed. Emergency call bell shall comply with Division 17. Should pull-cord be installed, they must be extended to floor-level.</p>

6.2 DESIGN CONSIDERATIONS (Cont'd)

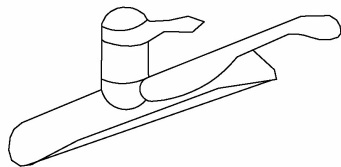
	Common Habitual Actions of the Elderly	Recommended Design Guidelines
6.2.8 (Cont'd)		<p>Bathtub should have either built-in seat at the head end or attachable portable seat that fastens securely to the tub when needed.</p> <p>Showers, other than roll-in types, should be of size 1500 mm x 900mm minimum with a folding seat to allow transfer.</p> <p>Doorways should be wide enough to allow a wheelchair to pass through and space of bathrooms and toilets should be adequate for turning and transfer.</p> <p>Grab bars should be installed and to comply with Divisions 11 and 12.</p>
6.2.9	The elderly require comfortable and healthy built-environment.	<p>Sound-absorbing materials should be used for floors and walls to avoid echoes.</p> <p>Non-glare or low gloss finishes on floors, matt paint or textured wallpaper on walls should be considered to help reduce glare. Glass or reflective material should be avoided.</p> <p>Large windows should be avoided at the end of long and dark corridors.</p> <p>Cross ventilation should be optimized in common areas such as corridors and lift lobbies.</p> <p>Recreational facilities such as shelters and benches, pavilions and tai-chi areas with safety flooring system should be provided in external open spaces.</p>



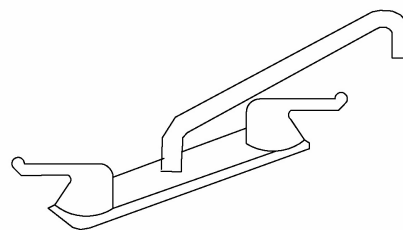
LEVER HANDLES



PUSH/PULL PLATE DOOR
PULL



LONG LEVER HANDLE
(RECOMMENDED)



SINGLE LEVER HANDLE
(RECOMMENDED)

Figure 47 – Examples of Door Handles and Faucets