

## **TOWARDS A BARRIER-FREE ENVIRONMENT IN PUBLIC HOUSING**

### **1 Introduction**

Creating a barrier-free environment in public housing, homes to 86% of the population has been a concern of HDB. This takes on added importance in the face of a rapidly ageing population. It is anticipated that 30 years from now, almost one-fifth of the population will be aged 65 and above. Most of these elderly will be living in public housing apartments.

The paper focuses on how HDB caters to the needs of the elderly and disabled in its flats design and built environment. It examines the various provisions currently in place and explores the future plans towards a barrier-free environment.

### **2 Creating a Barrier-free and Elderly Friendly Environment**

In the early days of public housing when HDB had to quickly resolve a housing shortage crisis, the special needs of the elderly and disabled had been admittedly subsumed together with the needs of the other segments of the population. But as early as mid 70s, HDB initiated a study on barrier-free design features to the building and its immediate surroundings with the first pilot project incorporated in Ang Mo Kio Town Centre.

Since 1985, HDB made barrier-free design provisions at all levels of the neighbourhood, precinct and apartment block in its public housing towns.

At the neighbourhood level, as far as possible, a network of barrier-free and vehicular-free walkways is provided to connect each precinct to the amenities within its neighbourhood. This allows not only the elderly and the disabled residents, but also all other residents to have a safe and easy access to the commercial and recreational facilities within the neighbourhood..

At the precinct level, drop-off porches with barrier-free access from the driveways to the walkways that connect the multi-storey car parks with the blocks. Other barrier-free access features within the precinct include the provision of paved surface car parking lots specifically for the disabled and ramps leading to the block .

At the block level, a major milestone was the improvement of lift accessibility since 1989. Prior to this, the block designs had allowed for lift to stop only at intermediate floors. Since then, lift stops have been provided at every floor of new public housing blocks. In addition, lift cars are provided with features such as handrail bars, lower lift call buttons, and doors wide enough for wheelchairs. In addition to these, Voice Synthesizer and Braille plates for the visually disabled have been incorporated in all lifts. Multi-storey car parks are also now designed with lift shafts to allow for the provision of lifts when the need arise.

Because public transport is an adjunct to accessibility, HDB is working together with the Land Transport Authority to create an integrated barrier-free environment in which the barrier-free routes at the neighbourhood and precinct levels are linked up to transportation facilities such as the Light Rail Transport and the Mass Rapid Transport systems.

### **3 Elderly-Friendly Features within the Flat**

The inclusion of elderly-friendly features in HDB flats is probably the most crucial consideration in the building of homes for the elderly. As its flat designs have evolved over the years, HDB has improved in this aspect with its newer flats. And it will be adding more elderly-friendly features in its new flats such as an easier to use clothes-drying rack, lever type handles for doors and water taps, and lowers electrical switches and sockets.

HDB will further refine its designs to incorporate other essential features within the flats to enhance their adaptability. As we are designing for different age groups and not for the elderly alone, the basic approach is to make space and structural provisions to allow for the future addition of elderly-friendly features when the need arises. For example, the layout of the sanitary fittings in the toilets allows for the installation of handrails or grab bars. In this way, we hope to better cater to that group of elderly persons who choose to remain in the same home with their families, instead of moving out to a new one.

HDB has also been looking into reducing the barriers within the flat as well. For example, it has done away with thresholds at the front doors of corridor units, and allowed residents to remove the small curbs at the entrances of 'wet areas' like toilets.

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In the latest studio apartments, which are designed especially with the elderly in mind, these elderly-friendly features are most extensive.

### **4 Specially-Designed Flat For the Elderly**

The studio apartments design specially for the elderly come with pre-installed fixtures and fittings, such as floorings for the whole apartment, complete kitchen fittings including kitchen cabinet, sink, stove top and cooker hood, a wardrobe for the bedroom, and an instant water heater for the toilet/bathroom as well as light finishes. All these save elderly lessees the trouble of carrying out renovation work and allow them to move in immediately. The flats come

with special safety and elderly-friendly features that meet the more specific needs of the elderly.

Special attention is also paid to the design of fittings and fixtures in the apartments to eliminate edges that can cause injury. To facilitate mobility for the more frail elderly, there are support hand-bars in the bathrooms, wider main doors that allow for wheelchair access and completely level floors with no curbs.

Within the apartments, safety devices include pull-chords linked to fire alert alarm systems. These alarm systems are linked to a Neighbourhood Link (or Senior Activity Centre) built at the ground or second

## **5 Programmes to Improve Existing Living Environment**

It was in the early 1990s that the HDB recognised the need to upgrade those older public housing estates that had been built shortly after Singapore's independence as these were visibly ageing. The residents in these estates, many having lived there since the flat were first built, had aged along with their living environment. Hence the introduction of the Main Upgrading Programme, Interim Upgrading, Project to Improve the Living Conditions of the Elderly and Lift Upgrading Programme. In upgrading these estates, HDB also takes the opportunity to outfit them with disabled and elderly-friendly features for these residents

### **(a) Main Upgrading Programme**

As part of the improvement package under the programme, the internal of the flats, the common areas in the blocks and the external built environment are made more elderly-friendly and accessible. The improvements within the flats include the provision of pedestal pans and grab bars in the toilets, and the addition of a utility room which provides additional living space for an extended family. The improvements to the common areas include brighter light fittings for better visibility, provision of additional lift landings or lift cars to increase lift accessibility wherever feasible, and the addition of disabled and elderly-friendly features in lift cars.

The improvements to the external environment are just as extensive. Barrier-free accessibility to all facilities within the housing precinct is ensured with the provision of ramps, railings, drop-off porches and covered walkways. Recreational outdoor facilities that are more therapeutic are also provided to promote the physical and mental stimulation of elderly residents. These include pebble walks, informal gardens with seats, pergolas, shelters, and plaza areas for exercises.

**(b) Project to Improve the Living Conditions of the Elderly**

In addition to the Main Upgrading Programme, which is for sold flats, HDB has also embarked on the upgrading of 1-room rental blocks where there are a high proportion of poor and single elderly households. Fully funded by the government and jointly undertaken by HDB and the Ministry of Community Development (MCD), this project aims to improve the living environment of these 1-room rental blocks by retrofitting with elder-friendly features within the flats and in the public areas.

The public areas are modified to make them more accessible. Lift landings are thus added on every floor and some units are removed to provide spaces for social interaction. The double-loaded corridors are brightened up with artificial lightings. Handrails are also provided for elderly who have difficulty in walking.

Within the flats, doorways are widened and curbs are removed so that a wheelchair can be used easily. In the kitchen, lowered worktops, power points at reachable heights, lever-type taps in the basins and sinks as well. In the toilets, pedestal type water closets replace the original squat pan and grab bars are provided. Pull-chords linked to an alert alarm system are provided at the toilet and living area.

**(c) Lift Upgrading Programme**

The Lift Upgrading Programme complements the Main Upgrading Programme to improve the flat's accessibility and personal convenience.

Public housing built before 1990 are not provided with 100% accessibility to lifts. This was to cater for demands for privacy then.

Today, the demands have changed. Residents prefer speedier and more convenient access to their homes by having lifts that stop at every floor. Barrier free access not only benefits the disabled but the elderly but families with very young children, and the disabled.

**6 Conclusion**

HDB has been pro-active in implementing various measures and provisions to meet the special need of the elderly and disabled. Through various policies and improvement programmes, we are moving towards a barrier-free environment where the disabled can move freely around and the elderly can feel comfortable and totally at home with.