The Home is for Every *Body*?

An Investigation of the Statutory and Strategic Planning Implications of Inclusive Housing Design

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Abstract

Building designs which consider the diversity in human form and ability have the potential to maximise social inclusion and prevent people from being 'disabled' by the built environment. Inclusive housing design reflects this principle through accessible and flexible features that accommodate different needs. Unfortunately, strategic and statutory planning mechanisms have fostered a housing model that focuses on the current circumstances of the occupant. This can be problematic if occupants or visitors are affected by injury, illness, or disability. In the context of Australia's ageing population this poses a particular concern as older people have fewer opportunities to remain at home. Through qualitative research and a critical review of legislative and policy frameworks, this thesis explores the employment of two types of inclusive design - adaptable and universal - in Australia wide and NSW contexts. The research reveals how a lack of coordination at the national level has resulted in a divergence of approaches and interpretation between states. In NSW problems are identified with the ability of the planning system to achieve socially sustainable housing for changing demographics. This thesis offers an understanding of the planning implications of inclusive housing design so that better policy and legislation may be developed.

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Note: All photos and images used in this thesis are the author's own unless otherwise stated.

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Chapter 1

Introduction

1.1 Introduction

Inclusive housing design combines the areas of health, design and development in the creation of dwellings that can be used by a wide range of people, despite age or ability. Although particular demographic groups, such as the elderly and disabled, stand to gain the most from inclusively designed housing, it has the potential to benefit all people at various times in their life. This model is internationally renowned for its ability to foster social inclusion and the long-term sustainability of housing stock.

There are various types of inclusive housing design, and a plethora of terms and definitions are used. This thesis focuses on universal and adaptable housing designs in Australia wide and NSW contexts. Although both types are based on similar principles, being to create flexible built environments to support a range of abilities, the approach for each type is quite different. Universal housing is designed to accommodate and be flexible to people of varying ages and abilities without the need for major adaptation (Landcom 2008). Adaptable housing refers to the construction of dwellings with design features that are easily modified at a later date to meet the changing needs and abilities of the occupants (AS 4299 1995).

The intent of this thesis is to explore the statutory and strategic planning implications of inclusive housing design. By identifying obstacles in the implementation of inclusive design principles and recommending solutions, it is hoped that this research will inform future development of policy in the area of inclusive housing design.

1.2 Problem setting

A built environment which considers the diversity in human form and ability has the potential to maximise social inclusion. This can encourage equality in both built and social spheres. Designs that prevent people from being 'disabled' by the built environment may also enhance the safety, functioning and useability of that place (Goldsmith 1997). Yet historically, housing design has separated what is considered normal from more specialised needs. This creates problems of social inequality by isolating those with impairments and inhibiting them from full participation in the community (Malloy 2008). Inclusive housing design offers flexibility and accessibility in housing design and seeks to improve the usability of a home for a wider range of abilities. When applied to mainstream housing, inclusive design has the ability to provide equitable built environments and improve the sustainability of housing stock.

Since the 1960's there has been a growing awareness of disabled rights and international efforts towards deinstitutionalisation (Bostock et al 2000; Preiser and Ostroff 2001). The concept of universal design was first developed in America in the mid 1980's, referring to products and buildings that can be used by all people, to the greatest extent possible (Preiser & Ostroff 2001; Ron Mace Universal Design Institute 2010). When applied to housing, universal design intends to provide safe and functional environments that are flexible to varying needs. Factors such as pathways and entry access, circulation space, the provision of rooms on the entry level, location of switches and plugs, and car parking are considered in how they are conducive to use by people of all ages and abilities.

The developed world is currently facing serious repercussions of an ageing population and the subsequent increase in the prevalence of disability. Consequently, a greater need has emerged for appropriate housing and infrastructure so that people have the option to remain at home in their communities rather than being prematurely forced into

institutional or retirement living. Developed countries such as United Kingdom, North America, New Zealand, Canada, Japan and Australia are initiating responsive policy changes and research into creating more accessible, equitable housing and built environments (Scotts et al 2007).

In Australia there are no mandatory federal policies for the universal or adaptable design of housing stock; state and local governments are responsible for implementing such policies. The Australian Standard for Adaptable Housing, AS 4299, attempts to provide consistency in adaptable design across the states. However, its application appears to be limited to dwellings for older and disabled people, or as a small proportion of mainstream housing. In July 2010 the national *Livable Housing Design Guidelines* were introduced by the National Dialogue on Universal Housing Design to encourage, through voluntary means, the adoption of universal housing into mainstream residential development across Australia. However, as each state has independently implemented housing policies and undertaken research into universal and adaptable housing it is unclear how these Guidelines will fit in with existing frameworks.

A review of NSW statutory and strategic planning documents indicates that the separation of 'normal' housing from 'specialised' housing, such as seniors' living developments, is clearly embedded from the state government level. This poses many problems for providing a housing stock that can support 'ageing in place' and equitable built environments. Local governments have been left to formulate their own adaptable housing policies based on AS 4299, resulting in a disjointed approach across the state. The universal housing design model has the potential to overcome some of the problems with adaptable housing and encourage wider application of the universal philosophies. However, the statutory and strategic planning implications of both adaptable and universal housing need to be investigated in order to fully realise the potential of each model.

1.3 Research aims

This thesis aims to contribute to a better understanding of the planning implications of adaptable and universal housing, with particular reference to the NSW planning system.

It is hoped that this research will assist in the future development of planning policy and legislation. Given that the population of Australia is ageing, and much of the existing housing stock is considered unsuitable to support 'ageing in place', the timing of this research may encourage pre-emptive action to improve the quality and accessibility of housing stock within NSW and across Australia.

The objectives of the research are as follows:

1 To review and critique legislative and policy frameworks within Australia, and particularly NSW, in relation to models of inclusive housing design.

2 To understand the relationship between adaptable housing and universal housing and the applications of each model.

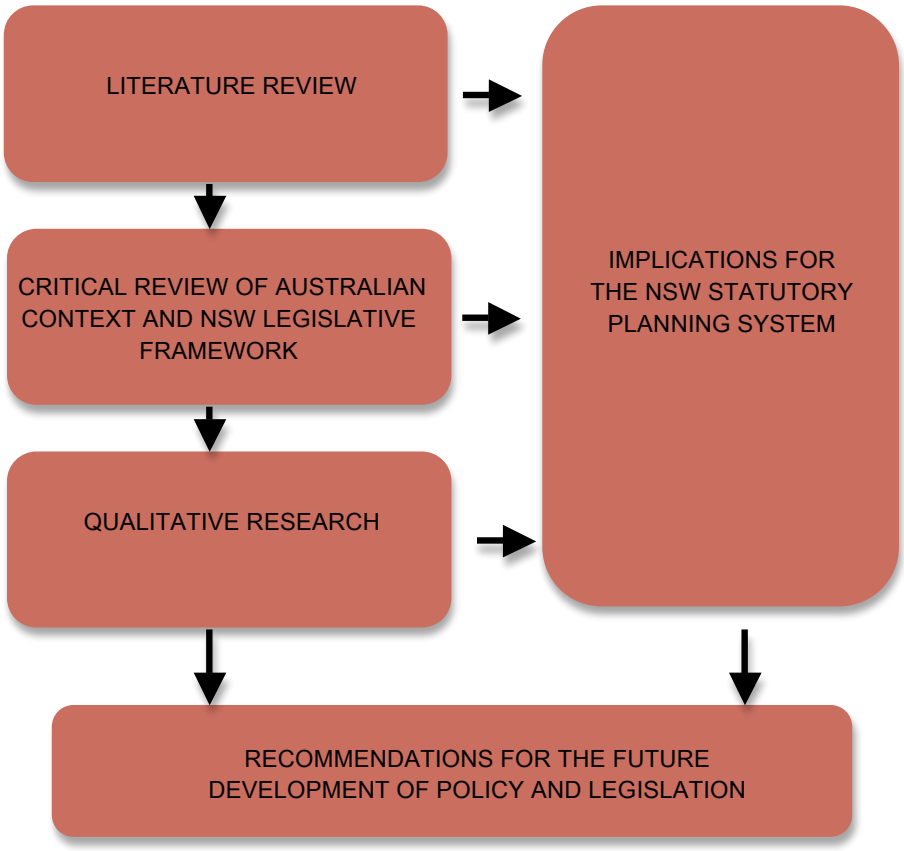
3 To gain insight into the statutory and strategic planning implications of universal housing design, with particular reference to the NSW planning system.

4 To investigate how future policy and legislation may be formulated to increase the uptake of universal housing across Australia, and particularly within NSW.

1.4 Research methodology

This research is exploratory in nature as it intends to unpack the statutory and strategic planning implications of universal and adaptable housing design. Both primary and secondary research methodologies form the basis of this thesis, as illustrated in Figure 1. These include a literature review, in-depth interviews, and an assessment of Australian, and specifically NSW, policy and legislation.

Figure 1 Methodology



1.4.1 Literature review

The review of international and Australian literature revealed key themes in relation to inclusive housing design. Literature was mainly selected in relation to defining the types of inclusive housing design, cost-benefit studies, the development of policy and demographic trends. Sources of the literature included books on the topic, planning and housing journals and Australian Housing and Urban Research Institute reports. Although inclusive design is a relatively new concept in Australia, there is substantial international research on the topic, which incorporates the disciplines of health, design and development. Key findings and gaps identified in the research formed the basis of this thesis.

1.4.2 *Critical review of the Australian context and NSW legislative framework*

A review and critique of the context of inclusive housing design within Australia, and specifically NSW, localised the topic and identified Australia and NSW specific issues. By analysing the planning policy and legislative framework, in conjunction with in-depth interviews, it was possible to identify problems with the current system. This part of the research disclosed key obstacles which hamper the achievement of more flexible and accessible housing stock. From this it was possible to make recommendations as to how the current system could be improved.

1.4.3 *Primary research*

Qualitative research was deemed most appropriate to gain insight into the statutory and strategic planning implications of universal and adaptable housing. Nine in-depth interviews were conducted with professionals involved in policy making, design, and residential development. It is important to understand the professional background of each of the interviewees to contextualise their ideas and opinions. Table 1 provides a breakdown of each interviewee including their current place of employment and area of expertise.

Table 1 Schedule of interviewees

Interviewee	Place of employment	Area of expertise
1	University of Western Sydney	Interviewee 1 has a background as an Occupational Therapist and is a Churchill Fellow in the area of universal design. This interviewee is currently undertaking a PHD in relation to universal design.
2	Disability Council of NSW National Dialogue on Universal Housing Design (NDUHD)	Interviewee 2 has a background in occupational therapy and is a Churchill Fellow in the area of universal design. This interviewee is currently working as a Senior Policy Officer at the Disability Council of NSW, and as the national convenor for NDUHD.

3	NSW Department of Housing	Interviewee 3 is an architect with additional qualifications in the area of the built environment and public sector management. This interviewee is currently working as a Senior Project Officer in the Asset Policy and Standards group of the Department of Housing.
4	NSW Department of Housing	Interviewee 4 has a background in architecture and is currently working for a consultancy company that is engaged by the Department of Housing. The interviewee's role in the Project Management Office is to manage the planning and design process of the National Stimulus package projects.
5	Landcom	Interviewee 5 has a background in science architecture, and urban and regional planning. This interviewee is currently working as a Social Sustainability Manager at Landcom.
6	Ashfield Council	Interviewee 6 has a background in architecture and planning. This interviewee is currently working as a Senior Strategic Planner for Ashfield Council.
7	City of Sydney Council	Interviewee 7 has a background in science, and urban and regional planning. This interviewee is currently working as a Specialist Planner at the City of Sydney Council and is involved in strategic planning and policy.
8	Department of Planning	Interviewee 8 has a background in architecture and urban design. This interviewee is currently working as a Senior Urban Designer in the Metropolitan Regional Strategies Unit.
9	Property Council of Australia	Interviewee 9 previously worked for a shadow Minister in the NSW Parliament. This interviewee is currently working as the Executive Director of National Policy for the Property Council of Australia.

Selection of the interviewees is justified by their place of employment and experience. The first interview was conducted with Interviewee 1 and was intended to provide general information on the topic area. Interview questions stemmed from concerns raised in the literature review. Following this interview, the research objectives and interview questions were refined.

Interviewee 2 provided information both as an advocate for disabled rights and also from the perspective as the national convenor for the National Dialogue on Universal Housing Design. Valuable information was obtained in regards to the recently released Livable Housing Design Guidelines and the general concepts of adaptable and universal housing design. Interviewee 9 provided insight into the views of the residential development and property industry. This interviewee was also questioned on involvement of the Property Council of Australia in the development of the Livable Housing Design Guidelines.

In order to assess whether there is a link between including universal design principles and affordable housing, two interviews were conducted with representatives of the Department of Housing. Initially only Interviewee 3 was to be consulted; however, upon their recommendation, Interviewee 4 was also interviewed. Information was provided on how and why the NSW Department of Housing are applying principles of universal design.

Interviewee 5 was consulted in relation to the Landcom Universal Design Guidelines 2008. In particular, questions were asked in regards to how costs of universal design were calculated, the market research behind the Guidelines, any obstacles encountered in using the Guidelines, and how they differed from the Livable Housing Design Guidelines.

The two council planners, Interviewees 6 and 7, were interviewed to gain insight into the local government perspective on universal and adaptable housing. Through a Development Control Plan, Ashfield Council encourages universal design in all multi-unit development, and adaptable design for a certain proportion. City of Sydney Council are currently undertaking a review of Local Environmental Control Plans (LEPs) and Development Control Plans (DCPs), which may in the future include policies to

encourage universal design. Discussion with the planners from each of these councils provided great insight into how local government can be involved in encouraging the uptake of universal and adaptable design, and also some of the obstacles that can be encountered.

Interviewee 8 was interviewed in order to gain insight into the perspective of the Department of Planning. In particular, the respondent was questioned on whether the future revision of Sydney Metropolitan Strategy, the key strategic planning document for the 43 councils in metropolitan NSW, will consider provisions for universal housing.

1.4.4 Interview questions

Although specific questions were formulated, and in most cases sent to the respondent prior to the meeting, interviews were conducted as semi-structured conversations rather than as formal dialogue. This style of interview was considered optimal in order to retrieve as much information as possible in the short space of time. Care was taken to present the questions in a non-biased manner that would not lead the response of the participant. Table 2 illustrates the themes of the interview questions relative to the four objectives.

Table 2 Interview questions

Research objective	Theme of interview questions
Objective 1: To review and critique legislative and policy frameworks within Australia, and particularly NSW, in relation to models of inclusive housing design.	• Interviewees were questioned on policy documents in relation to inclusive housing design. Questions varied according to the area in which the interviewee specialised. The documents which were considered during the interviews include: - Australian Standard for adaptable housing (AS 4299) - Livable Housing Design Guidelines - Landcom Universal Design Guidelines - Local government planning documents. - The Sydney Metropolitan Strategy - SEPP (Housing for Seniors or People with a Disability) 2004 • Interview questions related to the success and shortfalls of the documents in relation to inclusive housing design, and any obstacles to achieving the aims of the documents. Respondents were also asked to comment on the politics which influenced the development of such policies.

Objective 2: To understand the relationship between adaptable housing and universal housing and the applications of each model.	• Interviewees were questioned on the definition of adaptable and universal housing. They were also asked to explain how the two models differ. • Interviewees were asked about the benefits and limitations of universal and adaptable housing models, and how this relates to the application of each model.
Objective 3: To gain insight into the statutory and strategic planning implications of universal housing design, with particular reference to the NSW Planning system.	• The interviewees were asked to comment on potential statutory and strategic planning issues in relation to universal design including: - The impact of topographical constraints, such as sloped land. - Whether or not proximity to transport and services is an important factor. - Whether or not incentives could assist in the uptake of universal housing. - The relationship with housing affordability and the provision of social housing. - How the supply of universally and/or adaptable designed housing can meet demand.
Objective 4: To investigate how future policy and legislation may be formulated to increase the uptake of universal housing design across Australia, and particularly within NSW.	• The benefits and limitations of a regulatory system verses voluntary codes for universal and adaptable housing. • The role of each level of government in the future development of policy and legislation.

Each interview was transcribed and coded according to the main themes identified. In the transcribing process there are dangers that the researcher may interpret the data from a biased perspective. For this reason care was taken to retain the intended meaning of quotes and ideas, given the context in which they were said.

1.5 Limitations of this research

In Australia, adaptable housing design has been used in selected residential development for the past 15 years. However the concept of universal design is fairly new. There were some limitations in conducting this research in the early stages of new inclusive design policies. There was little knowledge of the newly released Livable

Housing Design Guidelines from interviewees who were not directly involved in the making or launch of the document. In addition, a number of interviews were conducted with participants involved in the draft stages of other such policies. As such, the information obtained about newly released policies and draft documents may be subject to change in the near future. That is not to say that this research is untenable; on the contrary, the conclusions drawn from this thesis will help to direct where future policy and change could occur to improve the quality of housing stock in NSW and broadly across Australia.

1.6 Thesis structure

This thesis consists of six chapters which are constructed as follows:

CHAPTER 1 provides an introduction to the topic area, research objectives, methodology and limitations to the research.

CHAPTER 2 reviews relevant international and Australian literature on the topic area. Key themes and ideas are explored in detail. Gaps in the existing research are identified and form the justification of this thesis.

CHAPTER 3 outlines demographic trends in Australia and policies that make up the commonwealth framework for inclusive housing design. The NSW planning framework is reviewed in detail in relation to housing policies, and in particular, strategies to accommodate the ageing population.

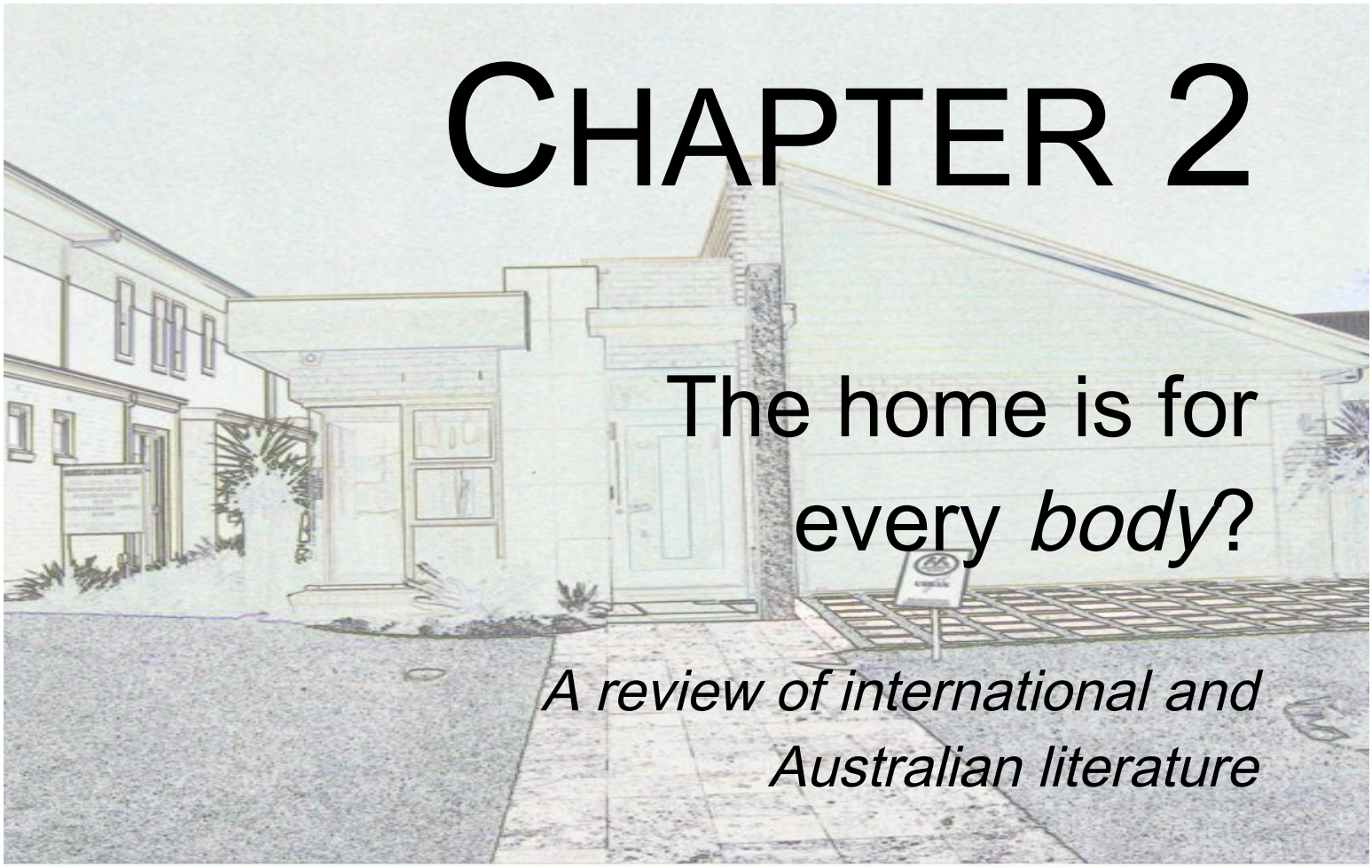
CHAPTER 4 critically evaluates the Australian context for adaptable and universal housing design, and in particular, the NSW planning system. Key findings from the qualitative research are presented.

CHAPTER 5 investigates the NSW statutory and strategic planning implications of universal housing design. Key points raised from the qualitative research are included.

CHAPTER 6 presents a summary of the research findings in relation to the four objectives. Recommendations are offered as to how future policy and legislation could be formulated.

1.7 Summary

This introductory chapter has outlined the topic area of inclusive housing design and the purpose of this thesis. The methodology for the research was explained and the four research objectives were defined. The following chapter will provide a review of international and Australian literature in relation to the topic.



CHAPTER 2

The home is for every *body*?

A review of international and Australian literature

2.1 Introduction

The term ‘inclusive built environment’ refers to places that can accommodate as many people as possible, regardless of ability or age. Whereas in the past, emphasis was on adapting an impaired person to fit the environment, today efforts are made to improve ‘disabling’ environments (Burton & Mitchell 2006). Goldsmith (1997) describes disabling environments as ‘architectural disability’ as opposed to ‘medical disability’, which results in discrimination against certain users of a building. Over the past three decades these ideologies have been developing internationally, particularly in the United Kingdom, North America, New Zealand, Canada, Japan and Australia. The intention of these new philosophies and practices is to break down the social and physical barriers between disabled people and able-bodied people (Dunn 2002). The following quote illustrates the hardship and feelings of exclusion shared by many disabled people –

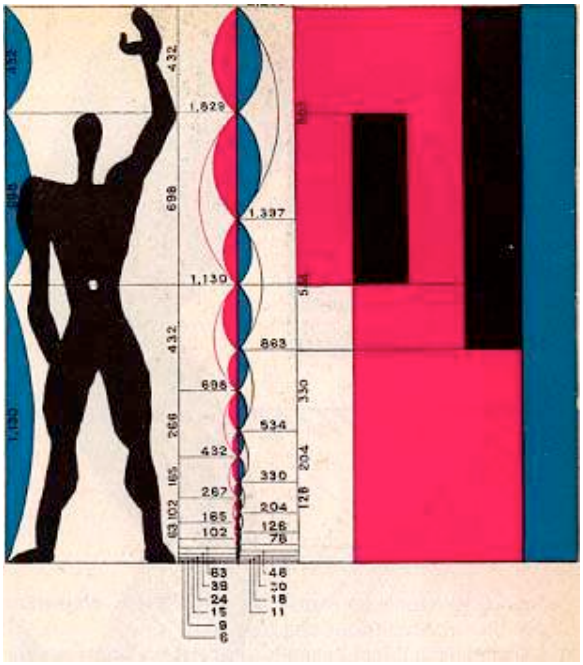
> "If I lived in a society where being in a wheelchair was not more remarkable than wearing glasses and if the community was completely accepting and accessible, my disability would not be an inconvenience.. It is society which handicaps me." (Davies (no date), cited in Goggin & Newell 2005, p. 27).

This chapter reviews international and Australian literature in relation to inclusive housing design. The information presented offers an overview of key concepts, which frame the topic and broadly depict international practices. Gaps in the research, where future studies could take place, are identified in section 2.7. This section provides justification for this thesis, whilst Chapter 3 will provide more of an Australian grounding for the topic.

2.2 Background to the inclusive design concept

Past design philosophies were based on a typified human scale, reflecting a lack of understanding of variance in human form and how the built environment can accommodate this. Le Corbusier's '*The Modulor*' (refer to Figure 2) is a well-known example of this philosophy. 'Ideal proportions' of human scale were calculated, based on the Golden Section and six-foot tall Englishman model, to assist in building design (Timbers et al, no date). On the contrary, modern ergonomics recognises that no two people are exactly alike, and will differ intra-individually, i.e. the changes that occur over the lifecycle; and inter-individually, i.e. variability between sexes, ethnicity and racial groups (Tilley 2002). Using a typified human scale does not produce inclusive built environments because "every person deviates from the average to a greater or lesser extent" (CCPT 1996, cited in Alonso 2002, p. 26).

Figure 2 Le Corbusier's *The Modular*



Source: Bucholtz 2006

The importance of inclusively designed built environments gained leverage after World War II, and later the Korean and Vietnam Wars. The return of disabled war veterans prompted the supply of accessible homes, transport and workplaces, which became a recognised right for all disabled people (Preiser & Ostroff 2001). Efforts to create barrier free environments began in the 1950's, involving the removal of obstacles that inhibit access and mobility (Story et al 2010). This is a distinctive point in history as it marks the time of growing public awareness of the inequity between disabled people and 'normal people'.

This period encouraged the international movement toward deinstitutionalisation from the 1960's onwards. This stemmed from the acknowledgement that institutions do not allow for social inclusion (Bostock et al 2000; Preiser and Ostroff 2001). Civil rights movements during this time elevated the importance of equal opportunities for disabled people and the dismantling of segregation of those who were perceived as 'different' or 'special'. The 1970's saw the emergence of the disability rights movement in America, which influenced other countries, including Britain, to legislate against discrimination (Goldsmith 1997; Story et al 1998). To further accelerate change, the United Nations declared 1981 the International Year of Disabled Persons, and 1983– 1992 as the Decade of Disabled

Persons (Dunn 2002). At this time new schools of thought, building from barrier-free design, sought to provide 'inclusive' built environments that could accommodate a wide range of abilities.

Ron Mace first used the term universal design in 1985 to describe an approach to design that allows for products and building features to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design (Preiser and Ostroff 2001). Preiser and Ostroff believe that this concept implies social justice and equity through cohesion rather than separation. In this way the concept supports the ideology that "being separate is not equal" (Preiser and Ostroff 2001, p. 1.5).

2.3 The present context of inclusive housing design

Recent attention towards inclusive built environments has been influenced by three distinct trends: Firstly, the ageing population of developed nations; secondly, an increasing prevalence of disability, partly driven by ageing and partly driven by improved longevity; and finally, concerns over the rights of disabled people, particularly regarding inclusion and participation within the community (Saville-Smith et al 2007). This has brought about a new understanding of the importance of suitably designed housing stock in catering for changing demographic trends. Evidence of shifting attitudes, as established by Scotts et al, include the development of new types of inclusive housing design and new standards, concern over the costs involved in later adaptations, and attention towards the role of integrated assistive technology (Scotts et al 2007).

There are an abundance of terms used to describe housing that intends to be inclusive and flexible to users of varying abilities. Universal, adaptable, visitable, flexible, accessible, livable and lifetime homes are all based on the philosophy of inclusive design however differ in the *level* of accessibility and how it is achieved. The terms are defined as follows:

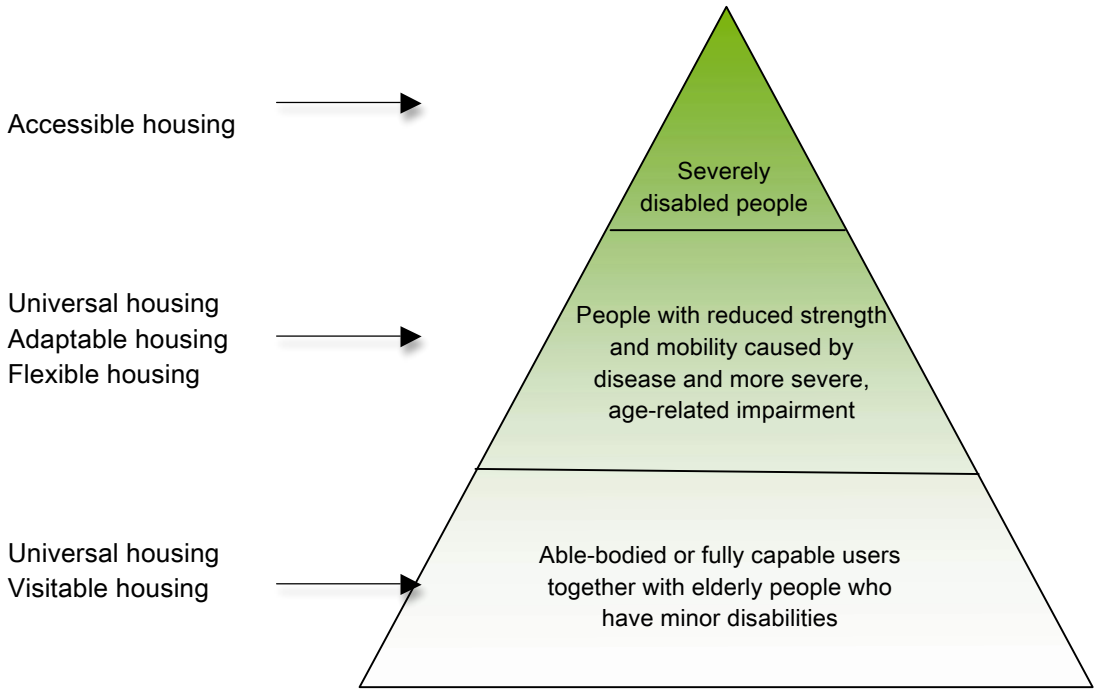
- Universal housing is designed to accommodate and be flexible to people of varying ages and abilities without the need for major adaptation (Landcom 2008). Features such as a level entrance, wider car space, wider doorways and

corridors, open plan living with adequate circulation space, switches and sockets elevated off the ground, kitchens and laundries that support ease of movement between fixed benches, and wider staircases adjacent to a load bearing wall, are considered in the design of a universal dwelling (NDUHD 2010a).

- Livable housing is essentially universal housing, and is the term used in the Livable Housing Design Guidelines, that were released nationally in Australia in July 2010.
- Visitable housing requires the first level of a dwelling to accommodate a wheelchair, including ingress points, a bathroom and potentially a bedroom (Bringolf 2010).
- Adaptable housing refers to dwellings with design features that are easily modified at a later date to meet the changing needs and abilities of the occupants (refer to AS 4299 1995).
- Flexible housing is designed so it can be easily reconfigured to accommodate a household's changing size, structure and lifestyle (Quinn et al 2009).
- Accessible housing is custom built housing specific to the needs of highly disabled people that would not be accommodated by universal housing (Landcom Guidelines 2008). It should also be noted that the term accessible housing is used as an umbrella term in a lot of international literature.
- Lifetime Homes were first established in the UK in the early 1990's. A total of 16 design criteria must be met in order to attain the specified level of adaptability and flexibility. These criteria relate to the accessibility of car spaces, entrances, circulation space, an entrance level bedroom and bathroom, internal doorways and halls, bathrooms, and location of service controls. The features are intended for mainstream housing rather than 'special' housing (Lifetime Homes 2010).
- 'Age in place' policies encourage and allow for people to remain in their houses and community as they grow older (Aged and Community Services Australia 2005).

Figure 3 illustrates the relationship between inclusive housing types and the user pyramid established by Benktzon in 1993.

Figure 3 The user pyramid



Source: Adapted from Benktzon 1993, p. 19-20

The term ‘inclusive design’ is used herein as an umbrella term for all housing which intends to provide flexibility and accessibility in design to accommodate a wide range of users. It should be noted that the term ‘inclusive design’ is often used synonymously with ‘universal design’, however in this research universal design is considered a specific type of inclusive design. This is also indicative of the broader issue in how the numerous types of inclusive housing design are often misused, interchanged and misunderstood (Bringolf 2010).

Figure 4 provides a visual representation of typical universal design features. The purpose of this diagram is to illustrate one of the key design concepts explored in this thesis. The 22 design features that are outlined have been collated from a number of sources and therefore are considered typical rather than absolute. It should be noted that many of these universal design features are also present in other types of inclusive design. Over time the design has evolved and will continue to do so according to social consensus.

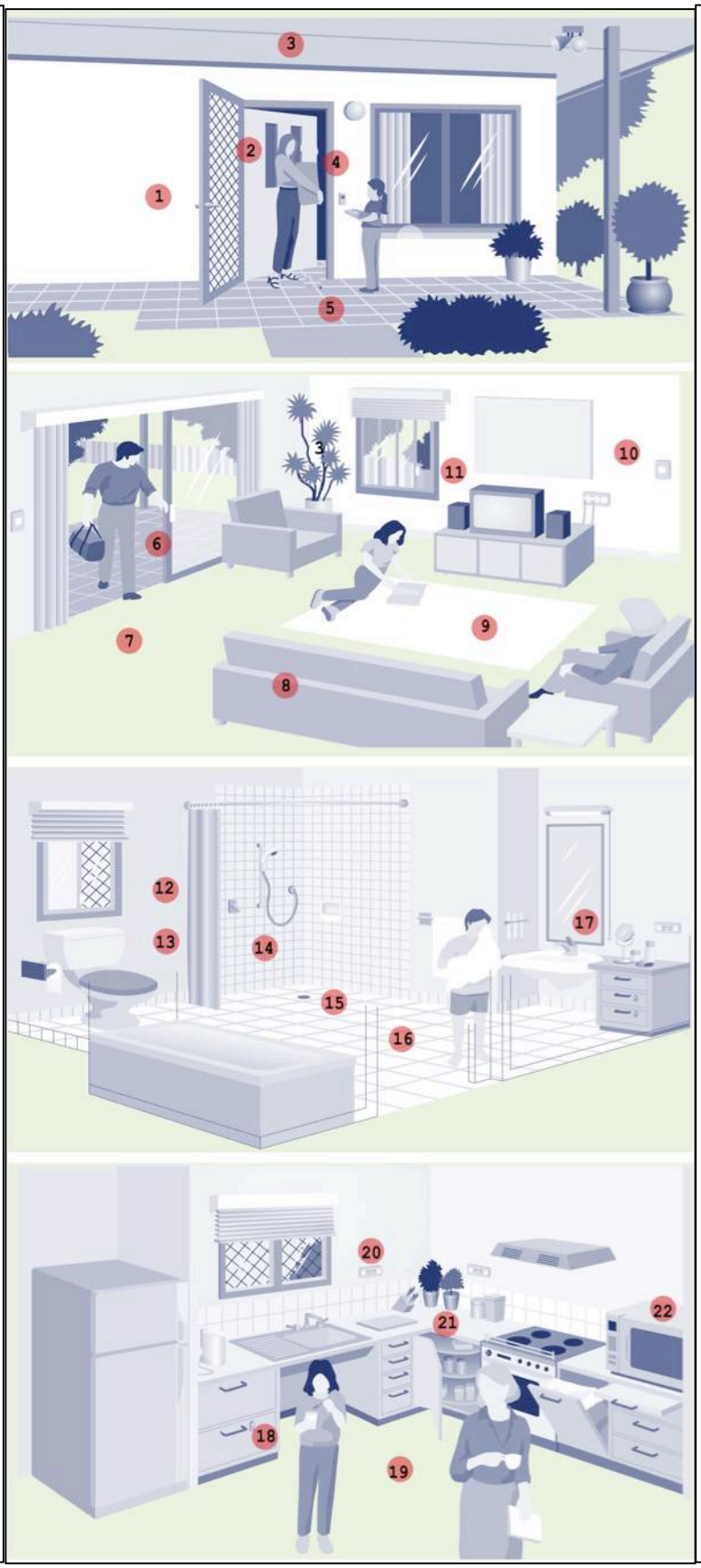
Figure 4 Typical features of a universally designed house

ENTRANCE

LIVING ROOM

BATHROOM

KITCHEN



ENTRANCE

1. Lever door handles.
2. Glass panels to view visitors.
3. Covered entrance.
4. Wide doorways and corridors throughout.
5. Slip resistant, level entrance. The car space/garage should be wide enough for easy and accessible movement.

LIVING AREAS

6. Level entrances, wide doorways and corridors throughout. Windows and doors that can be easily opened.
7. Main facilities on entry level.
8. Flexible furniture layout.
9. Adequate circulation space. This also applied to bedrooms.
10. Plugs and switches at an accessible height.
11. Lower window sills.

BATHROOM

12. Reinforced walls around toilet and shower for future grab rails.
13. Space on at least one side of the toilet.
14. Hobless shower.
15. Good drainage to avoid puddles.
16. Slip resistant floor.
17. Lever taps.

KITCHEN

18. Adequate storage and accessible handles.
19. Slip resistant floor.
20. Accessible plugs and switches.
21. Space between bench tops and walls potentially for wheelchair manoeuvring. This also applied to laundries.
22. Accessible locations of appliances.

Source: Image adapted from Queensland Department of Housing 2003

2.4 Policy and implementation

The way in which inclusive housing policy is implemented is inextricably linked to such policies. This is highlighted by Imrie and Hall who state that “the sources of disabled people’s exclusions from many facets of the built environment are multiple and complex, yet are linked, in part, to the policies, practices and values of professionals involved in property development, design and construction processes” (Imrie & Hall 2001, p. 3).

Based on international practices, there are three potential pathways through which the take-up of inclusive design may be facilitated, namely regulation, incentives, and market capacity development. The latter strategy may involve voluntary guidelines, design award programs, promotions, and education (Saville-Smith et al 2007). The chosen strategy for implementing inclusive housing design will largely determine the speed at which it is adopted and influence the design quality.

Implementation strategies also differ in terms of who is involved. Scotts et al make the point that regulatory strategies tend to involve government as the core administrators, whether it is local, state, federal, or a combination of all three. On the other hand, voluntary requirements tend to involve different agencies and organisations (Scotts et al 2007, p. 8). Using the example of Canada, Dunn (2002) advocates that the federal government should provide a strong, regulatory approach for consistency across the country in relation to inclusive housing policies. In addition, there should be better coordination between federal, provincial and territorial governments to sustain efforts (Dunn 2002). Coordination between the levels of government is a crucial factor in establishing a consistent and effective approach.

Another example of the power of federal regulation is seen with the Part M amendments of the UK Building Regulations. The amendment was initially introduced in 1999 due to the failure of the private development industry in voluntarily increasing the proportion of inclusively designed housing (DETR, 1999a, cited in Imrie 2003a). The federal policy amendment requires for new dwellings to be built to a visitable standard to encourage social equity and increase housing choice for disadvantaged people (Milner & Madigan). Harrison (2004) comments that mandatory standards help to counteract unwillingness amongst developers to institute changes that appear inconvenient or novel for them. It is

clear that mandatory strategies greatly increase the uptake of inclusive design in private housing stock and provide a level playing field for all developers.

An example of a voluntary program is seen with the US state of Georgia. In 2002, the Georgian National Association of Home Builders introduced a policy favouring voluntary visitability programs and opposing mandatory programs. Based on this the Home Builders Association of Georgia created a voluntary program called 'Easy Living'. An Easy Living home comprises at least one step-less entrance, sufficient interior door widths, and living spaces on the main floor which include some entertainment space, a kitchen, a bedroom, and at least one full bathroom (Malloy 2008; Maisel 2007). Firstly, this example illustrates yet another type of inclusive design, which extends beyond the visitability standard towards the universal standard. The name 'Easy Living' is obviously a marketing ploy to deter the stigma attached to other inclusive design types that are perceived as 'disabled design'. The great benefit of this scheme is that by encouraging inclusive design requirements through voluntary means, a higher level of accessibility can be achieved. On the other hand, as Malloy (2008) discusses, voluntary efforts will not be applied to a large proportion of housing.

Research conducted by Saville-Smith et al indicate that the most successful implementation of mainstream inclusively designed housing results from either strong legislative or regulatory frameworks and/or financial incentives. It is in this way that Japan, Norway and USA have integrated inclusive housing design into private mainstream housing (Saville-Smith 2007). Scotts et al report that Japan has regulatory inclusive design requirements for multi-unit development, and encourage visitable design for other dwelling types through subsidised home loan interest rates. Another example is seen in Norway where 'low cost' loans encourage new housing development to incorporate 'Lifecycle Housing' features (Scotts et al 2007). Tying into the views of Malloy (2008), Saville-Smith et al (2007) found that the least successful strategies were voluntary guidelines. The combination of regulation, legislation and incentives proves most successful, as developers are encouraged to think beyond the minimal requirements.

Contrary to the opinions of Harrison and Saville Smith et al, Imrie (2003b) has strong views as to the shortfalls of regulation in providing quality inclusive design. With particular regard to the UK Building Regulations, concerns are raised that "the physical

and technical nature of Part M may be at the expense of it conceiving the interrelationships between disability and housing quality in terms of what Goodchild (1997) calls 'the house as a home' (Imrie 2003b, p. 422). Imrie goes on to say that "the emphasis on standards is also likely to encourage builders and regulators to regard them as 'ideals'.. rather than the minimum that they are" (Imrie 2003b, p. 434). This is agreeable in that regulation can only mandate low standards of accessibility (refer to Troy 2000) in comparison to voluntary requirements. Low standards of accessibility and flexibility may instil the wrong message as to what inclusive design intends to achieve, and result in more tokenistic gestures.

The development of ageing and disabled housing policy involves consideration of integration and segregation strategies. Rosenberg & Everitt (2001) argue that providing equal opportunity to health, services and housing will provide for equitable environments however at the expense of efficiency to resources that would not necessarily be supplied on the basis of demand. This is a very important consideration in planning and strategic policy as it leads to the question of how to supply resources to where they are most demanded.

One solution to this problem may be to encourage flexibility in the application of development controls and housing policies. An American study of accessory apartments (granny flats) in Seattle conducted by Chapman & Howe (2001) found that planning controls which supported adaptable designs coupled with no age restrictions for residents, fostered flexibility in use from teenage retreats to independent living homes for seniors. Not only are these findings suggestive that less rigid policies may promote efficiency of resources, but also that policy making must take a holistic approach to the life of a building and changing dynamics of a family.

The inclusive housing design model also has implications for strategic planning. Bringa (2007) uses the example of the Norwegian planning system to demonstrate how strategic plans should consider walking distances, levels of incline and landmark orientation in the design of inclusive and accessible built environments. These planning philosophies link with the concept of liveable and walkable communities and relate to the environmental, social and economic sustainability of a place.

The non-physical elements of a dwelling also need to be considered in policy making. Harrison (2003) emphasises the importance of feelings of security, culture, and a sense of place in connection with the home. However, often these intangible values are not readily considered until there is a risk of them being lost. An inclusively designed dwelling could reduce the chance of an occupant having to relocate if their abilities change. In this way, the values that comprise a 'home' would not be lost.

Lastly, in regards to policy implementation, Johnson & Chen (2009) advocate that housing developers encourage and suggest inclusive design to new homebuilders. To save costs, design features be integrated with sustainable housing practices at the design and development stage. However, as Imrie and Hall deduce, developers often perceive inclusive design as a threat to the marketability of a property as they believe it will benefit only a minority of potential buyers (Imrie & Hall 2001). Education to the development industry and the general public will help to disprove the idea that inclusive design is 'special' design and something that is not marketable. This must be considered in the development of any implementation strategy for inclusive housing design.

2.5 Demand for inclusively designed housing

The need for inclusive housing design is not only driven by demographic changes and the inappropriate standard of existing housing stock, but also the intention to provide more equitable built environments and housing choice for the socially disadvantaged. As highlighted by the European Commission in 1996, the ability to independently enter and use the built environment is critical to achieving equality and social inclusion –

> "To ensure equal chances of participation in social and economic activities, everyone of any age, with or without any disability must be able to enter and use any part of the built environment as independently as possible" (European Commission 1996, cited Imrie & Hall 2001, p. 4).

The review of literature reveals that there is a strong desire among older people to remain in their home, in their local community, as they grow older (Quinn et al 2009; Hulse et al 2010). The home embodies emotional, financial, and security values and "is possibly the most influential factor in the psychological and environmental well-being of humans" (Sprintz et al 2008, p. 185). In addition, Chisholm (2003, cited in Hulse et al

2010, p. 23) states, “housing is a gateway through which we connect to our immediate environment and society at large. It reflects social status, belonging to community, a centre to gather with friends and family and has a direct bearing on the extent to which we experience social inclusion or exclusion”. The demand for inclusive design is therefore not solely linked to accommodating the predicted rates of older people and people with disabilities, but also to the creation of equitable built environments.

The Olsberg and Winters (2005) national study of 7000 Australians over the age of 50 inferred that attitudinal and lifestyle trends, particularly of the young-old ‘baby boomers’, differ from current understandings of how older people should be accommodated. It was emphasised that there is great diversity in the aspirations and expectations of older people. Trends that were identified include:

- High rates of home ownership, which influence decisions to move or modify a dwelling. A private renter is more likely be affected by financial insecurity and subsequently relocate in the short-term (see also Bridge et al 2008).
- Undesirable wish to live with other family members, namely children, as they grow older. This is relevant to the advocacy of granny flats in housing seniors.
- Rejection of lifestyles or housing that resembles ageing. Additional research by Garlick et al (2006) found that ‘baby boomers’ are relocating to ‘lifestyle’ regions, particularly along the east coast of Australia such as the Sunshine Coast, Mid-North Coast, and Richmond Tweed (NSW). Relocation trends have significant implications for the success of ‘ageing in place’ strategies as well as the population make up and resources of these areas (see Temple 2006).
- A higher proportion of older seniors living alone, particularly women, and enjoying the experience.
- Reasons for relocating included downsizing, releasing assets, and moving into more suitable accommodation.

One of the most pertinent questions is to what degree should private housing be responsible for the uptake of inclusive design. Malloy (2008) presents the argument that local private housing should be considered at a regional and even national level in accommodating a changing population. The design of dwellings tends to be based on short-term individual design preferences, which create potentially negative long-term

implications for future users of housing stock. Ross (2008) argues that the market preferences of individuals, particularly 'baby boomers', inhibits holistic initiatives for inclusive design. Malloy (2008, p. 725) also blames developers for providing "pre-packaged and prefabricated housing designs", where the needs of consumers are assumed and pre-determined. In a supply driven market this is a major issue and reinforces the idea that dwellings are occupied according to the current abilities and needs of the tenant.

One of the difficulties with calculating demand relates to the trend that people of the young-old cohort who would particularly benefit from inclusive design, namely 'baby boomers', reject anything that is attributed to growing older and losing capacity. By understanding that inclusive housing design is not exclusively limited to older and disabled people, it is clear that the potential benefit is wide ranging. Although, for inclusive design to be adopted by developers there will need to be convincing evidence that there is a market for it.

In assessing the potential demand of inclusive housing it is crucial to consider the lifecycle of a building. An American study conducted by Smith et al (2008) attempts to calculate the probability of a newly built house accommodating, whether permanently or temporary, a disabled person. Population projections, formulas of probability, and observation of housing and residency trends were used to determine that there is a 91% chance a newly built detached dwelling (from 2000) will have at least one disabled resident or visitor during the lifetime of the building (averaged at 87.5 years). This figure, however, is based on loosely defined definitions of disability and formulas of probability; it is apparent that further research and forecasting is required in this field.

Inclusive design, and particularly universal design, intends to support a wide range of users whilst avoiding the need for specialised housing that is segregated from general housing. In research conducted by Stewart et al, this point is clearly demonstrated in relation to Lifetime Homes -

> "Lifetime Homes can be thought of as universalist in that anyone could occupy them and in consequence they neither stigmatise nor create dependency, whilst the decision to adapt fully can still be related to individual needs and circumstances" (Stewart et al 1999, p. 17).

Malloy (2008) shares this opinion in stating that inclusive design should apply to all new private housing stock to break down the social divides between disabled people and what is considered normal. However, so long as developers perceive disability to only affect a small proportion of the population, as established by Imrie and Hall (2001), it will be very difficult to increase the application of inclusive design in mainstream housing.

2.6 Costs involved in achieving inclusive design

Additional cost has been used as an argument against inclusive design. Developers are fearful that such design features reduce the marketability of a property for those who do not require such features at that time, whilst increasing the cost for development (Imrie & Hall 2001). Duncan (2007) supports this in claiming that lack of consumer demand for inclusive designed homes inhibit the higher sale prices that reflect long-term values, and that is desired by developers.

Internationally, a number of cost studies have been conducted for inclusive housing design. There are mixed responses as to the exact additional cost of inclusive design features however what is clear, as discussed by Malloy (2008) and Johnson & Chen (2009), is that integrating inclusive design features from the preliminary design stage rather than as a later addition substantially minimises costs. Examples of cost estimates are as follows:

- The assessment of visitability for the US Inclusive Home Design Act 2003 found costs to be US$98 for a dwelling built on a concrete slab and US$573 for one with a basement space (Concrete Change 2003a, cited in Quinn et al 2009). In the UK, the introduction of the Building Regulation Part M visitability standard was not considered to entail prohibitive costs (Joseph Rowntree Foundation 2003, cited in Quinn et al 2009; Imrie 2002).
- Adaptable features installed at the onset of building were calculated at adding 1% or less to the total cost, and less than 6% if a lift was to be added to a walk-up apartment block (Hill, 1999, cited in Quinn et al 2009).
- A 2007 cost study of the 12 universal design features outlined in the Landcom Universal Design Guideline were calculated to be between 1-2% of the original

construction cost. The study also indicated that when these features are designed up front, universal housing could be achieved with almost no additional cost (Landcom 2008).

- The Victorian Regulatory Impact Statement conducted in 2010 for visitable and adaptable features in housing found that the additional cost of the four elements – path of travel to entrance; doorways, passage, and common corridor width, toilet access; and reinforced bathroom walls – was between 0.1-0.3% of the total dwelling cost if designed in from the start (Regulatory Impact Solutions 2010).

The cost-benefit analysis conducted by Quinn et al (2009) found that visitable design resulted in the greatest benefit at the lowest cost, whilst adaptable and universal designs proved to have greater costs than the supposed benefits. Although, the benefit to cost ratio is generally much higher compared with home modifications (Judd et al 2010a). In addition, a UK study of 82 properties conducted by Lansley et al (2004) found that when structural adaptations and Assistive Technology (AT) are combined with informal and formal care costs are generally far lower than those associated with residential care. Another important point provided by Malloy (2008) is that if universal and adaptable design features were to be made mandatory for all new developments then costs would decline due to economies of scale. This infers that there is a relationship between the implementation strategies and costs.

Lastly it is important that cost – benefit analyses consider such factors on a wide scale rather than just relating to individual private needs - “It is not enough to simply argue that the costs outweigh the benefits since many of the costs and benefits are diffuse, indirect, and impossible to account for by the immediate individuals engaged in a transaction” (Malloy 2008, p. 699). Considering the cost savings of integrating inclusive design features upfront in the design process, and the social sustainability benefits of having accessible and flexible housing stock, the scheme appears as feasible in theory. However, in a practical sense the apparent cost savings can be overridden by housing affordability and perceived marketability.

2.7 Criticism of the paradigm

The review of literature reveals that criticism of the inclusive design movement often occurs for one of two reasons. The first is a lack of understanding as to the number of people who could potentially benefit, and the view that disability refers only to minority groups. The second reason relates to the perceived difficulties in turning theoretical ideals into practical outcomes. Both reasons prevent the widespread adoption of inclusively designed housing.

The research of Imrie and Hall (2001) found that a common belief amongst development industry professionals in the UK is that only a small proportion of the population suffer from a disability. This belief then follows through to questions like why should all housing have to accommodate accessible features and the associated additional costs when only a minority of people will benefit? It is this attitude that hindered the voluntary uptake of inclusive design features, and which stimulated the amendment to Part M of the UK Building Regulations to mandate visitability. On the opposite side of the spectrum, the response of disability advocacy groups to the amended Regulations was concern that the visitability standards did not go far enough (Imrie 2002). These findings suggest a balance needs to be struck between the dichotomy of stakeholder interests. Most notably, factors of social equality need to be weighed against factors of cost and regulations that constrict design.

Representatives from both the development industry and disabled groups have criticised inclusive housing policy for focusing only on physical impairment and consequently excluding provisions for other sensory or mental disabilities. Furthermore, physical disability often equates to wheelchair users rather than the broad spectrum of other physical impairments, including those that are temporary (Imrie 2002). Milner & Madigan (2004) describe the failure of the British Lifetime Home model in ignoring other types of impairments such as sensory, intellectual, and mental. This is a major shortfall in many types of inclusive housing design and one that requires further research.

Fears of increased costs and lowered marketability of inclusively designed housing are also a major concern, particularly to developers. One point that came out of the research conducted by Imrie (2002) was that the additional cost in providing inclusive design

features makes the purchasing of property even more difficult for socially and economically disadvantaged groups. This is a significant issue given that a large number of economically disadvantaged people also have a disability, as evidenced by the number of disabled and older people in public housing.

The extensive research undertaken by Imrie (2002; Imrie and Hall 2001) also indicates some concerns in relation to design requirements. Potential issues that arise from the provision of a level entrance include flooding and dampness, and the constraints of sloped land. Bridging and burming is a solution to the sloped land issue, discussed by Bridge (2008). Imrie (2002) also disputes flooding and dampness as an issue if appropriate drainage is installed. However, in order to provide certainty to the development industry these issues will need to be further explored.

The connection between safe and accessible dwellings, and participation in the community also needs to be clarified. In assessing the benefits of home modifications among older and disabled people, a Swedish study indicated that although there was an increase in the perceived level of safety and reduced difficulty in undertaking activities, there was no statistically significant evidence to suggested a change to the level of independence in the home or surrounds (Petersson et al 2008). These findings indicate that policies for the design of safe and accessible dwellings need to take into consideration supportive homecare models, and the design of the surrounding built environment. In other words, the inclusive design of housing stock will not, in itself, ensure social inclusion.

Lastly, limitations to funding for universal and adaptable housing projects and support can undermine the potential for success. Gibilisco (2006) refers to his personal experience of the Victorian State Disability Plan and commentary from the Victorian Council of Social Services to emphasise the shortfall in funding and support compared to the overall demand for universal design projects. In other words, programs may only support independence and social inclusion to the extent of which funding is available.

In exploring some of the prominent criticisms of the inclusive design paradigm it is clear where future research and education programs need to be directed. This will aid in changing attitudes towards disabled people and their rights, and also to overcome problems with inclusive design model so it can be more extensively applied.

2.8 The need for future research

The review of international and Australian literature has indicated a number of areas where further research is required. Firstly, the sheer number of inclusive design types and definitions can cause complexity and confusion on both an international and national scale. On the whole, the different inclusive design types are commendable for efforts in trying to create more equitable housing. However, the varying intents and applications of use achieve different levels of design quality and accessibility. The underlying message is that the different types of inclusive design need to be considered as a working process, rather than an end state of minimum requirements. In this way, education and studies on how to improve the model should occur. A specific issue that needs to be addressed in future research is how the level entry could be built on sloped land and how flooding could be inhibited.

Secondly, the investigation of policy and implementation strategies demonstrated different ideas of how inclusive design could be applied. The literature showed that regulatory and incentives based policies were more successful than voluntary strategies. However, the research did not yield any definitive answer on who should be involved in implementation strategies, and specifically, which level/s of government. In addition, the literature suggests that inclusive design housing policies need to be considered in conjunction with home care support systems and broader strategic planning. This is because the inclusive design of a dwelling cannot, in itself, ensure social inclusion.

Thirdly, in order to more accurately measure the level of supply, local governments should keep a record of the number and condition of inclusively designed dwellings. Surveys of the design of existing housing stock would also help to determine potential demand for inclusive dwellings or home modifications. Understanding the current and future demand for inclusive housing will assist in the development of strategic plans and policies for supplying appropriate housing to where it is most needed.

Fourthly, although it is widely accepted that costs for inclusive design features are minimal when integrated at the development stage, further modelling is needed to determine the feasibility of such designs.

Lastly, further studies are required into how inclusive design principles can support other types of disability, such as sensory or mental. Specifically the research should consider how the dimensional requirements or design principles offered in inclusive design policies relate to other types of disability other than physical impairment.

Lagging behind other nations, Australia has the opportunity to learn from international practices. The ageing population is proving to be a major driving force in creating more equitable built environments. Undertaking further research into the areas of concern will help to develop more successful and meaningful strategies for improving the design quality of housing stock.

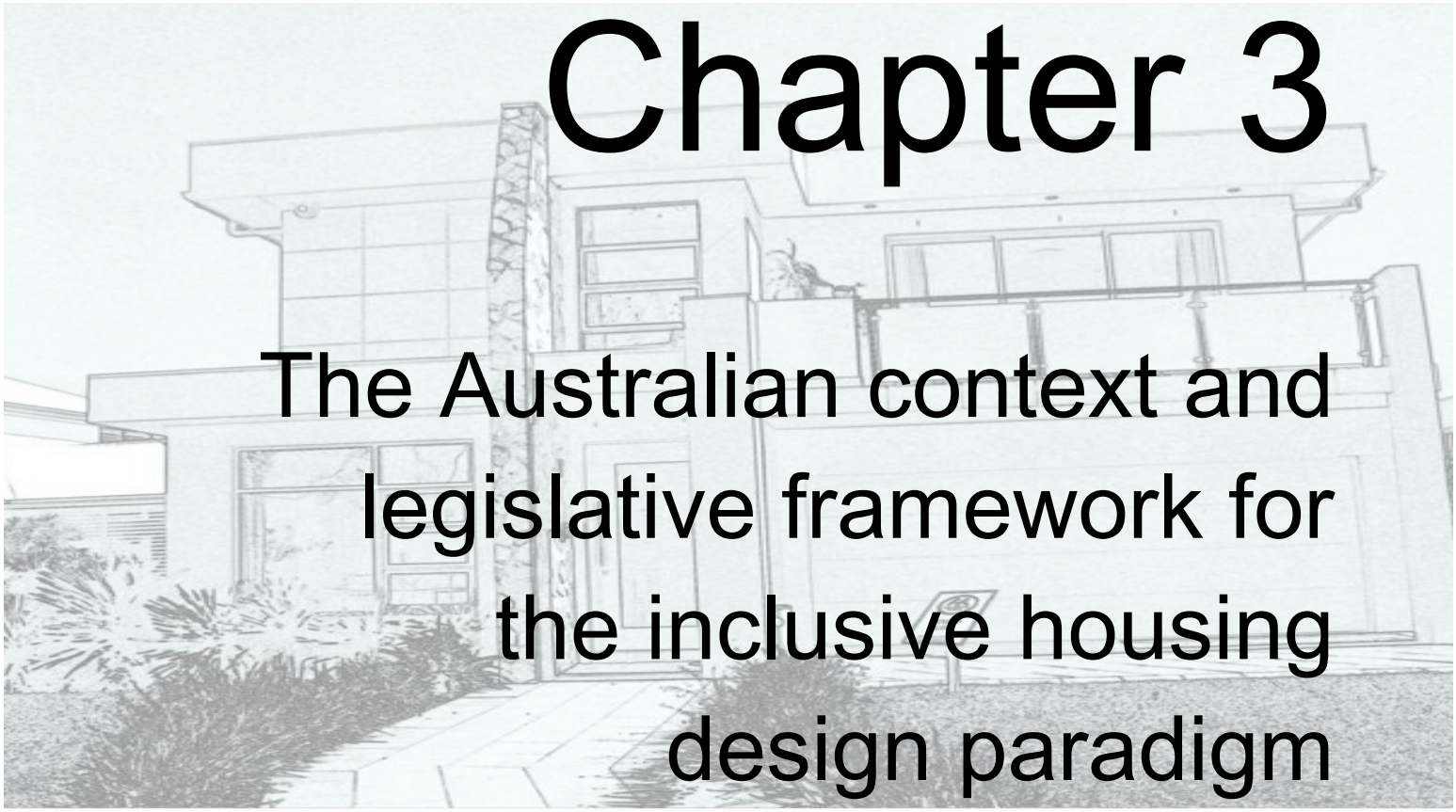
2.9 Summary

This review of international and Australian literature has illustrated how the varying types of inclusive housing design have developed since the 1950's and continue to evolve. The relevance of the inclusive design paradigm in relation to ageing and disabled populations lies in the potential to create equitable and socially sustainable built environments, and specifically, housing stock. This paradigm has the potential to bridge the social and physical gap between disabled people and able-bodied people. In addition, it encourages innovative design that could benefit a wide range of users at varying points of the lifecycle.

The literature has indicated five key areas: the different types of inclusive design and interpretation of concepts; policy and implementation strategies; demand of inclusively designed housing; additional costs associated with inclusive design; and criticisms. Five areas have also been identified for future research to overcome problems with the inclusive design paradigm and increase the application of its use. The timing of this research means that pre-emptive action could be taken to alleviate housing pressures of ageing populations.

Finally, Australia has the opportunity to learn from international practices in the development of a more inclusive built environment and sustainable housing stock. The themes explored in this chapter are largely based on international practices, in countries

where inclusive design strategies have been developing for a longer period of time. The gaps identified in the research are broadly applicable to the topic area. Chapter 3 will explore the context of inclusive design within Australia and the legislative framework which supports it. From this it will be possible to identify where future Australian research should be directed. Together the two chapters justify the research undertaken for this thesis.



Chapter 3

The Australian context and legislative framework for the inclusive housing design paradigm

3.1 Introduction

The purpose of this chapter is to outline the planning legislative and policy framework in relation to inclusive housing design. This relates to objective 1 of the research, as it will enable a critique of current systems in Chapter 4. The first part of this chapter examines demographic trends within the Australian context. Understanding these factors is critical to forming a knowledgeable opinion as to the design and construction of housing stock, and the built environment in general. The following sections investigate Commonwealth, state and specifically NSW government policy and legislation in relation to inclusive housing design, and specifically adaptable and universal design. The intent of this chapter is to provide a broad overview of relevant policy and legislation, rather than in-depth analysis. Chapter 4 will evaluate the system and determine the key issues.

3.2 Understanding the Australian context

In Australia, mainstream housing has not been designed to accommodate the change of needs and abilities over the lifecycle or the potential needs of future users (NDUHDb 2010). The development industry has generally assumed that once an occupant reaches old age, or develops some sort of impairment, they relocate to a setting in which their needs or lifestyle may be better accommodated. This philosophy is flawed in two ways. The first is that it does not support the design of housing that provides an option for people to remain living at home. Modifications for more specialised needs are resultantly made more difficult and expensive. The second is that it does not foster social inclusion and the ability for all people to participate in the community. The construction of specialised housing segregates certain groups from the community. The design of housing stock is therefore a critical consideration in the development of equitable built environments. It is also a major factor in accommodating the ageing population.

In relation to disability, all Australian States have embarked upon large scale deinstitutionalisation since the 1960's. During the 1980's, this practice accelerated and was primarily motivated by human rights activism and the recognition that social equality must involve inclusion (Bostock et al 2000). As detailed in the Accommodation and Support Paper (NSW Government 2006) and Bridge et al (2002) the following events and legislation were key to instigating social change and disabled rights in Australia:

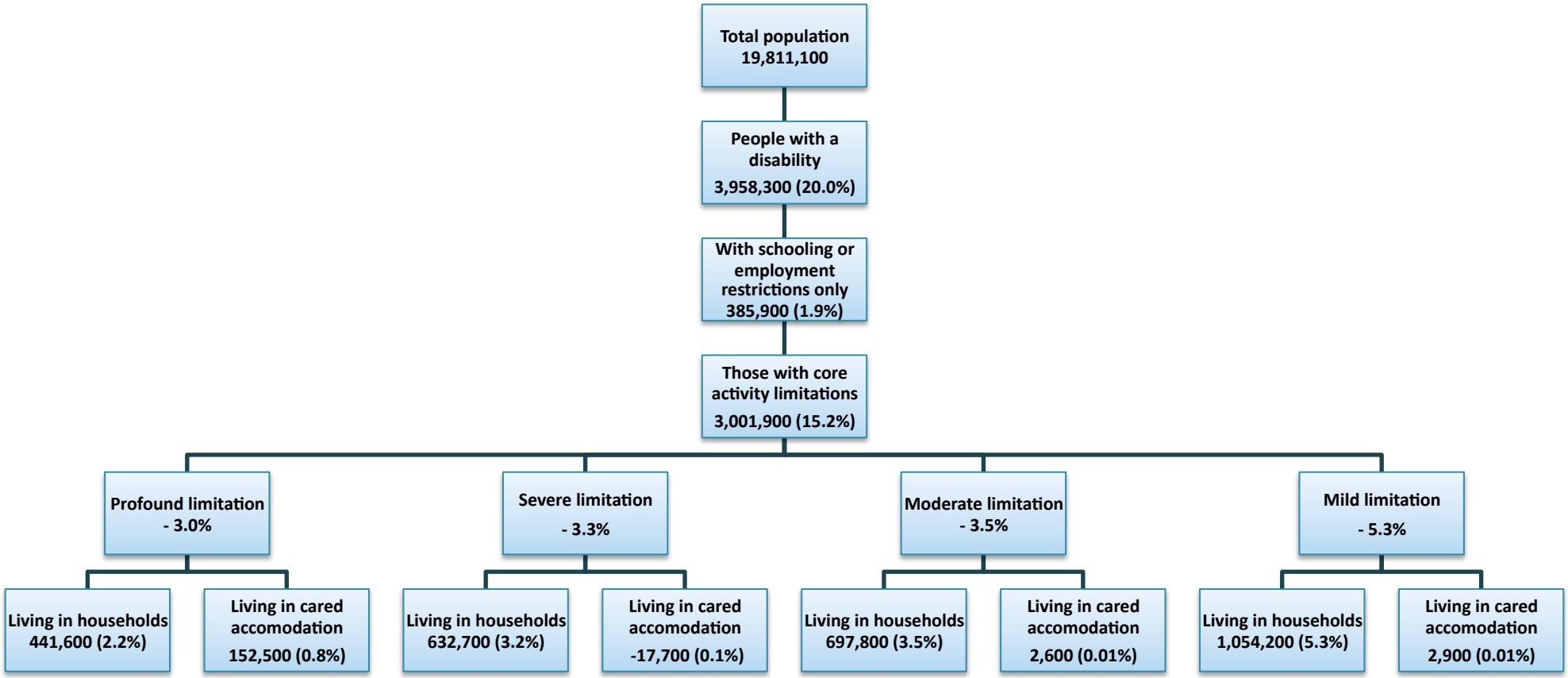
- International year of the disabled persons 1981, as proclaimed by the United Nations.
- Commonwealth Disabilities Services Act 1986, which provides a model for the provision of services to people with disabilities.
- Commonwealth Equal Opportunities Act 1987
- The Commonwealth State Territory Disability Agreement, which has operated since 1991, describes the roles and responsibilities of State/Territory and Commonwealth governments in the delivery of disability services.
- Aged Care Act 1992
- Disability Discrimination Act 1992

Today, housing and services for ageing and disabled people are regulated by a plethora of legislation and policies at the Commonwealth, state and local government levels. As the population ages and the number of people with disabilities subsequently rises, it will become increasingly important to support 'ageing in place'.

Australia's ageing population is one of the key driving forces towards improving the accessibility and liveability of built environments, and specifically, housing. In 2009 the proportion of people over the age of 65 was 13.3% (ABS 2009). Population projections predict this figure to rise to around 25% by 2056 and the number of people aged over 85 to be around 7.3% (ABS 2008), compared with 1.8% 2009 (ABS 2009). The proportion of young people under the age of 15 is projected to decrease by around 4% during this period and the median age is expected to rise to around 45.2 years (ABS 2008). The ageing population will have enormous economic, social, infrastructural and health repercussions. In relation to housing, it is imperative that dwelling designs reflect changing demographics.

In addition, the current and predicted number of people with disabilities in Australia will influence the housing design. The Disability, Ageing and Carers Survey conducted in 2003 found that one in five Australians have a disability, where disability was defined as any limitation, restriction or impairment which has lasted or is likely to last for at least six months and restricts everyday activities. A linkage was shown between age and disability, as the rate of profound or severe disability increased in age from 3% of children 0-4 years old to 10% of people 65-69 years olds and 74% of people aged 90 years and over (ABS 2003a). Figure 5 below illustrates that of the 3,011,287 people who had a core activity limitation or restriction in 2003 (15.2% of the total population), 94.15% lived in households rather than care accommodation. These statistics are crucial in understanding not only the current and future demand for appropriate housing for disabled people but also the broader need for accessible built environments.

Figure 5 Type of residence occupied by disabled people



NB Living in households refers to private and non-private dwellings other than cared accommodation.

Source: Adapted from ABS 2003 (b)

The culture that occupants select housing to suit their current needs and relocate accordingly, is unsustainable given the growing number of people who have or will develop an impairment and the design of mainstream housing stock. It is unsustainable because it forces people to relocate once their home can longer support their needs. Yet the supply of flexibly and accessibly designed homes in the private sector will not meet projected demand. This may result in premature relocation to aged care, which has enormous costs to the occupant and also the government in terms of funding.

3.3 Commonwealth initiatives for inclusive housing design

In Australia, no Commonwealth policies or legislation currently enforce inclusive design features in mainstream housing. There have however been several Commonwealth initiatives to increase awareness of the importance of inclusive design, specifically adaptable and universal design, and create consistency across the states and territories. These initiatives will be explained, with particular reference to how they support suitable housing for an ageing population and people with special needs. The focus of these sections is on planning specific government documents in relation to housing, however it should be noted that other policy and legislation is applicable to disability, ageing and health care.

3.3.1 Disability Discrimination Act 1992 and the Access to Premises Standards

Firstly, the Commonwealth Disability Discrimination Act 1992 (DDA) provides protection against discrimination that is based on disability (AHRC 2010). The Act overrides all state legislation to ensure disabled people are not discriminated against. It intends to safeguard equal opportunity for people with disabilities and to promote acceptance within the community. In terms of housing, the DDA provides that a person cannot be refused accommodation, whether to rent or purchase, on the basis of a disability. Disabled access must be provided to places used by the public including parks, cafes, transport and educational institutions, unless unjustifiable hardship can be proven (DDA 1992). This has caused problems where compliance with the minimum requirements of the Building Code of Australia does not equate to compliance with the objectives of the DDA. In other words the Building Code does not necessitate disabled access. This has reinforced the ideology of specialised design in the built environment in contrast to

mainstream design.

Neither the Building Code nor the DDA require accessible features in mainstream private housing stock. This is why the design of mainstream housing fails to accommodate a wider range of abilities than what is considered 'normal'.

To overcome the inconsistencies with DDA, the Access to Premises Standards are to be introduced into the Building Code in May 2011. The new Standards apply to the construction of new commercial, retail and some types of residential buildings. No standards apply to single detached or attached dwellings; only residential Class 1b buildings, such as boarding houses, guesthouses and hostels; and Class 2 buildings, such as flats and apartments, are included in the standard. For Class 2 buildings the Standards do not apply to the internal accessibility of dwellings, only common areas must comply with the Access and Mobility Standard AS 1428. The Standards also do not apply to Class 2 buildings that are renovated (ABCB 2009). Given that a large proportion of new infill housing will comprise medium or high density developments, these provisions are crucial. However without direction as to the internal design of dwellings, current council rates for adaptable dwellings will continue rather than mainstream initiatives.

3.3.2 Commonwealth Social Housing Initiative

Through the National Stimulus Package work, the Australian Government has increased the development of adaptable and universal homes in social housing. Stage 2 of the Social Housing Initiative, which began in mid 2009, requires that all new social housing include a specified six elements of universal design, for instance wider internal corridors and door widths, reinforced bathroom walls and appropriate kitchen bench space (refer to Table 5 in Chapter 4). The compulsory elements do not include level access to new buildings. In addition to the universal requirements, 20% of new dwellings must be constructed to comply with the Adaptable Housing Standard - AS 4299, to the Class C standard (Australian Government 2009). This initiative has increased awareness of universal and adaptable design. It is commendable that universal design is applied to all dwellings, although the six elements exclude some crucial factors such as level entry. This runs the risk of creating internally accessible dwellings that are inaccessible from

the broader built environment. However the Access to Premises Standards will reduce problems associated with this.

3.3.3 Australian Standards for Adaptable Housing - AS 4299 and Access and Mobility - AS1428

The Australian Standard for Adaptable Housing - AS 4299 was introduced in 1995 to provide occupants greater flexibility in their dwelling by enabling simple adaption in accordance with changing needs. As detailed in the specifications of the Standard (AS 4299 1995), AS 4299 offers

a. Visitability
b. Economy of life-cycle construction
c. Safety and ease of use
d. Greater choice of housing type

Previously, the only standard that applied to disabled access in residential dwellings was the Australian Standard for Access and Mobility AS 1428, which was first published in 1977 and the latest revision published in 2009. However, this standard is intended only for public buildings and was deemed unsuitable for the design of private dwellings (AS 4922 1995). The Adaptable Housing Standard was developed to overcome this, yet it remains heavily based on the AS 1428 dimensional requirements. Although this may be expected given that the required space for wheelchair manoeuvrability should not change between public and private settings, it impacts on the design outcome. For instance, public settings must provide disabled access for a multitude of impairments whereas the private setting should be more custom designed and flexible to suit the variable needs of the occupant. Unlike AS 1428, the Adaptable Housing Standard is not enshrined in the Building Code of Australia and therefore depends on state and local governments to include in legislative and supportive frameworks. It is for this reason that each state government and respective local governments have different rates for adaptable housing and different levels of adaptability.

3.3.4 Livable Housing Design Guidelines

In July 2010 the National Dialogue on Universal Housing Design released the Livable Housing Design Guidelines and Strategic Plan. The formation of these voluntary guidelines involved the collaboration of representatives from the development industry,

ageing and disability advocacy groups, and the Australian Local Government Association. The Livable Housing Design Guidelines were developed in response to the inability of traditional housing stock to accommodate diverse needs and abilities over the lifecycle. The national approach is intended to provide consistency in definitions and approaches towards improving access in and around homes (NDUHD 2010b).

The requirements are split into three levels – silver, gold and platinum – to provide people with options and flexibility in achieving universal design. Minimal dimensional requirements are stated for each design feature and level. A total of 16 design features are included however only six are considered crucial at the silver level (lowest level) to provide widespread benefit for most home occupants:

1. Safe and continuous path of travel from the street entrance and/or parking area to a dwelling entrance that is level.
2. At least one level entrance into the dwelling.
3. Internal doors and corridors that facilitate comfortable and unimpeded movement between spaces.
4. A toilet on the ground (or entry) level that provides easy access.
5. A bathroom that contains a hobless (step-free) shower recess.
6. Reinforced walls around the toilet, shower and bath to support the safe installation of grab rails at a later date (NDUHD 2010a, p. 4).

Dialogue members have committed to the aspirational target that all new homes will be built to the silver level by 2020. This goal encourages the widespread application of the Guidelines. Also the Guidelines encourage that universal design can be applied to a wide range of dwelling types. Given that a large proportion of new housing will be medium-high density, promoting the idea of universal design for different dwelling types is important.

3.4 State government initiatives for inclusive housing design

Each state government is responsible for implementing a specific planning framework including a governing Act, planning instruments and strategic plans. As there has been no cohesive Commonwealth approach to adaptable and universal housing design, each state has independently implemented policies under their respective planning and legislative systems. There has been no consistency in the application of terminology or

planning strategies, resulting in highly differentiated approaches by each state. The following table illustrates the inclusive housing design initiatives of each state.

Table 3 State Government legislation and policy for inclusive housing design

State	Inclusive housing design initiative
New South Wales	Local Governments are responsible for implementing the Australian Standards for Adaptable Housing and Access (AS 4299 and AS 1428.1). The State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, aims to encourage the provision of suitable and accessible housing for seniors and people with a disability.
Queensland	The Smart Housing program was combined with the Sustainable Homes Program in 2007 (Queensland Department of Public Works 2010). The program encourages residential development that is socially, environmentally and economically sustainable so that dwellings are designed to better accommodate the changing needs of occupants, respond to climatic conditions, and are cost effective (Department of Public Works 2008). Attention is centred on the role of the private development industry, rather than government, in increasing the uptake of universal design features (Department of Public Works 2008). The universal design concept is marketed on its ability to potentially benefit people of all ages and abilities by creating safe, flexible environments.
Victoria	In early 2010 the Victorian government conducted a Regulatory Impact Statement for the proposed state specific variation of the Building Code of Australia to include provisions on accessible housing. Four design elements were identified and costed – level entry, wider doorways and passages, a suitable toilet on the entry level, and reinforced bathroom walls (Regulatory Impact Solutions 2010). The term accessible housing equates to the meaning of universal housing as described in this thesis.
Western Australia	The State Planning Policy Residential Design Codes (R-Codes) encourage the development of specialised housing for aged and dependent persons within local communities (Herd et al 2003). Elements from AS 4299 are called up in the document. It is intended that the state policy provide consistency across the state whilst being implemented at the local government level (Western Australian Planning Commission 2008).
South Australia	The South Australian Department for Families and Communities has produced Housing Design Guidelines for the development of social housing and to influence good design in the private housing sector. The requirements are heavily based on Australian Standard AS 1428.1 and AS 4299. Although the definition for universal and adaptable housing generally aligns with the definitions outlined thus far, the South Australian Government defines ‘accessible design’

	as the codes and standards generally applicable to buildings other than houses (SA Department for Families and Communities 2010). No specific legislation currently exists to enforce adaptable or accessible standards in retirement village developments or single detached/attached housing. A state specific requirement in the Building Code of Australia Volume 2 requires that for developments which consist of 20 or more dwellings, access must be provided to and within one dwelling or 5% of dwellings, whichever is greater.
Australian Capital Territory	The Australian Capital Territory Plan includes an Access and Mobility General Code with adaptable housing provisions for multi-unit developments (greater than 10 units). 10% must be developed to an adaptable standard in accordance with Class C of AS4299. The provisions do not apply to single detached or attached dwellings (ACT Planning and Land Authority 2010). From May 2011, when the *Access to Premises Standards* are introduced into the Building Code of Australia, the Access and Mobility Code will be made redundant to the point of its inconsistency with the Building Code standard. The Australian Capital Territory government is currently considering the universal housing design in the formulation of future policies (Anonymous 2010, pers. comm, 21 Sept).
Tasmania and Northern Territory	There is little information in relation to adaptable and universal design provisions for private housing stock. Public housing initiatives endeavour to provide accessible and affordable housing.

The different approaches offered by each state show how inclusive design concepts have and continue to evolve. For example, Queensland has combined the concept of universal design as part of their triple bottom line approach, where design features are measured in terms of sustainable outcomes. Contrastingly, Victoria is currently investigating how specific design features could be included within the building regulations. There are also differences in the implementation of strategies. Where Queensland and Victorian Governments are focusing attention on how the mainstream private sector can adopt inclusive design, Australian Capital Territory and South Australia mostly encourage inclusive designs for multi-unit development. It is also clear from this table that different terminology for inclusive housing design has emerged, for instance Queensland's Smart Housing, or South Australia's definition of accessible design. Seeing the divergent direction each state is heading illustrates the main problem in not having a Commonwealth approach.

3.5 The New South Wales legislative and policy framework

This section outlines housing policies and legislation in NSW with particular relevance to housing for seniors and people with special needs. Adaptable and universal design provisions will be identified to show how they currently exist within the NSW planning system. The purpose of this section is to identify how the current NSW system intends to support changing demographic trends and provide suitable accommodation.

Firstly it is important to understand that the Environmental Planning and Assessment Act 1979 and Regulations underpin all planning and development within NSW. Environmental Planning Instruments, being State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs), have legal weighting to regulate land use and development.

3.5.1 State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004

The State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, which has precedence over LEPs, aims to encourage the provision of suitable and accessible housing for seniors and people with a disability. The policy applies to housing for anyone who is over the age of 55, has a disability, or lives with a person who meets those criteria. A total of 21 accessibility and adaptable standards are called up from AS 1428 and AS 4299 in relation to hostels and self-contained dwellings (refer to Table 5 to view some of these elements) (NSW SEPP 2004). These standards ensure that the housing that is provided can support the needs of the tenant, despite their current or future abilities.

In 2007, this SEPP was amended to include the provision for a site compatibility certificate for most sites that were not permitted under the LEP. The Certificate filters unsuitable development applications before the project is lodged with a council (NSW DoP 2009). An application for a certificate must have consideration of the natural environment, future uses of the land, services and infrastructure, open space, and built form and character of the proposed development. This ensures that seniors living and disabled housing are developed in appropriate and accessible locations that will have an

acceptable impact on the surrounding locality. In this way, development under the SEPP considers how residents will interact with the broader built environment.

3.5.2 Towards 2030

To combat the challenges of an ageing population the NSW Government developed *Towards 2030.* The plan refers to liveable homes and communities and the importance of accessible built environments that are in close proximity to services and transport. It is acknowledged that allowing people to remain in their neighbourhood has a profound impact on quality of life, social cohesion and family and neighbourhood connections (NSW Department of Premier and Cabinet 2008). In relation to housing the main initiatives are as follows:

- To encourage universal design principles as the basis for planning for seniors housing in the public and private sectors;
- A range of housing choices to meet the needs of a changing population profile;
- Safe and accessible, well designed communities suitable for a diverse ageing population;
- Partnership models where social housing is provided in conjunction with support services for older people.
- Strengthen approaches that integrate planning for housing, transport and public spaces (greenfield and brownfield sites) (NSW Department of Premier and Cabinet 2008, p. 21).

Universal design principles are specifically referenced for seniors housing and a greater choice in housing is encouraged to meet the needs of a changing population. These initiatives reflect recognition of the importance of forward planning for appropriate housing and built environments for an ageing population.

3.5.3 Sydney Metropolitan Strategy

The Sydney Metropolitan Strategy provides key strategic directions for 43 Local Government Areas, including two on the Central Coast. It is predicted that 770,000 new homes (DoP 2010) will be required by 2036, 60-70% of which are to be provided through in-fill development and 30-40% in new release areas (NSW DoP 2005). Section C2.2 of the Strategy relates specifically to housing for seniors and people with a disability:

C2.2.1 Ensure Local Environmental Plans provide for appropriately located and an adequate amount of housing for seniors and people with a disability.

C2.2.2 Replace the Seniors Living SEPP in 2006 with a range of mechanisms within the planning system.

C2.2.3 Investigate measures to ensure that housing development for seniors and people with a disability remains available to these groups (NSW DoP 2005, p. 141-142).

To support the objectives, the Department provided local governments with demographic data so that the formulation of housing policies would reflect local population trends. The state government advocates that a mix of housing be provided, including appropriate housing for ageing and disabled people. However there are no provisions for how mainstream housing could accommodate this; instead, special housing, such as that developed under SEPP (Housing for Seniors or People with a Disability) 2004, and rates of adaptable housing are to be used. In addition to the Metropolitan Strategy provisions, the 11 draft subregional strategies recommend that provision for housing for seniors and people with a disability be considered in the Standard LEP (also referred to as the Standard Instrument) however this has not occurred. The responsibility to provide suitable housing for seniors and people with special needs ultimately lies with each council within NSW, resulting in a highly fragmented approach.

3.5.4 Landcom Universal Design Guidelines

The Landcom Universal Design Guidelines, which were released in 2008, do not hold any statutory weighting however are a comprehensive and educational tool that is available to anyone. A total of 12 key structural and spatial elements are identified in the Guidelines as being crucial to include at initial design stage to ensure flexibility in use and adaptability of design (Landcom 2008). Elements include direct and level access to the dwelling, wide doorways and corridors and the main facilities on the entry level (refer to Table 5). It is emphasised that universal design is relevant to a wide range of households and not solely disabled people and seniors. This encourages the application of universal design to different dwelling types.

3.5.5 Local Environmental Plans

In July 2006 49 of the 152 Local Government Areas in NSW had provisions for either accessible or adaptable housing in either a LEP or DCP (Elenor 2006). However many

councils have altered, deleted and added legislative and policy documents since 2006 due to the introduction of the Standard LEP. As no provision for universal or adaptable design has been included in the Standard LEP each council will continue to implement varying rates and standards of inclusive housing. Other than the directions given in the state strategic plans, the only supportive documents for councils are AS 4299 and AS 1428, and any other guideline documents such as the Landcom Universal Housing Guidelines or the Livable Housing Design Guidelines. Most councils also have Access DCPs, however this is not generally applicable to housing design.

Table 4 illustrates the current inclusive housing provisions in four councils – City of Botany Bay Council, Kogarah Council, Waverley Council, and Ku-ring-gai Council. Attention should be drawn to the various terminology used, different rates of adaptable/accessible dwellings, and varying levels of accessibility. It is clear from the table that a lack of an overarching federal or state government approach has resulted in a highly fragmented system in the provision of adaptable and universally designed dwellings.

Table 4 Sample of adaptable housing provisions in Sydney metropolitan Local Government Areas

Local Government Area	Local Environmental Plans	Development Control Plans and other policies	Details
City of Botany Bay Council	No LEP requirements	DCP Access (1996)	Single dwellings houses and dual occupancies are exempt. Multi-unit housing with up to and including 9 dwellings are exempt. This DCP is under review. A Draft DCP No. 46 - Access and Mobility has been under preparation since November 2003.
		DCP No. 35 Multi Unit Housing & Residential Flat Buildings 2004	DCP 35 states that all adaptable units are to be designed to Class A of AS 4299 at the rate of 1 adaptable unit for every 10-30 units; 2 adaptable units for every 31-50 units; 2 adaptable units for every 51+ units plus an additional adaptable unit for every 30 units.
Kogarah Council	No LEP requirements	Kogarah Residential Design Code 2005	Adaptable and accessible housing provisions apply to terrace houses, villas, townhouses, and residential flat developments. Adaptable units are to be provided at the rate of 1 adaptable unit per 3-10 dwellings, and 1 adaptable unit in every 10 (or part there of) thereafter. In cases where the development for villas is proposed under clause 22a of the KLEP (zoning requirements) all dwellings are required to be adaptable and have wheelchair access by a continuous path of travel to a road or driveway. The adaptable units must comply with Class C of AS 4299.
Waverley Council	No LEP requirements	Waverley DCP 2010 Part D2 Multi-Unit Housing	For all multi unit housing the following controls apply: (a) An accessible path of travel from the street to ground floor units, where the level of the land permits. (b) A block of three or more residential storeys (with 10 or more units) must provide an accessible path of travel from the street to all units. (c) In developments with three or more habitable storeys (and 10 or more units) adaptable units must be built to Class A AS 4299 at the rate of 1 adaptable unit for every 10 – 15 units; 2 adaptable units for every 16 – 20 units; 3 adaptable units 21 – 30 units; and 10% adaptable thereafter.
		A Waverley Affordable Housing Program (WAHP)	In addition, under the WAHP floor space concessions can be awarded where affordable housing is provided. All affordable dwellings are to be designed to be adaptable and 10% are to be accessible where more than 10 units are proposed.
		Disability Action Plan & Access Policy 2002	The policy highlights the issue of a lack of knowledge in relation to adaptable housing. The Action Plan includes a strategy to educate the community about AS 4299 and the concept of adaptable housing.

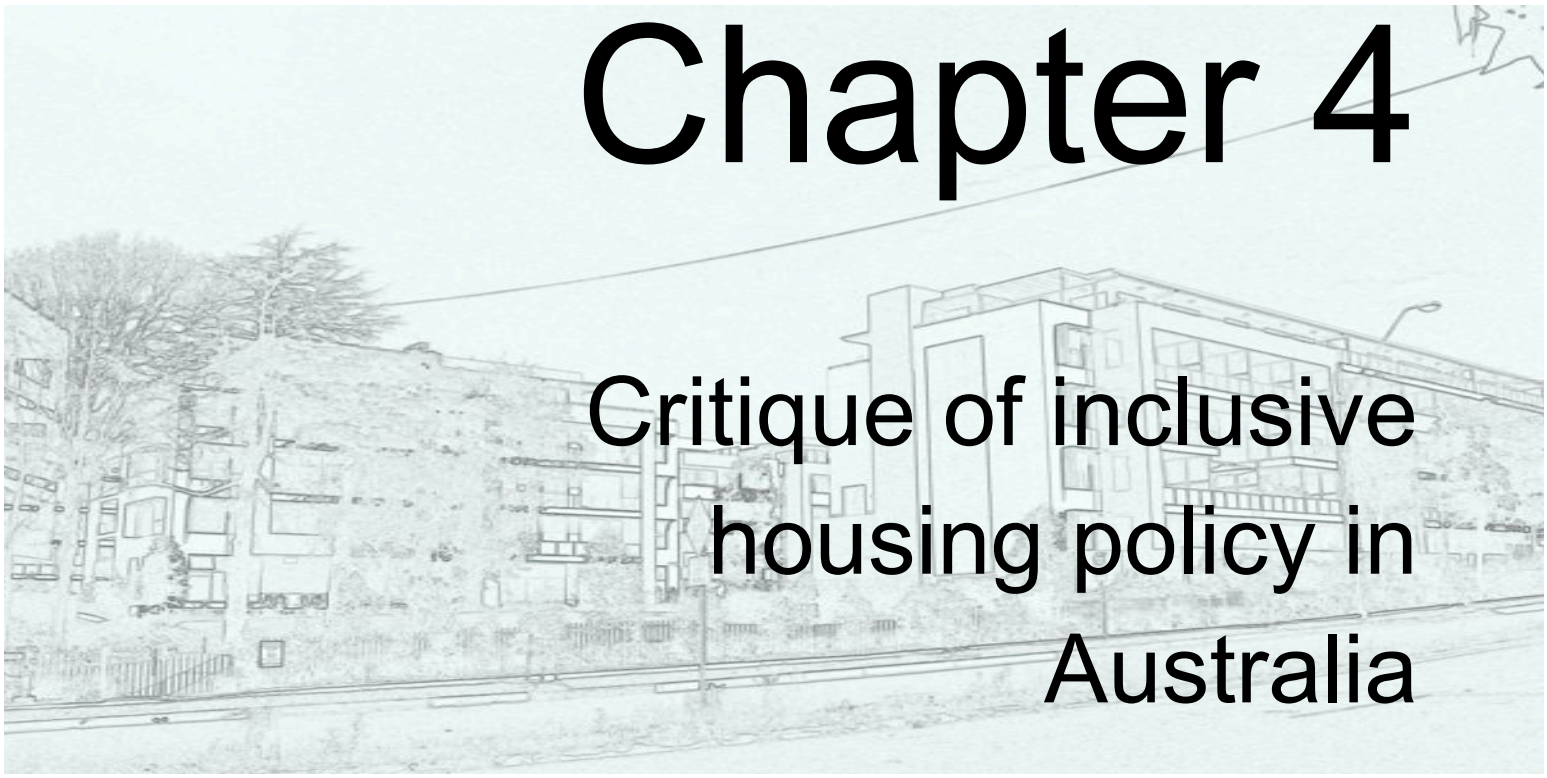
Local Government Area	Local Environmental Plans	Development Control Plans and other policies	Details
Ku-ring-gai Council	Ku-ring-gai Planning Scheme Ordinance		The KPSO makes provisions for ‘manageable housing’, which is defined as adaptable housing to Class C of AS 4299. Multi-housing in the 2(d3) zone must include one manageable dwelling for each 10 dwellings (or part thereof) and access to that dwelling.
		DCP 31 Access	Under this DCP any residential development that contains 8 or more dwellings is required to provide 1 dwelling that is accessible to the disabled. 1 dwelling that is accessible to the disabled shall be provided for every 20 dwellings thereafter.
		DCP 2010 referring to the 6 town centres.	The residential component of mixed use buildings, residential flat buildings and multi unit developments must contain at least one adaptable apartment for each 10 apartments (or part thereof) designed in accordance with Class C of AS4299, at least one disabled car parking space, and at least 70% of apartments are to be developed to a “visitable” standard.

3.6 Summary

This chapter has illustrated the framework that supports inclusive housing design policies and legislation in Australia, with a particular focus on the NSW context. Federal policies and legislation such as the Disability Discrimination Act 1992, Building Code of Australia (relevant provisions), AS 4299 and AS 1428 intend to provide guidance for governments to develop built environments that foster equal opportunity for all people, despite their abilities. Until the recent introduction of the Liveable Housing Design Guidelines there was no national approach to encourage the inclusive design features in private housing. As such, each state has divergently adopted strategies to meet their housing and strategic planning goals, resulting in a variety of terminology and standards of inclusive housing design.

The philosophy to separate general housing and 'special' housing is clearly embedded in the NSW state strategic plans. No plan educates or encourages the development of mainstream housing that is flexible and supportive for a wide range of abilities. Housing design is focused on the short-term needs of current occupants rather than considering the life of the building and all future occupants. Furthermore, no attention has been given to the equity aspect of enabling people with disabilities, namely physical disabilities, to visit or stay in dwellings other than their own.

In examining the NSW planning system it is evident that the lack of state government direction has led to a highly fragmented approach across the state and diversity in interpretation of the inclusive design concept. There is growing recognition that traditional housing designs and philosophies toward development are, to a large extent, unsuitable for an ageing population. As changes occur to the existing system and new legislation and policies are introduced it is imperative that the approach be coordinated between the local, state and/or federal levels.



Chapter 4

Critique of inclusive housing policy in Australia

4.1 Introduction

The purpose of this chapter is to assess the frameworks which support inclusive housing design within Australia, with specific attention focused on the NSW planning system. This relates to objective 1 of the research, being to critique legislative and policy frameworks. To aid in this assessment, nine in-depth interviews were conducted with professionals involved in policy-making, design and/or development of inclusively designed housing. Although the interviewees were from NSW only, their opinions may be indicative of a broader, national picture. This chapter will explore some of problems inherent with the current system and how they could be overcome.

4.2 Understanding of universal and adaptable design concepts

In order to critique the current legislative and policy framework it is imperative that the models of adaptable and universal design, the focus of this thesis, are explored from the Australian perspective. This relates to objective 2 of the research, being to understand the relationship between adaptable and universal housing models and the applications of

each. The in-depth interviews revealed variation in the understanding of adaptable and universal housing design, illustrating a number of reasons for various implementation strategies.

Firstly, as established in the literature, the various types and terminology for inclusive housing design can cause confusion amongst policy makers and regulators, those involved in design and development and the general public. Chapter 3 illustrated different uses of terminology between the states, for instance Queensland's Smart Housing program that is equivalent to universal design. Problems arise when policies or guidelines involve different design features and definitions. The majority of interviewees expressed concern over this, mainly in relation to universal design. The new term 'Livable housing design' was also seen as a potential issue although the Commonwealth approach to universal design seeks to overcome inconsistent use of terminology between states -

> *"I think yes, the different definitions of universal design are a problem but I don't think that's going to be resolved in a hurry because people have their own favourite definitions.. What we've tried to do [in the Livable Housing Design Guidelines] is codify an approach and I think that's all we can do" (Interviewee 9 2010, pers. comm., 21 Sept).*

One interviewee expressed the view that the creation of new terms for inclusive design was a way of marketing to different people and that this detracts from the universality of the design. New terms are often created to detach from the stigma surrounding disability. This is discussed further in relation to universal design in section 4.2.2.

Table 5 provides a comparison of seven adaptable and universal design guideline documents. The table illustrates that there is little difference between the dimensional requirements for the 15 specified design features. This can be expected because the dimensional requirements all stem from AS 1428. The table also shows that there is no absolute version of each model. The target audience of each document may account for differences in requirements. For example, the Commonwealth Universal Design Guidelines are intended for public and social housing, therefore design requirements which potentially add significant costs, such as the level entrance, are omitted. Similarly for the Livable Housing Design Requirements, which are intended for mainstream housing design, the width of car spaces is only required to be 3.4m at the silver level. This is because the accessible requirement of 3.8m is considered too difficult to apply.

The table demonstrates that adaptable and universal design do not differ significantly in the dimensional requirements but instead differences are apparent in the philosophy and intentions of the design. Specifically, AS 4299 is intended to provide flexible design for later conversion to disability specific use, as it heavily relies on AS 1428. Universal design principles on the other hand, provide accessible features from the onset of design and development, rather than being retrofitted at a later date.

Table 5 Comparison of dimensional requirements for universal and adaptable design documents

Universal Design Element	AS 4299 - Adaptable Housing*	Livable Housing Guideline: Silver level	Livable Housing Guideline: Gold level	Livable Housing Guideline: Platinum level	Landcom Universal Housing Design Guidelines	Commonwealth Universal Guidelines	SEPP (Housing for Seniors or People with a Disability) 2004*
Dwelling access	Continuous, slip resistant path of travel which complies with AS 1428.1.	Safe and continuous path from front boundary or car parking space to entrance. Path gradient not to be greater than 1:14. Max. cross fall is 1:40. Min. clear width of pathway 1m.	Same as silver level but min. clear pathway is 1.1m.	Same for silver but min. clear pathway of 1.2m.	Direct and level access from street or car space. Path width should be 1m. Max. cross fall is 1:40.	No requirement.	The part of the site which has a gradient of <1:10 must provide all dwellings with a continuous accessible path compliant with AS 1428.1.
Entrance	Entrance door to AS 1428.2. Landing with level entrance.	Level entrance. 820mm door opening. Level landing area 1.2m x 1.2m.	Level entrance. Door opening of 850mm. Level landing area 1.35m x 1.35m.	Level entrance. Door opening of 900mm. Level landing area 1.5mx 1.5m.	Level entrance. 850mm clear opening for front door.	No requirement.	Every entry must comply with clauses AS 4299.
Car Parking	Min. dimensions of 6.0m x 3.8m and a vertical clearance of 2.5m.	Min. dimensions of 3.2m x 5.4m. Level surface.	Min dimensions same. Where practical, a vertical clearance over the parking space of 2.5m.	As for silver level except min. dimension of 3.8m x 6.0m. For class 2 dwellings one accessible car spaces provided for each unit. Compliance with AS 2890.	Min. dimensions of 3.8 x 6.0m.	No requirement.	Width of car spaces to at least 3.8m. Compliance with AS 2890.
Internal doors and corridors	Doors throughout shall have a min. clear opening of 820mm. Internal corridors to have a min. width of 1m. After adaption capability of complying with AS 1428.1	Min. clear opening width of 820mm. Corridors to be min. 1m.	Min. clear opening width of 850mm. Corridors to be min. 1.2m.	Min. clear opening width of 900mm. Corridors to be min. 1.2m.	Internal doors on the entrance level are to have a clear opening of 820mm. Corridors to be min. 1m.	Internal doorways on the entrance level having a minimum clear opening of 820mm and minimum corridors of 1m or wider clear of fixtures.	Compliance with AS 1428. Min. width of 1m.

Universal Design Element	AS 4299 - Adaptable Housing*	Livable Housing Guideline: Silver level	Livable Housing Guideline: Gold level	Livable Housing Guideline: Platinum level	Landcom Universal Housing Design Guidelines	Commonwealth Universal Guidelines	SEPP (Housing for Seniors or People with a Disability) 2004*
Toilet	Min. space of 800mm along side of toilet and 1m at rear wall of toilet.	On entry level- min. clear width of 900mm between walls of bathroom if located in a separate room. Min circulation space of 1.2m forward of toilet pan exclusive of swing of door.	On entry level- min. clear width of 1.2m between walls of bathroom if located in a separate room. Min circulation space of 1.2m forward of toilet pan exclusive of swing of door.	Same as gold level but with additional toilet provisions. Eg. Toilet pan positioned 450mm-460mm from nearest wall.	No requirement.	No requirement.	A dwelling must have at least one toilet on the entry level and comply with AS 4299.
Shower	Min. dimensions of 1.16m x 1.1m.	Slip resistant, hobless shower recess. No numerical or location requirements.	Same as silver level but min. dimensions of 900mm x 900mm. Clear entrance space of 1.2m x 1.2m forward of shower recess. Shower to be located on entry level.	Provide dimensions of 1.16m x 1.1m. Clear space of 1.4m x 1.6m forward of the shower recess entry. Shower to be located on entry level.	Hobless shower.	Hobless shower recess and adjustable hand held shower hose.	A shower that complies with AS 1428.1 and the provision of a grab rail, portable shower head and folding seat.
Bathroom	Reinforced walls around toilet and shower.	Reinforced walls around shower and toilet.	Reinforced walls around shower and toilet.	Reinforced walls around shower and toilet.	Bathroom on entry level that is at least 2.4m x 2.4m and includes a hobless shower. Reinforced walls around shower and toilet.	Installation of grab rails in bathrooms and toilets or the incorporation of reinforced wall framing to allow future installation.	At least one bathroom on ground floor which complies with AS 1428.1.
Kitchen	Min. clear floor space of 1.5m x 820mm.	No requirement.	At least 1.2m clearance provided in front of fixed benches and appliances.	At least 1.55m clearance provided in front of fixed benches and appliances.	2.7m between any facing walls allows for 2 x 600mm deep bench tops and 1.5m.	A bench area in the kitchen that adjoins the oven and cook top to allow easy placement of hot pots and pans and includes a power point within 300mm of the front of the bench.	To be contained on entry level. Circulation space to comply with AS 4299. Doors to comply with AS 1428.1.
Laundry	An area of 1.55m diameter.	No requirement.	At least 1.2m clearance provided in front of fixed benches and appliances.	At least 1.55m clearance provided in front of fixed benches and appliances.	Clear circulation space of min. 1.55m diameter.	No requirement.	Compliance with AS 1428.1. A clear space of at least 1.3m in front of appliances.
Bedroom space	Room can support a	No requirement.	Min. 10m2 with one	Same with additional	Circulation space	No requirement.	Space large enough to

Universal Design Element	AS 4299 - Adaptable Housing*	Livable Housing Guideline: Silver level	Livable Housing Guideline: Gold level	Livable Housing Guideline: Platinum level	Landcom Universal Housing Design Guidelines	Commonwealth Universal Guidelines	SEPP (Housing for Seniors or People with a Disability) 2004*
(entry level)	queen size bed with circulation space around compliant with AS 1429.2.		wall 3m long. Min. path of travel at least 1m on one side of bed.	circulation space of 1540mm wide x 2070mm long (travel) on side of bed closest to door.Min. path of travel at least 1000mm on onther side of bed.	1m wide around bed. Min. 3.5mx 3.54m or 3.0m x 4.04m		accommodate a queen size bed, 1m wide pathway beside the bed and 1.2m wide pathway in front of bed.
Internal stairway	No requirements	No requirement.	Min. width of 1000mm and be straight.	Min. width of 1.2m and be straight. Min. landing of 1.2m x 1.2m at top and base.	Make provision for future stair lift.	No requirement.	No requirement.
Switches and powerpoints	Between 900mm and 1.1m above floor level.	No requirement.	Positioned between 900mm – 1.1m above floor level	Same as gold level but with additional requirements for switches.	No requirement.	Light switches to be located near doorways at a height between 0.9m- 1.1m and if possible large format style.	In accordance with AS 4299.
Door and tap hardware	Levers preferred to knobs. Located between 0.9m-1.1m above floor level. In accordance with AS 1428.1	No requirement.	Door handles between 0.9m-1.1m above floor level.	Same but with additional requirements for designs.	No requirement.	Door handles to be lever style and tap hardware to be lever or flick mixer style.	To comply with AS 4299.
Family and living room	An area of 2.25m diameter after furniture has been placed.	No requirement.	No requirement.	A free space of 2.25m in diameter to enable ease of movement clear of furniture.	2.25m in diameter circulation space.	No requirement.	Circulation space to comply with AS 4299.
Window sills	Max. 730mm above floor level in living rooms and 600mm in bedrooms.	No requirement.	No requirement.	Entry level window sills in living and bedrooms to be no higher than 1m above floor level.	Entry level window sills on no higher than 730mm above floor level (excluding utility areas).	No requirement.	No requirement.

* There are additional design requirements for these documents. This table only compares and contrasts 15 common inclusive design requirements however is not exhaustive.

To gain a better understanding of the relationship between adaptable and universal design concepts, the interviewees were asked to comment on their interpretation, and the benefits and limitations of each model. The responses indicated that interpretation is linked to the way in which the models are applied. This discussion will begin with responses to adaptable design, followed by responses to universal design.

4.2.1. Understanding of the adaptable housing model

All interviewees recognised that AS 4299 intends to build flexibility in design so that adaptation is possible and cost effective. However it was also acknowledged that the Standard has a very disability specific application. As confirmed by Interviewee 2, this can be explained by the heavy reliance on AS 1428, which refers to disabled access and design features for public buildings –

> *"I've worked with [AS 4299] for about 10 years and the design outcomes are often very poor.. and I think its because it does come from this very disability specific perspective" (Interviewee 2 2010, pers. comm.,10 Aug).*

The measurements for AS 1428 are based on people aged between 18 and 60 years, therefore it is unknown whether the resulting designs would meet the needs of those older or younger than the prescribed ages (Quinn et al 2009). Considering that adaptable housing designs will accommodate a large number of people over the age of 60 (especially considering the ageing population), the science behind the Standard must be revised. There needs to be confirmation that the dimensional requirements provided in AS 1428, and therefore also AS 4299, are actually optimal for people beyond the prescribed age group.

A number of respondents commented on the institutional looking design outcomes that resulted from using AS 4299. As mentioned in Chapter 3 this may be due to the design of public spaces, using AS 1428, which have to account for a multitude of disabilities, whilst private adaptable housing should be flexible to meet the individual needs of the occupant/s. Misunderstanding of AS 4299 often results in dwellings which are already 'adapted' as it is considered cost effective and practical. As explained by interviewee 4, rather than making provision for accessible features they are put in from the start -

"In the adaptable code it's very hard to make provision for ramps to front doors particularly and balconies and step downs and things like that.. you have to build those things from day one, it's just too expensive to try and incorporate these things later" (Interviewee 4 2010, pers. comm., 23 Aug).

This means that rather than adapting dwellings to suit individual needs, accessible features are provided from the onset. Therefore the dwelling is fitted for a person with a physical disability, which may be unnecessary and can also result in the institutional looking designs.

Contrastingly, some designs, which claim to be adaptable, would in fact be very difficult to achieve accessible features. Figure 6 includes images that were taken from a high density residential complex in St. Ives. Despite being labelled an 'adaptable unit', the images show that key structural parts of the unit would be difficult to adapt for a person with a disability, particularly a physical impairment. The step from the living room to the balcony would be hard to alter to provide wheelchair access if it were necessary (Images 1 and 2). In addition the narrow doorway into the tiny laundry (Image 3) makes it very difficult for a person to manoeuvre. Design such as this would likely result in costly adaptations to make the area accessible to someone with a physical impairment; otherwise the area may become redundant to the occupant. Both this example and the prior example show confusion in how to enact the Standard. Optimally the adaptable design should be easy to adapt to an accessible level if this was required, however it should be flexible to individual needs.

Figure 6 Example of poorly interpreted AS 4299 principles

Image 1: Step leading to balcony

Image 2: Step leading to balcony

Image 3: Narrow entrance to laundry

Problems with interpretation of the adaptable housing model have been explained. Universal design is a more recent concept which has emerged in Australia, aimed at providing design features into mainstream housing development which have the potential to benefit all people or be adapted for more specialised use. The interpretation of universal design is explained in the following section.

4.2.2. Understanding of the universal design model

Variation in the interpretation of the universal design model was evident from the interviews. Most notably, Interviewee 6 defined universal design as *"making it easier for a person with disabilities to be able to actually use the premises with minimal amount of change to those premises or reconstruction"* (2010, pers. comm., 31 Aug). This is also reflected in the Australian Government Social Housing Initiative, which states that universal design elements are to make properties more accessible to people who are ageing or disabled. For example the installation of grab rails from the onset, as detailed in Table 5, would not benefit all occupants and are directed at those two target groups. Other guidelines offer more flexible approaches, for instance providing reinforced walls that could support grab rails if that were necessary. Interviewee 1 understood universal design to be inclusive of a wider range of needs and not limited to disability (which usually relates to physical disability) -

> *"Universal design is a concept that is about including as many people as possible in the design so that you don't exclude people by design, by poor design; it's actually just good design" (Interviewee 1 2010, pers. comm., 27 July).*

All interviewees agreed that universal design enables crucial structural elements to be constructed upfront in the design of housing, which supports a range of abilities or cost effective adaptation for more specialised use. In this way, universal design intends to be integrated into mainstream housing development. Some respondents made the point that although AS 4299 needs to be reviewed it should not be replaced by universal design. AS 4299 *"has some good points"* (Interviewee 3 2010, pers. comm., 2 Aug) and offers a higher level of accessible design requirements for more specialised needs, particularly to support physical impairment.

> *"..I'm not saying that there isn't a need for a standard that covers disability specific design but I don't think it should necessarily be an Australian Standard. So [the Livable] Guidelines are really very base minimum stuff and I always would see adaptable housing as being the next step up from that in terms of accessibility of design. So there might be a need for [adaptable housing], it's just that in its current form I don't think it necessarily gives us very good design outcomes for housing" (Interviewee 2 2010, pers. comm., 10 Aug).*

This demonstrates the varying intentions of each standard. The two models are related in that a universally designed dwelling allows for easy adaptation for more specialised design.

Despite these theoretical intentions, the interviewees had varying opinions about the application of each model. These findings were unintentional in the research however provide substantial insight into policy initiatives. An opinion shared by several interviewees was that universal design is only enforceable for multi-unit developments. Interviewee 6 believed that imposing universal design policies for single detached or attached housing would be too draconian. This is because occupants of a dwelling can make adjustments much more easily than occupants of multi-unit developments. For instance changes to a unit would need to consider structural bearings, communal corridors, strata/body corporate issues and access, therefore are much more complex.

This is important in the NSW context given that the majority of infill development occurring within brownfield sites will be medium – high density. Therefore unless

universal or adaptable design features are built in from the beginning, it may be very difficult for tenants to alter their unit.

On the other hand a number of interviewees stated that the principles of universal design can be applied to most types of housing. In terms of single detached dwellings, Landcom *"have been trying to educate people that a universal house doesn't necessarily have to be a single storey house"* (Interviewee 5 2010, pers. comm., 23 Aug). If key rooms are located on an accessible entry level, including a room that could be used as a bedroom and a universally design bathroom, then someone with a physical disability could occupy or visit the dwelling (Landcom 2008). If such measures are considered at the design stage then many housing types could be made more accessible without major reform to current practices.

Figure 7 illustrates a collation of common universal design elements in a selection of project homes. Although no universally designed dwellings have been constructed in display villages in NSW to date, some universal elements are present in current designs of single detached dwellings. The identified elements include level pathways, level entrances, wide front doors, wide internal corridors and doorways, living areas on the entry level, open plan living areas, circulation space in bedrooms, lever door handles and hobless showers. While these elements may not necessarily meet the prescribed criteria of a universal design guideline, they indicate that universal design requirements are not unrealistic yet need to be understood and appropriately applied. It is clear from the images that the selected universal design elements are not institutional looking and can be simply integrated into the contemporary design of the dwelling.

Figure 7 Collation universal design elements in a selection of project homes

Image 4: Level pathway

Image 5 level entrance

Image 6: Wide doorway

Image 7: Wide corridors and doorways

Image 8: Living areas on the entry level

Image 9: Open plan kitchen and living areas

Image 10: Wide doorways and circulation space in bedroom

Image 11: Lever door handles

Image 12: Hobless shower

As pointed out by Interviewee 1, if universal design is taken up in mainstream private housing, it will eventually integrate into the rental market. This will provide universally designed housing to those who cannot afford the private housing market. Considering that a large proportion of people who live in public and social housing have disabilities and are older, there is a great potential benefit of having a more flexible and accessible rental housing stock. The potential link between a reduction in demand for public housing that results from an increase in accessible features in private housing is discussed in section 4.4.3.

Although universal housing design is intended to benefit as wide a range of users as possible, those that stand to gain the greatest benefit are disabled and older people. It is difficult to describe universal design without reference to disability and ageing; unless people are affected in some way by either of those factors they generally disregard the personal need for universal design. Several interviewees discussed how people, both of the young and young-old cohorts, generally do not consider how their needs or abilities may change over time -

> *"What we found was that people who are in their 60's, they're not nearly thinking about their last move. Most of them were still very active.. Most of them were very engaged with their own communities, they were looking after grandkids, they were really sort of media savvy and internet savvy. Not at all the stereotypical view of an older person, which helped us to understand we shouldn't be creating housing that's 'special' it should just be mainstream housing that's good for everyone" (Interviewee 5 2010, pers. comm., 23 Aug).*

There is strong evidence from the literature review to support Interviewee 5's findings. Many older people are active in the community and have a strong desire to remain living at home as they grow older. This trend is encouraged by 'ageing in place' policies. One interviewee raised the point that *"if you have any impairment, the way that your house is designed could make the difference of whether you stay there or not"* (Interviewee 1 2010, pers. comm., 27 July). The reality is that many older people will have to relocate prematurely or invest in costly adaptations due to the unsuitable design of their dwelling. However, this trend does not apply to older people, it can apply to any person who develops an impairment that cannot be supported by the design of their dwelling. This includes temporary impairments such as illness or injury and permanent disabilities.

The stigma surrounding disability influences how adaptable and universal design is perceived. This is reflected in the experience of Interviewee 5 -

> *"..Sometimes when we've started the conversation with builders they make the assumption that [universal design] is institutional type housing for disabled people and it's something that won't look good therefore it will be harder to sell" (Interviewee 5 2010, pers. comm., 23 Aug).*

A number of interviewees discussed how the marketing of inclusive design features needs to consider a wide range of abilities, household types and ages, so that it is not seen as 'special housing'. Interviewee 1 suggested that the 'standard' design of housing needs to change so that what is considered 'normal' can actually support a much wider

range of users. For inclusive design principles to be adopted into mainstream development, there needs to be widespread recognition that peoples' abilities change over time, whether temporarily or permanently, and that the design of the dwelling could support this.

It has been demonstrated that despite the theoretical ideals of universal design there are still many problems attributed to its interpretation and therefore application. By understanding these problems it is possible to assess the effectiveness of the current legislative and policy system.

4.3 Assessment of the inclusive housing design initiatives across Australia

Commonwealth standards and policies have the potential to create consistency between and within states. However as outlined in Chapter 3, the current Commonwealth approaches towards inclusive housing design do not foster consistency. One of the reasons for this is that the Building Code of Australia does not contain provisions for inclusive design for private housing stock. As such, each state government refers to AS 4299 as the key document to provide suitable housing for seniors and disabled people. Due to the nature of AS 4299, it is not possible to apply to mainstream housing. Hence one of the reasons why the Livable Housing Design Guidelines have been developed is to encourage universal design in mainstream housing.

As illustrated in Chapter 3, AS 4299 is picked up by state and local government legislation and policy. It is often implemented through either specialised housing, for instance in Western Australia's R Codes the Standard applies to 'aged or dependent persons' dwellings', or as a rate of development, for instance 10% of medium or high density dwellings in Kogorah Local Government Area are to be adaptable. It was generally agreed by all interviewees that a 'rates based' system is unsatisfactory -

> *"The general understanding in the town planning profession that it was ok to have 10% adaptable housing for apartments.. is unsatisfactory" (Interviewee 6 2010, pers. comm., 31 Aug).*

> *"It's like we pre-empt there is going to be x demand so we go out and build all this housing to AS 4299 and then there's no way really of linking people to this housing.*

And nine times out of ten those modifications are done are changed when a new owner goes in because they don't see the relevance of it" (Interviewee 2 2010, pers. comm., 10 Aug).

Rates may *"look good from the government's perspective"* (Interviewee 9 2010, pers. comm., 21 Sept) however fail to ensure accessible and adaptable designed dwellings go to those who need them most. This is a particularly important issue when considering supply and demand for inclusively designed housing. In addition, if occupants alter or remove the inclusive design features it would change future supply rates of such dwellings. The combination of these two factors means that the application of AS 4299 in its current form is ineffective to supply the predicted demand of flexible and accessible housing for an ageing population.

Ideally, mainstreaming universal design features would overcome the problems associated with a 'rates based system'. As mainstreaming of AS 4299 is not possible, due to its disability specific application, the Livable Housing Design Guidelines were introduced as a way of increasing the adoption of inclusive design principles. The Guidelines do not offer a solution, however provide an alternative to adaptable housing, and could encourage the consistent application of universal design principles across Australia. An overarching approach, such as the Livable Design Guidelines, at either the Commonwealth or state level is clearly necessary. Consistency between and within the states is important as it reduces complexity around terminology and inclusive design types.

4.3.1 Benefits and limitations of the Livable Housing Design Guidelines

The newly introduced Livable Housing Design Guidelines need to be critiqued to determine the effectiveness of the initiative. Interviewees 2 and 9 revealed some of the politics and stakeholder interests that influenced the development of the Guidelines and Strategic Plan. Other interviewees were questioned on their knowledge and interpretation of the Guidelines, which helped to unpack the potential benefits and limitations.

In reviewing the Guidelines, the intentions and explanations are comprehensive and commendable however a number of issues are immediately evident:

- There is no reference as to how the Guidelines relate to other legislation, policies and guidelines including AS 4299.
- The Guidelines have been introduced as voluntary despite international research proving this to be fairly ineffective.
- With no direct legislative requirements or incentives, there may be reluctance in the development industry to adopt the Guidelines.
- The six core minimum requirements (silver level) will not necessarily result in a dwelling that is useable and accessible to a disabled person, including someone with poor mobility.
- The name, *'Livable Housing Design'*, is a new term that may add confusion to what constitutes universal design.

According to one interviewee the Guidelines were a *"negotiated political process"*, inferring that compromises were made between stakeholder interests. This was confirmed by Interviewee 2 who discussed how disability advocacy groups would have preferred more elements to be included at the silver level, however concerns of the development industry, namely in terms of increased costs, marketability of the design features and perceived demand, limited the guidelines to six core elements. It is apparent that the voluntary status of the document *"was adopted as a compromise to get industry on board"* (Interviewee 2 2010, pers. comm., 10 Aug). Formal discussions over seven months enabled substantial consultation between stakeholders and ultimately, support for the initiative. Due to the risk adverseness of the development industry and government to change current practices, consultation and education with stakeholders was identified as crucial -

> *"I think federal, state, and local government are completely risk adverse so they wouldn't adopt this if they felt that industry wasn't going to agree" (Interviewee 2, pers. comm., 10 Aug).*

This illustrates that setting up the National Dialogue and gaining support from various stakeholders is one of the most powerful outcomes of the Livable Housing initiative.

One of the problems with the Guidelines is that there is no reference to existing legislation and policy, particularly the Adaptable Housing Standard AS 4299. Therefore, the relationship between universal and adaptable housing design is unclear. This is an important issue as AS 4299 has been the key document for adaptable housing design since its introduction in 1995. Universal design appears as an independent philosophy to

adaptable design when in fact it is related and part of the broader concept of inclusive housing design.

Analysis of the six core elements, outlined in section 3.3.4, reveals a flaw with the Guidelines being that the minimal requirement (silver level) yields a very low standard of accessibility. Achieving the six prescribed elements would result in a dwelling where only the entrance, doorways, corridors and bathroom would be suitable for somebody with a physical or mobility impairment. In addition, ambiguity in the wording of the document could lead to confusion and multiple interpretations. For example, the first requirement for a 'safe and continuous path of travel' does not insist that it be level, however the second element requires a level entrance into the dwelling. This means that someone with a disability may have to combat steps along the entry pathway only to have level entrance into the dwelling. Another example is seen with element five, which requires a hobless shower in a bathroom, however does not specify the location of the bathroom at the silver level (only at gold and platinum levels). This means that an upstairs bathroom could be nominated for accessible design. These examples show that the application of the Guidelines at the silver level may not achieve a design which is flexible to change and appropriate for a wide range abilities.

The pragmatic side of this argument is that given common topographical constraints, such as slope, and the array of dwelling designs and sizes, it is not possible to enforce these two elements to be fully accessible. However, clearer wording and phrasing could educate and encourage designers to think innovatively about flexibility and accessibility, rather than just complying with the minimal requirement. For example stating that one bathroom should feature a slip resistant, hobless shower, which should be located at the entry level 'where possible'.

Making the universal design principles clear and unambiguous could avoid tokenistic gestures. Imrie's (2003a) research into the UK's visitability standard found that compliance with the minimum requirements results in a dwelling that an impaired person can enter and utilise the bathroom but not do much else. The UK regulations do not consider liveability, only a vey low level of visitability. This argument could apply to the silver level of the Livable Housing Design Guidelines. If the Guidelines included minimal dimensions for living rooms at the silver level it would increase the area of a dwelling that an impaired person could access. Not only would this provide flexibility in design to

support an occupant or visitor with a disability, but also create a more equitable environment.

Another concern for all stakeholders involved in residential development, is the additional costs associated with universal design features. Whilst the literature review showed marginal percentage increases in costs for universal design, Interviewee 2 stated that developers would only be willing to spend an additional $1000 on universal design elements. For this reason, six core elements in the Livable Housing Design Guidelines were costed below this price point. This indicates that the consumers' or developers' willingness to adopt universal design may not be proportional to the overall value of the dwelling. This is a significant finding and would require further research to determine how much consumers would be willing to spend to develop a universal dwelling.

Additional costs are passed on to the consumer therefore are relative to overall housing affordability. Interviewee 9 expressed the dilemma -

> *"On the one hand you've got the government saying you must have affordable housing and on the other hand there's the desire to introduce these features. And a lot of people with disabilities actually need the affordable housing as well. So we have to balance these up to be able to ensure that the product we provide is affordable" (Interviewee 9 2010, pers. comm., 21 Sept).*

What is clear from all research conducted is that integrating universal design features from the onset is far more cost effective than later additions. However Interviewee 9 raised the point that cost effectiveness is over the life of the property, not necessarily from the perspective of the individual. As such, the initial investor in universal design features can bear an additional cost for the benefit of future users. This point of view does not accept that universal design can benefit many households at various times over the lifecycle. Universal design is not only about providing supportive features 'just in case' the occupants' circumstances change, but also about encouraging innovative design that can improve the overall safety and useability of a dwelling, for example by reducing trip hazards and limiting narrow corridors. It is clear that a longitudinal cost study in the application of 'livable design' would be highly beneficial to document how costs change over time. Providing reassurance to developers and consumers that the long-term benefits of universal design outweigh short-term costs is critical to increasing the uptake of such design.

Another critical factor in increasing the uptake of universal design is the way it is marketed. Marketing of the 'livable design' principles must dissociate from the stigma surrounding older and disabled people. As mentioned in section 4.2.1, when universal design is associated with ageing and disability it is easy for people to disregard an immediate need for such design. Marketing needs to reflect how different households may benefit from universal design features. This sentiment is reflected by interviewee 5 -

> *"Housing for older people is an absolute no no.. I think we need to showcase that these homes actually are really flexible and really good for all life stages and just definitely not focusing on disability.." (Interviewee 5 2010, pers. comm., 23 Aug).*

There intends to be a comprehensive marketing strategy behind the Guidelines which includes marketing to different households types, for example safety features will be promoted for young families, or 'a home you can grow old in' will be promoted for retirees; the development of display homes; and open support from 'champions of the industry', such as Lendlease and Stocklands. A strong marketing strategy is necessary to convince people to think about and plan for changes over the lifecycle. Interviewees 2 and 5 reflected these ideas -

> *"The things we're trying to sell are very unsexy.. People make decisions on their home according to what their personal needs are at the time. But if you say 'if you put those things in now it might decrease the cost of renovating your bathroom by $25,000' people might go oh ok that's a good investment (Interviewee 2 2010, pers. comm., 10 Aug).*

> *"Hopefully over time we'll start to increase awareness and people will see that these houses actually look and feel really good, they're not institutional, there aren't shiny grab rails everywhere and you know when the market demands it then the building industry will respond" (Interviewee 5 2010, pers. comm., 23 Aug).*

Consumers will be encouraged to 'invest now' for savings in the future. In addition, the marketing strategy will advocate that by investing in design that may accommodate a wider range of people, a dwelling could have greater appeal in the property market. The proposed marketing strategy is commendable in its efforts to reach a broad audience and move away from the stigma attached to disability and ageing. This will help to create demand among consumers so that the development industry can respond and to educate developers to pre-emptively respond to changing demographics.

The good intentions of the Guidelines are somewhat undermined by the limitations discussed thus far. As stated by Interviewee 1, the most important outcome of the Guidelines is the discussion between opposing stakeholders, namely disability advocacy groups and the development industry -

> *"I don't think the actual guidelines are really worth that much really. I mean they're a start. I think what was generated was a goodwill that was never there before. And you can do a lot more with goodwill than you can ever do with standards.. because it leaves it open for improvement"* (*Interviewee 1 2010, pers. comm., 27 July).*

Two key findings came out of the research in regards to the potential effectiveness of the Guidelines. Firstly, both Interviewees 2 and 9 were clear that the aspirational target of 100% of new dwellings to be developed to a silver level standard by 2020 was unlikely to be achieved. Although this may be expected for an 'aspirational goal', it raises a question of the validity of the target. In addition, Interviewee 2 commented that it was unlikely that all 12 goals will be met by the specified time frame. These findings relate back to the voluntary nature of the Guidelines as illustrated by the following quote -

> *"I think ultimately [the development and property partners] realised that being a voluntary code, while they can be accountable for it, they're not going to be held to ransom" (Interviewee 2 2010, pers. comm., 10 Aug).*

The voluntary status of the Guidelines enabled action to be taken immediately, rather than waiting four years for regulation. As voluntary guidelines, a much higher design criterion could be achieved than if it were to be regulated. This is evidenced in research conducted by Troy (2000), which illustrates how in the development of the Building Code of Australia, building standards had to be lowered for national consistency. However, a voluntary strategy does not guarantee effective results because it does not create a level playing field to benefit smaller developers and relies on the goodwill of the large development and property companies involved in the initiative.

If the Livable Housing Design Guidelines intend to be used as an alternative to AS 4299 to increase the uptake of flexible and accessibly designed dwellings, the identified limitations need to be resolved. Most notably, additional elements should be included in the 'core elements' prescribed at the lowest level (silver) of the Guidelines, and the elements need to be better defined than what currently exists. This will help to achieve dwelling designs, which provide the greatest benefit to current and future occupants.

4.4 Assessment of the NSW planning framework in relation to adaptable and universal housing design

As described in section 3.3, state government statutory and strategic planning documents encourage the development of specialised housing to accommodate the needs of older and disabled people. These requirements filter down to local government and are reflected in LEPs and DCPs. The strategies intend on providing a supply of appropriate housing and accessible built environments for an ageing population and those with special needs, however fail to address the equity and long-term problems of a largely inflexible general housing stock.

Specialised housing, such as 'over 55' seniors living, does not necessarily provide socially inclusive built environments. This model assumes that as peoples' abilities change they will relocate accordingly. As such, the model does not account for peoples' willingness to remain at home. This ideology does not support 'ageing in place' because it fosters the continued design of housing that disregards inclusive design principles.

One of the problems with specialised housing, whether for seniors, affordability or other special needs, is how to ensure that it remains available to those who need it most. In the case of 'seniors living' housing, the precise wording of the SEPP (Housing for Seniors or People a Disability) 2004 is that "seniors housing is residential accommodation that is, or is intended to be, **used permanently** for seniors or people with a disability" (NSW SEPP 2004). This does not prevent someone who does not meet the age or disability criteria from owning a property in such a development, only from living there. For example, if an 'over 55' purchases a dwelling in a SEPP (Housing for Seniors or People a Disability) development and circumstances such as their death eventuate, the question would then arise as to the continuing compliance with the occupation criteria by the new owner.

By making universal design principles 'standard' design, the problems associated with policing specialised housing would be overcome. It would mean that all housing designed to the universal standard could support someone with an impairment, or be easily adapted for more specialised needs. In this way, the dwelling would be flexible to respond to the variable circumstances of the occupant, rather than linking the occupant to 'special' housing.

In terms of strategic planning in NSW, both the prescribed housing targets and mix of housing set by the state government are not being achieved to an adequate standard. The market is being driven by the supply side rather than demand. This means that unless developers acknowledge and understand the benefits of inclusive design, particularly universal design, effective change will be difficult. Without education and marketing, the widespread application of universal design will be perceived as an obstacle. Interviewee 8 (2010, pers. comm., 21 Sept) informed that for this reason, the revised NSW Metropolitan Strategy will not require councils to enforce such standards on all housing. Instead, the revised Strategy will likely require a minimum of 10% of new multi-unit housing to be adaptable to AS 4299. Again, the idea of 'rates' and specialised housing is reinforced from the state government and as previously established, this is neither socially sustainable nor an effective way of accommodating the ageing population.

The separation of 'general' housing and 'special' housing is ingrained from the state level. So long as this ideology continues, universal design principles will not have a widespread application. There is clearly a mismatch between what the NSW state government is encouraging in statutory and strategic plans, and the intentions of the Livable Guidelines and the universal design model in general.

4.4.1 Assessment of local government initiatives for universal and adaptable housing design

In NSW, adaptable and universal housing provisions are left up to local governments to administer as they see fit, through LEPs and DCPs. Despite the recommendations made in the subregional strategies, provisions for adaptable and universal housing design have not been included in the Standard LEP. Therefore the current situation will continue whereby each council independently creates housing design policies and rates for universal or adaptable dwellings. The number of terms, definitions, design requirements and rates of adaptable and universal design will continue to differ between Local Government Areas. For instance in a recent study of 18 Local Government Areas, Landcom found that councils were unclear about the concepts and application of adaptable, accessible or universal housing, and used terminology interchangeably (Interviewee 5 2010, pers. comm., 23 Aug).

All interviewees agreed that state or Commonwealth guidance was needed for consistency between councils. An opportunity was lost when definitions and design requirements for universal and adaptable housing were excluded from the Standard LEP. Providing a definition in the draft revised Metropolitan Strategy 2036 would inform councils to some extent. However, it is clear that inclusive design, specifically universal design, is not a priority of the state government; rather housing supply is the pressing issue. As in Victoria and Queensland, strong state government support would assist in the development of meaningful and successful adaptable and universal design policies.

4.4.2 Application of the Landcom Universal Housing Design Guidelines

The Landcom Universal Housing Design Guidelines are a well structured and comprehensive document. These Guidelines formed the basis of discussion for the Livable Housing Design Guidelines. It is apparent that the development industry could not wholly agree to the Landcom Guidelines, and that Landcom could not be involved with the 'livable housing' discussions because they are NSW specific only (Interviewee 5 2010, pers. comm., 23 August). As stated by both interviewees 2 and 5, both documents are substantially similar, although the Landcom Guidelines offers a higher standard of accessibility and would equate to the platinum level of 'livable design'.

Differences between the two Guidelines may cause confusion, particularly in terms of design requirements and terminology. In addition, both Interviewees 2 and 5 confirmed that each document is intended to influence council policies. If each of the 152 local government areas across the state refers to different guidelines for inclusive design, as well as calling up different 'rates', the complexity of the current system will worsen. There is a need for the state government to support one set of guidelines for consistency across local governments.

It is more likely that state or local government will consider the adoption of the Livable Housing Design Guidelines, as these have buy-in from a wider range of stakeholders than the Landcom Guidelines, and support from the former Parliamentary Secretary for Disabilities and Carers, Bill Shorten. However as illustrated in section 4.3.1, the limitations of the Livable Housing Design Guidelines need to be resolved for effective results.

4.4.3 Department of Housing

Interviews were conducted with two employees of the NSW Department of Housing in order to provide insight into the public housing perspective on adaptable and universal design. Two particular issues were investigated: the problems associated with adaptable housing; and the potential relationship between increasing the proportion of universal or adaptable private housing stock and the reduction in demand for public housing. This information provides further insight into problems with AS 4299 and the potential benefits of universal housing.

Until 2009, the Department of Housing had only relied on AS 4299 for the design of accessible and flexible dwellings. At the time that this research was conducted the Department was developing a new document titled Design Requirements (Version 6 2010), incorporating universal design features in addition to adaptable design. The document states, "A large proportion of [public] housing from the post WWII era is inflexible, being not easily adapted to current standards or an ageing demographic" (NSW Department of Housing 2010a). In addition, Interviewee 3 commented –

> *"For us with our older housing stock.. they were built when we didn't have a lot of money, tight spaces or access to those buildings often meant we had to knock out walls, put a new bathroom in, change the kitchen, costing us lots of dollars and will continue to cost us money. So we sort of have to start a new stock typology and that's the universal housing type. It's about getting our houses to suit as many people as possible. Today, tomorrow and in 50 years time" (Interviewee 3 2010, pers. comm., 2 Aug).*

A more flexible housing stock is encouraged to accommodate "a range of life stages and disabilities without need for major modifications or tenant relocation" (NSW Department of Housing 2010a, p. 8). This principle can also be applied to the private housing market. As discussed in Chapter 3, the inflexible design of traditional housing that fails to support a wide range of abilities, means that in a lot of cases temporary or permanent disability would cause relocation of the occupant. Given short supply of adaptable or universally designed private dwellings, finding suitable accommodation is difficult, and is even more difficult in the rental market. Therefore many people are forced in to the public housing sector.

From the Department's perspective the main issues associated with AS 4299 relate to the nexus with AS 1428. Interviewees 3 and 4 raised the same points as discussed in

section 4.2.1, namely the poor science behind the dimensional requirements, problems with interpretation and the resultant disability specific design outcomes -

> *"So if it says.. make provision for access to the front door via a ramp so it's suitable for a someone with a wheelchair, they'll put the ramp in straight away and all the hand rails. So then all of a sudden we have these houses that are 'adaptable for a later use' that look like wheelchair person's housing. And the person might be blind or have a mental illness. Totally unnecessary" (Interviewee 3 2010, pers. comm., 2 Aug).*

As the Department is often unaware of the extent of the tenants' abilities it is imperative that dwellings are flexible to meet individual needs. Again, these principles can be directly related to the design of the private housing stock. The future circumstances of the occupant or future occupants are unknown therefore building design needs to be able to support a range of needs without costly adaptation.

In terms of costs, the Department found that universal design adds approximately 1.03% to the total cost of construction, and 5-10m^2 additional floor space for one or two bedroom dwellings. Interviewee 4 commented that the slightly higher costs is accounted by the larger spaces and therefore additional materials that are required -

> *"Larger buildings obviously have to be heated or cooled more, so you've got more building to heat. There's more building so there's more material, more labour, [and therefore] cost. But they are all things which are short-term dis-benefits. Get over that then you can create a building that can last and be more adaptable over its life" (Interviewee 4 2010, pers. comm., 23 Aug).*

A key disadvantage of universal design, and one which is applicable to the development of private multi-unit housing, is that the additional floor space often equates to one less unit in a development (Interviewee 3, pers. comm., 2 Aug). This is potentially a major deterrent for private developers, as they may not achieve the revenue they desire. It is also a factor that, as far as this research finds, is not included in cost studies. On the other hand, the major benefit for the Department is that a wider range of people can reside in a universally designed unit. This reduces the demand for specialised disabled units and the associated costs of that. Therefore for the Department, universal design is seen as a long-term cost saving. However, private developers will need reassurance that sufficient revenue will be obtained, or that financial or planning incentives nullify financial hardship.

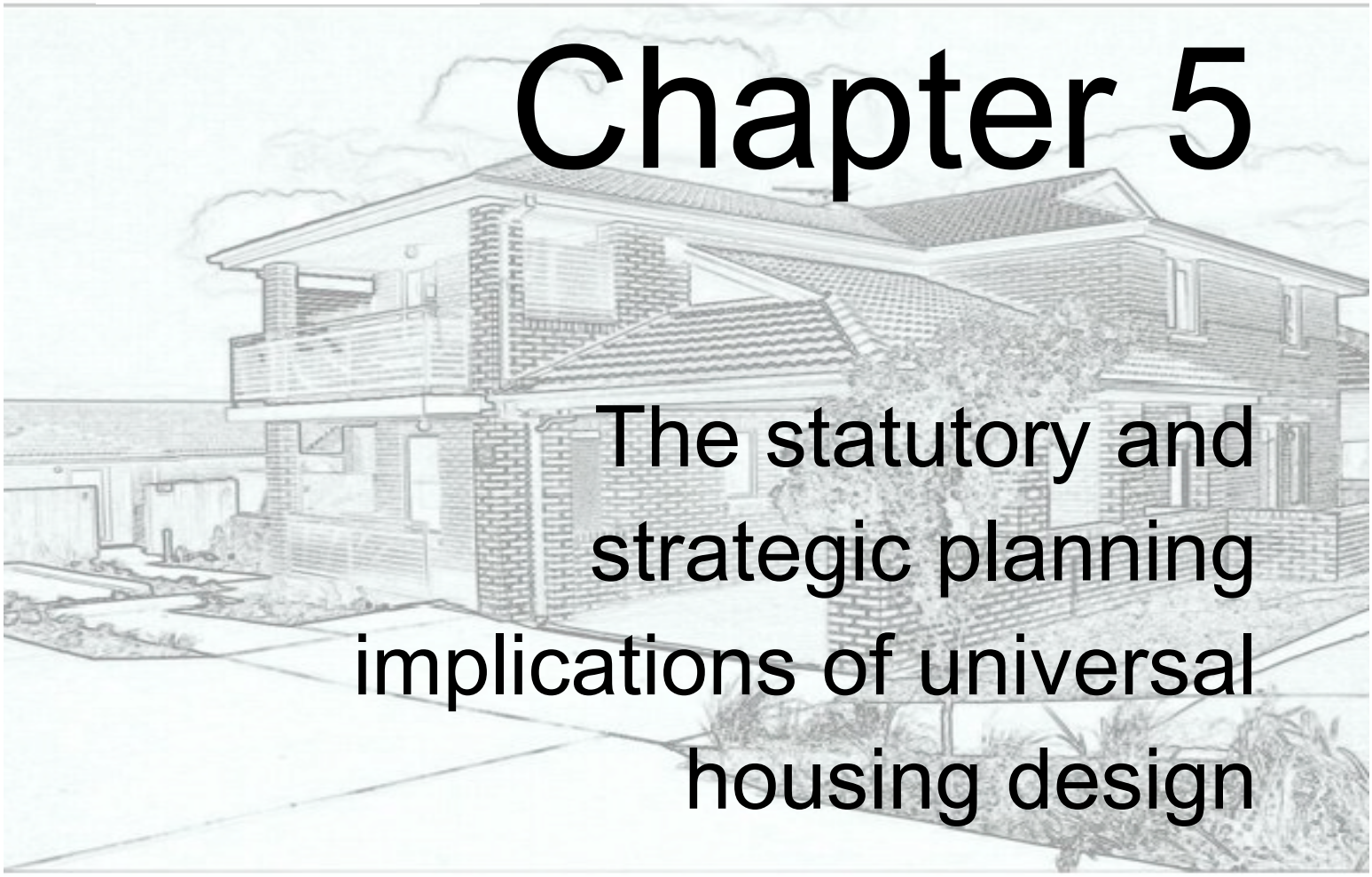
It is clear that the universal design paradigm can be applied to most building typologies. If universal design features are included in mainstream private housing stock it may be possible to relieve pressure from public housing, which is housing of last choice – *"If more and more non government property owners start building universally designed flats, that will take the pressure off us, a lot"* (Interviewee 3 2010, pers. comm., 2 Aug). Given that a large proportion of tenants in public and social housing are older and/or have a disability, the provision of flexibly and accessibly designed private housing, particularly rental housing, could relieve demand for the public sector. However, this theory requires further investigation.

4.5 Summary

This critique of legislative and policy frameworks provides insight into problems with the current Commonwealth and NSW systems in adopting universal and adaptable housing design. Shortfalls of the Adaptable Housing Standard AS 4299 may be overcome by universal design. However for this to be successful, terminology, definitions and design requirements may need to be clarified and condensed. For long-term and widespread adoption, attitudes need to shift to understand how building design can accommodate the variable needs of current and future occupants over the lifecycle.

The ideology of having specialised housing for specific needs is ingrained at the NSW state level and trickles down to the local government level. Specialised housing, such as 'seniors living' or affordable dwellings, is beneficial in that it provides for specific needs. However, the specialised housing model is flawed as it is difficult to police and does not foster social inclusion within the community.

This chapter has demonstrated that there is a mismatch between the intentions and potential benefit of universal design, and current planning practices in NSW. Without state government support for the introduction of universal design features into mainstream housing, there will be a continuation of a 'rates based' system, whereby adaptable or universal features are supplied as a proportion of general housing. This will not guarantee occupation to those who need it most and does not provide equitable built environments.



Chapter 5

The statutory and strategic planning implications of universal housing design

5.1 Introduction

The purpose of this chapter is to investigate the statutory and strategic planning implications of universal housing design, with particular reference to the NSW planning system. This relates to objective 3 of the research. Universal housing design can be applied to a wide range of dwelling types. Unlike AS 4299, which has had a very disability specific application, universal design could potentially be introduced into mainstream housing design. Understanding problems with the current system, as discussed in Chapter 4, allows us to explore where improvements can be made and what mechanisms could increase the application of universal design principles.

5.2 Statutory planning implications

Planning decisions can affect the availability of residential land, the timing and costs associated with development, the design and configuration of new housing and the preservation of affordable housing stock (NSW Department of Housing 2010b). The review of NSW legislation and policy, and in-depth interviews revealed that there are two major statutory planning implications for universal housing design. The first is whether design standards should be introduced as regulation or voluntary requirements. The second is the question of who should take responsibility for increasing the application of universal housing design, for instance which level of government or whether it should be left to market forces. Examination of these two related implications have disclosed how the statutory system could respond.

5.2.1 Regulation versus voluntary requirements

Despite the literature review indicating that voluntary strategies for inclusive design are less successful than regulatory strategies, most interviewees supported the idea of voluntary guidelines. It was generally recognised that a better quality design and higher level of accessibility could be achieved through voluntary universal design standards. This would foster flexibility and design innovation, which is the crux of universal design principles. This idea is reflected by Interviewee 1 who stated, -*"the idea of universal design.. is a thinking process, its not a regulatory process"* (2010, pers. comm., 27 July). As established in Chapter 4 in relation to the Livable Housing Design Guidelines and also in evidence from the literature review, voluntary strategies cannot, in themselves, produce dramatic change. Education and marketing is critical to boosting demand for universal design and influencing both the supply and demand sides of the market.

Contrastingly, regulation would create a level playing field for all developers. If universal design requirements became standard in housing design, the cost of providing wider or larger design features, such as doors, would decrease due to economies of scale. However as pointed out by Interviewee 2, due to the topographical constraints of some sites, concessions would need to be included in the regulation -

> *"Regulation does in some way create economies of scale. If every door sold had to be 870mm then it does create an economy of scale in terms of people*

manufacturing the doors and obviously the end user buying it. But at the same time you know every standard is still going to need concessions and leniencies.." (Interviewee 2 2010, pers. comm., 10 Aug).

Regulation would provide a consistent approach toward universal housing requirements. Mandating certain universal design features is important when considering the longevity of housing stock and all potential users over time. Conversely, regulation may not necessarily encourage good design. If developers apply the regulation as a blunt instrument, by building only to comply with the minimum standard, potential benefits of the universal design philosophy will be not fully realised. Reeves (2005) elaborates on this finding in stating that regulation does not necessarily overcome discrimination in the built environment, as design can be reduced to the legal minimum requirements rather than striving for best practice. This shows that although regulation may bring about a level playing field for industry, it does not necessarily bring about the best design outcomes or change prejudiced attitudes.

With an ageing population and subsequent increases in disability, the provision of accessible and flexible housing will become more critical. Whether voluntary or regulatory what is important is that appropriate housing is supplied to those who need it most and that it is accessible within the broader built environment.

5.2.2 Who should be responsible for increasing the application of universal housing design?

It is clear that an overarching approach needs to be adopted for consistency within NSW and/or between the states. However, the primary research did not yield a definitive answer as to how this should take place. Most interviewees stressed their preference for a voluntary system, but recognised that substantial results would not likely eventuate without government support. The following ideas were put forward as to how the existing planning framework could encompass universal design principles:

- Amendment to an existing SEPP to include universal design elements, such as SEPP (Housing for Seniors or People with a Disability) 2004, SEPP (Affordable Rental Housing) 2009, or SEPP (Building and Sustainability Index: BASIX) 2004.
- Inclusion of universal design requirements in local government LEPs, DCPs or policies.

- Universal design requirements to be incorporated into the Building Code of Australia, either as a state specific requirement or Australia wide.

All interviewees disapproved of councils having the discretion to develop their own inclusive design policies. However as illustrated in Chapter 3, without direction from the state government some councils are independently writing policies as they see fit. State government direction would create consistency across the local government areas whereas federal government intervention through the Building Code of Australia would create consistency between states.

The review of NSW policy and legislation, as well as the discussion with Interviewee 8, found that the priority of the state government is to provide enough housing and sufficient accommodation for those with special needs. Without education and marketing, increasing the proportion of universal or adaptable dwellings is considered a potential hindrance to achieving the housing supply target. A Commonwealth approach would create a level playing field so that large developers would not relocate to states with less stringent controls (Interviewee 8 2010, pers. comm., 21 Sept). At this point, the Livable Housing Design Guidelines are the only initiative which has the potential to create consistency between the states in relation to universal design. This is due to the collaboration of partners involved in the strategy who had Commonwealth interests. However due to its limitations, as outlined in Chapter 4, the Guidelines are not likely to bring about effective change to meet current and predicted levels of demand.

If this eventuates, the Building Code of Australia will be the likely next option for universal design requirements. Most interviewees agreed with this, but only on the condition that voluntary standards were unsuccessful. As explained by Interviewee 9, a rigorous cost benefit analysis would take place before any standards were included in the Building Code. It is apparent that at the local planning level such analysis is not required -

> *"A lot of councils actually adopt standards because they sound beneficial. They don't necessarily understand the cost implications. The problem with introducing requirements through planning is they don't have to do a cost benefit analysis.." (Interviewee 9 2010, pers. comm., 21 Sept).*

Later Interviewee 9 stated –

"[The Livable Guidelines] are all performance standards from a building code perspective, not the planning perspective" (Interviewee 9 2010, pers. comm., 21 Sept).

This means that when councils demand adaptable and universal design in LEPs or DCPs there is no assessment of the full cost implications behind the policy or standard. Again this supports the idea that Commonwealth and state governments need to take action. If left up to local governments, a 'rates based' system could be introduced for universal design (such as that with adaptable housing), and the complexity of the current system will continue in terms of terminology and design concepts.

All but one interviewee agreed that in the case of voluntary strategies, education and marketing are the key factors to influencing both the supply and demand side of the market in the adoption of universally designed housing. Voluntary guidelines such as the Livable Housing Design Guidelines or Landcom Universal Design Guidelines will inform consumers and create a marketable product for universal design, therefore influencing the demand side of the market. At the same time, education to developers that universal design is more than 'disabled design' will help to change the supply side of the housing market. Given the housing shortage affecting NSW, resulting in a supply driven market, it is crucial that developers understand the potential benefits and market of universal designed housing.

5.2.3 The role of incentives in increasing uptake of universal design

Both the primary and secondary research indicated that incentives could encourage the take up of universal design in the private housing market. Incentives may be planning based, such as additional gross floor area or height, or they may be financially based. The additional cost of providing universal design (which according to Interviewee 5 is estimated to be between 1% and 5% of original construction cost) could be offset by incentives such as these. As expressed by Interviewee 4, incentives such as these can help to overcome some of the perceived difficulties with universal design -

"..Without some kind of incentive to incorporate these things then it becomes a penalty on the developers. It's just going to slow down, or make their business case for putting up a development that much harder to prove.." (Interviewee 4 2010, pers. comm., 23 Aug).

In combination with education and marketing strategies, incentives offered by local or state government could increase the rate at which universal design is used in new development.

However, some interviewees disagreed with the idea of incentives. Interviewee 8 believed that offering building space allowances would distort the urban design principles of the area, for instance in terms of height of the building bulk. Interviewee 6 stated that the main incentive is development approval, which requires compliance with council's policies and development controls. Both of these examples support the idea that universal design principles should be encouraged through local government LEPs, DCPs and policies. Rather than developing new universal design requirements and terminology, local governments should be advocating one of the existing voluntary guidelines, namely the Landcom Universal Design Guidelines or the Livable Housing Design Guidelines.

The Livable Housing Design Guidelines intend on creating a marketable brand through the silver, gold and platinum standards. New homebuyers will be able to better identify the benefits of universal design, and the residential building and property industry will be more aware of it as a selling point. In this way achieving the prescribed universal standards will become an incentive. This however will take time and require a very strong marketing strategy for effective results. The problem with this strategy is that no tangible benefit is provided until, perhaps, the dwelling is sold.

All levels of government should consider financial incentives, for instance a subsidy or tax cut, however these are beyond planning discipline. If voluntary guidelines are the preferred mechanism for increasing the uptake of universal design, some form of incentive would be highly beneficial to accelerate the process.

5.3 Strategic planning implications

Inclusive housing design principles are linked to the broader concept of liveable and accessible communities. There is an increasing focus on creating centres that are compact, contain a mix of land uses, are accessible through walking and cycling and

serviced by public transport. These New Urbanist design principles can support environmentally sustainable, economically feasible and socially cohesive places. As stated by Schmitz et al (2003), building flexibility into the design of a development can better accommodate changing needs, maturing markets and successive uses, which can avoid future obsolescence. This philosophy is not only relevant to strategic planning on a broad level but also, more specifically, the design and construction of housing stock. The flexibility and accessibility provided by the universal housing design model fits in with these overarching sustainability principles.

Increasing car dependency since WWII has been responsible for the sprawl of cities, making other modes of transport, namely walking, cycling and public transport, increasingly difficult and unsafe (Kats 2010). Accessibility and connectivity of a place are crucial to the way people get around and interact. The siting of buildings, connectivity and permeability of streets and choice in modes of transport contribute to the experience of the pedestrian in the built environment. In support of this idea, Girardet (2004, p. 167) states, “every trip should begin and end with walking, the healthiest, most environmentally friendly and democratic form of mobility”. Designing the built environment and public transport to support a range of users, including those with disabilities, will allow all people to participate in the community. Adaptable and universal housing design cannot solely support the needs of those with permanent or temporary impairment. The broader built environment must be equally as inclusive and accessible in order to prevent people from being confined to their dwellings.

The introduction of universal design principles into mainstream housing would contribute to a more socially sustainable housing stock. This relates to equity in that people who have a disability would not be so limited in choice in where they live and the level of participation in the community. However in NSW where the housing market is supply driven, unless developers take a pro-active approach towards creating more inclusively designed housing, the current ‘rates based’ system and segregated specialised housing will continue. As established in section 5.2.2, from the NSW government’s perspective, the priority is to provide enough housing, and appropriate housing for those with special needs. It is for this reason that specialised housing, such as seniors living developments, have been encouraged in state strategic planning documents despite outcomes which are not ideal. This is reflected by interviewee 7 -

"..Half the problem was that there wasn't housing being provided for people who have a disability or that can no longer live in that house. So the SEPP was created with a good intent but the outcome doesn't necessarily work" (Interviewee 7 2010, pers. comm., 16 Sept).

A concern that will deepen as the population ages is how to link people with the greatest need to the most appropriate housing. This issue is driven by the fact that most older housing stock could not be easily or cost effectively modified to support someone with an impairment. 'Positive discrimination', where the universal and adaptable dwellings are provided only to those with the greatest need for such design, could ensure that the supply of universal or adaptable housing is maintained and linked to demand.

It is important that universal or adaptable housing is accessible to transport, shops and services in the surrounding built environment. If this does not occur there is the potential to have an accessibly designed home in an inaccessible location. The problem of linking peoples' needs to specialised housing could of course be rectified in the long-term if universal design was integrated into all new housing design, and potentially, modifications to existing houses.

The NSW Metropolitan Strategy encourages increased densities and mixed uses around transport hubs. The purpose is to reduce car dependency and create more liveable communities. In order to maximise the potential benefit, universal and adaptable design principles should be specifically encouraged in the infill development around transport hubs. This way, inclusive design principles would be applied sensibly and with consideration of the broader built environment.

With the rising cost of living and house prices, dwellings are going to increasingly accommodate members of different ages and therefore varying abilities. Interviewee 7 made this point in stating -

"..Because of affordability, people are going to have to live with each other for longer, which isn't a bad thing. When people retire they're not necessarily going to have the ability to provide for themselves in retirement. That's why we need to ensure that our new housing [model] can allow a family unit to live together into the future" (Interviewee 7 2010, pers. comm., 16 Sept).

It is worth reflecting that a large proportion of the existing housing stock, within NSW and much of Australia, could not support these mixed households. In addition, adaptations to

make these dwellings safer and more accessible would be difficult and costly. It is for this reason that the universal design principles need to be introduced into mainstream housing development so that these problems do not continue to other generations.

From a strategic planning perspective, inclusive housing design needs to be considered in the broader context of liveable communities. Given that the population is ageing, and housing and living costs are increasing, it is imperative that strategic planning initiatives better incorporate inclusive design principles.

5.3.4 Relationship with existing local government planning strategies

Each of the 152 councils within NSW has different LEPs, DCPs and policies. It is possible that introducing universal design principles into mainstream housing may conflict with other council policies and standards. Excavation and fill, floor space ratio, and flood prone land are some examples where council standards and controls may make it difficult to meet the requirements of universal design, as per one of the voluntary guidelines.

All of the interviewees recognised this as a possible issue however it was too early in the piece to comment in detail. Obviously council standards and polices would take precedence over voluntary guidelines, such as Livable Housing Design Guidelines or Landcom Universal Design Guidelines. However, there is the opportunity for councils to consider altering policies and standards to encourage and be consistent with universal design principles. This of course would have been achieved had universal design principles been included in the Standard LEP. The difficulty now will be trying to get councils to encourage universal design, without adding to the array of terminology, definitions and design requirements that already exist.

5.4 Where to from here?

This section answers objective 4 of the research, being to investigate how future policy and legislation may be formulated to increase the uptake of universal housing design. In Australia, universal design has only recently gained attention in political and public spheres. As referred to in Chapter 3, around 25% of the Australian population will be

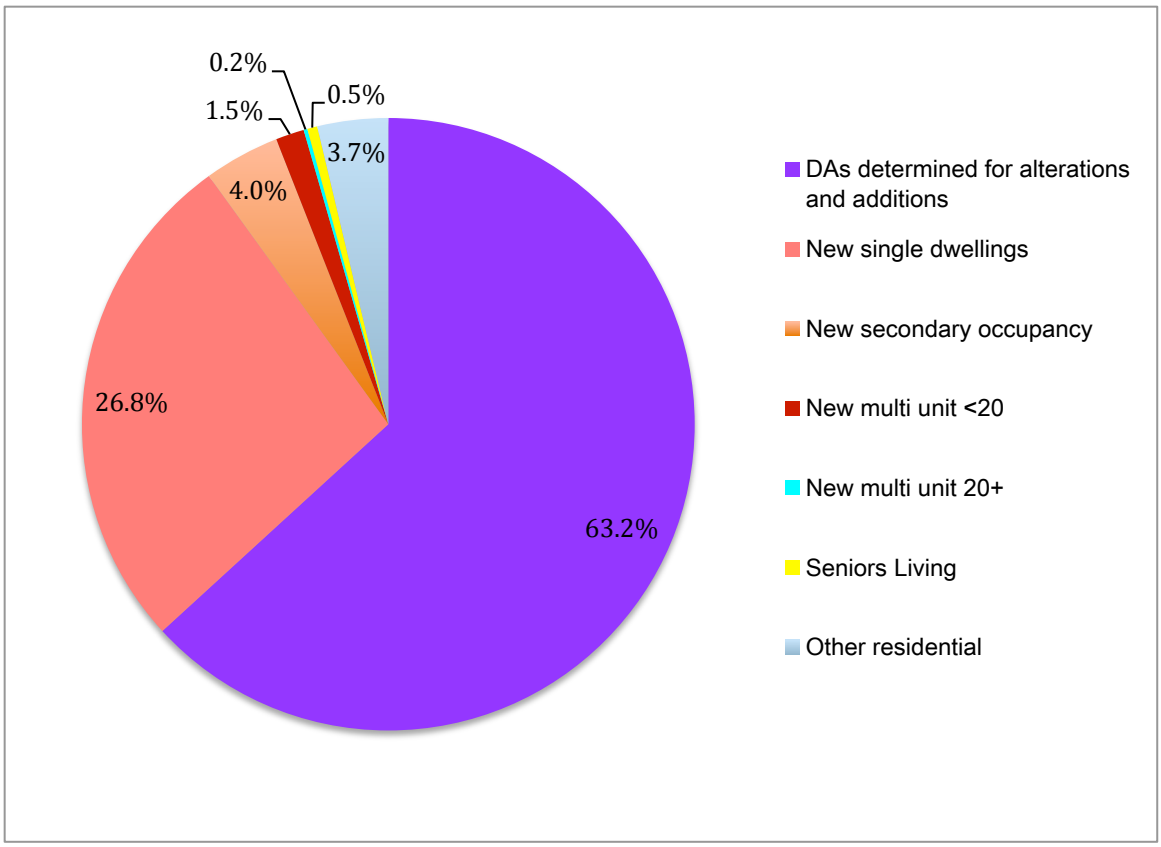
over the age of 65 by 2056 (ABS 2008), therefore it is imperative that housing stock becomes better equipped to accommodate these changes. However, housing stock that is flexible and able to accommodate a range of abilities or be easily adapted for more specialised needs, would be beneficial to many people.

Research indicates that older people have a strong desire to remain at home and/or in their communities as they age (Quinn et al 2009; Hulse et al 2010). The main mechanisms to support 'ageing in place' are jointly funded state/territory and federal government home care packages. These include the Home and Community Care program, Community Options Projects, Community Aged Care Package program and Extended Aged Care at Home program that provides the equivalent to nursing home care in the home (Quinn et al 2005). The intention of these programs is to mitigate premature and inappropriate admission to long-term residential care (Stimson McGovern & Earl 2002, cited in Winters & Olsberg 2004). Yet very little attention is directed towards the provision of flexible and accessible housing, which could reduce costs for home care programs in the long-term.

That is not to say that home care programs are not needed. Given that new residential development only accounts for a fraction of the total amount of housing, other strategies need to be directed towards creating a more flexible and accessible existing housing stock. Attention to new development would not, in itself, be sufficient to support the current and predicted demand for inclusive design features (Bridge et al 2008). For example it is estimated that in 2008 the proportion of new dwellings constructed across Australia was 1.73% of the existing housing stock[1] (NHSC 2009). Furthermore, Figure 8 illustrates the type of residential development applications processed in NSW between 2007-2008. The percentages are based on the total number of residential development applications, being 53,972, and involve all of the 152 Local Government Areas within the state.

[1] The stock of private dwellings in Australia was estimated at 8,860,000 in June 2008. During 2007-2008 the number of dwellings constructed was estimated to be 153,000. Dwelling demolitions were accounted for by the estimated total dwelling stock (NHSC 2009).

Figure 8 **Residential Development Applications determined in NSW between 2007-2008**



NB The total number of residential development applications was 53,972.

Source: Based on the local development performance monitoring data provided by the Department of Planning.

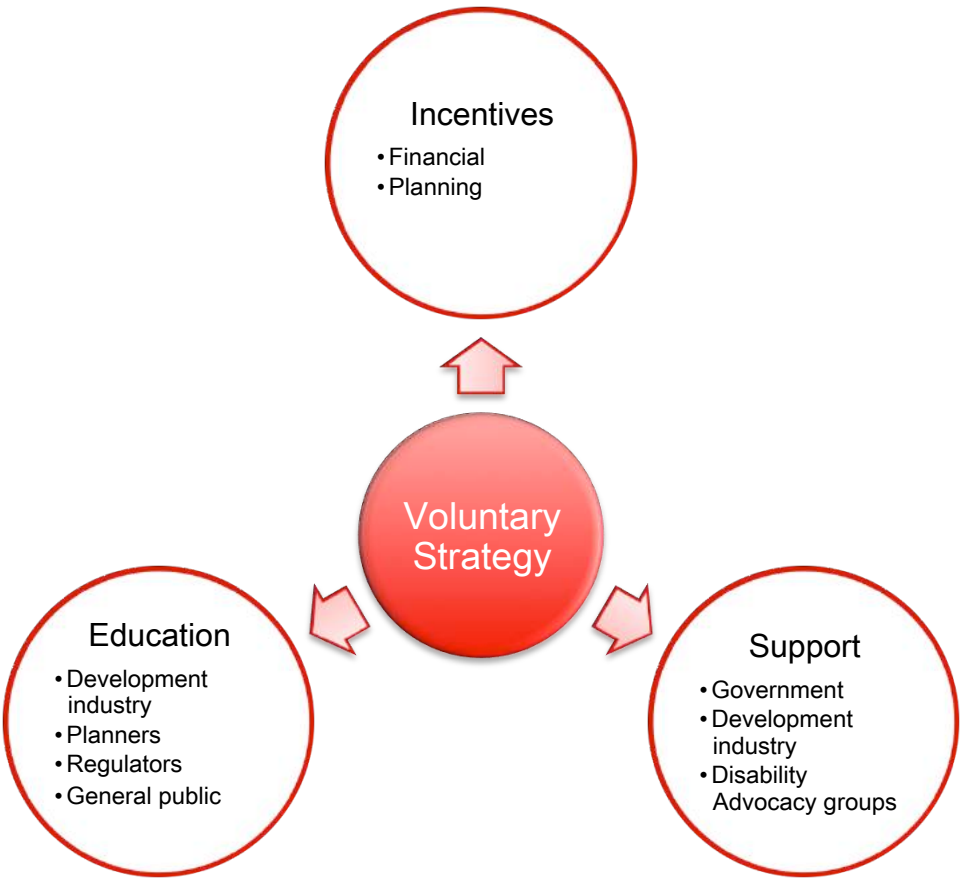
Figure 8 shows that the majority of residential development applications processed during the 2007-2008 period in NSW were for alterations and additions to existing dwellings. Therefore, it is also important to consider how inclusive design principles could be included for other development types other than new development. A register of adaptable and universally designed dwellings would be highly beneficial to tracking supply. This could be done by councils through the development assessment process.

Even though the ageing population, and subsequent increase in disability, is not the only group to benefit from flexible and accessible housing design, the changing demographics are a driving force in providing safer and more equitable housing. It should be acknowledged that decisions made now about the inclusive quality of housing stock will not only affect the ageing 'baby boomers', but the ageing and health of all generations and those to come.

As evidenced in the primary and secondary research, the high rate of home ownership among ‘baby boomers’ means that many will have the option to remain living in their dwelling and undertake modifications. Others, who are ‘asset rich but income poor’, may have to downscale to fund their retirement. Given the pressing issue of housing affordability, younger generations will have more difficulty entering the private housing market. This will be exacerbated by seniors spending their children’s inheritance, as was a common trend identified among ‘baby boomers’ in the Olsberg and Winters study (2005). As acknowledged by Kendig and Bridge (2007, cited in Bridge et al 2008) secure tenure for older people is important, as the lack of security in the private rental market places tenants at greater risk of institutionalisation if a crisis occurred. For this reason, decision-making as to the design quality of housing stock needs to consider the inter-generational implications of housing design.

Both the literature review and interviews indicate that for voluntary initiatives to be successful there needs to be comprehensive education, government support, and/or incentives. Figure 9 illustrates this relationship. Education strategies would need to reach people involved in design, development, regulation, policy making and the property market. This would help to reduce confusion around terminology and definitions as well as promote the idea that universal design is not ‘special’ design. The encouragement of mainstream universal design from all levels of government, but particularly local and state government through planning policies, would greatly support a voluntary initiative. Lastly, incentives would help to overcome some of the perceived difficulties with universal design. As discussed in section 5.2.3, this could be through planning and development allowances or by financial means.

Figure 9 The making of a strong voluntary strategy for inclusive housing design



Finally, it was acknowledged by all of the interviewees that it is still early days and only time will tell how voluntary initiatives like the Livable Housing Design Guidelines and Landcom Guidelines will be used. This sentiment was articulately expressed by Interviewee 1 -

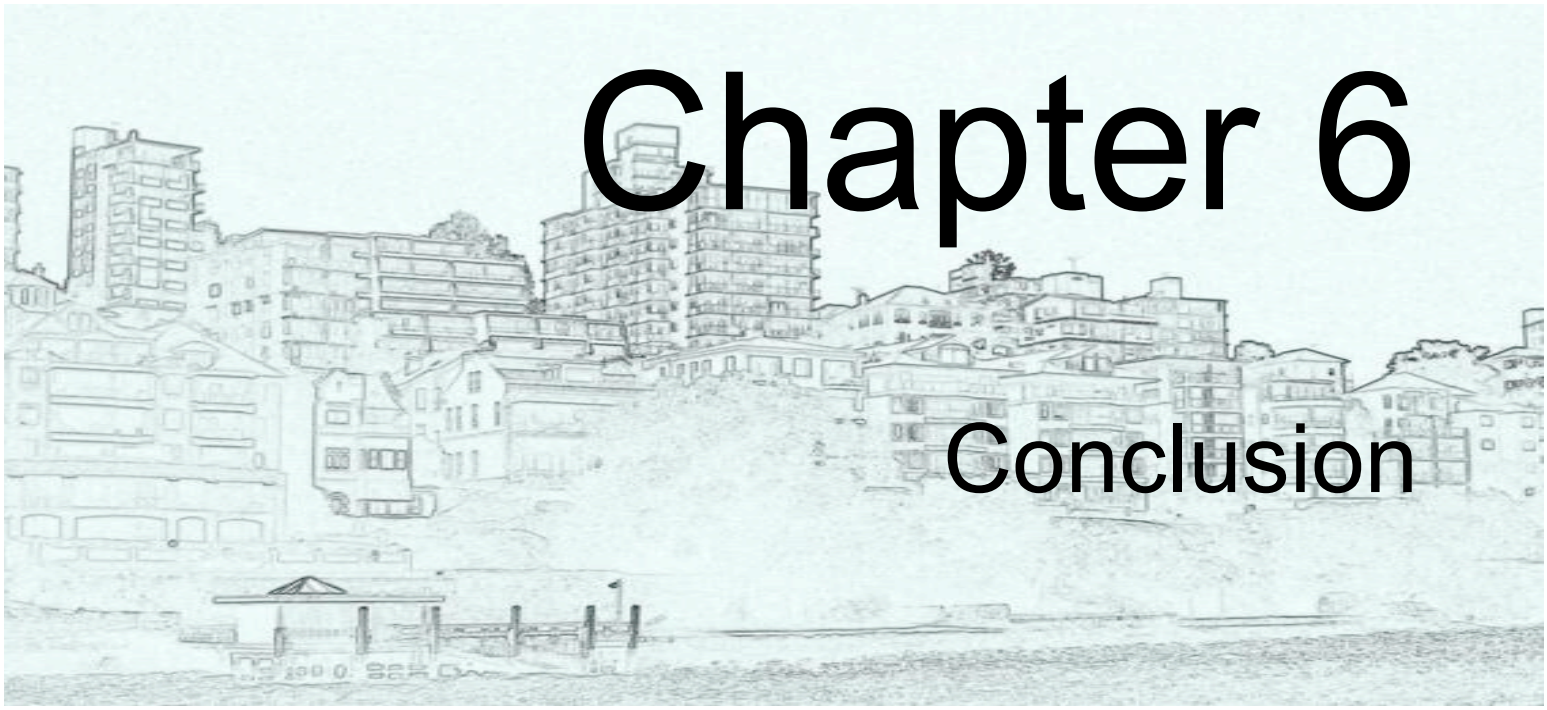
> *"Personally, as much as we need this now, yesterday even, I think we have to make haste slowly. I'd like to let these Liveable Design Guidelines sit for the 3 years. I think we desperately need time to rethink. I think the real value behind these Guidelines is the dialogue that has been created between opposing parties and I think the thing we should look after, more than design details, is to nurture the dialogue"* (*Interviewee 1 2010, pers. comm., 27 July).*

If a voluntary initiative is the preferred option it must be coupled with other strategies in order for it to be successful. If the current initiatives prove unsuccessful, legislative and regulatory options will be investigated.

5.5 Summary

This chapter has explored the statutory and strategic planning implication of universal housing design. As voluntary guidelines are the preferred option for increasing the uptake of universal housing design, the major statutory implication is how each level of government will support those initiatives. An intergovernmental approach is necessary to encourage consistency in the application of universal design principles both between and within the states. In addition, the uptake of universal design could be accelerated if the voluntary strategies are linked to educational programs and potentially an incentives system.

In terms of strategic planning, inclusive design principles need to be integrated into liveable and sustainable planning policies. It has been demonstrated that one of the key strategic planning issues will be the supply of housing, particularly for people with special needs. Problems will arise in trying to direct accessible and flexible housing to where it is needed most. In the long-term integrating universal design into mainstream housing development could reduce these issues. However in the short to medium term 'positive discrimination' could help to ensure the supply of adaptable and universally designed dwellings is linked to demand. There also needs to be consideration of how the existing housing stock can be modified to become more accessible and useable to a wider range of people.



Chapter 6

Conclusion

6.1 Overview

The purpose of this thesis has been to explore the statutory and strategic planning implications of the inclusive housing design paradigm in Australia, with particular reference to NSW. This research has identified significant problems inherent in current housing design practices and the planning policies which underpin these. Most notably it is clear that traditional philosophies towards design fail to provide flexible and accessible dwellings that can support occupants over the lifecycle, despite varying abilities. This is unacceptable given that the alternative is relocation to more specialised housing that is often segregated from 'general' housing, therefore does not foster social inclusion. These practices are not socially sustainable, particularly in the context of an ageing population as 'ageing in place' is not supported.

Recent strategies towards improving current practices have been assessed in this thesis. It is clear that positive initiatives are sprouting, namely the Livable Housing Design Guidelines, however the limitations identified in the research will likely curb effectiveness. It is hoped that the conclusions drawn from this research will guide the future development of policy in relation to inclusive design. This chapter will conclude the thesis by outlining key findings of the research, relative to the four objectives; offer recommendations; advise where future research is needed; and provide final reflections.

6.2 Key findings

To understand the planning implications of the inclusive housing design paradigm a number of techniques were used. A review of relevant literature, a critical assessment of the Australian context and NSW planning system, and in-depth interviews with nine professionals, provided answers to the research objectives. The research findings are summarised as follows:

- *Objective 1: To review and critique legislative and policy frameworks within Australia, and particularly NSW, in relation to models of inclusive housing design.*

Chapter 3 outlined the current legislative and policy framework in relation to inclusive housing design so that it could be critically assessed in Chapter 4. The research found that without Commonwealth direction, each state has independently adopted housing strategies to support the ageing population. AS 4299 has been the key document for the design of adaptable and accessible housing since 1995. However, the effectiveness of AS 4299 is undermined by the poor science behind the Standard and the inconsistent and disability specific implementation both between and within states. Furthermore, the 'rates based' system that is involved in implementing AS 4299 does not provide a sufficient supply of adaptable housing stock and fails to link to people with the greatest need. The Livable Housing Design Guidelines have been recently introduced to overcome the shortfalls of AS 4299 and to encourage the consistent application of flexible and accessible design in mainstream housing development between and within the states. Yet the limitations of these Guidelines, as discussed in Chapter 4, weaken their potential to achieve adequate results.

The assessment of the NSW planning system found that the separation of 'specialised housing' from 'general housing' is embedded in state and local government statutory and strategic plans. This is faulty in that it does not provide equitable built environments and does not support 'ageing in place'.

- *Objective 2: To understand the relationship between adaptable housing and universal housing and the applications of each model.*

The different types of inclusive housing design, as well as varying terminology, were outlined in Chapter 2 and included adaptable, universal, flexible, and visitable design concepts. Variation in inclusive design types was also evident in the assessment of state government initiatives in Chapter 3. It was demonstrated that the inconsistent reference to terms and design concepts results in a very complicated system for developers, designers, regulators and policy makers.

As illustrated in Chapter 4, the way that universal and adaptable design is interpreted is linked to the way it is implemented. AS 4299 has had a very disability specific application due to its association with AS 1428 and confusion around providing 'adaptable designs'. It is for this reason that the Standard could not be applied to mainstream housing on a widespread level. Universal design has emerged as a fairly recent concept in Australia as a way of providing flexible and accessible design that is built in from the beginning and which has the potential to be applied to mainstream housing development. Importantly, the design features are intended to support a wide range of abilities, rather than be disability specific. It was shown that the two models are related in that universal design allows for easy and cost effective adaptation if more specialised design was required.

- *Objective 3: To gain insight into the statutory and strategic planning implications of universal housing design, with particular reference to the NSW planning system.*

The review of literature in Chapter 2 illustrated important themes in relation to the inclusive design paradigm. This thesis, conducted from the Australian perspective, was built from the issues explored in the literature review and the gaps identified in the research. Chapter 5 illustrated that there are two main statutory planning implications of universal housing: The first is whether strategies should be voluntary of regulatory; the second is the question of who should be involved in the implementation of such strategies. The primary research indicated strong support for a voluntary initiative for universal design, such as that presented with the Livable Housing Design Guidelines, as it encourages innovative design and best practice rather than regulatory minimums. It was found that clear intergovernmental support is needed for the effective and

consistent application of universal design. Specifically, state and local governments must advocate such inclusive design principles in statutory and strategic plans rather than supporting segregated specialised design, as is currently the case.

The strategic implications of inclusive housing design are also discussed in Chapter 5. The key point is that inclusive housing design principles need to be considered in the broader context of liveable and accessible built environments. In the short to medium term, dealing with the predicted demand for flexible and accessible housing design could be facilitated by 'positive discrimination' strategies. However in the long term, universal design should be integrated into design practices of mainstream housing to improve equitable access to housing stock, both in purchasing dwellings and physically.

With specific reference to the NSW statutory planning system, the research clearly indicates that the state government must take a leading role. This way, universal design policies will not be left to the discretion of councils. Changes need to occur at the state level, either through statutory or strategic planning documents, to encourage the application of universal design in mainstream development.

- *Objective 4: To investigate how future policy and legislation may be formulated to increase the uptake of universal housing across Australia, and particularly within NSW.*

As stated, the primary research indicated strong support for voluntary guidelines in relation to universal design, despite the review of literature illustrating that such initiatives are fairly unsuccessful. Voluntary guidelines will not likely achieve, in themselves, substantial uptake in mainstream housing development. As shown in Chapter 5, such guidelines need to be coupled with education and marketing strategies, and possibly planning or financial incentives. For best results, universal design policy must have intergovernmental support so that consistent design standards and terminology is applied within each state and potentially between states.

Given that new housing development comprises only a small proportion of development, policies should also consider how the existing housing stock could be adapted to incorporate inclusive design principles. As detailed in Chapter 5, this could be

encouraged at the local government level through alterations and additions of existing dwellings.

6.3 Recommendations

The following recommendations have been formulated based on the primary and secondary research undertaken for this thesis.

1. AS 4299 must be reviewed. The research suggests that the Standard is valuable in providing specialised disabled design however is not appropriate for widespread application such as universal design. The review should involve new scientific research behind the dimensional requirements, as it is apparent that the underlying research of the Standard is of poor quality.

2. Councils should create a register for newly constructed and, if possible, existing universal and adaptable dwellings. This will help to calculate the supply of inclusively designed dwellings and perhaps better link it to demand through 'positive discrimination' strategies. The register should also be updated if dwellings are altered and the level of accessibility is reduced.

3. The NSW state government needs to consider how statutory and strategic plans can encourage universal housing design principles in mainstream housing development. Voluntary guidelines will not, in themselves, provide for substantial take up of universal design features in mainstream housing. The state government must show support for the initiative, which will filter down to the local level. Unless the state government takes action, local councils will increasingly create inclusive design policies. This will further complicate the definitions and interpretation of inclusive designs concepts.

4. Councils should encourage universal design in all new development. Through policies or in the DCP, councils should advocate voluntary guidelines such as the Livable Housing Design Guidelines or Landcom Universal Design Guidelines, rather than create new types of inclusive design. For developments that are universally

designed, rates for adaptable housing should be abolished unless it can be proven that those adaptable dwellings will be maintained and available for people who require a higher level of accessibility.

5. A longitudinal cost study should be carried out with the implementation of the Livable Housing Design Guidelines. This will help to determine how costs change over time and provide certainty to the development industry and consumers as to the costs and benefits.

6. An area that was not readily explored in this thesis but was identified as a significant issue in the literature review is that inclusive design models focus on physical disability and do not consider other types of impairment. Future research should explore how other disabilities, such as sensory or mental, relate to inclusive design requirements, or how the model could be altered to better reflect the needs of these groups.

7. Education of inclusive housing design to planners, developers, trades people, regulators, homebuyers and owners is critical to its success. The marketing of universal design initiatives, such as those proposed for the Livable Housing Design Guidelines, will help to build demand. It is imperative that universal design is not solely attributed to older and disabled people. Although these groups will attain the greatest benefit from inclusive design, it is not a marketable feature for mainstream development. Marketing needs to emphasise the long-term cost savings of universal design and the fact that it can support a wide range of occupants and abilities over the lifecycle.

6.4 Final remarks

The ideals of inclusive housing design are profoundly recognised. However, in practical terms there are many obstacles to achieving widespread adoption. The timing of this research at the forefront of new universal design initiatives in Australia means that the findings can be used to improve the effectiveness of initiatives. It is hoped that the recommendations provided in this thesis, in relation to future research and policy, will encourage pre-emptive action in the provision of socially sustainable housing stock, particularly in the context of an ageing population. Overall there needs to be a shift in the attitudes of government, developers and consumers that the design of a dwelling should be flexible and useable to a wide range of users in order to meet the variable needs of current and future occupants. As part of the broader picture, such philosophies towards building practice have the potential to create more equitable built environments.

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