



Australian Government

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# Closing the gap clearinghouse

## Housing strategies that improve Indigenous health outcomes

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### Summary

#### What we know

- Housing is a key social determinant of health.
- The relationship between housing outcomes and health outcomes is bi-directional: housing affects health outcomes, and health affects housing outcomes.
- There are clear links between the quality and location of housing and health outcomes.
- The impacts of housing on health vary between geographic and climatic locations and contexts.
- There is a wide range of housing interventions that positively impact Indigenous health. One way of categorising these is: infrastructure improvements; addressing behavioural factors; and adjustments to policy environments.

#### What works

- Addressing infrastructure, health promotion and the policy environment simultaneously.
- Effective policy environments that administer and enforce appropriate housing standards and design guidelines, while allowing sufficient flexibility to tailor designs and materials to local conditions.
- Indigenous environmental health workers are vital for ongoing housing maintenance and the promotion of healthy living practices.
- High-quality, well-maintained health hardware such as taps, toilets, showers and sinks, coupled with attention to safety of a house, can make a major positive impact on Indigenous health for any age group.



- Improving indoor temperature regulation, as well as preventing damp, mould and fungi, reduces respiratory and skin diseases.
- Involving communities in the design, construction and maintenance of housing empowers them and builds capacity for improved housing-related health outcomes.

### What doesn't work

- Imposing housing and health promotion programs or housing design that is inappropriate for the physical, climatic and social context.
- Using low-quality materials and construction to generate initial cost savings increases the costs of maintenance and housing replacement in the longer term.

### What we don't know

- Although some very clear associations between housing and health are evident, it is very difficult to demonstrate a causal relationship between the two.

The Closing the Gap Clearinghouse has published a resource sheet on housing construction and maintenance (Pholeros & Phibbs 2012). This resource sheet is intended to complement it by examining how the quality of housing impacts health outcomes, and by taking a broader view of housing including its location and social environment. It is recommended that the two resource sheets be read alongside one another.

## Introduction

Housing has long been recognised as a key social determinant of health (Baillie 2007; Phibbs & Thompson 2011):

Housing not only provides shelter but also affordable, appropriate and adequate housing is argued to have, among many other things, a marked impact on people's health, their access to labour markets and an array of other benefits (Phibbs & Thompson 2011:5).

Further to this, the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) indicates that 28% of Indigenous people aged 15 and over lived in dwellings with major structural problems, such as cracks in walls or floors, plumbing problems, and wood rot or termite damage. Almost 4 in 10 people living in remote areas lived in dwellings with structural problems. However, the situation may be beginning to improve due to a range of major housing construction and maintenance initiatives since 2002 (AIHW 2011a).

**Table 1: Condition of permanent dwellings in Indigenous communities by remoteness, 2006 (per cent)**

Dwelling condition	Non-remote	Remote	Very remote	Total
Minor or no repair required	71.7	63.9	69.4	69.5
Major repair required	24.5	26.0	22.2	23.4
Replacement required	3.9	10.1	8.4	7.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

#### Notes

1. Discrete Indigenous communities are those inhabited predominantly by Aboriginal and Torres Strait Islander people, with housing or infrastructure that is managed on a community basis. These communities have an estimated population of 92,960 and are primarily located in Remote and Very remote areas of Australia; for details see Australian Bureau of Statistics (ABS) 2007.
2. Data were collected for 21,854 permanent dwellings and categorised according to the cost of repairs required.

Source: AIHW 2011a.

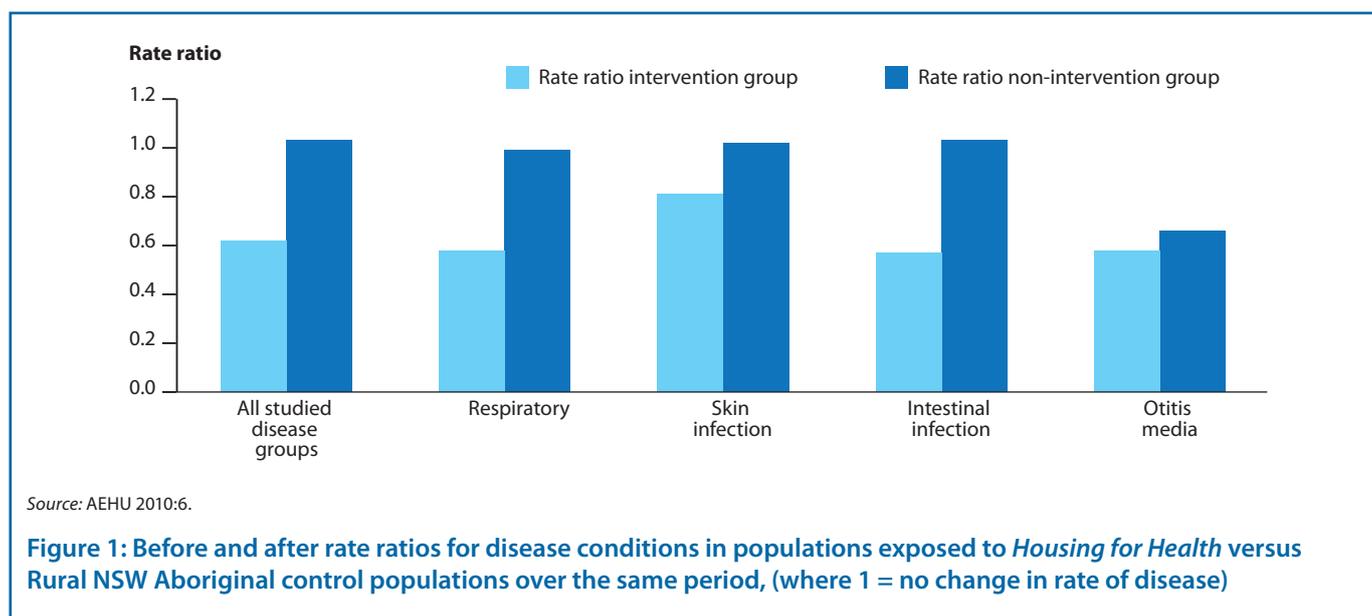


Mallet et al.'s study of precarious housing (that is, housing which is unaffordable, unsuitable and insecure) shows that Indigenous people are 8 times more likely to experience overcrowding, 18 times more likely to live in a dwelling in poor condition and 8 times more likely to live in private rental (Mallet et al. 2011).

Contrary to common perception, only about 10 per cent of damage to Indigenous people's housing is due to deliberate vandalism (Lea & Pholeros 2010). Rather, the primary reasons for the poor condition of housing are inappropriate design for local climate conditions or cultural practices, low-quality construction and materials, 'high levels of wear and tear' due to small houses being used to accommodate large households (Lea & Pholeros 2010:191), and limited maintenance (Lea & Pholeros 2010; McDonald et al. 2009).

A large body of international and Australian Indigenous-specific research consistently demonstrates that, despite the difficulties of establishing causality (Howden-Chapman et al. 1996), there are clear bi-directional links between health outcomes and the living environment, including the quality of housing, backyard and neighbourhood (AIHW 2011a; Mallet et al. 2011; Rowley et al. 2008; Watson 2007). Likewise, upfront investment in housing interventions is a cost-effective means of improving Indigenous health outcomes over the longer term (Garnett et al. 2009).

Housing interventions can affect physical health, mental health and social wellbeing positively or negatively, with many studies noting that improved housing and neighbourhood conditions can lead to improved physical and mental health and improved childhood development (for example, AEHU 2010; AIHW 2010; Bailie et al. 2005; Dockery et al. 2010; Foster et al. 2011; Phibbs & Thompson 2011). One recent program evaluation in New South Wales, for example, showed significant reductions in a range of diseases among Indigenous public housing residents following improvements to their housing (AEHU 2010).



## Current policy context

In recognition of the serious housing challenges facing Indigenous communities, the Council of Australian Governments introduced a range of initiatives from 2007 onwards aimed at both improving the state of existing Indigenous housing and increasing the supply of new housing of appropriate standards (for example, NAHA, NPARIH and Remote Service Delivery Agreement – see box 1). Examples of concrete initiatives include refurbishment works in many parts of the Northern Territory, and improved infrastructure such as lighting, fencing, drainage and footpaths. New construction in some areas has been adapted to local environmental conditions, with items such as verandas and window louvres improving temperature regulation and air flow in warmer climates.



Early results appear to be a major improvement to the condition of much Indigenous housing. Data from the 2008 NATSISS suggest several major improvements in the average conditions of Indigenous housing. For example, 'The proportion of people living in dwellings with major structural problems decreased from 38% in 2002 to 28% in 2008' (ABS 2009). However, due to the fact that these initiatives are relatively new, there is as yet no evaluation evidence to quantify their impact more specifically on Indigenous health.

Although a detailed analysis of these initiatives is beyond the scope of this paper, links to further information are in Box 1.

### **Box 1: Council of Australian Governments initiatives to address challenges in Indigenous housing**

The following initiatives appear to be having a major positive impact on the condition of Indigenous housing:

- National Affordable Housing Agreement (NAHA) – <http://www.dss.gov.au/our-responsibilities/housing-support/programs-services/housing-affordability/national-affordable-housing-agreement> <<http://www.dss.gov.au/our-responsibilities/housing-support/programs-services/housing-affordability-fund>>.
- National Partnership Agreement on Remote Indigenous Housing (NPARIH) – <http://www.dss.gov.au/our-responsibilities/indigenous-australians/programs-services/housing/national-partnership-agreement-on-remote-indigenous-housing>>.
- National Partnership Agreement on Remote Service Delivery (RSD NPA) – <http://www.dss.gov.au/our-responsibilities/indigenous-australians/programs-services/remote-service-delivery>>.
- Closing the Gap – <http://www.dss.gov.au/our-responsibilities/indigenous-australians/programs-services/closing-the-gap>>.
- Stronger Futures in the Northern Territory – Housing – [http://www.budget.gov.au/2012-13/content/ministerial\\_statements/indigenous/html/indigenous-06.htm](http://www.budget.gov.au/2012-13/content/ministerial_statements/indigenous/html/indigenous-06.htm)>.

## **Scope of this review and nature of evidence base**

This review primarily explores the links between housing quality and health outcomes, the mechanisms by which housing influences health outcomes, and a range of practices that can improve the condition of Indigenous housing. Due to the limited size of this paper, it was not possible to conduct an extensive review of the effects of other housing issues such as housing affordability and security of tenure on health. Nonetheless, these are important issues and some limited reference has been made where relevant.

Issues relating to home ownership and its impacts upon health have been excluded, as this is a large, complex and contentious area which cannot be adequately covered in a paper of this size. Over recent years, a number of programs have attempted to increase home ownership rates among Indigenous Australians, with some improvements. The 2011 Census indicates:

- 59% of Aboriginal and Torres Strait Islander households were renting, down from 60% in the 2006 Census
- 25% of Aboriginal and Torres Strait Islander households owned their home with a mortgage, up from 23% in 2006.

Despite these modest improvements, there remains a range of barriers to effective Indigenous home ownership programs (National Shelter 2011; Sanders 2008). Due to the large range of challenges, and its complex relation to health outcomes, it will not be discussed further in the current paper. (See Crabtree et al. 2012; O'Brien 2011; Sanders 2008 for further discussion of Indigenous home ownership programs.)



This resource sheet draws on evidence from over 60 studies, including 7 epidemiological surveys, 3 cohort studies, 4 program evaluations, 18 systematic literature reviews and a range of qualitative case studies and program descriptions. Of these 60 studies, 43 were Australian and 40 were Indigenous-specific.

About 40 per cent focused on remote settlements, with additional studies exploring the links between Indigenous housing and health outcomes in urban areas. Therefore this study will focus primarily on remote regions, with urban-specific housing issues raised wherever appropriate.

## How does housing impact on health outcomes?

Housing can affect health and wellbeing directly or indirectly through several pathways (AIHW 2011a; Bailie 2007; Bailie & Wayte 2006b; Dockery et al. 2010). These pathways include physical, chemical, biological, economic and social factors (AIHW 2011a). Housing can impact health at the time of exposure, or effects may be delayed until later in life (AIHW 2011a; Phibbs & Thompson 2011; see also Howden-Chapman 2004).

Improved housing conditions can reduce health system costs, and improve participation in education and employment. One study in New South Wales (AEHU 2010) showed that improved Indigenous housing was linked with a 40% reduction in hospital separations for infectious diseases and reductions in chronic diseases (AEHU 2010; AIHW 2011a).

## Variations in the impacts of housing on Indigenous health

The effects of housing on Indigenous health can vary across geographies, climatic regions and tenure (Howden-Chapman 2004; Lee & Morris 2005; Skertchly & Skertchly 1999). Variation is also noted among settlements in urban, township, remote and homeland contexts, with poor housing being a particularly acute issue in remote townships (AIHW 2011a; Bailie 2007; National Shelter 2011). The literature consistently demonstrates that housing programs need to be carefully tailored to the local climate, and that what works in one type of settlement—such as urban regions—may not work in another (Bailie 2007; Hulse et al. 2011).

## Health impacts of poor design, construction and maintenance

As mentioned above, poor housing can impact upon physical health in a range of ways (Bailie 2007). This section explores these problems in more detail.

### Poor construction

A significant proportion of Indigenous housing—particularly in remote regions—has been constructed poorly. Contributing factors are inadequate supervision to ensure that houses meet basic national health and safety standards, and low quality materials that are inappropriate for the climatic demands places upon them (Lea & Pholeros 2010). These factors mean that basic equipment required for healthy living practices, such as functioning taps, sinks, toilets, showers and wastewater disposal systems, often break down. This is because they were either not of sufficiently robust quality for the climate and the large number of people utilising them, or because they were not properly installed, both of which may have contributed to their early malfunction (Lea & Pholeros 2010). Poorly functioning or non-functioning hardware is linked with greater incidences of accidents (such as electrocution and falls) (Rowley et al. 2008), and disease such as gastroenteritis or skin conditions (Bailie 2007; Booth & Carroll 2005; Phibbs & Thompson 2011).

The lack of adequate food storage facilities can lead to premature perishing of food and can impact negatively on food security. (For further information on food security and its impact on physical and mental wellbeing, see Anglicare 2012; King et al. 2012.)



A lack of potable water for drinking and cooking, and an inadequate (or non-existent) wastewater disposal system are both strongly linked with increased prevalence of gastroenteritis (Bailie 2007). Likewise, a lack of appropriately clean water for washing the body and clothing is linked with increased skin diseases, as well as ear infections in young children (Bailie 2007; Bailie & Wayte 2006b). Conversely, research repeatedly demonstrates that ensuring hardware such as taps, stoves and light switches work appropriately and safely, and having a clean reliable source of water, are clearly linked with improved health (AEHU 2010; Bailie 2007; Bailie & Wayte 2006b). Appendix C provides some data on the degree to which improving the condition of housing infrastructure improves health. This was taken from a study of housing construction programs in 10 Northern Territory communities in 2004–05 (see Bailie et al. 2012).

Houses built with inadequate ventilation or insulation, or with materials inappropriate to the local climate, can contribute to dampness or extremes of indoor temperature. Controlling the indoor air temperature, humidity and quality can contribute to the presence or absence of a range of biological health risks (AIHW 2011a; Dockery et al. 2010). In a cold or damp house, fungi and mould can grow, leading to a range of respiratory illnesses (Howden-Chapman 2004; Howden-Chapman et al. 1996; Phibbs & Thompson 2011). A damp house also encourages increased dust mites, which is linked to asthma and other respiratory illnesses (Howden-Chapman et al. 1996; Sheuya et al. 2007). However, reducing dust can result in improved health (Phibbs & Thompson 2011). Extremes of air temperature, both hot and cold, are also linked with premature deaths (AIHW 2011a; Howden-Chapman 2004).

### **Box 2: National Indigenous Housing Guide**

A nationally agreed standard for the construction of housing was developed by the former Department of Families, Community Services and Indigenous Affairs. This can be accessed at <<http://www.dss.gov.au/our-responsibilities/indigenous-australians/publications-articles/housing/national-indigenous-housing-guide>>.

*Source:* Department of Social Security.

## **Level of maintenance**

The level of maintenance of a house can determine whether hardware functions properly (Pholeros & Phibbs 2012). Dwellings in many remote Indigenous communities are in a poor state of repair and many households experience disruptions to their electricity and water supplies, mainly due to equipment failure (Australian Indigenous *HealthInfoNet* 2008), with clearly documented negative impacts upon health, such as increased gastroenteritis and parasitic infections (for example, Bailie 2007).

## **The appropriateness of house design for residents' needs**

The appropriateness of the physical layout of a house, quality of the surrounding built and natural environments, and the degree of crowding at both household and neighbourhood level can impact health.

### **The physical layout**

The layout of a house can affect Indigenous households' ability to maintain appropriate separation of private and public spheres, particularly in terms of avoidance behaviours. (For information of how avoidance behaviours affect the use of difference spaces in a house, see Memmott et al. 2011, 2012a). This can increase social stresses, with negative impacts on mental health (Memmott et al. 2011, 2012a; see also Hoskins 2004). In warmer climates, developing yard space as an additional living space can alleviate pressure on indoor living areas when kin are visiting (Pholeros 2010).



### **The quality of the surrounding built environment**

The surrounding built environment includes the yard and the immediate neighbourhood. At the yard level, the quality of the living environment includes having additional outdoor living space to reduce pressure on indoor living spaces. This is particularly important when kinsmen visit (Pholeros 2010). Fences are important for preventing trespassing, or the entry of passing stock or feral dogs into private yard spaces (Fien et al. 2008).

A third factor is rubbish disposal. One review of Indigenous housing and health noted increased risks of accidents such as slipping on wet surfaces, cuts from sharp objects, the risk of children suffocating by playing with plastic bags, and fire risks from flammable materials. Rubbish can block sewerage systems, increasing the risk of disease, and bore water can become contaminated (Australian Indigenous *HealthInfoNet* 2008).

At the neighbourhood level, physical health can be impacted by factors such as environmental noise and structures that encourage or discourage active lifestyles (Robinson & Adams 2008). The latter is important in reducing rates of a range of diseases such as heart disease. Environmental noise such as traffic or nightly social disturbances can be 'a common cause of sleep disruption, which can lead to impaired concentration and irritability' (Howden-Chapman 2004:163; see also AIHW 2011a; Memmott et al. 2011, 2012a).

Walkable neighbourhoods are important for preventing and addressing a range of diseases, by reducing obesity and overweight (AIHW 2011a). Where there is inadequate infrastructure (such as footpaths), or a perception of a lack of safety, neighbourhoods may become un-walkable (AIHW 2011a).

### **The quality of the surrounding natural environment**

A strong connection to country, such as on homelands, has documented links to improved physical, mental and cultural health and wellbeing (Garnett et al. 2009). For example, homelands have been noted for their contribution to healthy, more active lifestyles, which could be connected with lower prevalence of obesity, heart disease and diabetes in these settings (AIHW 2011a; Amnesty 2011; Bailie 2007; Booth & Carroll 2005).

Environmental challenges that affect health include extreme weather events and natural disasters such as flooding, cyclones and heatwaves. Flooding, for example, can lead to pooling of stagnant water, which encourages breeding of disease-carrying mosquitos and can aid the spread of some water-borne diseases (Australian Indigenous *HealthInfoNet* 2008; Sheuya et al. 2007).

### **The impact of crowding in Indigenous households**

It is important to note that crowding is not the same as density in Indigenous housing. It is a culturally defined term that refers to a loss of control over privacy and the ability to maintain avoidance relationships. A contentious issue in Indigenous housing research, crowding is generally defined as a number of people per bedroom, based upon Western cultural norms and expectations (Memmott et al. 2011, 2012a 2012b).

Using this definition, 2011 Census data suggest that 11.8% of Indigenous households experience some form of crowding, an encouraging 13.2% decrease since the 2006 Census (Biddle 2012). According to Memmott et al. (2012b), 2008 NATSISS data suggest that the problem may be much larger than this: only around 30% of Indigenous housing in remote areas, and 10% of housing in non-remote regions has sufficient bedrooms for the number of people living in the house. However, they do acknowledge the difficulties of using a 'snapshot of household sizes and profiles', which may lead to inaccurate reporting of household composition (Memmott et al. 2012b:268). They also suggest that 'NATSISS does not readily capture flows in and out of households and other social pressures on Indigenous households' (Memmott et al. 2012b:268).

The larger average size of Indigenous households coupled with the practice in many groups of multiple people sleeping in each bedroom means density-related definitions are culturally inappropriate (Biddle 2011; Memmott et al. 2011, 2012a). Authors such as Memmott et al. (2011, 2012a) propose instead that a more meaningful measure of crowding would account for the degree of stress induced by living in close proximity.



The literature notes both positive and negative health and wellbeing outcomes for Indigenous people living at high density (Australian Indigenous *HealthInfoNet* 2008; Bailie 2007; Memmott et al. 2011, 2012a; Zubrick et al. 2005), and that challenges associated with crowding can be seen at the room, household and neighbourhood level (Memmott et al. 2011, 2012a).

Living in close proximity to kin can have both positive and negative impacts on health and wellbeing (Zubrick et al. 2005; see also regression analysis in Appendix B). Contrary to popular perceptions, having high numbers of people living in one house can be a protective factor against child abuse and 'clinically significant emotional or behavioural difficulties' in children—with a greater availability of adult supervision and care of children. It can also reinforce social solidarity among kin (Zubrick et al. 2004:102, cited in Memmott et al. 2011, 2012a).

However, where the size and layout of a house does not meet the living needs of residents, problems can arise (Biddle 2011). Although this is arguably also an issue in regional and urban contexts, remote Indigenous housing in particular tends to be designed and built too small for the larger households that tend to use them, which puts people in close physical proximity and is linked to increases in infectious diseases and social stress which can lead to increased domestic and other violence (Australian Indigenous *HealthInfoNet* 2008; Bailie 2007; Booth & Carroll 2005; SCRGSP 2009), inappropriate exposure of children to adult sexual acts (Anderson & Wild 2007), increased sexual violence towards both adults and children (Anderson & Wild 2007), negative impacts upon education participation and the ability to complete homework (Biddle 2007). Crowded housing is linked with preventable deaths from infectious diseases such as rheumatic fever and rheumatic heart disease (AIHW 2011b).

Psychological stress can be produced by a range of factors. These factors include:

- having kin in avoidance relationships living in inappropriate proximity
- having disruptive kin disturbing other people's lives with drinking and fighting
- the strain of having to feed additional kin when they visit (Memmott 2011, 2012a).

Where such stressors occur, a household is crowded. Neighbourhoods can also be crowded where Indigenous public housing is all confined to one small area that experiences regular violence that appears to be targeted at residents (Memmott et al. 2011, 2012a). Such violence can impact directly and indirectly on physical and mental health, as well as social wellbeing (Bailie 2007; Bailie & Wayte 2006b).

## Psycho-social impacts of housing on health

The psycho-social and psychological impacts of housing upon health are felt through pathways such as the quality of social networks and interactions generated within the home as well as the surrounding community, a sense of control over one's housing environment and some of the negative aspects of crowding noted above (see also Dockery et al. 2010; McDonald et al. 2009; Memmott et al. 2011, 2012a).

Evans et al.'s (2003:491–5) review of non-Indigenous-specific literature on the effects of housing on mental health found that housing does matter for psychological health and that low-income families with children are particularly affected by poor housing conditions. The effects include:

- social isolation in children leading to reduced development of autonomy and social skills, where unsafe outdoor play areas result in parents keeping them indoors
- anxiety about hazards, fear of crime, and the effects on self-esteem and identity from living in a stigmatised neighbourhood
- lack of control over one's housing circumstances, which reduces a person's sense of control and mastery over their environment.



The historical loss of control of lands and the imposition of township living has had clearly negative impacts on mental as well as physical health for Indigenous Australians (Amnesty 2011). Hulse and Saugeres (2008) also note that poor housing affordability and insecure tenure can impact negatively on self-esteem and family relationships.

Not all impacts of housing upon mental health noted in the literature are negative. When negative factors are addressed, the converse positive outcomes are more likely to occur (Clinton et al. 2006; Kyle & Dunn 2008; Robinson & Adams 2008). Safe outdoor play areas encourage greater social participation and connection, allow children to engage in creative play and improve a range of facets of physical health such as increased immunity and the reduction of mental stress (Bagot 2005).

Living in either urban areas or homelands is associated with a higher level of mental health and wellbeing, as well as community wellbeing for Indigenous Australians, compared with townships (Amnesty 2011; Biddle 2011; Rowley et al. 2008). The greatest documented benefits appear to occur in homeland settlements (Biddle 2011).

Social cohesion is facilitated where housing is stable, affordable and well-maintained, and where there is a sense of order and harmonious relationship (Clinton et al. 2006).

In the Blanchard report on the Aboriginal homelands movement, the committee noted that:

Social control and discipline in homeland centres is maintained because of traditional rules of behaviour and the power of personal loyalties (HRSCAA 1987:35).

They also noted that social coherence in homelands was reinforced through shared participation in decision-making processes, the sharing of resources, and activities such as hunting. Finally, the committee suggested that homelands foster social wellbeing because they:

...offer an escape from hostility and mutual suspicions which can exist when differing language groups are mixed in a single community and from other social problems created by small family groups being located in a large community (HRSCAA 1987:36).

## **Economic mechanisms and health impacts**

The main economic pathways through which housing impacts upon health are through tenure and affordability of housing. Foster et al. (2011:5) found that the lack of security or insecure tenure can have 'direct effect on physical health and at least an indirect effect on mental health'. Further, Hulse and Saugeres (2008) suggest that poor housing affordability impacts significantly upon participation in the labour market and financial security. Indigenous households face far higher rates of precarious housing—for example, they are around 18 times more likely to live in housing that is in poor condition (Mallett et al. 2011).

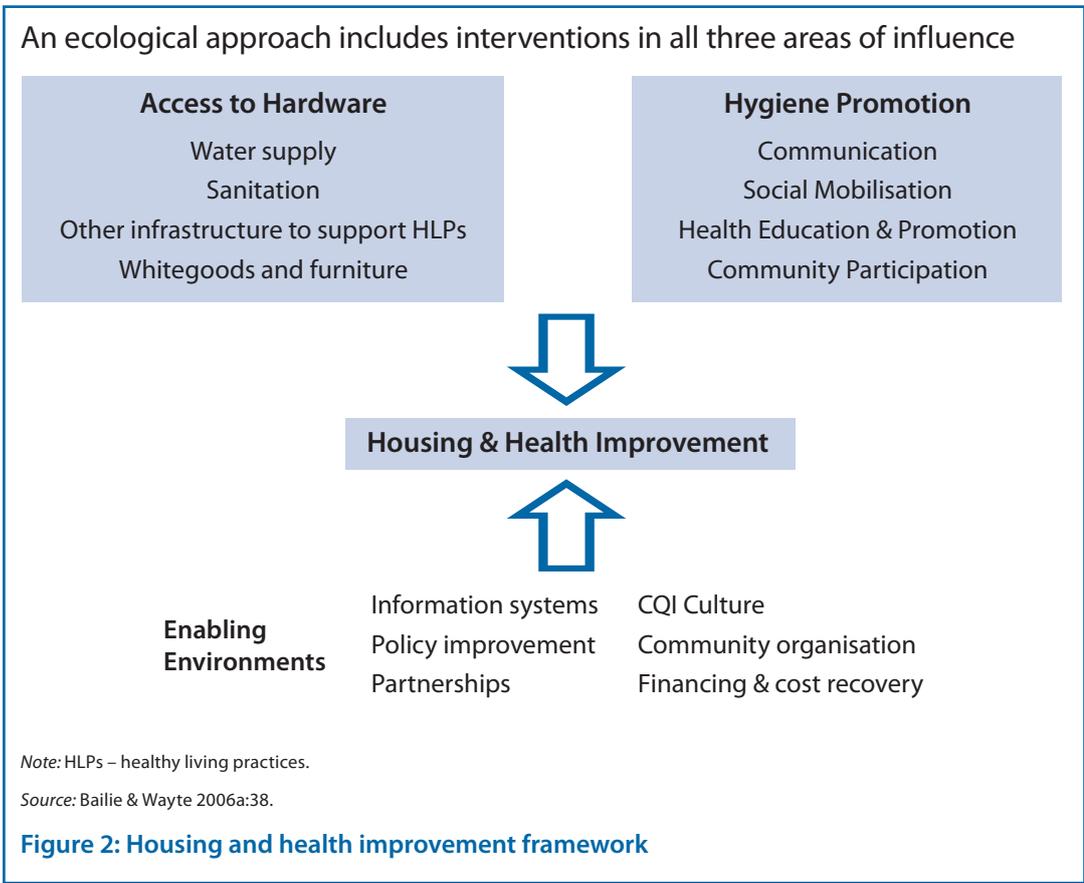
Affordable housing can indirectly affect physical health, particularly of children, in a number of ways. It affects the amount of money available to spend on 'basic necessities including food, clothing, healthcare, and heating' (AIHW 2010:11), which in turn affects spending on basic health and dental treatment. The financial strains placed upon parents by unaffordable housing can also affect children 'via parental wellbeing' (AIHW 2010:12).

## **Types of housing interventions that impact upon health, and principles for their effective implementation**

The literature reveals 3 broad groups of housing interventions that can improve health—improving infrastructure; housing-related health promotion programs; and adjustments to the housing policy environment (Bailie 2007; Bailie et al. 2011). Effective efforts require that all three types of interventions operate simultaneously (Bailie 2007; Bailie et al. 2010, 2011).



This section briefly outlines the types of interventions included in each of these 3 groups, as well as principles for effective implementation of each intervention type. These are also summarised in the following diagram:



## The policy environment

The policy environment is crucial for creating the overarching context in which infrastructure and health promotion programs are designed and funded (Amnesty 2011; HRSCAA 1987; Rowley et al. 2008). Specifically, the literature on Indigenous housing and health suggests that policies using housing to improve Indigenous health outcomes should include:

- **funding**—for housing construction and maintenance; health promotion programs; and capacity building of housing sector workers (Milligan et al. 2011; Pitman 2011)
- **training programs** for Indigenous health workers and community housing managers (Bailie & Wayte 2006a; Milligan et al. 2011; Pitman 2011)
- **information systems** to aid in the planning and delivery of appropriate housing and health promotion (Bailie & Wayte 2006a)
- **housing design principles and standards** (FaCSIA 2007; Fien et al. 2008; Lee & Morris 2005; Memmott et al. 2011, 2012a; Milligan et al. 2011; O’Brien 2011)
- mechanisms for appropriate **supervision and sign-off on construction and maintenance projects** (see Pholeros & Phibbs 2012 for more details)
- training and standards around **culturally appropriate management of Indigenous social housing** (both public and community housing), and management of Indigenous tenants in mainstream social housing (Milligan et al. 2011)
- policies that either **encourage or discourage homelands living** in remote regions.



The policy environment is crucial for enabling effective practices in infrastructure and health promotion interventions. Several policy principles and mechanisms emerge in the literature on housing and health.

### **Funding models**

- Housing interventions can be costly and require long timeframes. It is important that sustainable, long-term funding models be developed to improve Indigenous health outcomes through improved housing (Anaya 2010).
- It is more cost-efficient in the long term to use better quality materials and housing hardware (Sheuya et al. 2007).
- Training and employing Indigenous health workers can aid in promoting improved housing-related healthy living practices (Pitman 2011). Therefore, capacity building of these health workers and ongoing funding of their work is essential.

### **Design and delivery of appropriate housing**

- Governments play a fundamental role in developing, administering and enforcing design frameworks and standards (for example, FaCSIA 2007).
- It is vital that these frameworks and standards allow for flexible and locally responsive housing design approaches to ensure housing is appropriate to the climate and the needs of the household (Fien et al. 2008; Hoskins 2004; Lee & Morris 2005; Memmott et al. 2011, 2012a; Milligan et al. 2011; O'Brien 2011).
- Governments also need to monitor construction and maintenance programs to ensure the housing that was designed and funded is what gets built (see Pholeros & Phibbs 2012 for a more detailed discussion).
- Utilising and developing local skills in housing construction and maintenance, as well as health promotion, can support economic development and promote greater community engagement and ownership (AEHU 2010).

### **Cultural appropriateness**

- Culturally appropriate management of Indigenous social housing (Milligan et al. 2011) is crucial for ensuring that Indigenous social housing tenants are provided with housing that meets the accommodation needs of individual households. Appropriate housing is important for positive health outcomes. Culturally appropriate management includes self-management through Aboriginal housing associations where possible and improving the cultural awareness of non-Indigenous staff (Milligan et al. 2011). (NB. See Terminology section at the end of this paper for a definition of social housing.)
- Policies seeking to improve Indigenous health through housing programs also need to facilitate and encourage homelands living, where the relevant Indigenous people are seeking this lifestyle (Amnesty 2011; Bailie 2007; Garnett et al. 2009; HRSCAA 1987). Connection to country is a key to positive health outcomes for Indigenous Australians (Garnett et al. 2009).

### **Infrastructure improvements**

Infrastructure improvements are detailed in Pholeros and Phibbs' (2012) resource sheet, so they will only be given brief treatment here. These interventions refer to the following types of programs:

- Improving the physical quality of the house itself. Improvements may include:
  - replacement of dilapidated housing, and construction and maintenance of houses with quality fixtures (such as taps, sinks, electrical cabling and switches) that have been selected to match the size of household and climate



- providing a safe, reliable supply of water and electricity to support healthy living practices such as washing and cooking, as well as indoor temperature regulation (AEHU 2010; ANAO 2010; Bailie 2007; Bailie & Wayte 2006a; Bailie et al. 2011; Clinton et al. 2006; Lea & Pholeros 2010; Pholeros & Phibbs 2012).
- Improving physical aspects of the surrounding yard. Programs may improve safety, hygiene and useability of the yard, such as removing rubbish, installing or fixing fences to keep neighbourhood dogs out, planting climate-appropriate trees for shade (particularly in tropical regions), and creating outdoor living areas (such as pergolas and outdoor cooking facilities) to relieve pressure on indoor living spaces (Hoskins 2004; Pholeros 2010).
- Improving physical aspects of the neighbourhood. This includes building networks of walkable footpaths, separated from road traffic in heavy traffic areas, improving lighting and other safety features, as well as drainage and other hygiene-related infrastructure (AEHU 2010).

Infrastructure-related principles that improve health through housing interventions include design, construction and maintenance of housing for improved health.

### **Box 3: National Indigenous Infrastructure Guide**

The *National Indigenous Infrastructure Guide* provides details on the appropriate design of infrastructure for Indigenous housing and communities (see <<http://www.icat.org.au/resources/national-indigenous-infrastructure-guide>>). It contains information on designs for systems such as potable water, storm water and wastewater management, waste disposal and energy and telecommunications facilities. This guide was developed by the Centre for Appropriate Technology in conjunction with the then Department of Families, Housing, Community Services and Indigenous Affairs. The Centre's website contains additional useful resources which could assist in the development of appropriate infrastructure for Indigenous communities, particularly in regional and remote areas (<<http://www.icat.org.au>>).

*Source:* Centre for Appropriate Technology.

## **Housing design and construction principles for health outcomes**

The housing environment needs to support healthy living practices (Phibbs & Thompson 2011). There are a range of design and construction principles that can directly improve health and support ongoing health living:

- Houses should be designed to be appropriate to the specific physical or climatic context in which they will be situated (ANAO 2010; Howorth 2007). Respecting and utilising local Indigenous knowledge about appropriate housing sites, the siting of houses on land, and the best materials for the climate is more likely to result in the most appropriate housing (O'Brien 2011).
- Culturally appropriate design is also important, regardless of whether the house is in urban, regional or remote settings. For example, culturally appropriate Indigenous housing would allow for any avoidance behaviours relevant to the local cultural context to be maintained, by providing additional entry/exit points (Memmott et al. 2011, 2012a).

#### Box 4: Promising practice: communal housing for Māori family networks

Hoskins' study of several Māori housing projects in New Zealand demonstrates the value of communal designs for supporting maintenance of cultural and social dynamics. Communal designs are based on traditional village designs, where several houses would surround a safe, outdoor living space. They are designed in consultation with future residents to ensure the design meets these families' needs.

While rural projects use large tracts of land, urban projects are utilising cul-de-sacs of up to 20 homes, incorporating some private and some shared facilities.

Individual houses also use design features to facilitate variation in household size and structure, such as at least 5 bedrooms, moveable walls to allow living spaces to be converted into additional sleeping space, verandas that can be adapted as additional bedrooms, interconnected indoor/outdoor living spaces, play spaces for children separated from adult living areas that are used of ceremonial activities, sufficiently large kitchens to cope with peak demand, separate kitchen and laundry areas to maintain separation of sacred and profane activities, and separate bathroom blocks to accommodate peak demand.

*Source: Hoskins 2004.*

Houses that are designed flexibly can alleviate the impacts of seasonal crowding, that is, when kin visit at certain, regular intervals (Booth & Carroll 2005; Hoskins 2004; Pholeros 2010).

- Functioning bathroom, toilet and kitchen hardware are crucial for maintaining healthy living practices (Pholeros 2010). Hardware such as wastewater disposal systems, hot water systems, food storage facilities and other kitchen equipment should be designed to adequately cope with peak demands, and equipment should be cost-effective to run and repair (Pholeros 2010).
- Energy-efficient homes with heating or cooling (as appropriate) provided to the whole house allow for greater utilisation of all rooms, thereby reducing the need to crowd into one or two air-conditioned rooms (Pholeros 2010). Improved energy efficiency and temperature regulation can help to reduce the build-up of damp, dust, mould and fungus, thereby reducing the incidence of respiratory and skin illnesses (Clinton et al. 2006; Howden-Chapman et al. 1996).
- Temperature regulation is also important for preventing the premature deaths due to extremes of outdoor temperatures (Howden-Chapman 2004).

#### Housing maintenance

- It is crucial that regular maintenance programs be conducted to ensure that health hardware continues to function (Pholeros 2010).
- The use of high-quality materials is recommended for maintenance and repairs as this is far more cost-efficient in the long term (Pholeros & Phibbs 2012).
- Where surveys are conducted to assist with planning for maintenance or repairs, it is important that some identified issues are immediately dealt with on the day (AEHU 2010). Basic health hardware should be the highest priority for repairs and maintenance (Pholeros 1999), and a clear plan for future works should be communicated with residents (AEHU 2010).



## Housing-related health promotion programs

This group of housing-related health promotion programs focuses on:

- Training and capacity building of Indigenous environmental health workers to promote these behaviours in culturally and socially appropriate ways (Australian Indigenous *HealthInfoNet* 2008). As well as providing internal and external maintenance services, health workers can promote home maintenance skills and provide education on active lifestyles, healthy nutrition, cooking and safe food storage (Australian Indigenous *HealthInfoNet* 2008; Clinton et al. 2006; Pitman 2011; Stewart et al. 2004). This helps to create safe living spaces and to improve community management of community-controlled housing.
- Capacity building of households to improve hygiene, as well as use and actively maintain health infrastructure within the house, which helps to reduce the prevalence of diseases such as asthma, gastroenteritis and trachoma (Bailie et al. 2011; Clinton et al. 2006).

Housing-related health promotion programs and materials need to be developed in consultation with local community members to ensure they are culturally relevant (Bailie 2007). To achieve this, it is important to note the following principles:

- Avoid didactic teaching styles, and replace them with concrete and practical learning opportunities (McDonald et al. 2010).
- Acknowledge cultural beliefs and practices (McDonald et al. 2010). For example, although some practices such as shared sleeping may contribute to increased risk of spreading infections, they promote other social and emotional benefits. Therefore community consultation should be used to explore appropriate health messages.
- Treat topics such as hygiene and health promotion sensitively. McDonald et al. (2010) suggest that remote Indigenous communities, for example, 'are aware of how they might be perceived by non-Indigenous Australians'. Therefore, health promotion approaches need to avoid shaming or intrusive practices.
- Avoid blaming individuals for their current health conditions when developing health promotion messages. Instead, use messages that empower communities and individuals to improve and maintain housing to support good health (McDonald et al. 2010).
- Indigenous environmental health workers play a vital role in both maintenance and health promotion in Indigenous communities (Australian Indigenous *HealthInfoNet* 2008). Stable funding enables workers to implement sustainable health improvements (McDonald et al. 2010).



### Box 5: Promising Practice: Indigenous Healthy Housing Teams

This case study report describes a pilot program for training local Indigenous women in environmental health skills, in their remote Northern Territory settlement of Maningrida.

Prior to this program, attempts to train Indigenous Environmental Health Workers required them to leave their community to attend courses. Often there were no employment opportunities for them when they returned home. Therefore, the NT Human Services Training Advisory Council decided to pilot a new approach to both the capacity building of environmental health workers and the brokering of employment opportunities within their own community. They selected Maningrida as the initial pilot region as it met a range of criteria. External, non-Indigenous environmental health trainers were sent to Maningrida to make contact with the Bawinanga Aboriginal Corporation, which operated the local Community Development Employment Program (CDEP) and provided a range of services to the region.

Bawinanga operates a range of community enterprises, such as the Babbarra Women's Centre. Babbarra had established a small cleaning business, which employed several women as part of a CDEP initiative. Concern was growing about the sustainability of the business once CDEP had been phased out.

Both Bawinanga and Babbarra were interested in developing the skills of these women to work more broadly as Indigenous environmental health workers. These women had already received some environmental health training as part of establishing the cleaning business. So the trainers worked with the Babbarra to assess the areas where further capacity building was needed. Trainers and Babbarra agreed that the women needed further training in the following skills:

- safe food storage and handling procedures
- disease transmission and control
- environmental health issues
- practical skills such as 'mentoring, public speaking and advocacy'.

The trainers successfully engaged the women by setting training times when people were available, regardless of the time of day, and attending contracted cleaning jobs with the women to provide onsite assessment and mentoring.

Training in public speaking, mentoring and advocacy alongside practical environmental health skills helped the women to grow in confidence, to the point where they decided to conduct a community survey of health practices. When they ascertained the most common environmental health concerns facing the community, they were then able to engage health professionals and other experts to conduct information sessions for the community. Sessions provided information such as how to use cheap, readily available cleaning products like bicarb soda and vinegar, to make cleaning more affordable. Another session addressed the growing local problem of feral dogs and their impacts on community health.

As a result of the program, the Babbarra Women's Centre cleaning business has expanded, with program graduates providing informational support to local social housing tenants, as well as cleaning services.

Some of the advantages of training and employing these women in their community, which contribute to improved housing hygiene and health, are:

- The women have strong family ties to the community and to social housing tenants.
- They are able to operate across all 9 languages used in this community.
- Because the women work as a team rather than as individuals, the tenant support service is better able to rely upon their services.
- The women can provide referral services to community housing officers and health professionals as needed.
- They are able to run culturally relevant information sessions for tenants.

Source: Pitman 2011.



## Enabling conditions

In addition to the above principles for effectively implementing policy, infrastructure and housing-related health promotion interventions, the literature notes a range of conditions necessary for improving and supporting health outcomes through housing:

- There is now a large body of evidence around the interactions between housing and health, and effective approaches for improving health outcomes through housing interventions. Therefore, it is crucial that interventions are based upon sound evidence (McDonald et al. 2010).
- However, it is imperative that appropriate evidence be used for the physical and social context of the intervention. For example, urban housing research appears to be of limited value in developing programs for remote settlements (Bailie 2007; Hulse et al. 2011).
- It is important to avoid imposing programs from outside the community as this undermines Indigenous control over their land and housing (Anaya 2010). Control over housing and land has been clearly linked with increased health (Watson 2007).
- Community consultation is crucial to avoid the imposition of inappropriate programs, and helps facilitate culturally appropriate and acceptable programs (McDonald et al. 2010).
- Active participation of families, as well as collaboration between the community and housing experts such as architects, can improve engagement, ownership of outcomes, and the cultural relevance of programs (AEHU 2010; Clinton et al. 2006).
- Training in cross-cultural skills for non-Indigenous housing professionals—particularly cross-cultural consultation—is an important component of effective programs (see Lee & Morris 2005 for evidence on effective cross-cultural consultation practices).

## Ineffective or contentious practices

Several practices have been identified in the literature as either ineffective or producing mixed results:

- The transposition of housing designs and use of materials from temperate, southern regions of Australia to the tropical north tends to reduce the lifespan of housing, due to the demands of the climate—such as higher temperatures, humidity and extreme weather events (for example, cyclones) (Sheuya et al. 2007).
- Imposing housing and health promotion programs which are inappropriate for the local social and cultural context reduces engagement with the local community, resulting in poorer uptake of new knowledge or behavioural change (Lee & Morris 2005; McDonald et al. 2010).
- Using low-quality materials and construction to generate initial cost-savings increases the costs of maintenance and housing replacement in the longer term (Sheuya et al. 2007).



## Conclusion

Although demonstrating causality is difficult, housing is very clearly associated with a range of both positive and negative physical, mental, social and economic health and wellbeing outcomes. Functioning hardware such as taps, toilets and wastewater disposal systems and preventing or removing damp, mould and fungus all clearly contribute to reductions in a range of skin and respiratory diseases. Improving the temperature regulation indoors reduces premature mortality from extremes of outdoor temperature. Flexible and adaptable housing designs reduce social stresses by reducing the negative impacts of crowding, and stability of housing is vital for improving and maintaining mental health.

A large body of evidence demonstrates that programs that improve the condition of Indigenous housing are an effective and highly cost-efficient means of improving Indigenous health outcomes (for example, Rowley et al. 2008; Watson 2007). Benefits flow on to other areas of society and the economy in the form of reduced health system costs, increased productivity and higher participation in employment. Likewise, up-front investment in quality materials and construction results in long-term savings on maintenance of Indigenous housing, particularly in remote settlements (Garnett et al. 2009).

It is important that any program designed to improve Indigenous health through housing interventions is designed and implemented in close consultation with the affected community. Further, the literature is clear that these programs are more effective where co-ordinated policy, infrastructure and housing-related health promotion initiatives are implemented simultaneously.

## Appendix A: Additional relevant material in the Clearinghouse

The Closing the Gap Clearinghouse Assessed collection includes summaries of research and evaluations that provide information on what works to overcome Indigenous disadvantage across the 7 Council of Australian Governments building block topics.

Table A1 lists selected research and evaluations that were the key pieces of evidence used in this resource sheet. The major components are summarised in the Assessed collection.

To view the Assessed collection, visit <<http://www.aihw.gov.au/closingthegap/collections/>>.



**Table A1: Assessed collection items for Housing strategies that improve Indigenous health outcomes**

Title	Year	Author(s)
Australian National Audit Office. Indigenous housing initiatives: the Fixing Houses for Better Health Program	2010	Department of Families, Housing, Communities and Indigenous Affairs
An exploratory analysis of the longitudinal survey of Indigenous children	2011	Biddle N
Housing and health in Indigenous communities: key issues for housing and health improvement in remote Aboriginal and Torres Strait Islander communities	2006	Bailie RS & Wayte KJ
Housing and mental health: a review of the evidence and a methodological and conceptual critique	2003	Evans G, Wells N, Moch A
Will the crowding be over or will there still be overcrowding in Indigenous housing?: lessons from the housing for health projects 1985-2010	2010	Pholeros P
The health impacts of housing: toward a policy-relevant research agenda	2011	Phibbs P & Thompson S
The impact of housing improvement and socio-environmental factors on common childhood illnesses: a cohort study in Indigenous Australian communities	2011	Bailie RS, Stevens M, McDonald E
Chapter 10: housing. Social determinants of indigenous health	2007	Bailie R
Housing and children's development and wellbeing: a scoping study. AHURI Final Report No. 149	2010	Dockery AM, Kendall G, Li J, Mahendran A, Ong R, Strazdins L
Modelling crowding in Aboriginal Australia	2011	Memmott P, Birdsall-Jones C, Go-Sam C, Greenop K, Corunna V
This is not a pipe: the treacheries of Indigenous housing	2010	Lea T & Pholeros P
Is homeownership the answer? Housing tenure and Indigenous Australians in remote (and settled) areas	2008	Sanders W

Table A2 contains a list of Closing the Gap Clearinghouse issues papers and resource sheets related to this resource sheet.

To view the publications, visit <<http://www.aihw.gov.au/closingthegap/publications/>>.

**Table A2: Related Clearinghouse resource sheets and issues papers**

Title	Year	Author(s)
Engagement with Indigenous communities in key sectors	2013	Hunt J
Constructing and maintaining houses	2012	Pholeros P & Phibbs P



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## Abbreviations

CDEP      Community Development Employment Program

FaHCSIA    former Australian Government Department of Families, Housing, Community Services and Indigenous Affairs, now the Department of Social Services

## Terminology

**Indigenous:** ‘Aboriginal and Torres Strait Islander’ and ‘Indigenous’ are used interchangeably to refer to Australian Aboriginal and/or Torres Strait Islander people. The Closing the Gap Clearinghouse uses the term ‘Indigenous Australians’ to refer to Australia’s first people.

**Social housing:** Social housing is a term that covers both public and community housing. ‘Public and community housing is rental housing which is owned and operated by State Housing Authorities and not-for-profit housing providers respectively’ <[http://www.ahuri.edu.au/themes/public\\_community\\_housing/](http://www.ahuri.edu.au/themes/public_community_housing/)>.

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