



**Queensland
Government**
Department of **Housing**

Occasional Paper 5

Universal Housing Design

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Foreword

Universal Housing Design is the fifth in our series of Occasional Papers. It briefly outlines the concept of universal housing design, addresses concerns which have been expressed by the housing sector and then proposes a case for its use.

The principles of universal housing design have been adopted by the Department of Housing for over four years. This was a pragmatic decision based on a need for housing stock that would meet the changing needs of our clients. We have improved our designs over this time and we are now confident to prescribe a standard for universal housing design for Public Housing in the Department's recently released Draft Residential Design Manual.

Universal housing design is one of five facets of the Department's concept of SMART Housing. The concepts of Energy Efficiency, Affordability, Safety, and Sustainable Communities are presently being developed by the Portfolio Standards Branch in Property Portfolio Management.

While this paper focuses on the design of newly constructed social housing, the Department of Housing has identified the promotion of SMART Housing design principles and in particular Universal Design, as one important strategy to address the causes of housing need in Queensland. We anticipate reduced demand for direct assistance as more universally designed houses become available in the private market.

There is still much to learn about universal housing design. This paper aims to stimulate thought, discussion and debate on this concept and I actively seek your comments.

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Purpose

This paper seeks to stimulate debate on the use of universal housing design in the provision of social housing by the Queensland Department of Housing.

What is Universal Design?

Universal design translates as sensible design, which is useful and marketable to people with diverse abilities, and hence, aims to meet everyone's needs and avoids discrimination against any users. Universal design makes as little as possible exceptional and as much as possible standard.

Universal design aims for minimal adaptation over time to meet changing need whereas adaptable design acknowledges the need for significant adaptations over time to meet changing need and aims to make those adaptations as simple as possible.

Principles of Universal Housing Design

Seven principles of universal design have been identified as follows:

1. **equitable use** – the design is useful and marketable to people with diverse abilities and avoids stigmatising users.
2. **flexibility in use** – the design accommodates a wide range of individual preferences and abilities.
3. **simple and intuitive use** – design is easy to understand, regardless of the user's experience, knowledge, language skills or current concentration level.
4. **perceptible information** – the design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
5. **tolerance for error** – the design minimises hazards and the adverse consequences of accidental or unintended actions.
6. **low physical effort** – the design can be used efficiently and comfortably and with a minimum of fatigue.
7. **size and space for approach and use** – appropriate size and space is provided for approach, manipulation and use regardless of the user's body size, posture or mobility.¹

The application of universal design principles in social housing provides accommodation that:

¹ Molly Story, James Mueller and Ronald Mace; *The Universal Design File – Designing for People of All Ages and Abilities* The Centre for Universal Design at the North Carolina State University (1998)

- Meets the needs of users of a wide range of abilities and ages;
- Is capable of meeting the changing needs of the occupants over time;
- Is safer;
- Is not stigmatising and is well integrated into the community; and
- Can be more economically adapted should that become necessary.²

History of Universal Design in the Department of Housing

In 1990, when the Department began to provide housing for people with a disability, solutions were designed and built on an individual basis. Funds were also used where possible to modify existing housing stock. While both strategies were useful, it became clear more cost efficient ways to meet this growing need were required.

The individualised design solution offered an excellent outcome for the particular client but was administratively expensive and took time. Modifications to existing housing stock were limited by the original design of the building and only cost effective when minimal adaptations were needed. No strategy was available for providing housing for people with a disability requiring priority or out of turn allocations.

In an attempt to standardise this work, the Department developed Minimum Design Standards for People with a Disability. This work significantly contributed to the development of Australia's Adaptable Housing Standard AS4299 in 1995 and many features were seen to be suitable for all housing. As the need for housing for people with a disability and older people continued, the Department took the logical step to build all ground floor units and single dwellings in Public Housing and Aboriginal and Torres Strait Islander Housing to the Adaptable Housing Standard AS4299 Level C. The following additional features included:

- Width of paths 1200mm;
- Undercover parking and undercover access from parking;
- Door thresholds not more than 10mm high;
- Built in robes with sliding doors;
- Taps with mixers; and
- Switches to be larger rocker type.

² Molly Story, James Mueller and Ronald Mace; *The Universal Design File – Designing for People of All Ages and Abilities* The Centre for Universal Design at the North Carolina State University (1998)

The Department's requirements outlined in the Residential Design Manual are seen as the most prescriptive housing design standards available to meet the principles of universal design.

It is estimated that by 2000, the Department will have over 2000 units of accommodation in the public housing portfolio that have been designed as universal housing (many of which were purpose built for individual clients).

The Department's program for 1999-2000 includes 470 adaptable units out of a total of 700 commencements. If a similar sized program in subsequent years is possible, the Department would achieve a target of 10% of the portfolio being adaptable by July 2005.

Present Situation

The Department has recently redrafted its Residential Design Manual. This was an opportunity to review the practices of the last three years for cost effectiveness, relevance to client demand and the long-term implications for the management of the housing stock.

Universal Housing has been adopted as one of the essential features of *SMART* Housing, a concept put forward by the Department as its contribution to the State Government's "Queensland - the Smart State".

The Department has recently co-sponsored housing design competitions incorporating universal design principles with the Queensland University of Technology, Queensland Master Builders Association and the Housing Industry Association. One of these designs was constructed in a display sponsored by the Department at the 1999 Sunday-Mail Home Show.

Future Influences

Demographic Trends

The Australian population is ageing and with ageing comes an increased incidence of disability. In its latest report published in 1998, the Australian Bureau of Statistics projects that the proportion of the Australian population aged 65 years or more will be 24% by 2051, double the 1997 figure.

Significantly, the 1998 ABS survey found that 19.9% of the Queensland population (686,700 people) had a disability. In addition, the most frequently reported area of handicap was mobility with 145,600 people with a disability in Queensland needing assistance³.

People who are disabled at birth or early in life often experience chronic poverty. This is due to the low rate of employment for people with a

³ Australian Bureau of Statistics: Disability, Ageing and Carers: summary tables, Queensland 4430.3.40.001.1998

disability and the higher than average living expenses they incur (housing, transport, equipment, support and medical services).

Broad Social Policy Direction

Social policy has changed focus from custodial and segregated care to enabling people with a disability and older people to live in the community as independently as possible and safeguarding their full citizen rights. This helps to explain the increasing need for housing assistance for older people and people with a disability. This trend is unlikely to diminish.

Private Housing Industry Practice

To date the housing industry in Queensland has no obligation through building regulations or financial incentives to provide housing that does not discriminate against potential users or has the flexibility to meet their changing needs. Housing for older people in “retirement villages” is more considered in its design and yet this only meets the needs of a small and sometimes more financially secure group of the population.

The Department through its social rental housing is presently taking the lead in providing housing that meets this need, and is aiming to be sufficiently flexible in its approach to design to cater to these changing demographic trends.

Policy Direction to Assist People who are in Greatest Housing Need

The Housing Strategy for People with a Disability 1997-2000 ‘*A House to Come Home To*’ clearly articulated the principle of equitable access to housing. The direction of the more recent departmental Integrated Policy Framework focuses on people who are “less likely to find housing solutions in the private market”.⁴ Further it recognises that, to meet the needs of vulnerable people, finding solutions may involve higher costs.⁵

A legacy of inaccessible and inflexible housing stock is one of the greatest impediments to an equitable service. Inaccessible housing stock and the prohibitive costs of modification in the private market are major factors causing housing stress for people with mobility limitations.

Decreasing Resources

The capacity of the Queensland Department of Housing is decreasing due to increasing costs and decreasing revenue. The demand for housing for people with a disability and for older people is now a major consideration in capital works planning because of the need to provide appropriate solutions and to ensure a non-discriminatory housing service. The Department is striving to use its existing housing stock and fund adequate modifications where appropriate amidst an extensive demand for maintenance and upgrading.

⁴ Housing Queensland: *Achieving Better Housing Outcomes for Queensland* July 1999 p26

⁵ Housing Queensland: *Achieving Better Housing Outcomes for Queensland* July 1999 p8

Concerns about Universal Housing Design

There has been some apprehension about the concept of universal housing design; the major concerns are as follows:

“Universal Housing Design costs more”

Dwellings built to universal design initially cost more than ordinary dwellings. The cost is largely due to the extra space required for the bathroom and bedrooms. The Department's incorporation of universal housing design at the time of construction adds an average of 14 m² to a standard design.

The initial implementation of universal housing design involves additional construction costs. Suppliers are not 'tooled up' to provide the required products and the design and building practice takes time to change.

The Department of Public Works estimates that additional costs based on Brisbane public housing costs are \$5,250 in increased area (average 14 M²), plus additional adaptable fitout costs of \$6,325. The total is \$11,575 per dwelling.

While on face value it is acknowledged that universal housing is more costly than standard departmental dwellings, the Department expects to recover costs over time by building an asset that would achieve a greater economic and social outcome. It has already been seen that this initial cost decreases in time. By using universal housing design in all of the Department's programs, it is also likely that the Department can achieve immediate savings because:

- the Department will not have to provide individual designs to suit clients with a disability, rather “fine-tune” the universal designs when necessary; and
- through its purchasing power, the cost of purchasing certain products have declined.

A long term cost-saving is anticipated by the Department when:

- modifications for the changing needs of tenants are avoided or minimised during the life of the building.
- Rehousing of people because of their changing needs is reduced.

Martin Hill⁶ has calculated the net present value benefit of incorporating adaptable housing standards to private industry housing during construction and his estimates are shown in the table below. The cost benefit shown is the net present benefit for a purchaser buying a new dwelling with adaptive

⁶ Hill, Martin *Adaptable Housing Study- Cost Benefit* Paper presented at Adaptable Housing Design Conference Canberra 1999.

features compared with the same purchaser incorporating and paying for the additional adaptive costs thirty years later.

Dwelling type	Net present benefit
Single dwelling	\$4,905
Townhouse	\$8,605
Low/mid rise (without a lift)	-\$2,246
Low/mid rise (with a lift)	\$6,032
High rise	\$6,071

(Note: Low/mid rise = up to 3 storeys; High rise = 4 storeys or more)

There are also other indirect benefits to government and the community. Such benefits would include:

- Reduced need to move into residential or institutional care;
- Reduced expenditure in home care for older people and people with a disability;
- Savings in health care costs, and costs associated with injuries and accidents occurring at home.

Again, some of these savings and reduced costs are difficult to quantify. However, the following table shows indicative savings resulting from adaptable housing.

Present value savings from adaptable housing over next 30 years in Australia (Analysis by Martin Hill⁷)

	Potential annual saving	Present value over 30 years
Savings in delaying the need to move into hostel care	\$112.8m	\$437m
Savings in delaying people with disability under 65 into group home or institutional care	\$59m	\$229m
Savings in reduced Home and Community Care (HACC) services	\$75.2m	\$291m
Reduced expenditure on major adaptations for public housing		\$483m
Savings in reduced accidents	\$8m	\$31m
Total		\$1,471m

This analysis assumes 1.5% annual growth of new homes with adaptable housing standards across Australia.

⁷ Hill, Martin *Adaptable Housing Study- Cost Benefit* Paper presented at Adaptable Housing Design Conference Canberra 1999.

The potential cost savings over the next 30 years to the wider economy in Australia are estimated to be \$1,471 million (net present value) by Hill. Assuming that the size of Queensland's public housing portfolio as a proportion of total dwellings in Australia remains constant, the benefits arising from the public housing portfolio in Queensland would be approximately \$10 million.

“Universal Housing Design will be identifiable and predictable”

The concept of universal housing raises concerns about a prevalence of predictable and readily identifiable design. This is based on past practices of making services and facilities for people with a disability and old people readily identifiable.

Universal design need not look different from regular housing design. It is the careful consideration of space, detailing, materials, and fittings which guarantees its flexibility, safety and non-discrimination, not large identifiable design features.

Further misconceptions regarding Universal Design prevail, such as:

- Universal housing design can only be single story or it is relevant for ground floor units only;
- Universal housing design housing looks different from generic housing;
- Universal housing design is only for people with a disability; AND
- With universal housing design, every floor plan takes up a larger area.

The challenge for designers has been to let go of preconceptions of modified bathrooms looking like hospitals and ramps standing out like sore thumbs. With careful planning, floor layouts require marginal increases in area. Already the Department has proven its capabilities to produce housing which is integrated, attractive and to universal design.

Universal housing design makes as little as possible exceptional, and as much as possible standard. As universal design becomes the norm, less and less will there be a need for “disability”, “seniors”, “child safe” or “individualised” housing solutions.

“Universal Housing Design can't be used everywhere”

There are concerns that the adoption of universal housing design will prohibit the development of some steep or expensive sites which may, because of their location, meet the needs of the Department's clients.

While it is argued that universal housing design should be employed to the maximum extent feasible, it is acknowledged that there will be occasions

when the requirements need to be less (or at times greater) and exemptions be considered. These include the following:

- A site, because of the gradient or width of the block and subsequent cost of gaining equitable access, may preclude some of the features of universal housing.
- A person may have other overriding needs, for example, isolation, privacy or very specific location needs, which may make the use of universal design very difficult.
- The surrounding environment precludes universal design principles because of undue attention being drawn to the dwelling or costly adaptations to neighbouring properties.

This is when commonsense must prevail and a process be put in place to consider the best outcome for the client within the limitations of the Department's resources. Work will need to be done to anticipate the extent of requests for exemption and measure the short and long-term implications for the Department of this practice.

Consideration for exemption has been a common practice for the Department. Previous practice has been to consider requests for more space, more useable fittings and better detailing to provide accessible housing for people with a disability. With the baseline requirements calling for universal accessibility, safety and flexibility, the exemptions are likely to be very few.

Conclusion: The case for the use of Universal Housing design

Cost efficiencies in construction

It has already been argued the initial extra cost in construction will decrease as universal housing design becomes regular practice and other long-term savings for the Department and government as a whole have been identified.

Efficiencies in the management of housing stock

Case management costs are reduced

Individualised housing design will continue to be needed but in far fewer cases. The existing intensive, therefore expensive, case management process is already being streamlined as universal housing design is incorporated into the capital works program. Each unit of accommodation which meets the needs of clients with a disability without extra consideration saves the Department approximately \$3,000 in specialist

advice. As people are able to stay in the same home in spite of their changing needs, long-term management costs are also reduced.

Timely service is more likely

A significant challenge for the Department's property portfolio management is the timely provision of accessible housing and the realignment of inappropriate housing stock. With a planned and concerted strategy to adopt universal housing design for all new acquisitions there will be less likelihood of people with particular housing needs having to wait longer for allocation or transfer while accessible housing is found. There will be less need for interim assistance by offering rent subsidy or short term housing.

There is evidence that people with priority access often need accessible housing. In Area Offices with a high demand for priority housing, new stock designed to universal housing principles generally is used for this purpose.

Current Situation

The Department has recently reviewed the Residential Design Manual, a document used to guide all new construction by this organisation. This will continue to be the appropriate mechanism to formalise the Department's adoption of universal housing design and to prescribe a set of requirements.

The cost efficiencies of universal housing design are to be examined along with the other components of *SMART* Housing, that is, affordability, energy efficiency, safety, within sustainable communities by the Portfolio Standards Branch of Property Portfolio Management.