

Future-proofing Existing Social Housing:
A case study helping meet older women's housing needs

This report prepared by Lisa King with the support of The Henry Halloran Trust
Lisa King
Email: lkin0191@uni.sydney.edu.au
Ph: +61481222098

Friday 24th April 2020

Future-proofing Existing Social Housing: A case study helping meet older women's housing needs

"I do like it around here. I know where everything is and I know all the people, especially around these units. I know everyone and they know me. I like it around here. This is my home, this is a community, I think. Like, I know all the people and we've become really good friends. I couldn't think of being anywhere else. – Kay"¹

Kay is a social housing tenant who was asked to comment about loneliness for a recent research study. She is 85 years old.² She eloquently elucidates the importance of ageing-in-place for older women. Many women just like Kay have lived in the same communities for decades. It is their established networks with other community members both within their specific housing unit blocks or houses, and within their local wider community, which assist in maintaining their well-being, and in minimising their impact on our already strained health system. Women like Kay want to feel secure that as they age, they will not be relocated away from these communities. They want to feel safe when they go to bed at night, and they need functional spaces where they can move freely without impediment. They desire opportunities, when they choose, to connect and communicate with neighbours

in places such as gardens, and they want access to sunlight and adequate ventilation. This case study suggests ways in which the existing built environment where women like Kay live can be adapted or modified to meet these simple yet fundamental needs. The proposed changes are cost-effective, modest but have the ability to quickly and easily transform restrictive spaces into those which better promote well-being, independence and security. Investing in these modifications would see an immediate and profound improvement in the ability of occupants to move freely within both their homes and their communities. Although in this study there has been a focus on the needs of older women specifically, the suggestions proposed are universal and their principles could be easily adapted to benefit other cohorts within social housing environments and are scaleable and not site-specific.



Photo by Damir Bosnjak on Unsplash

¹ <https://www.abc.net.au/news/2019-06-12/housing-tenancy-overlooked-factor-elderly-older-loneliness/11200330>

² Ibid

Table of contents

Literature review:	04
Priorities for older women in housing	
Healthy age-friendly housing	
Dementia and cognitive impairment	
Social housing modification and refurbishment	
Case study:	08
Social housing - typical rectilinear block	
Social housing - typical rectilinear block - Recommended Modifications	
Site plan	
Typical floor plans	
Demolition plan	
Budget estimate	15
Conclusion and Summary	17
References	18



Photo by Andreea Popa on Unsplash

Priorities for older women in housing

Single women over 55 are the most typical social housing tenants in Australia today.³ As our population ages rapidly, and home-ownership rates continue to decline it is expected that the growth in the number of single older women relying on social housing will continue to rise exponentially. The Australian Bureau of Statistics projects between 2006 and 2031 the number of older women living alone will jump by 2.8 per cent per year every year, the highest rate of any cohort.⁴

Recent research identifies the housing needs of older women in Australia. Older women value security of tenure more than any other factor.⁵ Being required to relocate, particularly in the later years in life can be daunting and a source of great anxiety not only for the occupant but for their families as well.⁶ Security of tenure is crucially intertwined with fostering a sense of agency and control in their own lives. Evan states, "Involuntary relocation negatively affects psychological adjustment among older and middle-aged adults as well."⁷

Research has shown perceiving a sense of control over your life assists in protecting against mortality, particularly for those

with decreased functionality as they age.⁸ Providing older women in social housing with security of tenure means they can age-in-place within the community they know and feel safe in.

This sense of security and safety is a high priority for older women in housing and goes hand in hand with the location of the housing and its sense of community.⁹ Many older women have lived within a small geographic radius their entire lives and gain great comfort and independence from being in close proximity to neighbours, doctors, and other familiar members of their community close to shops, transport and other essential amenities. The value placed by older women on these housing priorities is highlighted in reports of older tenants unwilling to relocate to more suitable dwellings in new geographic locations despite their current dwellings being restrictive to their living requirements.¹⁰

"They [SHA] offered her a unit that was wheelchair friendly and modified and she wouldn't go. One, that was about leaving the house, and, secondly, she had other family members that would come and go out of the house and it wasn't in the same area. (SP 1 July 2014)"¹¹



Photo by BBH Singapore on Unsplash



Photo by Oren Atias on Unsplash



Photo by Raychan on Unsplash

3 https://www.ahuri.edu.au/_data/assets/pdf_file/0003/2100/AHURI_Final_Report_No123_The-role-of-home-maintenance-and-modification-services-in-achieving-health-community-care.pdf

4 ACSA, "The Future of Housing for Older Australians", Position Paper January 2015, p6

5 "Older Women's Studio Development Project", Mercy Foundation, 8 March 2017

6 Iwarsson, S, Nygren, C, Oswald, F, Sixsmith, A, Sixsmith, J, Szeman, Z, Tomsone, S, Wahl, H, "The ENABLE-AGE Project: Multi-Dimensional Methodology for European Housing Research", July 2004

7 Evans, G, "The Built Environment and Mental Health", Journal of Urban Health, Vol 80, No 4, December 2003

8 Frank J. Infurna, "Antecedents and Outcomes of Level and Rates of Change in Perceived Control: The Moderating Role of Age", Developmental Psychology, Vol 51(10), October 2015 p1420-1437

9 "Older Women's Studio Development Project", Mercy Foundation, 8 March 2017

10 "Older persons in public housing: the policy and management issues", AHURI Final Report No 121, September 2008

11 "Housing priorities of people with dementia", AHURI Final Report No 242, June 2015

Healthy age-friendly housing

The challenge lies in the provision of safe, “healthy housing”¹² which is “age-appropriate”¹³ or “age-friendly”¹⁴ whilst sustaining the resident’s agency and right to age-in-place within their existing community. We know poor quality housing negatively impacts health and well-being.¹⁵ The term “healthy housing” according to the WHO Housing and Health Guidelines is defined as: “...shelter that supports a state of complete physical, mental and social well-being...a feeling of home, including a sense of belonging, security and privacy.”

The term also includes the physical state of the dwelling,
“by being structurally sound, by providing shelter from the elements and from excess moisture, and by facilitating comfortable temperatures, adequate sanitation and illumination, sufficient space, safe fuel or connection to electricity, and protection from pollutants, injury hazards, mould and pests.”

Finally, its context on both a macro and micro scale are important factors,
“the local community, which enables social interactions that support health and well-being...access to services, green space, and active and public transport options, as well as protection from waste, pollution and the effects of disaster, whether natural or man-made.”¹⁶ Whilst it is imperative that the housing be healthy, it is also important to understand the particular physical requirements of housing which deem it to be “age-appropriate” or “age-friendly”. The WHO Ageing Guide identifies the following factors which are universally valued in the provision of appropriate housing for older people:

1. Affordability
2. Access to affordable essential services
3. Physical design of the building
4. Modifications as needed
5. Maintenance as needed
6. Ageing in place
7. Community integration
8. Housing options
9. Living environment: ie. space, privacy and safety¹⁷

In terms of individual dwellings, a 2011 AHURI report identifies that the most important design features for age-appropriate housing are: “a ramped or level entry, wider doors, level throughout, hobless shower, emergency call, handrail/grabrails.”¹⁸ These accessible features are vital in ensuring healthy, safe housing. Insights gained from older women themselves tell us other design elements of importance for their well-being include: privacy and choice about when and how to interact with others, scale of housing having a domestic rather than institutional quality, adequate ventilation and sunlight, functional storage within the dwelling, and access to a good quality outdoor space.¹⁹ Evans concurs a diversity in scale and a choice of spaces from private to public give occupants a sense of control and comfort.²⁰ The Nana Project further reiterates the importance of natural light and visual connectivity in housing, in addition to functional circulation, a variety of outdoor spaces, domesticity of scale, a sense of community and connection, an ability to participate in activities and importantly the right of occupants to make choices about their housing.²¹

12 <https://www.who.int/sustainable-development/publications/housing-health-guidelines/en/>

13 https://www.ahuri.edu.au/_data/assets/pdf_file/0011/2216/AHURI_Final_Report_No174_Age-specific_housing_and_care_for_low_to_moderate_income_older_people.pdf

14 <https://www.who.int/sustainable-development/publications/housing-health-guidelines/en/>

15 Evans, G, “The Built Environment and Mental Health”, Journal of Urban Health, Vol 80, No 4, December 2003

16 <https://www.who.int/sustainable-development/publications/housing-health-guidelines/en/>

17 “Global age-friendly cities : a guide”, WHO, 2007

18 https://www.ahuri.edu.au/_data/assets/pdf_file/0011/2216/AHURI_Final_Report_No174_Age-specific_housing_and_care_for_low_to_moderate_income_older_people.pdf

19 “Older Women’s Studio Development Project”, Mercy Foundation, 8 March 2017

20 Evans, G, “The Built Environment and Mental Health”, Journal of Urban Health, Vol 80, No 4, December 2003

21 Luscombe, G. “The Nana Project”, Byera hadley Travelling Scholarships Journal Series, 2015

Dementia and cognitive impairment

In addition to these design elements, an emerging epidemic must also be taken into consideration when addressing the needs of older people in housing. In Australia, not only is our population rapidly ageing, but many in this cohort are anticipated to be affected by dementia. The AIHW predicts the 298,000 people living with dementia recorded in 2011 will triple by 2050 to approximately 900,000.²² This will have significant implications for housing in the public sector as we come to understand the particular design needs and modifications those living with dementia will require. In addition to housing for older people being healthy, accessible, and age-friendly, it will become more and more important that it is also “dementia friendly.”²³ Davis et al define a dementia friendly environment as one with a “cohesive system of support that recognises the experiences of the person with dementia and best provides assistance for the person to remain engaged in everyday life in a meaningful way.”

Dementia Australia prescribes an environment that:

- “promotes independence and supports well-being

- has familiar surroundings
- allows easy access and finding your way
- supports meaningful tasks
- supports participation in daily activities
- promotes safety, security and comfort”²⁴

It is important that the modifications made to the built environment consider the cognitive function of occupants in this cohort as well as their physical function. Davis et al refer to the increase in internal lighting levels and use of contrast as a tool to assist those with dementia differentiating between objects and spaces within their dwelling.²⁵ Externally, exaggerated changes in surfaces, lighting and texture can assist in wayfinding and comprehension, along with physical cues to landmark individual locations.²⁶ Dementia Australia adds that glare should be minimised.²⁷ Whilst these modifications won’t usurp the need for medical intervention for those with severe dementia, they may assist in prolonging the time those affected can continue living independently in their own homes thus easing the demand on health care services.



Photo by Chastagner Thierry on Unsplash

22 Australian Institute of Health and Welfare 2012, Dementia in Australia (catalogue no. 70), AIHW, Canberra.

23 Byers, S, Davis, S, Koch, S, Nay, R, “Guiding design of dementia friendly environments in residential care settings: Considering the living experiences”, [http://dem.sagepub.comvol 8\(2\) 185-203, 2009](http://dem.sagepub.comvol 8(2) 185-203, 2009)

24 https://www.dementia.org.au/files/helpsheets/Helpsheet-Environment03_HowToDesign_english.pdf

25 Byers, S, Davis, S, Koch, S, Nay, R, “Guiding design of dementia friendly environments in residential care settings: Considering the living experiences”, [http://dem.sagepub.comvol 8\(2\) 185-203, 2009](http://dem.sagepub.comvol 8(2) 185-203, 2009)

26 ibid

27 https://www.dementia.org.au/files/helpsheets/Helpsheet-Environment03_HowToDesign_english.pdf

Social housing modification and refurbishment

In Australia, there are currently almost 430,000 social housing dwellings. Separate houses are the most common typology at 39% of stock, with flats, unit or apartments making up around 34%, and townhouses the remainder. NSW has the greatest share of social housing dwellings with approximately 152,000.²⁸ Of public housing dwellings in NSW, 45% are detached houses, 37% are apartments (10% high rise), and 18% are semis and attached dwellings. Importantly, 54% of this housing stock is over 20 years old.²⁹ The sheer volume of ageing tenants in ageing housing will require the urgent need for modifications and refurbishment of existing housing stock. UCL Urban Lab research in the UK states that, "Improving the quality of social housing stock is essential to reduce health inequalities". It describes the benefits of refurbishment (over demolition and rebuilding) as improving housing quality quickly, which delivers positive outcomes for health and well-being.³⁰ The research also noted that the refurbishment of existing housing stock contributed in a significant way to job creation in the local area particularly for small and medium businesses.³¹ In this current economic crisis, a modification program such as this would be an ideal form of stimulus.

The 2001 Performance Audit Report on the Department of Housing describes an estimated \$750 million backlog in the maintenance of public housing in NSW.³² The ABS 2011 states that the need for repairs in current public housing stock is extensive.³³ There are no available figures on how many older tenants are currently living in homes which do not meet their needs. With the current NSW Family & Community Services "Modifications for people with disabilities or the elderly" Fact Sheet clearly stating, "If it is not economically viable for the home to be modified, tenants may be relocated"³⁴ it is possible that even if modifications were urgently required by the tenant they may be reluctant to apply given the potential threat of relocation. Regardless, with the current social housing wait list of an estimated 60,000 people,³⁵ even if relocation was deemed to be preferable, finding new healthy, age-friendly, and/or dementia-friendly housing is not necessarily an alternative in the foreseeable future. Accessible housing is always in high demand. By modifying existing dwellings to achieve accessibility, current waitlists are reduced and existing housing stock's ability to meet the needs of occupants with varying needs is optimised.



Photo taken from google maps

28 <https://www.aihw.gov.au/reports/housing-assistance/housing-assistance-in-australia-2017/contents/social-housing-dwellings>

29 2001 Dept of Housing Performance Audit Report

30 UCL Urban Lab and Engineering Exchange for Just Space and the London Tenants Federation, "Demolition or Refurbishment of Social Housing? A Review of the evidence", 27th October 2014, p3

31 UCL Urban Lab and Engineering Exchange for Just Space and the London Tenants Federation, "Demolition or Refurbishment of Social Housing? A Review of the evidence", 27th October 2014, p65

32 Sydney: The Audit Office of New South Wales, "Department of Housing: maintenance of public housing", Performance Audit Report 2001, p2

33 From ABS 2011 Census of Population and Housing quoted in Burke, T, Groenhart, L, Ralston, L, "Thirty years of public housing supply and consumption: 1981-2011", AHURI, October 2014

34 <https://www.facs.nsw.gov.au/housing/living/maintenance/disabilities-and-elderly-modifications>

35 Michelle Fonti, St Vincent de Paul, Town Hall Assembly 2019

Case Study:
Social housing - typical 1960s rectilinear block

This case study was conducted using a particularly common social housing typology. This specific site is situated on the corner of The Horsley Drive and Koonoona Avenue in Villawood and contains two three-storey blocks of units. Each block houses the following:

Ground Floor - 4 x studio units
First Floor - 2 x 2 bed units
Second Floor - 2 x 2 bed units

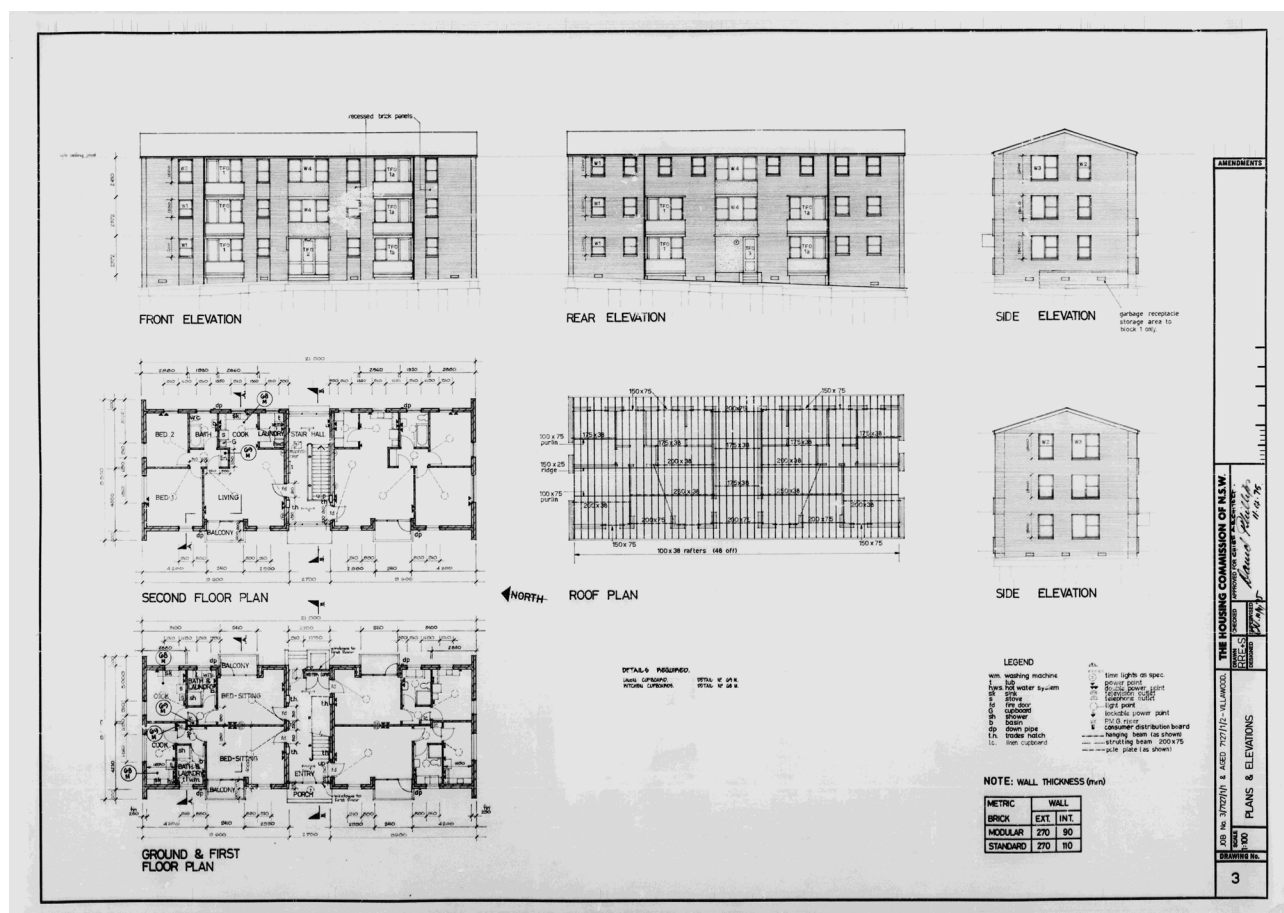
The existing buildings are brick and tile with connecting concrete pathways at ground level. There are no eaves to the northwest or southeast elevations of the building and minimal eaves to the remaining elevations. The site is located on a busy thoroughfare and has minimal landscaping to the grounds at present. There is a long bitumen driveway at the rear of the property leading to a carpark. There is low wire fencing to

the property boundaries.

The original architectural plans were carefully examined in this case study along with current site images. The priorities in the recommendation of modifications were:

1. ability to age-in-place
2. safety and security
3. functionality and storage
4. agency of tenants to engage in communication with others when desired
5. reducing energy costs

Suggested modifications are marked on both the site and floor plans and are costed according to priority with Stage One being the most urgent. Existing plans are provided alongside proposed plans for ease of comparison and demolition plans are included to illustrate the scope of works.



Drawing provided by Land & Housing Corporation

Case Study:

Social housing - typical 1960s rectilinear block

Stage One - Recommended Modifications

Priorities

- **Access:**

Accessible lifts, entry doors and ramps - Provision of a safe exit and entry to all units from the perimeter of the site regardless of the mobility needs of the resident is the highest priority. (Should budget allow, an upgrade of existing fire services would further add to the residents' safety however this has not been addressed in the paper specifically.)

Individual step ramps from unit to balcony - Safe access to fresh air will improve health and well-being and reduce trip hazard and the risk of falls and injury.

Accessible bathroom with laundry and sliding doors - Safe and easy access to basic amenities is vital as residents age-in-place.

Accessible kitchenette - Safe and easy access to simple cooking amenity reduces hazards, and maintenance requirements.

These items form a crucial part of the infrastructure ensuring residents can age-in-place and optimising current housing stock's ongoing versatility and ability to accommodate a broader range of residents. They also assist in preventing injuries to residents from falls, and facilitate residents being able to stay in their homes over time within communities they know and in which they may have connections and support systems already in place alleviating the need for heavy reliance on public health and other government services. Whilst handrails both external to the building and within the units themselves are not specified and costed in this paper, it is envisaged that the proposed modifications ensure these can be fitted to each apartment as individual residents require them, and through the utilisation of funding pools which are already in place for these items. This is also the case for technological systems such as nurse call facilities and monitoring devices.

- **Security, Energy Costs and General Amenity:**

Safety locks and security screens to windows and doors - We have identified security to be a high priority to residents particularly in the older women's cohort. As temperatures reach record highs, the ability to open windows and doors whilst maintaining adequate security will be increasingly vital, particularly in buildings with little to no overhangs where currently many elderly residents would be afraid to do so. This will also provide a reduction in energy costs associated with cooling.

Thickening and insulation of party wall - At present the party walls in this building are one brick wide in thickness. Thickening party walls will provide residents with greater privacy and security. This simple modification can have a significant impact on the well-being and mental health of residents.

Functional storage - Provision of storage has been reported as a high priority for many social housing residents. Adding large storage cupboards will further enhance the quality of life of residents and in elderly residents reduce trip hazards.

Energy Costs - In addition to the ability of residents to open windows through the installation of security screens, by providing new bathrooms and kitchenettes, energy-efficient hot water systems and appliances would deliver terrific energy cost-savings to the residents and building owners. (Though not addressed and costed specifically in this paper due to perceived budget restraints, the installation of solar heating systems would be highly recommended as these units are upgraded.)

Stage Two - Recommended Modifications

Priorities

- **Shading:**

Window shades and balcony shades - This development was built without significant overhangs or window shades and the units would clearly benefit from these retro-fitted to windows, particularly those with a west and south-west aspect. This will both improve amenity and reduce cooling costs. Roof shading to balconies would allow these spaces to be more fully utilised by residents, improving general well-being through increased access to fresh air. (Not addressed specifically in this paper due to budget constraints, the addition of blinds or shutters would also assist in controlling the ingress of sunlight in turn assisting with heating and cooling costs. Additionally, ensuring windows and doors are draught-free - a simple task which could be performed by builders while onsite, would further benefit residents).

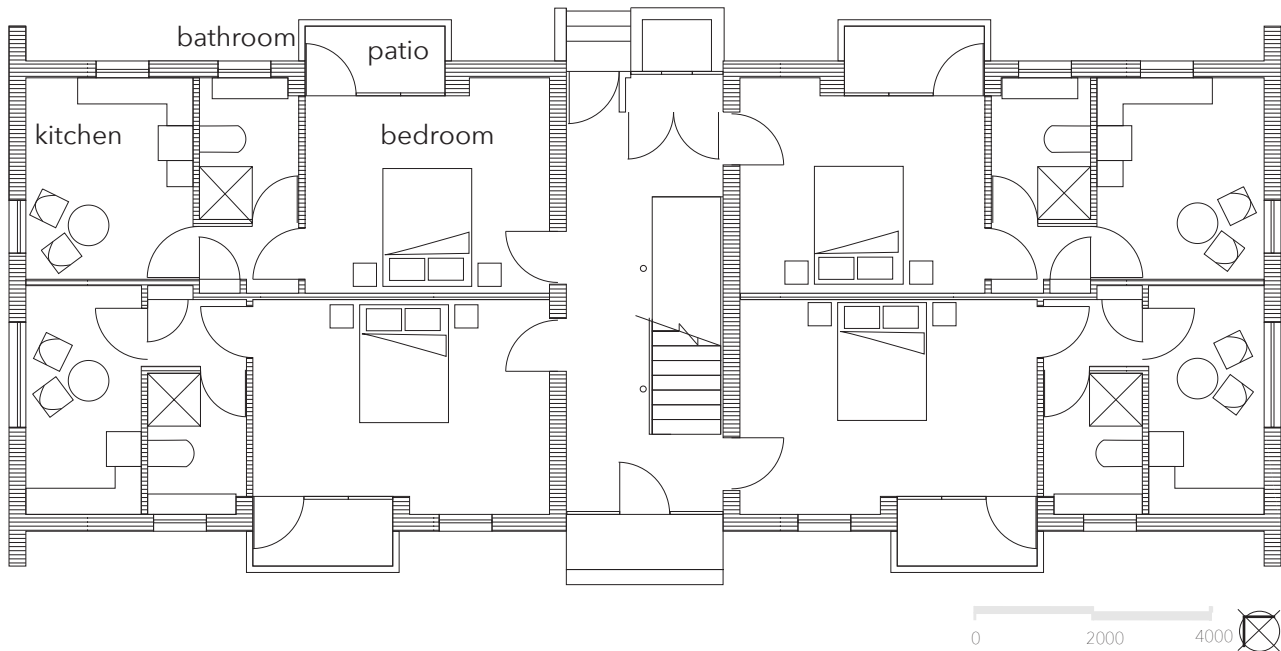
- **Outdoor Amenity and Activity:**

External landscaping works and activity space - External landscaping works have been identified as crucial in ageing cohorts. These are often areas where residents are provided with the choice to connect with others and are community-building spaces when executed successfully with resident input. Additionally, the provision of safe, level and obstacle free pathways for residents with clear signage to enable them to move freely around the site and exercise would clearly benefit their health and overall well-being. As mentioned previously, the installation of handrails could be provided on a cohort-specific basis as required.

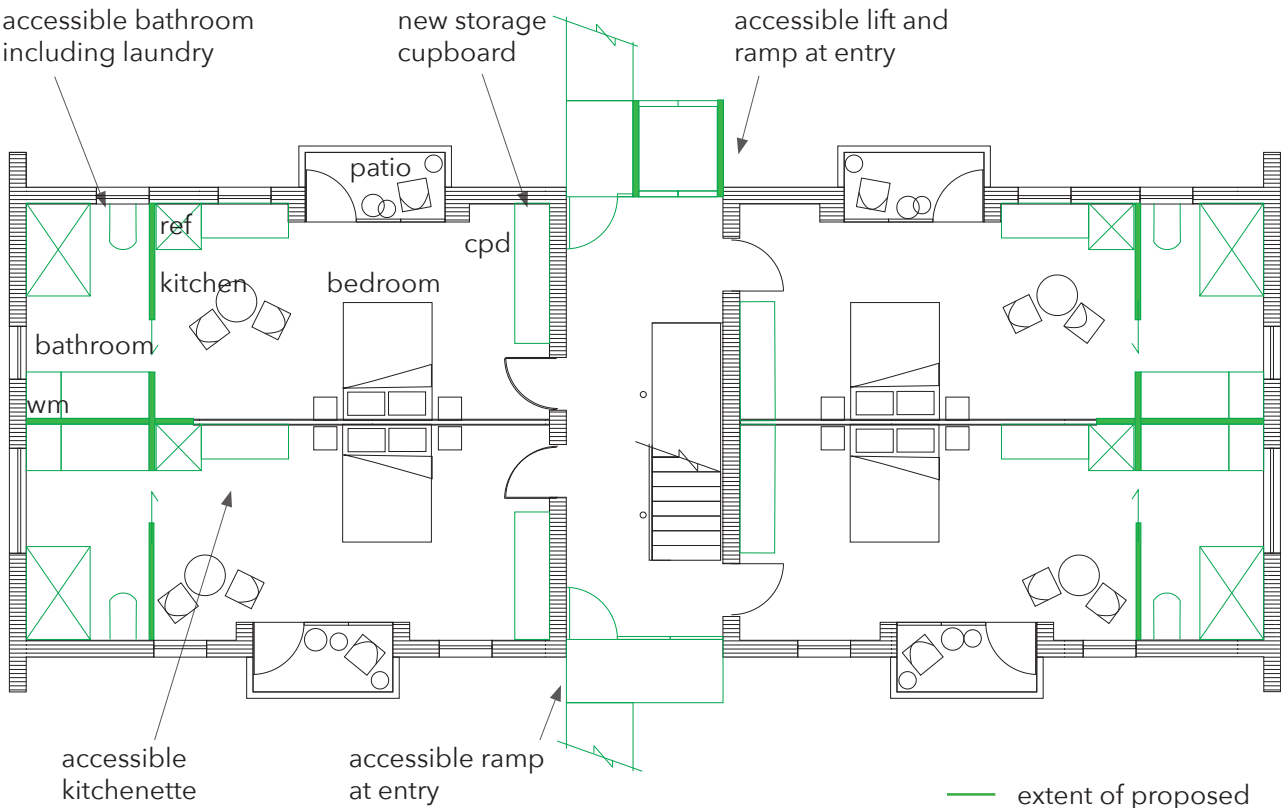
Site Plan: Proposed landscaping and site works



Typical floor plans:
Ground floor

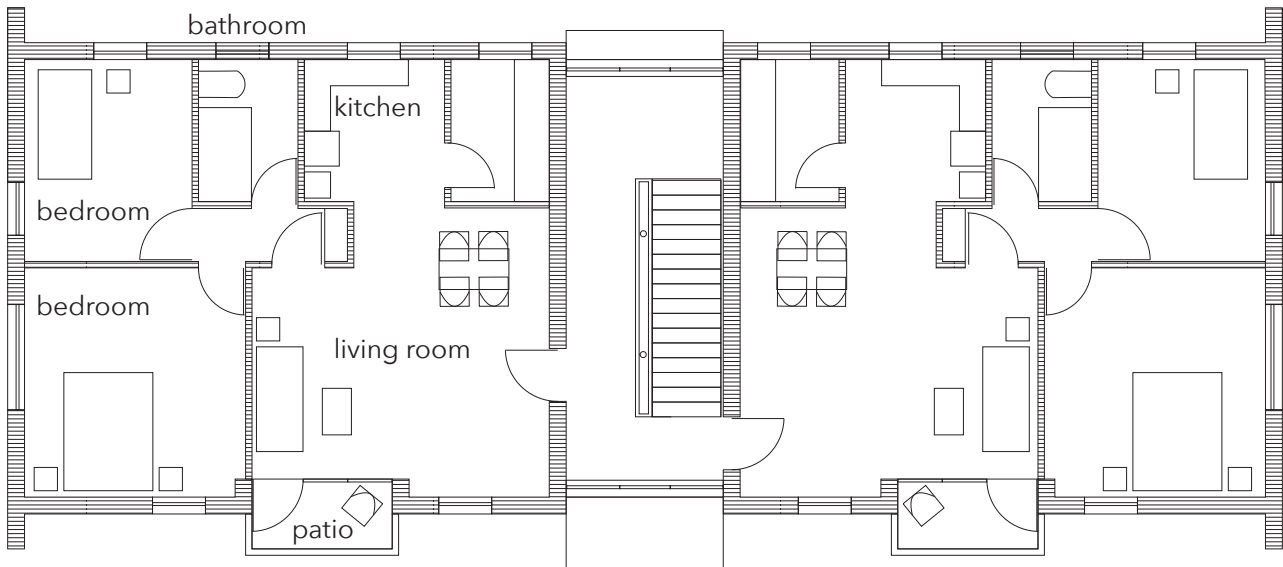


Existing ground floor plan

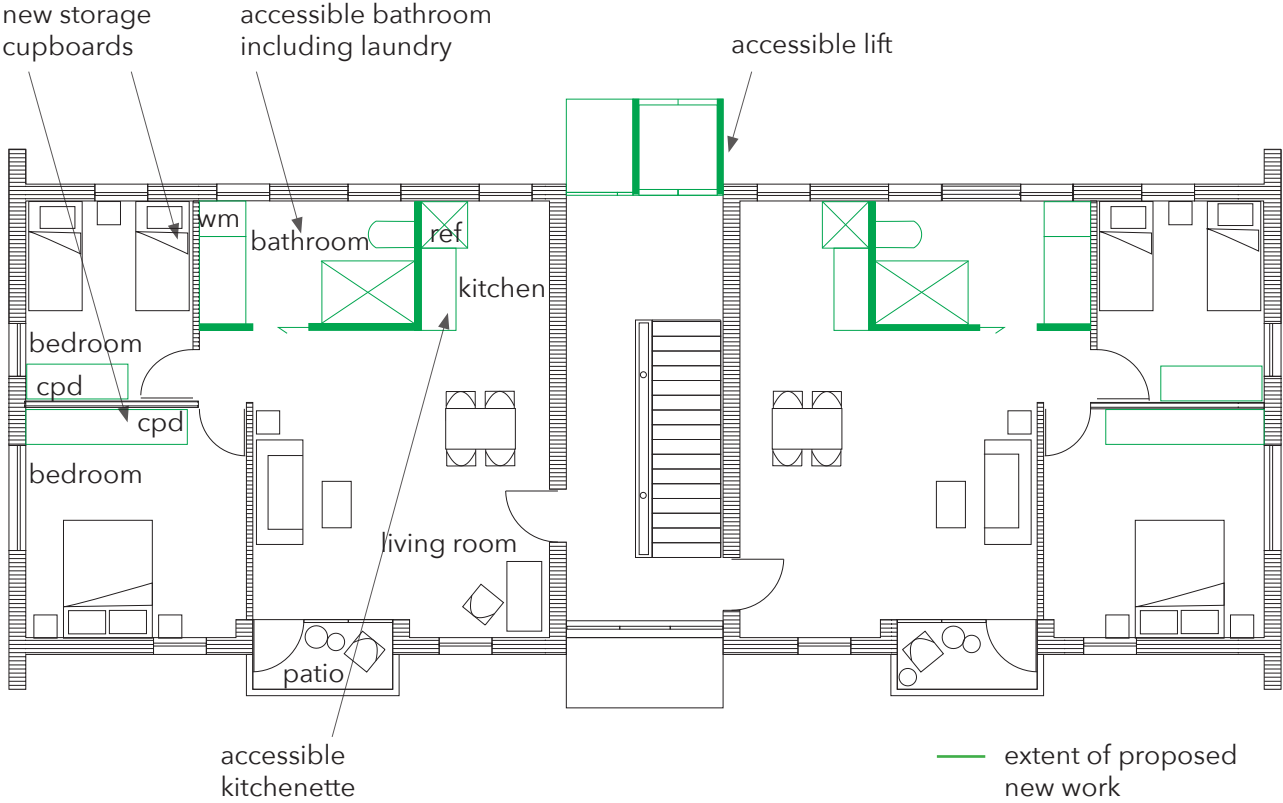


Proposed ground floor plan

Typical floor plans: First and second floor

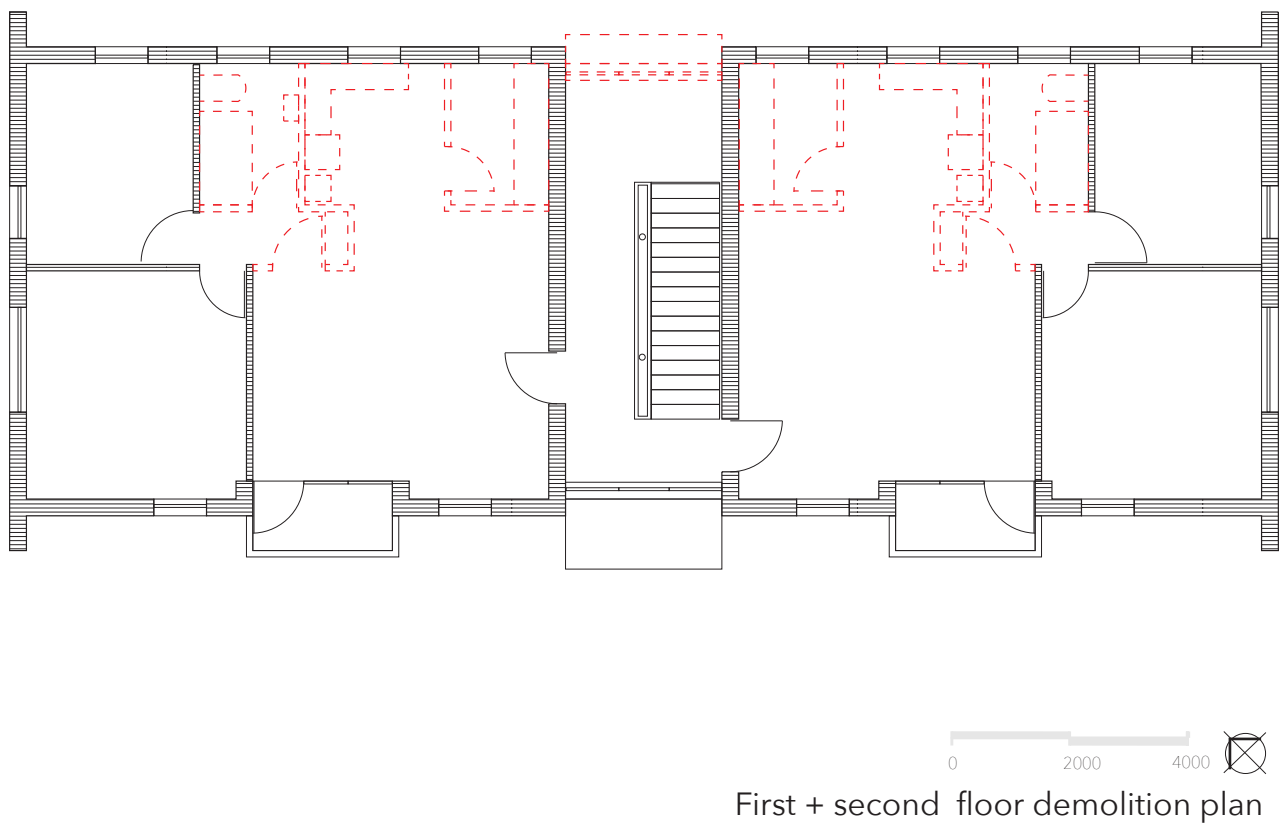
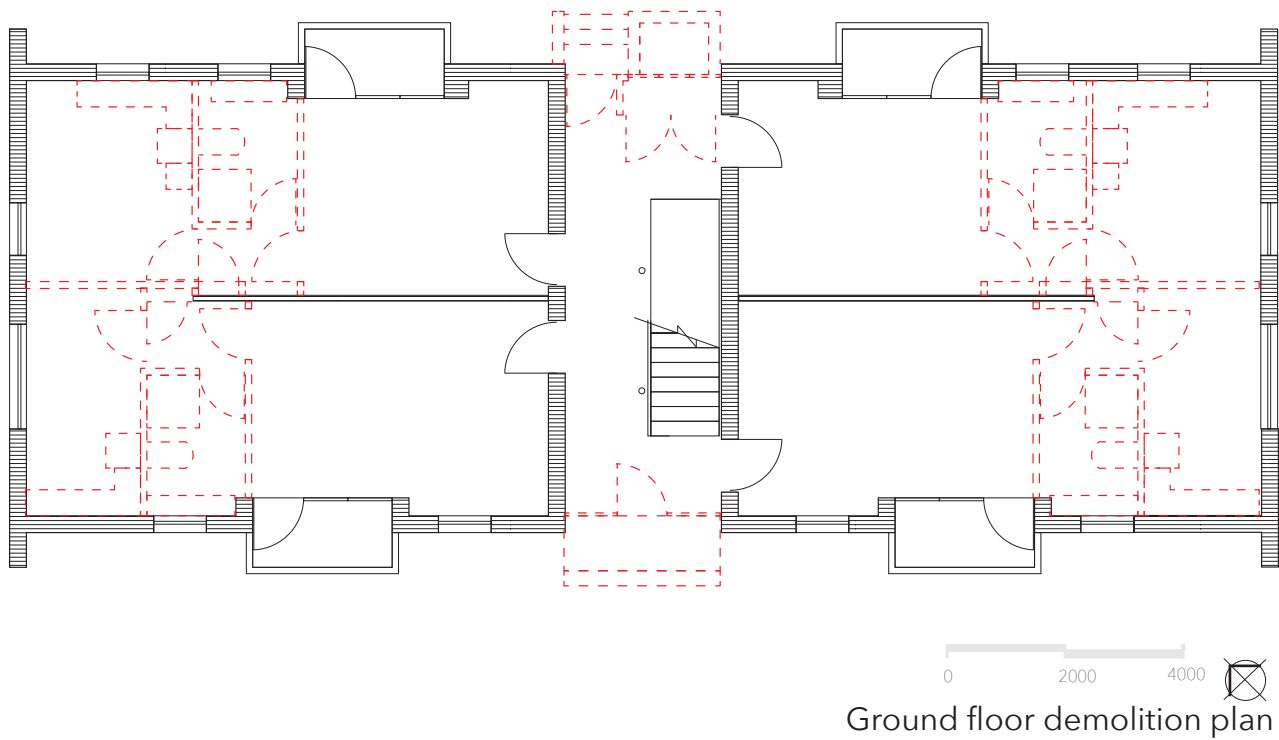


Existing first + second floor plan



Proposed first + second floor plan

Demolition plans



Case Study Budget Estimate

STAGE ONE: Estimate Cost per block and Site Costs						
Ref	Description	Unit	Qty	Rate	Block Cost	Site Cost
A	Demolition	Item	1	\$35,000	\$35,000	\$70,000
	6 lab/12 hrs @\$70/hrx3 levels = \$15,100					
	Trucks 2/5 days @ \$100/hour = \$8,000					
	Tip fees 5days/4trips x \$600 ea = \$12,000					
B	Accesible lift per block	No.	1	\$130,000	\$130,000	\$260,000
	\$100k plus \$10k/level x3					
C	Building work to last incl framing	Item	1	\$25,000	\$25,000	\$50,000
	for exterior cladding					
	Pit precast \$8,000					
	Pit excav and install \$5,000					
	Framing/cladding4/40 hrs x \$75/hr = \$12,000					
D	GFL entry doors and ramps	No.	1	\$8,600	\$17,200	\$34,400
	Doors \$1,500 + \$500 install = \$2,000					
	Labour Ramps 2/3/8hrs X\$75 = \$3,600					
	Concrete = \$3,000					
E	Ind step ramps from unit to balcony	No.	8	\$1,500	\$12,000	\$24,000
F	Accessible bath/laundry	No.	8	\$24,000	\$192,000	\$384,000
	Fitout \$20,000					
	Doors \$2,000					
	Tiling \$2,000					
G	Accessible kitchenettes	No.	4	\$13,000	\$52,000	\$104,000
	Fitout/Joinery \$12,000					
	Floor covering \$1,000					
H	Insulated Party wall	m2	120	\$140	\$16,800	\$33,600
	2/2/9.6 x 3 high = 120m2					
	Framing \$95					
	Insulation \$45					
I	Safety locks and screens	No.	8	\$2,500	\$20,000	\$40,000
	Subtotal				\$500,000	\$1,000,000
J	Preliminaries	12%			\$60,000	\$120,000
K	Builders Margin	10%			\$50,000	\$100,000
	Net Cost				\$610,000	\$1,220,000
L	Consultants	12%			\$60,000	\$120,000
M	Council fees	5%			\$30,500	\$50,000
	Total Stage One				\$700,500	\$1,390,000

Stage One Summary:

8 units per **block** (4 studios + 4 two bed)

16 units per **site** (8 studios + 8 two bed)

\$87,562.50/unit cost

\$86,875.00/unit cost

Case Study Budget Estimate

STAGE TWO: Cost per block and Site Costs						
A	Window shades	No.	24	\$2,300	\$55,200	\$110,400
	3/unit x 8/block					
	Buy shade \$1,200					
	Install \$500					
	Access equip \$400					
	Fixings \$200					
B	Yard areas and Landscaping	No.	8	\$15,000	\$120,000	\$240,000
	Landscaping \$6,000					
	Paths \$5,000					
	Furniture \$4,000					
C	Activity space	No.	8	\$12,000	\$96,000	\$192,000
	Roof structures \$6,000					
	Slab floor \$3,000					
	Storage space \$3,000					
	Lockable mailboxes/brickwork \$1,000					
	Planters \$2,000					
	Subtotal				\$271,200	\$542,400
	Preliminaries	12%			\$32,544	\$65,088
	Builders Margin	10%			\$27,120	\$54,240
	Net Cost				\$330,864	\$661,728
	Consultants	12%			\$32,544	\$65,088
	Council fees	5%			\$16,543	\$27,120
	Total Stage Two				\$379,951	\$753,936

Stage Two Summary:

8 units per **block** (4 studios + 4 two bed)

16 units per **site** (8 studios + 8 two bed)

\$47,493.90/unit cost

\$47,121.00/unit cost

Total Stage One + Two Summary:

8 units per **block** (4 studios + 4 two bed)

16 units per **site** (8 studios + 8 two bed)

\$135,056.40/unit cost

\$133,996.00/unit cost

This budget estimate was kindly prepared by Dr Stewart Lawler. Dr Lawler holds a PhD from the University of Sydney (Building Property Development Capacity in the NSW Community Housing Sector), Masters in Land Economy, Grad Cert in Health Services Mgt, Advanced Cert in Real Estate, BAppSc (Construction Mgt), and a Building Certificate. The estimate was also cross-checked by Mr Justin Bisset, Director of QB Interiors a NSW building and fitout company.

Conclusion and Summary

In 2020, the chaos and upheaval delivered by Covid-19 has presented an opportunity for a stimulus project which would not only create employment for small and medium businesses, but also strategically optimise the existing social housing stock whilst, importantly, vastly improving the daily life of a great number of social housing residents. It has the potential to substantially reduce waitlists for accessible housing, reduce the strain on health services, and improve the agility of existing social housing stock to meet variable resident needs, in effect future-proofing it.

Priority was given to the 1960s typology for the case study as this typology is both common and in greatest need of modification. Testing was also done on the 1980's typology and it was found to be easier to modify and less costly. An additional case study of the 1980s typology can be finalised and provided if required.

This project is scaleable, modular and cost-effective - minimal cost for maximum outcome. We know there are currently residents living in units who cannot safely leave them. We know there are currently residents living in units for whom accessing the bathroom or preparing a meal is difficult and unsafe. We know there are currently residents who struggle to meet constantly rising energy costs. With Stage One estimates averaging a little over \$86,000/unit, this project provides an opportunity to deliver functional, accessible housing at a fraction of the new build cost. The budget estimate offers an array of options which can be delivered individually or as a package with obvious economies of scale if rolled out across numerous sites. The result would be universally accessible housing and an asset which would assist meet the growing demand for residents to age-in-place with dignity.

This report was produced by Lisa King. Lisa is degree qualified in both Interior Design and Architecture and has almost 30 years experience in the construction industry. Lisa is currently completing her Masters in Architecture (Honours) at University of Sydney and is also employed at the university as a sessional tutor and research assistant. She has worked on a number of recent research projects for groups such as Sydney Women's Homelessness Alliance and ShelterNSW.

References

- ACSA, "The Future of Housing for Older Australians", Position Paper January 2015, p6
- Australian Institute of Health and Welfare, "Dementia in Australia", (catalogue no. 70), AIHW, Canberra 2012
- Bridge, C, Davy, L, Judd, B, Flatau, P, Morris, A, Phibbs, P, "Age-specific housing and care for low to moderate income older people", AHURI, September 2011
- Burke, T, Groenhart, L, Ralston, L, "Thirty years of public housing supply and consumption: 1981-2011", AHURI, October 2014
- Byers, S, Davis, S, Koch, S, Nay, R, "Guiding design of dementia friendly environments in residential care settings: Considering the living experiences", [http://dem.sagepub.com/vol8\(2\)185-203](http://dem.sagepub.com/vol8(2)185-203), 2009
- Concannon, K, King, L, McFee, G, "Older Women's Studio Development Project", Sydney Women's Homelessness Alliance (SWHA), funded by the Mercy Foundation, 8 March 2017
- Dementia Australia, https://www.dementia.org.au/files/helpsheets/Helpsheet-Environment03_HowToDesign_english.pdf, (extracted 12 May 2019)
- Evans, G, "The Built Environment and Mental Health", Journal of Urban Health, Vol 80, No 4, December 2003
- Faulkner, D, Gabriel, M, Stirling, C, "Housing priorities of people with dementia: security, continuity and support", AHURI, June 2015
- "Global Age-Friendly Cities : A Guide", WHO, 2007
- "Housing Assistance in Australia 2017", AIHW, July 2017
- Infurna, F, "Antecedents and Outcomes of Level and Rates of Change in Perceived Control: The Moderating Role of Age", Developmental Psychology, Vol 51(10), October 2015 p1420-1437
- Iwarsson, S, Nygren, C, Oswald, F, Sixsmith, A, Sixsmith, J, Szeman, Z, Tomsone, S, Wahl, H, "The ENABLE-AGE Project: Multi-Dimensional Methodology for European Housing Research", July 2004
- Jones, A, de Jonge, D, Phillips, R, "The role of home maintenance and modification services in achieving health, community care and housing outcomes in later life", AHURI, November 2008
- Luscombe, G. "The Nana Project", Byera hadley Travelling Scholarships Journal Series, 2015
- McNelis, S, "Older persons in public housing: the policy and management issues", AHURI, September 2008
- "Modifications for people with disabilities or the elderly", <https://www.facs.nsw.gov.au/housing/living/maintenance/disabilities-and-elderly-modifications>, (extracted 12 May 2019)
- Morris, A, Verdasco, "Not all older people are lonely. This hidden factor is often overlooked", <https://www.abc.net.au/news/2019-06-12/housing-tenancy-overlooked-factor-elderly-older-loneliness/11200330> (extracted 13 June 2019)
- "National Framework for Action on Dementia 2015 - 2019", <https://agedcare.health.gov.au/ageing-and-aged-care-older-people-their-families-and-carers-dementia/national-framework-for-action-on-dementia-2015-2019> (extracted 12 May 2019)
- Sydney: The Audit Office of New South Wales, "Department of Housing: maintenance of public housing", Performance Audit Report 2001
- UCL Urban Lab and Engineering Exchange for Just Space and the London Tenants Federation, "Demolition or Refurbishment of Social Housing? A Review of the evidence", 27th October 2014, p3, p65
- "WHO Housing and Health Guidelines", WHO, <https://www.who.int/sustainable-development/publications/housing-health-guidelines/en/>, (extracted 12 June 2019)