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Home Coming? A Story of Reassurance, Opportunity and Hope for Universally Designed Housing in Australia

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Abstract. This paper shows the complexity of housing and how it is the linch-pin for achieving economic, social and human rights imperatives. In Australia there are no minimum housing standards; the effect is now critical. In October 2017, a regulatory impact assessment was instructed, to consider Livable Housing Australia's Silver and Gold standards, for inclusion in the National Construction Code. A substantial research project provided a knowledge and evidence base of the policy perspective; an expanded statistical context; and detailed analyses of Silver, Gold and Platinum design levels. The policy perspective included greater economic focus. The effect on productivity, directly attributable to housing, is significant. 34 specific policy 'problems' were identified that could be solved or mitigated if acceptable standards of housing were introduced. It is reassuring that universal design has permeated all levels of government policy. The statistical context explored demographics, households, dwelling types; tenure; occupants; disability and carers. Detailed analyses challenged many common assumptions and re-framed accessible housing into a mainstream problem. 73% of all dwellings are separate houses and the average home has 3.1 bedrooms. There are tremendous opportunities for universally design-led mainstream solutions. The compliance gap analyses show which design features might cost more; have potential to be designed out; or be cost neutral. Many design features are cost neutral and arguably should be included within mandated standards. As there is a minimal gap between universal design standards and current housing, there is hope that all Australians will, one day, live in a universally designed home.

Keywords. Home, housing, policy lag, housing standards, universal design

1. Introduction

Australia has no minimum standards of universal design or accessibility for dwellings. In 2016, Disability Discrimination Commissioner, Alastair McEwin, travelled around Australia and consulted extensively on the concerns of people with disabilities, their barriers to participation and areas of discrimination. The result was to identify 6-priority areas for action; one of these was housing [1].

This paper is based on research undertaken for the Australian Human Rights Commission (Commission) to provide a knowledge and evidence base to evaluate the role and importance of housing and application of minimum standards to housing in Australia. The research sought to examine evidence of 'need', the scale and nature of the problem, as well as consider what an acceptable minimum standard might be. Parts

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of the research have contributed to a Commission position paper submitted to the Australian Building Codes Board (ABCB) as part of a regulatory impact assessment regarding mandating minimum standards in private residences within the National Construction Code (NCC) [2].

To contribute to the knowledge and evidence base, the approach taken was to provide a broader context to understand the role of housing in society, its economic importance, and understand costs and benefits that might accrue if minimum standards were applied to homes. Thus, the policy landscape that housing resides was broadened from a building industry perspective, to consider economic policy, energy policy, sustainability, productivity and so on. The statistical base for households and the population was examined to explore demographics more fully and understand dwelling types and household composition etc to assess scale and nature of the issues. Finally, gap analyses were undertaken of the compliance requirements for housing and buildings in general. This identified the extent to which additional costs might be incurred, where design features are cost neutral or could be designed out, and thus consider what an acceptable minimum standard might be.

2. Background

Since the Disability Discrimination Act 1992 [3], there have been Disability Standards issued in respect of transport [4], public buildings [5], and education. Detailed technical standards have been updated [6] and the Disability Standards for public buildings have been mirrored in the National Construction Code [7] to improve certainty and consistency for developers, builders and clients. However, these codes and standards do not relate to dwellings. Even in apartment buildings, it is required to get to the apartment door, but not to pass through it; the codes require access to and within public areas only.

Australia was one of the original signatories to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) with effect from 2008 [8]. As part of the UNCRPD commitments, in 2011, the Council of Australian Governments endorsed the National Disability Strategy [9]. The National Disability Strategy acknowledges the economic, social and human rights' imperatives for action. Housing features in 2 of the 6 key policy outcomes, namely inclusive and accessible communities and economic security.

Within the policy is a target that all new homes should be built to agreed universal design standards by 2020. Other initiatives included the National Dialogue on Universal Housing Design, 2010, and the establishment of Livable Housing Australia (LHA). LHA developed Livable Housing Design Guidelines that simplified previous standards, providing 3 levels of attainment, Silver (7 features), Gold (12 features) and Platinum (15 features) [10]. The LHA standards include features such as a level entrance, door and corridor widths, space in front of a toilet pan and features that allow for future adaptation, such as reinforcement of bathroom walls. At this time however, it was decided that these guidelines should be a voluntary, industry-led matter, and private residences should not be subject to mandated minimum standards.

The drive and policy commitment to transport and public buildings resulted in mandating changes to the National Construction Code (NCC). The voluntary approach for residences however has seen minimal uptake in the private housing sector; about 5% adopting LHA Silver level. [11]. This has led to a substantive shortfall in even a basic level of adaptability for housing.

3. Policy perspective

Broadening the policy perspective to assess housing's impact on economic and community-wide problems clearly showed the complexity of the policy landscape. It also showed that housing is acknowledged as central to a productive, healthy and just society with over 30 specific policy 'problems' identified that could be solved or mitigated if acceptable universal design standards for housing were introduced. It is reassuring that universal design has permeated all levels of government policy.

The policy topics reviewed include international and domestic government commitments such as UNCRPD, Australian tax system; Intergenerational Report; Productivity Commission reports; Affordable Housing; Smart Cities; energy productivity; sustainability; economics reference committee etc, as well as industry policy position papers including reports from the Australian Institute of Architects, Master Builders Australia and Housing Industry Association.

3.1. Policy Lag

Key Government policies since the Disability Discrimination Act 1992, include the Transport Standards in 2002, with a 30-year implementation programme to make transport accessible; access to public buildings in 2011 to remove barriers in the public built environment; and the National Disability Insurance Scheme (NDIS) in 2016, that means people can access supports without the geographical constraints currently experienced. However, the collective effectiveness of these policies is hampered by lack of appropriate housing in appropriate locations. Housing is behind other areas of policy. Figure 1 shows the housing policy lag. Arguably, housing should have been the first priority as it is the foundation upon which society functions.

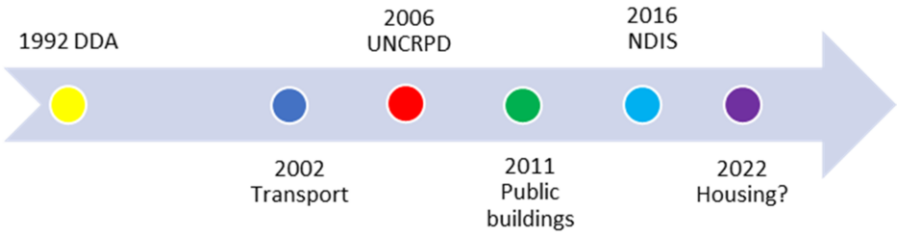

Figure 1 Housing policy lag

3.2. Affordable housing and housing affordability

'Housing affordability' and 'affordable housing' are important aspects for any housing research. These topics permeate every level of Government, are complex, and

are subject to much rhetoric from all sides. The research sought to pull-out key research relevant to considering the potential impact of mandating acceptable minimum standards in housing.

What constitutes 'affordable' for a household will depend on several factors, including the household's financial situation, the housing market, whether the property is rented, owned outright or being purchased with a mortgage. Households experience affordability differently. The housing continuum is a means of showing where households are in relation to each other. At one extreme, homelessness, at the other, owning a property outright. The Housing Industry Association's policy position paper Affordable Housing, 2015, illustrates the housing continuum, shown in Figure 2. [12]

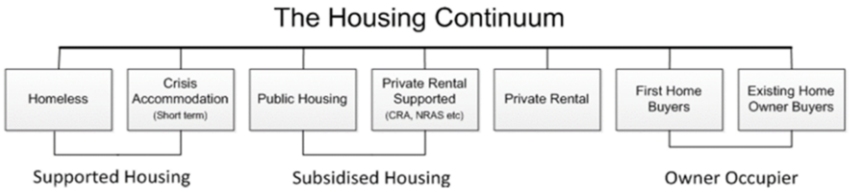

Figure 1. Housing continuum (source HIA)

Many policy papers on affordable housing focus on the supported housing end of the affordability spectrum. However, the view of the Economics Reference Committee [13] and that of Australian Council of Social Service et al [14] is that housing must be considered as a whole, for policies to be effective, ie, across the housing continuum.

> *If housing continues to be viewed by governments as a welfare issue, rather than an infrastructure issue, the current problems in the Australian housing market will continue to impede economic activity, participation and productivity. The market will also continue to fail to provide adequate housing for all people. [14]*

HIA Policy, Housing Affordability states:

> *A fundamental tenet of HIA's efforts to promote housing supply is that every Australian should have access to a home. Access to shelter is a basic human need and is critical to allow all Australians to participate in society to their full economic and social potential. [12]*

HIA commissioned research showed that taxation can represent 30% of the cost of a new home; up to 40% in Sydney [12]. Work by the Australian Housing and Urban Research Institute showed that most new homes are provided in the upper price ranges, and *"the scale and nature of such a failure in housing supply by the private market, represents a structural problem in the supply of housing for low income households."* [15], [16]. Considering broader economic and productivity impacts, the Economics Reference Committee stated that the performance of the housing sector, including the state of housing affordability, is directly related to Australia's overall economic performance. [13].

The significant tax component and emphasis on new homes in upper price brackets, provides useful context for considering the statistical evidence and the compliance gap analysis below.

The opportunities are summarised neatly in the Australian Institute of Architects' (AIA), *Affordable Housing Advocacy Points paper, May 2017*. This paper acknowledges the complexity of the issues and proposes design and problem-solving skills to address "*crucial issues such as sustainable design, universal access, and user amenity, to deliver housing that is as affordable in its upfront cost as it is for the lifetime of its occupancy."* [17].

Affordability and minimum universal housing design standards are not mutually exclusive, rather, they must be integrated if society is to meet its economic imperatives across the housing continuum.

3.3. Population, participation and productivity

The 2015 Commonwealth Intergenerational Report (IGR), explains how Australia is forecast to change in the next 40 years, outlining 3 key drivers of economic growth, namely, population, participation in the workforce, and improved productivity. [18]

There are key demographic changes forecast predicting a growth in Australia's population from 23.9 million in 2015 to 39.7 million in 2054-55, with overseas migration having a significant impact. The IGR states that *"the number of Australians aged 65 and over, is projected to more than double by 2054-55, compared with today."* [18]. Despite the population increases, the Committee for Economic Development Australia (CEDA) notes "that households, rather than people, are the critical demographic unit of housing demand." [19].

The IGR also addresses Government budgets and how these might need to respond to demographic projections. A key finding of the IGR is that government expenditure is projected to double on funding for residential aged care. Specifically, expenditure is projected to increase from 0.9% GDP (2014-15), to 1.7% of GDP in 2054-55. The ability to age-in-place will provide significant economic benefits to the Commonwealth, but only if housing can adequately meet the needs of the ageing population.

Historically, productivity has been the most important of the 3 drivers of economic growth. The IGR states that "ongoing improvements in Australian living standards will remain primarily contingent upon continually improving our productivity and require us to take every opportunity to increase participation rates." [18]

Participation refers to the number of people aged 15 and over who are actively engaged in the workforce. The IGR states *"The community and economy will benefit from opportunities to support older Australians who want to work, as well as boosting opportunities for women, young people, parents and people with a disability to participate in the workforce".* It continues: *"Higher workforce participation can reduce the fiscal pressures associated with providing welfare support and serve social inclusion and equity goals." [18]*

It is clear that participation can make a significant contribution to productivity. However, to be able to participate, all sections of our community need to have access to appropriate housing within an appropriate proximity of employment, education and essential goods and services. Housing that can respond to the needs of all Australians, is crucial to Australia's economic and social prosperity.

3.4. Sustainability and energy productivity

The impact of non-universally designed housing extends beyond people, participation and productivity. It also affects Australia's energy productivity and is central to sustainability themes such as service life, obsolescence, finite resources, reducing waste and the economic cost of lost embodied energy.

Homes that are not adaptable or flexible to meet changing user needs often become functionally obsolete. In Service Life Planning for Buildings – An Introduction, it is noted that: *"In response to the multitude of factors that influence the service life of a building, the flexibility or adaptability of a building can be a critical determinant of its ultimate life span."* [20]

Your Home is a comprehensive guide to sustainable homes and sustainable futures, as a partnership between building and design industries and the Australian Government. *Your Home* makes the point that the emphasis on most sustainability initiatives is typically focused on reducing operational energy and water use as well as waste. The embodied energy of the materials is overlooked. [21] Embodied energy is the energy consumed by all of the processes, components and products associated with the production of a building and includes, mining and processing of resources, manufacturing, transport and delivery. *"Research by CSIRO has found that the average house contains about 1000 GJ of energy [in] normal operational energy use. For a house that lasts 100 years this is over 10% of the energy used in its life."* [21]. For a home lasting 50 years, this embodied energy correlates to nearer 30% of all energy used in the home's life.

As operational energy use is reduced through changes in the building code, and building upgrades, embodied energy will become more important in the total energy used over the lifespan of a home. Improving building service life and providing adaptable, flexible universally designed homes offers significant potential to improve energy productivity. In Australia, there is a target to improve energy productivity by 40% between 2015 and 2030. [22]. Given that there were 214,334 dwelling approvals between December 2016 and November 2017 [23], mandating minimum universal design standards in housing has potential to improve Australia's energy productivity, by reducing obsolescence.

Housing represents 6% of GDP [24] and has been subject to all tiers of Government policy from taxation and planning requirements, infrastructure charges; subsidies etc. Housing has become too complex to 'solve' without a whole-of-housing policy approach. Housing product is provided in a complex trading environment. Arguably, it has been unrealistic to expect an industry to apply 'voluntarily' standards to solve such complex and far reaching policy goals and this might explain why the voluntary uptake of Silver level has been low [11]. It is also why mandating acceptable housing standards is now required.

4. Statistical context

The statistical context explored demographics, households, dwelling types; tenure; occupants; disability and carers. This allowed for greater understanding of the 'need', nature and scale of the potential cost and benefits of acceptable standards for housing. The data was obtained from the Australian Bureau of Statistics (ABS) Census 2016 [25],

the ABS Survey of Disability, Ageing and Carers, Australia, 2015 [26], and Census Quick Stats [27].

4.1. Population and households

The ABS census data indicates 18.3% of the population identifying with a disability; mostly physical conditions. This (almost) 1 in 5 statistic is often used in disability advocacy. However, as above, the Committee for Economic Development Australia (CEDA) notes "that households, rather than people, are the critical demographic unit of housing demand." [19] If the ABS census is analysed by household, the data shows that 1/3rd of all households contain a person with a disability. Further, 40% of the population identify with either a disability or a long-term health condition; the most common of which were physical conditions were back problems and arthritis.

The population and household data shows: a much larger range of beneficiaries; that this is a mainstream issue; and provides a compelling empirical basis for requiring acceptable mandated housing standards.

4.2. Income and workforce participation

Data on median incomes and workforce participation provides clear evidence that people with disabilities experience discrimination:

- 46.6% of people with a disability were not in the workforce compared with 16.8% for people without a disability; nearly 3 times.
- Median incomes of people with disability are less than half of those with no reported disability.

There is significant potential to reduce this gap and improve participation and productivity. This data is consistent with the problems identified in the policy context, previously discussed.

4.3. Household composition, dwelling structures, tenure

71% of all Australian dwellings are separate houses and the average dwelling has 3.1 bedrooms, see Figure 3. This suggests that Australian dwellings have space to accommodate minimum dimensions, such as corridor width, through a design-led approach, without extra cost and with minimal impact on amenity.

One and two-person households make up 57% of all households, see Figure 4. The average household size is 2.6 people. There are clear trends towards a growth in higher density housing forms, such as townhouses. Almost two-thirds of all flats/apartments are rented; three times the amount for separate dwellings.

Data on lone person households showed that, the age range 45-64 represents 1/3rd of all lone households, and that people age 65 and older make up nearly 40% of all lone households; these figures are forecast to increase. See Figure 5.

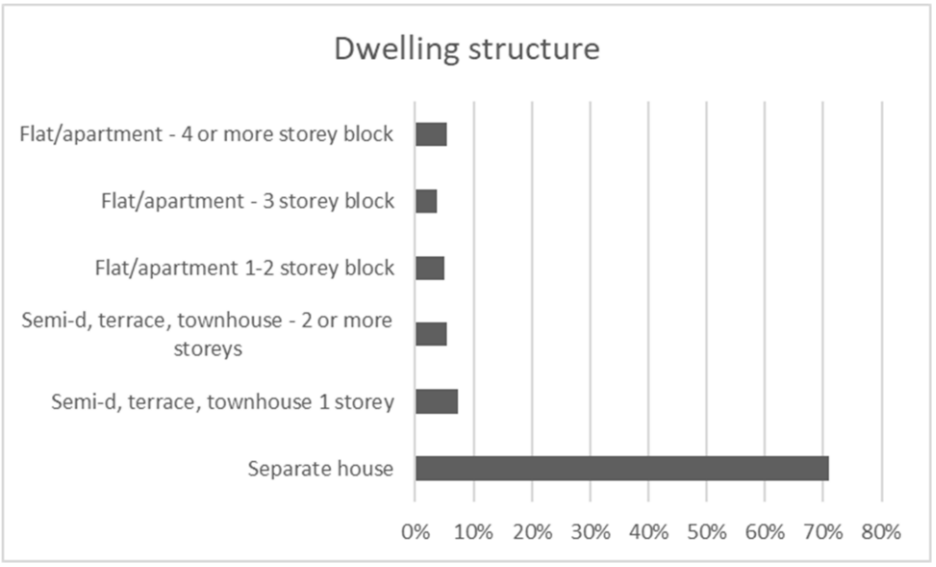

Figure 3 Dwelling structure type as a percentage of all dwellings

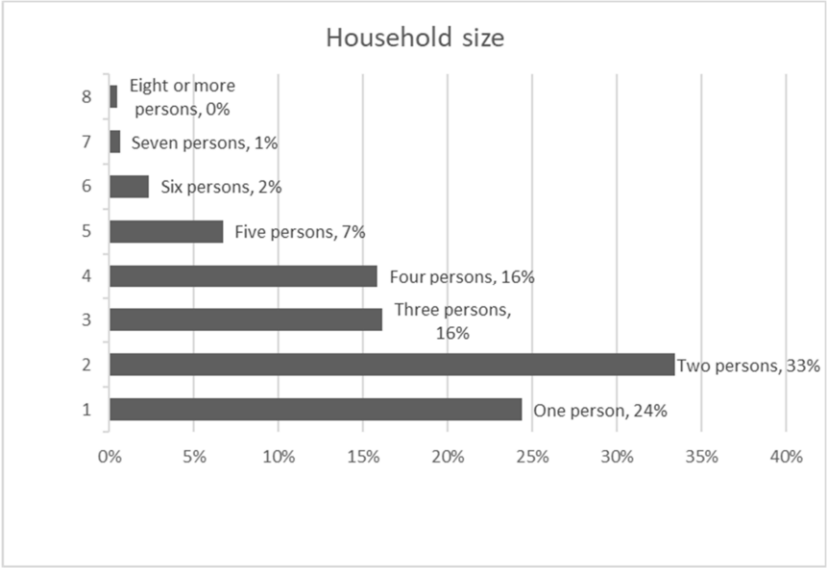

Figure 4 Household composition

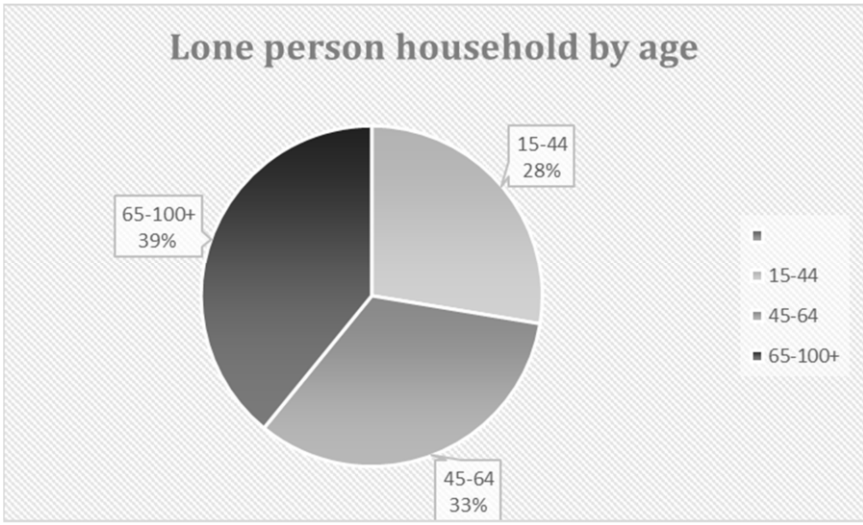

Figure 5 Lone person household by age

Detailed statistical analysis re-framed the need for minimum acceptable standards of housing into a mainstream problem. The dwelling structure, tenure and lone person household data, plus the trend towards higher density dwellings, means that smaller dwelling structures are most likely to accommodate people who will benefit the most from acceptable mandated standards for housing. This represents an opportunity for universal design-led solutions. Accordingly, smaller dwelling types should not be excluded from mandated standards and any concessions for smaller dwellings must be carefully evaluated.

5. Compliance context

Evaluating the potential impact of applying standards to housing, involved compliance gap analyses, with reference to State planning codes, standards and guidelines that are applied to adaptable and liveable housing, as well as general access and mobility requirements of the National Construction Code (public areas of flats/apartments). State, Territory and local Governments have responded to the policy context through planning requirements for access and mobility for multiple dwellings. This contributes to a complex compliance landscape with multiple standards, adding cost and inefficiency to the building industry

Analysis of the Livable Housing Australia (LHA) design guidelines [10] involved assessing each design feature, for Silver (7 features), Gold (12 features) and Platinum (15 features). Each design feature at each level also had multiple requirements for example, at Silver level, there were 5 specific requirements regarding the design of a dwelling access. Thus the gap analyses were detailed and generated a series of tables.

The gap analysis comparing LHA levels and Australian Standard 1428.1, access and mobility standards [6] for public buildings showed broad alignment with LHA Gold and Platinum levels. Since the adoption of these standards in 2011, there is also extensive transferrable building industry experience (not housing) and product manufacturers and designers have developed mainstream products and designs to suit. This established

knowledge and product base should mitigate costs of mandating standards for housing, depending on the designs adopted. Mandating standards for housing that align with other parts of the building industry offers opportunities to reduce complexity, maximise efficiency and economy. The main costs to the housing industry will likely be in changes to documentation and initially site supervision, but the benefits will include: Enhanced product amenity; and selling features such as future-proof asset; asset to suit wider range of purchasers/tenants at all economic cycles; more sustainable; and increased service life.

Lastly, analysis of specific LHA Silver, Gold and Platinum guidelines showed which design features might cost more; have potential to be designed out; or be cost neutral as well as the benefits conferred and likely impact. A detailed outline is outside the scope of this paper. However, the provision of reinforcement to bathroom walls was the one item that would cost more for all LHA design levels. Wall reinforcement involves the application of plywood to walls and additional noggins; a relatively modest cost.

Cost neutral items include features such as height range for light switches and door handles and slip resistant flooring. There were design elements that might incur additional costs but are now common in many new homes such as step-free showers, 1000mm wide corridor, 820mm wide doors, level entry etc. Items that might incur costs that could be designed out include circulation in front of the toilet pan; corridor widths; door widths; level entry etc. For these items, additional costs can be avoided if they are included at the design stage of a home. Platinum level space requirements represented the likeliest construction cost risk, especially for smaller dwelling structures, as Platinum has the largest circulation space requirements, notably for the bathroom.

Silver, Gold and Platinum design features confer a range of benefits not widely achieved in housing today. The level of inclusiveness and all that flows from inclusion, increases with each level, see Table 1. Silver level confers benefits of a level of accessibility and a degree of visitability, but still has barriers, and unlikely to meet the UNCRPD, or National Disability Strategy obligations. Platinum level confers the greatest number of benefits for liveability and visitability and is the most inclusive but will be harder to achieve for smaller dwelling structures.

Table 1 Level of inclusiveness of LHA performance levels

Level of inclusiveness		
Silver	**Gold**	**Platinum**
→		
Slightly inclusive	Mostly inclusive	Fully inclusive

The LHA Guidelines are straightforward, however, their voluntary adoption has been low [11] and inconsistently applied; no doubt because of lack of regulation in the housing industry. To determine what the 'acceptable' standards for housing should be, the research recommended a universal design approach should be taken that will suit most people, most of the time, without the need for specialised adaptation. In this way, good design will benefit most people, including people with disabilities, older people, young people. Universal design moves thinking away from stereotypes, marginalisation and discrimination, towards inclusivity, and helps to remove attitudinal as well as environmental barriers. Universal design is also part of Australia's commitment to the UN CRPD.

The research recommended that each design element should be considered in its own right, on a cost benefit basis, rather than selecting either Silver, or Gold, or Platinum in their entirety. In this way, the optimum cost benefit scenarios can be achieved to suit the greatest number of users. Any discussion about the cost of acceptable features must also be considered in the context of taxes and other charges that contribute 30% or more to the final cost of a dwelling. [12]

6. Closing comments

Housing is integral to the fabric of society. At its most basic level, housing meets the basic human needs of shelter and security. A home provides a place to form families, raise a family, and in which to retire and age-in-place. For some, a home is the place where they will choose to die too. A home provides a base from which economic and social participation occurs. Participation is crucial to economic productivity but is hampered if the home is too distant from the work opportunities, or the transport system, or in short term rental market scenarios. Homes and housing need to be considered in a community-wide context alongside aligned policies. For these reasons, mandating minimum acceptable standards of universal design in housing will offer hope to countless Australians who currently live in obsolete housing or cannot access adequate housing and as a consequence experience exclusion, isolation and discrimination.

The research does not seek to advocate for one solution over another, rather to present the complexity of the topic and to provide a framework to assist the quantification of costs and benefits that would occur in the event of mandating acceptable standards for housing. The research conclusion was that mandating an acceptable standard of housing is now urgent, perhaps even critical. The effects of policy lag have and will continue to impact on Australia's economic and social prosperity.

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