This document is one of a series of information snapshots provided in conjunction with a detailed review of literature associated with Liveable Social and Affordable Higher Density Housing SBEnrc research project.

INTRODUCTION

Liveable Social and Affordable Higher Density Housing SBEnrc project is investigating liveable and affordable higher density housing opportunities, with a focus on urban precincts. Key topics considered in this project include:

1) Liveability outcomes, including accessibility in both medium and high density housing and the urban precinct.
2) Adoption of liveable design elements, highlighting successful best practice examples, and identifying pathways for adoption and barriers to uptake.
3) Understanding the value equation through capturing and demonstrating social and economic benefits to the broader community.
4) Exploring next generation thinking in order to maximise future infrastructure benefits and minimise future risks.

The adoption of liveability and accessibility outcomes and elements in Australian homes has been limited in past decades due, in part, to a perceived imbalance between costs and benefits. Given that adoption of accessibility has been problematic in current low and medium density environments, embedding accessibility elements in an evolving higher density environment will experience similar, if not more acute hurdles.

This research has included a review of literature, along with the consideration of best practice examples, to identify barriers to past adoption of liveability and accessibility elements and provide options for future activity.

CLARIFYING THE ISSUES

A review of current literature has highlighted the ongoing regulatory impact analysis being undertaken by the Australian Building and Construction Board (ABCB) since 2018 to 'consider the Livable Housing Design Guidelines Silver and Gold level specifications as possible options for a minimum accessibility standard, and additional options identified through consultation' (ABCB 2018, 1). This analysis relates to new Class 1a (houses, townhouses, row houses, etc) and Class 2 (apartment buildings) dwellings. For Class 1a buildings the National Construction Code (NCC) does not currently set any accessibility requirements.

Current issues highlighted in terms of the adoption of accessibility features include:

1) Community and societal motivations - Dr Galbraith's submission to the ABCB notes that 'market-based demand is problematic because ageing and disability are not aspirational' (ABCB 2019, 40).
2) Community and societal perceptions - Bringolf (2011a) suggests that there is a perception that people with disabilities and older people require special housing types, along with aesthetic impacts of incorporating accessibility features and hardware.
3) Industry uptake - Bringolf (2011a, 268) further argues that the 'tightly structured technical efficiencies in the delivery chain' where mass housing is treated as an off-the-shelf product has led to a very slow industry uptake of accessibility features in housing designs.
4) Regulatory burden - time spent demonstrating compliance; additional consultants; costs related to the use of performance solutions are equally seen as hindering the adoption of accessibility features in housing designs (ABCB 2019).
5) Cost burden - both real and percieved, refers to who pays that cost (i.e. who carries the 'burden'), as distinct from cost impact (i.e. how much something costs) (ABCB 2019).

6) Challenges with developing accessible carparking in multi-residential developments - recent industry stakeholder feedback to the Queensland Government's Department of Housing and Public Work's Building Legislation and Policy group on the accessible housing C-RIS suggests that cost-benefit analysis for accessible housing has historically been focused on detached housing rather than on accessibility in medium to high density housing. Feedback noted that there were particular challenges with developing accessible carparking in multi-residential developments and providing lift access for 2 and 3 storey walk-up multi-residential buildings (BLP, 2020).

Lessons from others

Four examples are provided to inform this investigation: (i) the benefits of the comprehensive Norwegian approach to embedding universal design; (ii) the shortfalls in the US regulation-only approach; and the lessons from the uptake of both (iii) sustainable design and (iv) building information modelling (BIM).

Norway universally designed by 2025

In the 1960's and 70's housing policies in Nordic countries began to change to better integrate people with disabilities into 'ordinary environments' (Bringa 2019). In 2009 the Norwegian government adopted an integrated, cross-sectoral approach involving 16 ministries working on detailed action plans and strategies to define an action plan that is to achieve nation-wide universal design and increased accessibility by 2020 (Norwegian Ministry of Children and Equality 2009). Legislative, market and administrative powers are being used to achieve this outcome. This example is provided to illustrate a nation-wide, long-term, integrated, cross-sectoral approach of implementing change in this area to overcome some of the known barriers to the adoption of accessibility features in our homes. This comprehensive approach targeted four areas: building and construction; planning and outdoor areas; transport; and sector-overarching reforms. Richard Duncan (2019) outlines the positive impacts of this focussed effort, suggesting that 'universal design is included in 63 laws and regulations and in practice in several sectors of society' further highlighting that the 'theoretical concept of universal design has been tested extensively in real-life environments', with both community and industry 2018 survey data finding greater community and industry acceptance of universal design. As at July 2020, the Ministry of Children and Equality is developing a new 5 year action plan, that 'will present actions on most relevant sectors of society including housing and the urban and social infrastructure' (Bringa 2020, 1).

America's Fair Housing Act of 1968

'In the US, non-discrimination is the rationale behind certain types of accessible housing requirements (e.g., in multifamily projects[1]) while welfare for the citizens has been the motivation in the Nordic countries' (Bringa 2019).

In his blog entry titled 'Moving Towards the Universal Design Home: Part 1', Bringa (2019) highlights the 1988 Amendments to *America's Fair Housing Act of 1968* which increased accessibility via seven accessibility requirements for entrances to some buildings with dwellings, the public use areas, doors, routes, environmental controls, bathrooms and kitchens. In addition, Schwemm (2006) argues that 'in order to help guarantee persons with disabilities equal access to housing, Congress in the 1988 Fair Housing Amendments Act provided … that virtually all new multi-family housing be designed and constructed with certain accessibility features' (863). This was followed by states and localities adopting provisions to include the same requirement. Despite this, a great proportion of multi-family housing does not comply with these provisions. According to Schwemm (2006) developers, architects, and builders, engineers, subcontractors, and anyone else who is a substantial participant in the design-

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[1] Multifamily dwellings in the US equates to unit/apartment blocks in Australia.

and-construction process, including original and subsequent owners, are legally liable for this failure, thus highlighting the need for a beyond regulation, cross sector approach to improve adoption of accessible housing requirements in America.

Sustainable design uptake

Barriers to the integration of sustainability into the housing markets are considered to be institutional rather than technological, and include: economics (cost burden and impact); a lack of client understanding; sector-wide processes; knowledge and the lack of a common language; trade-offs in terms of aspects such as style and functionality; and the availability of methods and tools (Crabtree and Hess 2009, Häkkinen and Belloni 2011). Häkkinen and Belloni (2011) note that 'hindrances can be reduced by learning what kind of decision-making phases, new tasks, actors, roles and ways of networking are needed' (240). This list is similar to that for accessibility, thus supporting the earlier made proposition for a broader, cross-sector approach to addressing barriers and improving adoption.

Building Information Modelling (BIM) uptake

Previous SBEnrc research, *Integrated Project Environments – Leveraging Innovation for Productivity Gain through Industry Transformation*, investigated the need for system-wide change at a national level to improve industry-wide productivity in the construction sector. Sanchez, Kraatz et al. (2014) detailed the UK government strategy as a part of that research. The UK government identified BIM as a critical part of improving construction industry productivity. They facilitated a concerted effort between government and industry peak bodies to bring about a series of legal, economic and operational reforms with the direct participation of industry stakeholders through a nationally based strategy with various reforms to be undertaken over a number of years as a part of a predefined roadmap. A similar approach was undertaken in Finland, which through a coordinated research, development and standardisation effort pioneered in this area with activities dating back to 1982. In their analysis of integrated project environments, Sanchez, Kraatz et al. highlighted that: '(i) industry takes action when the government demonstrates clear leadership; (ii) a national strategy facilitates the adoption of new information technologies such as BIM; and (iii) collaboration with industry is required to implement this strategy'.

Improving adoption – a cross-sector, multi-stakeholder roadmap for implementation

The ABCB Accessible Housing Consultation Regulatory Impact Statement explicitly considers how accessibility could be improved through several options presented in the consultation report (Centre for International Economics 2020). The options include: maintain a status quo approach; four proposals addressing the adoption of various levels and combinations of the *Livable Housing Design Guidelines*; a subsidy program for rental properties; and an enhanced approach to voluntary guidance. The Centre for International Economics report which accompanies the 2020 round of ACBC consultation, makes the following 2 preliminary recommendations: (i) that 'the costs associated with including an accessible housing standard in the NCC are estimated to outweigh the benefits'; and (ii) 'that consultation be used to seek feedback and more information on the assumptions, methods and suitability of alternatives'. This essentially indicates that the status quo will remain.

MOVING FORWARD
It is proposed that activity is required, similar to the Norwegian model, to activate both industry and community understanding of the broader benefits of the adoption of improved accessibility requirements in Class 1a and 2 buildings.

Recent SBEnrc research, *Mapping the Australian Social and Affordable Housing Network* (2018) helped visualise the complex housing network in Australia that was needed to understand and address the issue of social and affordable housing in Australia. To help represent this complex sector, 13 elements

and 11 participant groupings were identified, all in the context of the 9 impact domains as outlined in the table below.

Impact domains	Network participant groupings	Network elements
Community and culture	Person/Family	Policy drivers and players
Economy	Focal participant	Funding
Education	Commonwealth government	Financing
Employment	State government	Procurement and delivery
Environment	Local government	Metrics, indicators and data
Health and wellbeing	Peak body/industry association	Labour market dynamics and housing
Housing	Advocates	Changing demographics
Social engagement	Community Housing Providers	Housing typologies
Urban amenity	Not-for-profit providers	Socio/environmental systems
	Research	Integrated, shared & disruptive tech.
	Industry	Housing asset management
		Production supply chain
		Skills, knowledge and capacity building

The mapping of impact domains, network participant groupings and elements highlights that a single approach, for example through regulation, is unlikely to result in the required level of change across the network, as seen in America. In addition, and as the example of Norway demonstrates, adoption needs to be considered in the broad context of addressing change across the spectrum of technical, social and regulatory barriers, using legislative, market and administrative powers.

The table below summarises the barriers and associated levers for change discussed in this section, highlighting the overlap between the technical, social and regulatory realms, which require cross-sectoral solutions to address.

Identified barriers	Technical	Social	Regulatory	Possible levers for change
Design and construct efficiencies and risk.	*			L/M/A - Skills development, industry training, best practice examples, pilots.
Regulatory burden.	*		*	L/A - Long term integrated, cross-sector strategy e.g. Norway.
Costs burden i.e. who pays the cost.	*	*	*	L/M/A - Broader assessment of return on investment e.g. CROI approach.
Costs impact i.e. how much something costs.	*		*	M - Economies of scale.
Industry perceptions of need.	*	*		L/M - Broader education - whole of life needs, best practice examples, pilots.
Market demand – accessibility not aspirational.	*	*	*	L/M - Broader education around whole of life needs, best practice examples and pilot projects.
Societal attitudes, aspirations and acceptance (overcoming myths.	*	*	*	L/M - Long term integrated, cross-sector strategy e.g. Norway, best practice examples and pilot projects. ACBC Regulatory Impact Analysis as a starting point.
Aesthetic impact.	*	*		M - Build market share to enable greater product availability Innovation in design/construct, best practice examples, pilots.

Notes: L – legislative powers; M - market powers; A - administrative powers

These elements could potentially form a part of a roadmap used by government, industry and community stakeholders, to develop, adopt and implement an accessible housing strategy over a period of years.

Further information on this project is available at the project website: https://sbenrc.com.au/research-programs/1-71/ or contact Judy Kraatz, Project Leader, j.kraatz@griffith.edu.au

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References:

Australian Building Codes Board (2018). Accessible Housing - Project Overview ABCB. Australia, Commonwealth of Australia.

Australian Building Codes Board (2019). Accessible Housing Options Paper: Consultation Report. Australia - https://www.abcb.gov.au/Resources/Publications/Consultation/Accessible-Housing-Options-Paper-Consultation-Report

Bringolf, J. (2011a). Barriers to Universal Design in Housing. Urban Research Centre, College of Health and Science. Australia, University of Western Sydney. PhD.

Bringa, O. R. (2019). "Moving Towards the Universally Designed Home: Part 1." Retrieved 20 July 2020, from https://www.betterlivingdesign.org/post/design-a-stunning-blog.

Bringa, O. R. (2020). Liveable and accessible high density housing. Personal commincation with J. Kraatz.

Building Legislation and Policy (2020). SBEnrc 1.71 3 Snapshots for feedback. Email to J.Kraatz, Brisbane, Australia.

Crabtree, L. and D. Hess (2009). "Sustainability uptake on housing in metropolitan Australia: An institutional problem, not a technological one." Housing Studies **24**(2): 203-224.

Duncan, R. (2019). "Right Under Your Nose: Universal Design in Norway." Retrieved 6 July 2020, from https://www.linkedin.com/pulse/right-under-your-nose-universal-design-norway-richard-duncan.

Häkkinen, T. and K. Belloni (2011). "Barriers and drivers for sustainable building." Building research and information **39**(3): 239-255.

Kraatz JA and Jayawardena N, (2020). Mapping the social and affordable housing network in Australia. Brisbane, Australia, SBEnrc - http://sbenrc.com.au/research-programs/1-61/

Norwegian Ministry of Children and Equality (2009). Norway universally designed by 2025 - the Norwegian government's action plan for universal design and increased accessibility 2009-2013. Norway.

Sanchez, A. X., J. A. Kraatz and K. D. Hampson (2014). Integrated Project Environments: Towards a National Strategy - Research Report 1. Australia, SBEnrc - https://sbenrc.com.au/research-programs/2-24-integrated-project-environments-leveraging-innovation-for-productivity-gain-through-industry-transformation/

Schwemm, R. G. (2006). "Barriers to Accessible Housing: Enforcement Issues in "Design and Construction" Cases under the Fair Housing Act." University of Richmond Law Review 40: 753-864.