
Housing and Disability a great opportunity

A commentary on the CHRANZ report "Future Proofing New Zealand's Housing Stock for an Inclusive Society"¹

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Introduction

The final report of the accessible housing research program commissioned by CHRANZ in partnership with the New Zealand Office for Disability Issues, Ministry of Social Development, makes public that current New Zealand housing stock and construction and disability modification and design practices are failing to meet the needs of people with disabilities in that country. This finding is by no means unique and would I'm sure be much the same if the same research were to be funded in the Australian context. Indeed, the Australian Network for Universal Housing Design noted that "private housing [in Australia] has almost completely avoided satisfying any access requirements in its design, in spite of the acceptance of mandatory access requirements for public buildings" (Hughes, 2005).

However, before I go on to make specific comments on the report I would like to make some comments about our current understanding regarding evidence for implementing change especially touching on the issue of cost-effectiveness and some of the known barriers, which must be overcome for any change in policy and practice to take place.

Body of evidence for making housing policy changes to better include people with disabilities

The key finding that there is considerable unmet need for good quality accessible housing in New Zealand (Saville-Smith, James, Fraser, Ryan, & Travaglia, 2007) is unsurprising. Australian data as in the New Zealand case indicates significant unmet home modification and maintenance need. For example evaluation of the Australian Bureau of Statistics survey of Disabled, Aged and Carers found that there was a 35% unmet need for home modifications and a 60% unmet need for maintenance needs (Bridge, Kendig, Quine, & Parsons, 2002). Additionally the body of evidence supporting policy moves to more accessible housing are underpinned by a growing body of evidence for the effectiveness of better home design and benefit of housing modification to consumers at the Random Control Trial (RCT) level (Campbell

¹ Saville-Smith, K., James, B., Fraser, R., Ryan, B., & Travaglia, S. (2007). Housing and disability: Future Proofing New Zealand's Housing Stock for an Inclusive Society (Final Report). Centre for Housing Research Aotearoa New Zealand.

et al., 2005; Close et al., 1999; Cumming et al., 1999; Gitlin, Corcoran, Winter, Boyce, & Hauck, 2001; Mann, Ottenbacher, Fraas, Tomita, & Granger, 1999) and even more if pre and post test methodologies are included in systematic reviews of effectiveness. The evidence accumulated to date suggests that a) appropriate consideration of impairment i.e. modification or good design can delay the onset of functional loss; and b) may be an effective strategy for home accidents such as falls especially among older persons.

Nevertheless the primary issue with the randomised control trials we currently have is that the existing studies are non-comparable because all have different populations and intervention approaches so cannot be cumulatively analysed in any valid manner (Gill, 1999; Lyons et al., 2007; Nicolaidis-Bouman, Van Rossum, Kempen, & Knipschild, 2004). Also systematic reviews may exclude lower levels of empirical evidence. For instance, most Cochrane type review protocols exclude pre-post test experiments which when summarised indicate that environmental modifications may reduce home falls incidents anywhere from 25% up to 75% (Gallagher & Brunt, 1996; Plautz, Beck, Selmar, & Radetsky, 1996; Thompson, 1996).

This however points to an even bigger problem, which is the difficulty of dealing with the underlying assumptions regarding causation versus selection effects in housing research (Catalano & Kessell, 2003). The selection argument being that disability and illness result from poverty and restricted choices re locality, quality and amenity whereas the causation argument on the other hand argues that the direct effects of particular features such as no steps, wider doors etc. on particular populations must be empirically observed and measured to be implemented. Both are difficult to measure but causation is by far and away the most difficult to test because it requires elimination of other confounding variables and in housing may be impossible when a roof over ones head is perceived primarily as a relative good when compared to homelessness.

Last, there is a nexus between housing and provision of care in the home. Community based care through formal and/or informal means has the potential to provide large savings to Government. Therefore it would seem that housing issues should be an important part of the discussion as tenure type such as home ownership appears to have significant effects on the potential to modify existing dwellings and the potential for remaining in the community. Further a recent cost-benefit study shows that housing and tenure types do impact the magnitude and the cost of community care (Bridge, Phibbs, Kendig, Mathews, & Bartlett, 2007; Bridge, Phibbs, Kendig, Mathews, & Cooper, in press).

Barriers to implementing design change to better include people with disabilities

Implementing more inclusive practices presents numerous challenges despite improved information availability and general goodwill amongst construction personnel, the public and policy makers towards a more inclusive society (Bridge, McAuley, & Woodruff, 1999). Unfortunately, a number of themes

consistently recur and are used to explain inertia in regard to making housing more accessible and inclusive.

First, there are financial problems associated with housing affordability, alterations and upkeep i.e. “cost is a problem” for consumers, developers and funders (Mathieson, Kroenfeld, & Keith, 2002; Tabbarah, Silverstein, & Seeman, 2000). Unfortunately, there is still a widespread perception that universal design is more costly despite the fact that the research evidence consistently disputes this where the site is level, products are mainstream and where changes are made at design concept stages additional costs may be 2% or less (Hill PDA, Brian Elton & Associates, & Rider Hunt Quantity Surveyors, 1999; Nielsen, 1998; Ratzka, 1994) and never more than 5% (Alonso, 2002). This of course does not address the cost of any benefits derived from implementation of more accessible housing such as savings to both consumers and government in the reductions of need and cost for future housing adaptation (Cobbold, 1997). Nevertheless, research also tells us that a gradient towards accessible housing will be hastened by access to incentives and housing subsidies which can have significant impacts on uptake and demand, thus consideration of financial factors and marketing is crucial (Mathieson, Kroenfeld, & Keith, 2002).

Second, relying on demand driven change is problematic because lack of insight (and/or denial of impairment/disability), knowledge/information, social support to make positive change and underlying issues with social stigma are all major disincentives for consumers (Gitlin, Corcoran, Winter, Boyce, & Marcus, 1999; Gitlin, Luborsky, & Schemm, 1998; McCreadie & Tinker, 2005). Inaction and inertia is also evident with developers and realtors especially where universal design and adaptability principles remain poorly understood, poorly regulated and questionably profitable. Last, failure to pay attention to issues of desirability and aesthetics from an end user perspective (McNulty, Johnson, Poole, & Winkle, 2003) further creates problems with any demand driven housing policy change approach.

Groundbreaking nature of the report on Future Proofing New Zealand's Housing Stock for an Inclusive Society.

The applied value of the accessible housing research work undertaken by CHRANZ arises from its potential contributions to improving the health and wellbeing of all New Zealanders not those with the label of disability. Therefore, I would like to commend the ‘Future Proofing New Zealand's Housing Stock for an Inclusive Society’ report not just because of the determination to explore the housing problems experienced by a wide range of users but because the report itself stands out internationally in terms of its policy significance, comprehensiveness of the research foundations and the confidence in the consultation process. It is these three critical features, which allow the researchers to synthesise findings that lend themselves to actions that are both doable and realistic. In the rest of this commentary I will set out my explanations for coming to this conclusion with some illustrations and references. However, this commentary will draw primarily on Australian examples so has an Australian bias.

Policy significance

Significant demographic change in New Zealand is occurring in a context as in Australia where governmental funding is limited but demand for improved and accessible housing services are rising (Australian Institute of Health and Welfare, 2003). The sheer magnitude of demographic change brought about by population ageing in combination with the desire to age at home, makes rethinking current housing accessibility practices critical. This is specially so when we also consider deinstitutionalisation, and the move towards more health care services being delivered into an individual home (Bridge, Kendig, Quine, & Parsons, 2002). These social and demographic factors mean more clients with multiple impairments are remaining in the community, in whatever housing stock is available to them. The numbers of persons with ability impairments requiring accessible housing continues to rise due to:

- greater societal expectations regarding the desirability of ageing within familiar environments;
- an increasing percentage of the population with brain injuries and dementia; and
- the process of deinstitutionalisation.

As a consequence, more efficient and effective housing interventions are critical (Andrews, 2002; Harrison & Parker, 1998).

The fact that good housing design can delay disability thresholds is also important in relation to the accessible housing reports significance because it implies that improving housing quality and increasing accessibility has the potential to reduce the need for care. Figure 1 illustrates how environmental changes are understood to reduce the disability threshold. The grey longitudinal box with the dashed line illustrates how environmental change can act to either raise the disability threshold or lower it as functional capacity (human ability) changes over time.

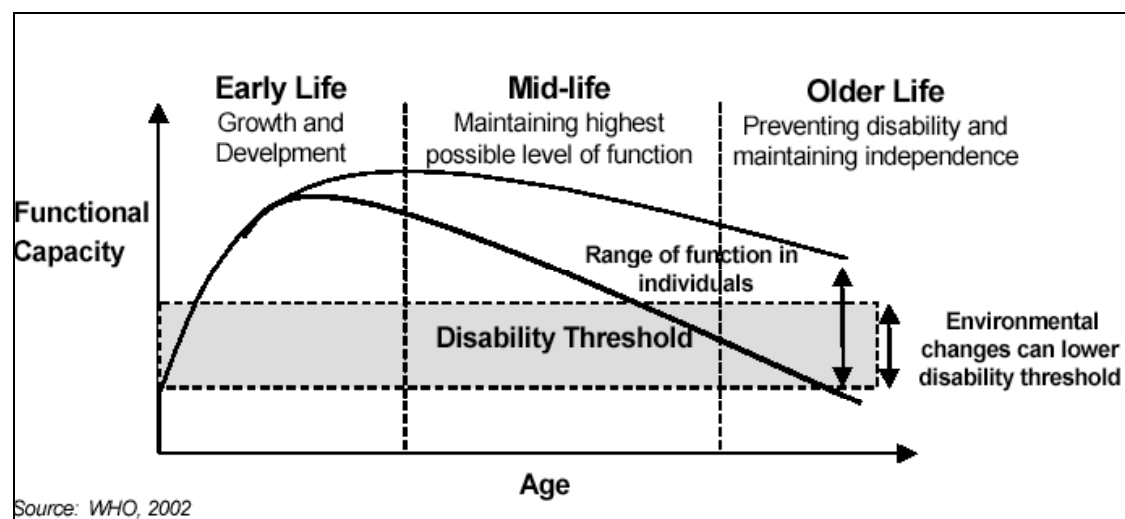


Figure 1: Maintaining functional capacity over the lifecourse.

The consensus amongst ageing experts is that the cornerstone of a good old age is safe, secure, comfortable, affordable and accessible housing (Straton et al., 2003). Housing is the 'where' in long-term care (Dalley, 1991; Kodner, 1996, 2003). This reconceptualisation of housing reflects recognition of the

growing demands for more quality-of-life-enhancing and cost-effective alternatives to institutions (Regnier, 2003). For older persons and those with disability, the presence or absence of enabling housing makes the difference between continued community living or living in an institution (Brink, 1998; Pynoos & Liebig, 1995; Pynoos, Nishita, & Perelman, 2003; Pynoos, Tabbarah, Angelelli, & Demiere, 1998).

The World Health Organisation lists home related injuries fifth amongst the leading causes of death (Ranson, 1993). Home injuries in Australia, as in other countries, are a common occurrence. For instance, 12% of the Australian population when surveyed indicated that they had sustained an injury in their home within the previous month (Australian Bureau of Statistics, 2002). Fiscally, home injuries result in annual health related expenditure estimated at \$2,369 million for older persons (Hill et al., 2000; Hill et al., 2004), and \$660 million for children (Atech Group, 2003). Needless to say, injury is most commonly associated with housing that is of poor repair or quality (Dunn, 2002; Sandel & Zotter, 2000).

Comprehensiveness of the research foundations

The research questions examined included reviewing of disability census data and projecting this through to 2050 (Saville-Smith & James, 2006), and an international literature review (Scotts, Saville-Smith, & James, 2007). First, the prevalence work raised issues about disability census data quality (also a concern in Australia) but irrespective of this finding indicated that the population particularly the older population will increase in New Zealand (as in Australia). This means that the number of persons with disabilities will increase with more people living alone. Additionally, it has also been noted (particularly in the New Zealand context) that older homeowners are also more likely to live in older homes, and better quality housing correlates with reduced health care demand (Howden-Chapman, Signal, & Crane, 1999).

Last, the international literature review revealed that accessibility to mainstream housing was critical if 'ageing in place' and any real community participation are to be achieved. It also revealed that solutions were currently piecemeal in nature and that regulation alone was insufficient without financial incentives and regulatory breach monitoring in place. The current lack of any comprehensive quality assurance, training and accreditation systems in New Zealand is echoed internationally. However, there are a growing number of innovative international models that clearly demonstrate how a more coordinated approach can succeed.

Leading international examples of increased housing accessibility and Universal Design adoption are evident in many countries. A few leading examples of note include North America (e.g. the Georgia Easy Living Home Builder Certification Program and Seabird Island's First Nation Sustainable Community Demonstration Project which successfully incorporated Universal Design in an innovative sustainable residential development); Europe (e.g. Norway has a state-run "Housing bank" which finances life-span Universally Designed housing); and Japan. Japan undoubtedly has the most comprehensive National housing program for its seniors (e.g. the Heartful

Building or Universal Design Law which was implemented in 1994) but has now moved to a much more comprehensive Universal Design approach and its Ministry of Land, Infrastructure and Transport (MLIT) are now implementing national land and transportation policies based on the concept of universal design these regulatory practices in conjunction with an education system of Universal Design specialists across industry are creating a real difference relatively quickly especially when compared to the United States where each State does its own thing (Saito, 2006).

Thus the priority goals identified for New Zealand of increasing accessible housing stock by both new design and enhanced modification program's and creating a registry of this stock are consistent, logical and indeed central to improving any mainstream housing outcomes. These recommendations moreover align with the understanding of international best practice evidenced in working paper 2 (Scotts, Saville-Smith & James, 2007).

Confidence in the consultation process

The fact that data was triangulated from more than one source and that focus groups and case studies were used in addition to survey techniques improves our confidence in the raw data. The social research literature on survey design generally accepts the validity of self-reported evidence using research interviews or questionnaires. More importantly, this type of data when combined with data derived from other sources (e.g. literature reviews) serves to cross-validate findings (Roberts, 2005).

Surveys are typically the preferred approach for collecting data from large numbers however many survey instruments are locally developed, as indeed was the survey used for this project. Nevertheless, the survey utilised for the accessible housing report while specifically developed for this purpose, clearly had a solid foundation as it was constructed from existing standardised questions albeit from a variety of housing and disability surveys previously conducted. This standardised base and the survey piloting process also employed both serve to increase our confidence in the results found (Dillman, 2000).

The consultative phase of the research was designed to address the questions of perceptions and reality as it currently stands within New Zealand. This stage of the analysis therefore included both the exploration of disabled peoples housing experience and surveying community-based housing providers and realtors (Saville-Smith, James, Fraser, Ryan, & Travaglia, 2007). The fact that sampling explicitly included the widest range and most vulnerable populations is significant e.g. population groups such as young, old, Maori and pacific peoples were sampled across both North and South Islands both via survey (152 persons) and via more in-depth focus groups (39 persons). Additionally, the survey of community-based housing providers and realtors which also used a combination of in-depth focus groups and survey techniques was used as a counterpoint to better understand the larger context and to ensure maximal inclusiveness of all relevant stakeholders.

The two case studies included in the report (i.e. the 'Development Company' and 'Housing New Zealand Corporation (HNZC)') add another layer of depth to the piecemeal and complex picture of current housing provision. The picture that results makes clear that despite a mandate that includes improved health and wellbeing outcomes for all residents that the lack of understanding and desirability of accessibility features has resulted in a tension where optimisation of accessibility is lost with prevailing views of tradability, sustainability and affordability resulting in a lack of any coherent policy, sustained effort and results in the creation of new inaccessible housing stock.

In fact that the only elderly friendly construction in the 'Development Company' case was that of its retirement villages is significant. A similar trend towards elder care as a special accessibility case was also noted in relation to HNZC which while proactive on the elder care housing front had not been proactive in relation to improved accessibility or Universal Design innovation across its stock. While it is true that either hospital or nursing home design can benefit from accessibility and universal design practices their exclusion in this report is logical as they represent different aesthetics, scale and incorporate different design practices. Further, the level of disability of nursing home inhabitants (e.g. predominantly profound and severe in nature) in combination with features designed around cleaning and durability standards that serve to create a more clinical and less home-like appearance.

Nursing Homes as an accommodation design type are by definition 'an institution where people are cared for' so are primarily concerned with creating formal care efficiencies. This is untrue of Universally Designed or more accessible housing, which is domestic in scale and is primarily concerned with facilitation of occupant autonomy and independence. The 'hospital in the home' and 'home care models' which rely on Universal Design or accessible housing models for their provision both rely on informal care from family and friends, whereas in nursing homes, efficiencies in formal care costs drive very different accommodation models (i.e. congregate accommodation or cluster housing).

The key findings

The fact that natural and man-made environments directly impact on human ability appears self-evident. Nevertheless overlooking this vital connection occurs all too frequently, consequently the accessible housing research carried out in New Zealand adds another layer of understanding to a growing global awareness and an existing body of research which says that the built environment, and housing in particular, has a powerful impact on health, mobility, independence, autonomy and wellbeing for older persons and those with disabilities (Burrige & Ormandy, 1993; Conway, 1995; Ineichen, 1993).

Additionally continuing current housing design practice, which include features such as stairs or other inaccessible building elements, impacts mortality and morbidity and places all people not just those people with disabilities and their carers at risk of further injury (Public Health Association of Australia, 1993; Wylde, 1998). Moreover evidence of the impact of building elements on health and wellbeing and the ability to 'stay put' comes from an English study where

the main reason cited for housing relocation was to eliminate the demands made by stairs (Buckle, 1971).

In the closing paragraphs I will take each of the four key recommendations from the accessible housing report and comment on why I think these are both appropriate and doable.

1. Universal Design as a primary mechanism for future proofing

The report recommends 'future-proofing' via policy that facilitates mainstreaming Universal Design. This makes sense because Universal Design is primarily about consideration of human and building function but is also about marketing for wider appeal. The architect Ron Mace in America coined the term 'Universal Design' approximately twenty years ago. If more inclusive housing design is viewed from a preventive perspective, its value becomes obvious in injury prevention and in improving ease-of-use and efficiency. A move to view environments as enablers of independence and as factors important in creating and maintaining quality of life for all is required. This view takes the focus away from the occupants and their shortcomings and places the focus on the shortcomings of the design and fabrication of the building itself. Because it is an inclusive approach it is more likely to appeal to 'us' not just 'them', therefore it is more likely to be effective in changing attitudes of consumers, suppliers and people within the building industry. Further current research indicates that accessibility, usability and productivity are related and more importantly that accessibility is an important precondition for usability and productivity outcomes (Fänge & Iwarsson, 2003).

Nevertheless, in Australia, accessible or adaptable housing are still currently only a miniscule percentage of the market and have traditionally been provided via public housing and community housing authorities (e.g. social housing sector). However, social housing bodies manage less than 5% of the total housing stock in Australia (Australian Bureau of Statistics, 2005). Further, the current global trend within housing is towards community housing cooperatives and privatisation, so most new design and construct activities are being tendered out to private contractors who as a general rule are more concerned with affordability in terms of saleable area and maximisation of density than 'good' design practice. Even in the United States, which has had housing accessibility legislation in place since the 1990's, the majority of new housing units do not contain features that facilitate accessibility, visitability and adaptability for individuals with ability impairments (Duncan, 1994). American housing statistics also indicate that less than 10% of the 100 million existing residential units have features that accommodate human ability impairments relating to assistive device use and reaching limitations (La Plante, Hendershot, & Moss, 1997).

Nevertheless to move from research to action in order to make Universal Design mainstream in New Zealand will require political will and government action designed to enhance both push and pull forces. The implementation of both new and improved regulation for all new housing and major retrofits (i.e. where more than 10% of the building fabric will be altered) can create a push force. The success of this in relation to sustainability is evident in the NSW

Building Sustainability Index (BASIX) model. The BASIX model clearly demonstrates how regulation evaluation and better planning can be achieved i.e. via a comprehensive web based planning tool that assesses the potential performance of any new development against a set of indices. While the indices within the BASIX model are currently limited to sustainability ones, it is possible that these could be extended to include accessibility criteria. If this were done well it would also have the advantage of better aligning the sustainability and accessibility thus having the potential to create a more usable, more energy efficient and more flexible building into the longer term. However demand must also be increased and this requires that rebates or other tangible incentives are also made available at least in the short term.

2. Need for a comprehensive and better funded Home modification program

The report makes clear that the absence of reasonable quantities of universally accessible homes means that home modifications will continue to occupy a unique position over the next century or more. Additionally, while Universal Design is highly desirable particularly as it has the impact to reduce cost for modification it cannot altogether eliminate them as one-size can never fit all (Scotch & Schriener, 1997). While a greater number of universally designed homes will go a long way to improve housing outcomes, one size can never fit all and the diversity of requirements posed by disability is large (Vanderheiden, 1998). For instance, the provision of assistive devices, including non-standard mobility aids (i.e. prone trolleys, hoists and electric scooters) determines spatial requirements such as the amount of clear floor area required for circulation. Moreover, difficulty carrying out functional tasks such as transferring on/off the toilet can be solved by a variety of means. A modification solution might involve a non-standard toilet pan substitution to raise the seat height.

Home environments are diverse and typically contain large numbers of features that are compositional in nature and whose character is as unique as the humans they house (Stark, 2001). The home modification decision framework is typically influenced by contextual factors such as life expectancy, security of tenure, availability, affordability and general condition of “as found” original design features. This is because the requirements imposed by disability, whilst having sufficient regularity to remind and prompt, are rarely if ever replicable without some modification to address individual differences (Bayer & Harper, 2000).

Lastly, change in design practice alone cannot address problems resulting from existing infrastructure. Differences in human shapes and abilities, in combination with physical, social and cultural environments, mean that many, if not all, built environments will require redesign or modification to meet users’ activity needs over their lifespan (Van de Voordt, 1999). Home modifications as a strategy are also critical as they represent the only means of introducing Universal Design features into existing housing stock (Price, 2002).

3. Building capacity across stakeholders and in the construction sector

The need to build capacity across the construction and consumer sectors is also critical because although numerous design guidelines currently exist, they tend to be over generalised, internally inconsistent and/or incomplete (Bridge, McAuley, & Woodruff, 1999). Further, there is little support currently available to consumers or to those within the construction sector for implementing Universal Design and evidence based redesign.

Inexperience and insufficient training amongst professional personnel including occupational therapists, builders and architects further compound knowledge gaps (Bridge & Flynn, 2003; Bridge & Martindale, 2002). Therefore much work still needs to be conducted in developing evidence-based materials and in training/curricula that better ensures that construction techniques are inclusive, result in accessibility and are appropriate for the task at hand.

4. Making more efficient use of modified housing stock.

The report recommends making better use of existing modified and accessible stock. However, at present in Australia and as was found in the New Zealand case, establishing the number of adaptable or accessible dwellings currently in existence and or those available for occupation is impossible because there are no central data repositories that are accessible, reliable or valid. This is a critical recommendation as improved housing design that is more accessible and adaptable has the potential to improve not only the lives of those who first live and visit within it but needs also to encompass the variety of people who use the home throughout its lifetime.

However, it is also important to remember that dimensions derived from access standards are socially constructed (Steinfeld et al., 1979; Steinfeld & Shea, 1993) and as our understandings and practices have evolved our criteria have also changed over time. It is likely that this evolutionary process will continue over time. Other efficiencies might also be gained by the introduction of a National housing quality rating system. For instance, Queensland Housing in partnership with John Deshon a well-known Australian accessibility architect piloted a rating system for allocating accessibility stars to housing in a similar manner to energy efficiency ratings on household appliances in 2003.

Unfortunately, this innovative and appealing idea failed to get past its piloting phase. Two reasons why it may have failed to be implemented or endorsed could be attributed firstly, to the complexity of decision-making required making inter-rater reliability difficult to achieve. Secondly, because the rating system derived directly from the Australian and New Zealand access and disability suite of standards any dimensional changes in a standard caused the rating forms to become outdated. Consequently, an effective Housing Quality Indication System needs to be based on principles rather than dimensional minima which can be empirically observed and which clearly provide measurable quality benefits to their residents and future occupants. It needs to be able to list its features in relation to valued wellbeing and basic

non-shelter outcomes. Such a system could deal with less than perfect older home modifications which did not have the full set of Universally designed features by awarding lower ratings and/or total number of starts etc.

The energy efficiency ratings are already well accepted by industry and consumers alike because they are easy to understand and appeal on a number of levels. The most basic level being the potential for long-term savings on service costs. Clearly, linking green and access agendas will create sustainable housing futures not just green build or greater accessibility. The sooner the move to increase efficiencies of housing stock via a National accessible registry of any home that is universally designed and or modified the better the housing transfer outcomes will be for all New Zealanders.

Conclusion

The research now being launched on Accessible Housing in New Zealand has the scientific capacity to make a major research contribution towards the vision of a healthy and just society that is flexible, desirable and inclusive. New Zealand in launching and funding this research has made a contribution to international knowledge about housing accessibility issues. New Zealand will also benefit from both leading and maintaining close links with best-practice in international research developments in this area. It is essential that the dialogue scoped with this research between those in the fields of disability, government, industry, and the community continue to expand in an ongoing manner, so that the insights gained through this seminal research can be translated into tangible benefits for New Zealand and indeed the whole international community.

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