NATIONAL HOUSING SUPPLY COUNCIL

HOUSING SUPPLY RESPONSES TO CHANGE IN AFFORDABILITY

FINAL REPORT JUNE 2012





urbis

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1 Introduction

1.1 PURPOSE OF THE RESEARCH

Urbis Public Policy was commissioned by the Commonwealth Government, National Housing Supply Council (NHSC), through Treasury, to conduct scoping research into the residential construction industry"s responses to changes in affordability.

The primary aims of the research were to:

- investigate and offer a preliminary understanding of how the residential building industry has responded to declining housing affordability, if at all
- understand innovation being adopted and some of the challenges to their adoption at various levels in the industry
- identify areas that would benefit from further research and to provide direction for future studies in relation to affordable construction.

1.2 THIS REPORT

This report documents the findings of this study and identifies opportunities for further research and for government to respond. The key sections in this report are as follows:

- Section 2: Methodology
- Section 3: Innovation and industry responses
- Section 4: Factors driving declining affordability
- Section 5: Discussion
- Section 6: Policy implications and areas for further research.

1.3 LIMITATIONS

The following limitations of this research should be noted:

- The research was of a small scale and narrow scope, and sought to provide an overview of the responses of different sectors in the industry to declining affordability in housing construction. The purpose was to identify areas warranting additional research and provide direction for further work. As a scoping study, this research is not exhaustive.
- Participants expressed a range of views on the topic of housing affordability, some of which were outside the primary focus of this research, and as a result, some already well-known issues are reported. However, these views are important to note as they demonstrate the industry"s frustrations and concerns.
- Differences in the experiences participant cohorts have been noted where evident. Although participant selection sought to include a wide, and representative cross-section of the industry the research is limited by the experiences of participants and is therefore not able to be generalised.
- While this report documents a number of examples of innovative responses by the industry, it has not been possible, based on the number of interviews undertaken, to accurately identify the extent to which these innovations have been adopted.

2 Methodology

The research project comprised five key stages as follows:

2.1 STAGE ONE – SCOPING

Stage one involved scoping and focusing the research. Urbis met with the NHSC secretariat, conducted preliminary research and reviewed documentation in order to understand research completed to date, the emerging trends and priorities of the residential housing sector.

2.2 STAGE TWO – LITERATURE REVIEW

Stage two involved a targeted and brief review of key literature, documents and data sources related to the housing construction sector, housing affordability, and construction innovation and challenges faced by the sector in Australia. The review considered material published since 2007 across a range of databases, to identify responses to housing affordability by the residential construction industry and understand barriers and enablers to adoption.

The review contributed to an overall understanding of the research area, areas requiring further research, and informed the development of a discussion guide for use in interviews.

2.3 STAGE THREE – INTERVIEWS

2.3.1 PARTICIPANT SELECTION

Participants were selected based on a review of the structure and composition of the Australian residential construction industry. The findings of this review, though not exhaustive, provided an interesting insight into the rate of housing provision in different jurisdictions, the types of housing being provided, the organisations providing housing and how this has changed in recent years. The findings of the industry analysis were provided to the National Housing Supply Council Secretariat in April 2012, and in the mid-project presentation in early May. Key findings are contained at Appendix A.

A total of 92 participants were identified and were broadly representative of the housing industry. The list included a mix of industry bodies, policy agencies, not-for-profit organisations, researchers and home builders and developers of varying sizes, locations and specialities. Home builders and developers were selected through a process that identified over 50 builders and developers and collected data, where possible, on their size (in terms of output and activity), their location and the type of product/s they provide (greenfield, infill, detached, multi-unit). The final selection of 33 from this 50 includes a spread of business sizes (small, medium and large) and locations around Australia, including the largest home builders and multi-unit developers nationally, and a number of small and medium builders in proportions equal to their actual incidence in the industry.

2.3.2 PARTICIPANT COMPOSITION

A total of 33 interviews had been conducted. The composition of participants is described in Table 1. Further detail, including a full list of participant organisations, is contained at Appendix B.

TABLE 1 – COMPOSITION OF PARTICIPANTS

PARTICIPANT CATEGORY	NUMBER OF PARTICIPANTS
Peak organisations	7
Community and social housing providers	5
Academics and researchers	4
Home builders and developers	17
TOTAL	**33**

2.3.3 DISCUSSION GUIDE

Interviews with participants followed an agreed discussion guide. The discussion guide was developed in close consultation with the NHSC and was based on the findings of the literature and document review. Questions in the discussion guide covered a range of topics including:

- industry responses to declining affordability, including innovation
- factors driving declining affordability
- what are their key sources of information
- areas requiring further research.

The discussion guide is attached at Appendix C.

2.4 STAGES FOUR AND FIVE – REPORTING

At Stage four a mid-progress project report and presentation was made to the NHSC in May 2012.

Stage five, this report, documents the research in full and recommends areas for further research.

3 Literature review

As discussed at Section 2.2 above, a brief literature review was undertaken at the commencement of the project. The literature review considered literature from the last five years and provides an understanding of the extent of existing research, identified documented industry responses and gaps.

3.1 KEY FINDINGS

The full literature review and reference list is contained at Appendix D, however key findings include:

- Housing affordability is acknowledged as a significant challenge Australia wide and the research recognises that supply has generally failed to meet demand.
- Factors that influence supply and affordability include the availability and cost of land for development, finance constraints and costs, policies and processes related to development approval, the construction process itself, and the capacity of the labour force to support innovation.
- Some parts of the sector have responded by increasing the provision of multi-unit dwellings and using materials that reduce the life-cycle costs of new development. Some are innovating with new construction techniques such as pre-fabrication and off-site manufacture due to safety and efficiency benefits (especially related to saving time). The adoption of pre-fabrication and off-site manufacture is not however widespread.
- Some parts of the social housing sector have responded by delivering a greater variety of dwelling products.
- Gaps emerging in this existing research include:
  - Understanding of the organisational processes of smaller builders including management, performance monitoring (of housing projects), contracting, procurement and training arrangements.
  - The dwelling-types developed by different types of organisations in the industry.
  - Quantifiable evidence demonstrating the link between innovation and cost savings, including implications for affordability.
  - The extent of adoption of various innovations by the construction industry.
  - Innovation around construction methodologies, as opposed to management approaches (e.g. increased development densities) that are more widely documented.
  - How the experience and responses of the industry vary by jurisdiction.

3.2 IMPLICATIONS FOR THE RESEARCH

These findings were key in informing the remaining stages of this research and formed the basis of the discussion guide.

The findings of this research are generally consistent with this existing research, and contribute some information on these research gaps (for example around the experiences of different organisational types, jurisdictional variations and the extent of innovation). This research also identifies gaps that are to be further investigated and how this might be usefully done.

4 Existing industry innovation and responses

All sectors of the construction and housing industry acknowledge that housing affordability is an issue Australia wide. Despite this however, innovation and responses of the industry to the affordability crisis are fairly limited. One participant observed:

> *"We are not changing products, we are not changing the way we build, we are doing bugger all".*
>
> Peak organisation

The primary response of the industry has been to design and build smaller dwellings, and to explore more cost-effective materials and construction methods. These responses, where they were identified in this research, are discussed and illustrated with examples below.

4.1 SMALLER DWELLINGS AND LOTS

Existing research indicates that the average floor area of residential dwellings in Australia has increased over the last two decades, but that the rate of increase has slowed in recent years (Dalton et al, 2011). Reflecting this, interviews suggest that the most common response of the industry to the challenge of affordability is a reduction in dwelling and lot sizes. Home builders and developers of all sizes and in a range of jurisdictions reported reducing dwelling and lot sizes in order to increase yields and deliver homes within the market's affordable range. Peak organisations observed this trend as well. Comments included:

> *"Dwelling sizes have been reducing significantly in the last three of four years. It's a bit of a phenomenon and it should go further."*
>
> Peak organisation

> *"Our average lot size has decreased each year for the last 10 years, and particularly in the last few years it's been accelerated."*
>
> Large home builder, Queensland

> *"As a land developer, we've reduced lot sizes and as a unit developer, we've made homes much smaller to achieve some affordability."*
>
> Small/medium home builder and developer, Victoria

> *"Our developer partners are producing smaller lots to match smaller homes and achieving smaller costs."*
>
> Small/medium home builder, New South Wales

By way of example, one large developer operating in Victoria and New South Wales reported that in the last ten years, two-bedroom apartments have reduced from 80-90m^2 to 60-65m^2, while one-bedroom apartments have reduced to around 45m^2. A national community housing provider reported a similar reduction, though to a lesser extent:

> *"2-bedrooms houses are down to around 80-85m^2 and two-bedroom apartments to 55-60m^2."*
>
> Community housing provider, Victoria

Home builders and developers are reducing dwelling sizes in a number of ways. Examples provided by participants include:

- Foregoing formal spaces (for example formal living rooms) and adopting open plan living areas.

  "We've brought smaller, but still stylish, housing into the range. How you do that is to dispense with the formal areas (e.g. formal dining rooms) and condense these uses into a spacious kitchen/dining/living area."

  Small/medium builder, Queensland

- Building more one- and two-bedroom dwellings, in place of larger three- and four-bedroom dwellings.

  "The apartment part of our business has modified apartment models to include more one- and two-bedrooms, and fewer three-bedrooms than previously."

  Large developer, National

- Reviewing internal configurations to reduce floor space used in circulation areas[1]. In one large developer's experience, this type of dwelling sold better (at a more affordable price point) than a competitor's that was otherwise the same (located next door) but with larger circulation areas.

  "We did it by keeping the bedroom and living rooms the same size, but by reducing circulation space. Overseas designers have done it – we're reducing circulation space but preserving amenity."

  Large developer, National

Those trying innovative responses noted that maintaining amenity is important. Another large national developer and builder observed:

"We're reducing the size, but we're not compromising quality.".

Large home builder and developer, National

Some said that amenity can be achieved in higher density areas through the provision of adequate community services and infrastructure such as open space and community centres. This is supported by research from the Grattan Institute (2011) which notes that amenity is important to the market.

A number of other interesting innovations involving building smaller dwelling types were described. These include:

- A strong push for terrace housing as an ideal model of modern compact living. A number of researchers and peak organisations noted the growth in terrace housing, and several developers and home builders had built terrace style housing already (refer Section 4.4.1 for an example). As one large developer in New South Wales commented:

  "Terraces are a particularly efficient building form with latent demand… Unfortunately, the planning controls haven't encouraged terraces, they've made it more difficult and they've copped the stigma of higher density."

  Large home developer, National

- „Add-on" living components in response to the need for affordable living for young or ageing relatives. This small/medium builder noted that affordability is increasingly an issue for the ageing population, and not just first home buyers. Aged care facilities can be expensive, are in increasing demand and can be out of reach of some older members of the community:

[1] Circulation area is defined as the sum of all areas on all floors of a building required for physical access to some subdivision of space, whether physically bounded by partitions or not (including permanent corridors, stairways, elevators, escalators, and lobbies etc).

"It's called multi-gen living – it's about living 'pods' that can be attached to our homes to provide an affordable living component… We reallocated space within the traditional home to create a separate living unit."

Small/medium builder, New South Wales

- Garage-top dwellings (which have been very successful in this project):

  "We're doing 'fonzie flats' in master planned communities which sit above garages. They're also strata titled so someone separate can buy it."

  Large developer, National

- Apartments with the option to connect with adjoining dwellings. The large developer and builder adopting this model reported that the one-bedroom 40m^2 'connectable' dwellings are renting well. These can be sold as one or two dwellings and rented as one or two apartments, each with separate facilities. These are an attractive option in areas with concentrations of university students or areas which have significant numbers of share households.

4.2 CHOICE OF MATERIALS AND METHODS

All sectors of the construction and housing industry regularly consider alternative materials as a means of increasing affordability. The industry looks for products that are cheaper to purchase (either the same products purchased cheaper overseas or cheaper local equivalents), as well as materials and methods that achieve cost-savings through reduced construction time. Comments included:

"We're always trying to source new products and things that are a bit smarter or cost-effective."

Small/medium home builder, Queensland

"We look more rigorously at alternative products and product solutions that allow us to use make more affordable options in the products we produce."

Small/medium home builder, New South Wales

4.2.1 SOURCING CHEAPER MATERIALS

A number of home builders and developers look to save money in using cheaper materials. This can include both cheaper materials, as well as sourcing materials from overseas. Sourcing materials appears to be something considered by all parts of the industry, regardless of business type, size or location.

Cheaper materials

Some home builders and developers – both large and small/medium – reported using cheaper materials to be able to deliver the same dwelling for less. This is generally in response to what the consumer can afford or the 'sweet spot'. The 'sweet spot' varies across jurisdictions from (as estimated by participants) approximately $400,000 in Sydney, $350,000 in Melbourne and $320,000 in Brisbane. Comments included:

"We try to meet their needs and give them as much as we can for their budget. We give people options, for example stone bench tops rather than marble or no window coverings or limited landscaping - things that can be upgraded later."

Small/medium home builder, Queensland

"It's reverse engineered in a sense – they work out what the market can afford and then tailor what they can deliver to this."

Peak organisation

"We recently brought out a product that cuts back on some inclusions around materials. We focus on the dwelling structure and then allow people to upgrade inclusions as they wish."

Large home builder, National

Where this is the case, participants noted that part of their work is to understand and respond to consumers' priorities, but also to educate consumers about what they can realistically afford.

"It's an education process because the reality is, they can't afford it… Our sales people are being educated in overcoming the hurdles in expectations around carpet, tiles, air-conditioning etc. It's all driven by consumerism and a have it now mentality."

Small/medium home builder and developer, Queensland

Materials purchased overseas

A number of participants indicated that they purchased, or had considered purchasing, traditional materials such as windows and joinery from overseas where materials can be sourced for a cheaper price than domestically. Comments included:

"We're looking outside of our normal procurement arrangements and into alternative suppliers. There are some products we've about to source overseas. For example, air-conditioning and electric photovoltaic systems – China are head and shoulders above the rest."

Large home builder, National

"I've sent teams to China to see if they can build cheaper overseas. I've appointed a purchasing manager overseas to try and import products cheaper."

Small/medium home builder and developer, Victoria

Participants reported experiencing some difficulties in terms of establishing a regular supply chain and ensuring high quality, however it appears that over time they have established more streamlined processes. There was a strong sense of national loyalty with respect to importing materials, with some making a conscious choice to continue to use Australian products, and others indicating they regretted needing to look overseas:

"We try to avoid going overseas at all costs. We try to work within the communities we're building in, even when we know it comes at a premium."

Community housing provider, Victoria

"I don't like doing it [sourcing materials overseas] *because I'd prefer to use local industry, but it's twice the windows for half the price."*

Small/medium home builder and developer, Victoria

4.2.2 MATERIALS THAT INCREASE EFFICIENCY IN THE CONSUTRUCTION PROCESS

It is reported that the avenue through which the greatest cost savings can be achieved is through increased efficiency in the construction process. Recognising this, another common response of the industry is the use of new materials and methods that reduce time on site which saves on labour costs, land holding costs and gets product to market more quickly:

"The savings are in the assembly."

Small/medium home builder and developer, Victoria

"Efficiencies in the construction processes are important. Less waste, less downtime, less costs. It"s all about organisation."

Small home builder, Queensland

Home builders and developers are looking to materials and methods that that are quicker and cleaner to erect. One example cited is the use of Besser Bricks, which are reported to be light-weight and insulating compared with traditional clay bricks that are time consuming to lay. The use of Besser Bricks by a large developer was driven by the high labour cost of laying traditional bricks and the manufacturer devising and promoting the product, and providing the necessary training for contractors. The role of the supplier in introducing innovation has been seen on a number of occasions to be important, with many participants reporting they look to their suppliers and contractors as a key source of information on new technologies and approaches.

The use of materials that are manufactured off-site include floating slabs, roof-trusses and metal frames. Some specific examples include:

- One large developer reported using pre-cast concrete walls, which are clean and quick to erect on site and are of such a high quality that no plastering is required before painting. Pre-cast walls, becoming more widely available, also enable a 3D form to be quickly available for viewing by consumers:

  "Pre-cast concrete walls are quicker and create less mess which assists with costs. You also don"t need to do plastering, which means you can paint directly on and there is less ongoing maintenance."

  Large developer, National

- Another large developer reported using building facades that are manufactured off-site, after the facades were successful used in their commercial „sister company". It is evident from examples such as these that the industry respond to demonstrated success and learn from one another:

  "It"s one of our sister companies that is encouraging OSM products, based on some experience they had with commercial building facades in Parramatta – it was a brilliant outcome."

  Large developer, National

Dalton et al (2011) note that the integration of off-site manufactured materials into existing processes has been slow and has occurred over many years. The slow update is in part attributed to the fragmented nature of the subcontracting system. This concept is discussed further at Section 6.

4.3 PARTNERSHIPS WITH GOVERNMENT

A number of participants identified opportunities to partner with government in the delivery of housing. Participants commented that the State and Federal governments own large areas of land in and outside cities, many of which are underutilised. Government owned land is commonly very well located in some of most desirable inner-city areas, close to services such as train stations, hospitals and schools (usually as a result of being surplus land). In this regard, much of the Government owned land in cities is considered prime for infill development.

Participants identified benefits for government, the developer/home builder and the community in developing Government owned land through a partnership approach. Public Private Partnerships in which government contribute land holdings and developers contribute capital and development services are advantageous for all parties involved. The developer/builder negates land purchase and holding costs; governments receive capital and development services and both ultimately share in the profits.

Participants who had previously partnered with government spoke highly of the experience and a number of successful examples are described at Section 4.4 below. There was a generally high level of interest in partnering with government from both developers and home builders of all sizes and sectors.

4.4 PROJECT EXAMPLES

A number of examples exist where innovative materials, construction processes and funding/resourcing arrangements have successfully achieved affordable housing outcomes. Some of these examples are profiled below.

4.4.1 DWELLING AND LOT SIZES

- **Terraces, Nelson's Ridge, New South Wales:** In an example of the move towards modern terrace housing, Lend Lease has incorporated a range of housing types, including five-metre wide terraces, into the master planned community at Pemulwuy in Sydney's north west.

4.4.2 CHOICE OF MATERIALS AND METHODS

- **Unitised Building System, Eureka Tower, Victoria:** Architects Fender Katsilidis have devised and implemented an innovative construction approach whereby apartment-sized units are manufactured at a factory off-site. The use of this approach in the Eureka Tower in Melbourne Victoria, has demonstrated the range of benefits of OSM construction methodologies including reduced construction time, reduced waste, better safety outcomes, and reduced amenity impacts for neighbours (noise, access etc.). This project was mentioned by a number of participants as a best practice example of innovation in housing delivery.

- **Cross-laminated Timber Frames, Forte, Victoria:** Lend Lease have used cross-laminated timber frames in the construction of a 10-storey apartment building. Cross-laminated timber is light weight, strong and quick to erect. Overcoming challenges in BCA Certification and consumer concerns about fire safety, the Forte building in Melbourne's Docklands is the tallest timber framed building in the world.

4.4.3 PARTNERSHIPS WITH GOVERNMENT

- **Project 450 Consortium, Western Australia:** BGC Residential led a consortium of home builders and developers, in partnership with the Western Australian Department of Housing to deliver 450 house and land packages throughout Perth. Through building at scale, negating land holding costs and a shared equity arrangement, the partnership has delivered 450 homes within the affordable range specified:

  "They put their land in, we put our „build" in and as a result we have 450 affordable homes."

  Large home builder, Western Australia

- **Own Land, Australian Capital Territory:** AV Jennings (now Sekisui House) is part of a small panel of home builders working with the ACT Government and the Land Development Agency to deliver fixed price house and land packages:

  "The Land Development Agency offer land at a reduced price and we have to build within a fixed bracket. The scheme is really useful and we get a huge response to that."

  Large home builder, National

- **Bonnyrigg Living Communities Project, New South Wales:** Becton was part of a consortium that partnered with the New South Wales Department of Housing in the first social housing public-private partnership in Australia. Through the government contribution of land, increasing densities and integrating smaller dwelling typologies, Becton and Housing New South Wales are integrating privately owned dwellings into the social housing community.

- **Forde, Australian Capital Territory:** Lend Lease have partnered with the ACT Government's Land Development Agency to deliver a 130 hectare residential community at Gungahlin. The partnership has enabled Lend Lease to avoid land holding costs to develop a master planned community with a range of affordable dwellings.

5 Factors driving declining affordability and influencing innovation

There is widespread acknowledgement in existing research and in these interviews with the residential construction industry, that housing affordability is a significant issue in Australia. Participants identified a range of interrelated factors that contribute to declining affordability, including planning systems, the cost of land and the accessibility of finance.

This is not the primary focus of this research; however these challenges were widely reported in these interviews. It is important to explore these in the context of understanding the role these challenges may play in catalysing or preventing innovation. Each factor is discussed briefly below (in no particular order).

5.1 COST OF LAND

Land is a significant cost in the development and building process. Costs associated with purchasing and holding land (especially when the purchase is financed) are the purchase cost of land, taxes paid when holding land and financing costs incurred in holding land during the development process, which are often increased as a result of planning approval delays:

> *"The cost of land is one of the main costs, and it's where it all starts. The taxation of land is a major cost, and we're one of the highest taxed states – it doesn't sit well with me as a builder."*
>
> Small/medium home builder, New South Wales

> *"We've worked out housing construction so carefully and the costs have remained fairly static, the real cost these days is the land."*
>
> Small/medium home builder and developer, Victoria

> *"We're careful about the land we buy to reduce the costs. We also tend to have the majority of our development in outer suburban and regional areas which is one of the reasons we can get a lower price"*
>
> Community housing provider, National

The initial cost of purchasing land is reported to be high and increasing. Participants attributed this to finite supply of developable land, due to geographical constraints and planning restrictions. A number of participants were critical of developers who release lots slowly in an effort to ensure lots can be sold.

> *"Due to slow Council planning, land supply is constricted and land prices are high."*
>
> Small/medium home builder and developer, Queensland

> *"There has been an exponential increase in the cost of land. It's difficult to afford in areas that are well serviced, which is something we want for our clients."*
>
> Community housing provider, Victoria

Smaller and medium sized home builders and developers appeared more concerned about higher initial purchase costs, than their larger counterparts, likely a reflection of the greater challenges they may have in securing finance. Larger home builders and developers were generally more concerned by the significant costs associated with holding land during protracted approvals processes, which is discussed further at Section 5.4.

5.2 FINANCING

It is recognised across the industry that the cost of securing finance is increasing, and that finance is becoming more difficult to obtain. Both small/medium and large home builders and developers reported that banks are behaving more conservatively in providing funding to residential developments, many requiring greater capital or a higher percentage of committed buyers to secure it. Comments included:

> *"Unless you have a lot of pre-committed buyers, it's hard to get security."*
>
> Large home builder and developer, National

> *"Capital is scarce and it's expensive."*
>
> Large developer, National

> *"The banks have become much more conservative and have changed their lending criteria significantly (since the GFC)."*
>
> Large home builder, Queensland

Some larger home builders and developers suggested that securing finance was more difficult for smaller businesses:

> *"For us it's not such an issue, we have a structure that allows us to use our property trust to support our development business – it's very difficult for smaller businesses to get finance."*
>
> Large home builder, Western Australia

> *"More and more of the smaller developers who do not have a balance sheet are not able to get access to funding and they're finding their margins are being squeezed or they can't get funding in the first place. The supply side is continuing to dry up. The larger players have better access, but even their capital is getting scarcer."*
>
> Large developer, National

Participants identified a number of reasons for banks behaving conservatively, including that:

- Australian banks are lowering funds available for residential development in response to the international financial community not viewing residential as a sound and safe investment.

  > *"The international financiers are saying its bad… they're* [the banks] *worried about that profile. They do trim the amount they lend to the residential sector because of it."*
  >
  > Large home builder and developer, Victoria and New South Wales

- The banks consider and are influenced by the high likelihood of delays in the development process.

  > *"The banks are confronted with having to lend to a developer and they know the builder or developers not going to get it through quickly so they make them put extra equity into it – 45-50% funding, rather than 70%."*
  >
  > Small/medium home builder and developer, Victoria

5.3 PLANNING SYSTEM

Most participants expressed significant frustration that planning and approvals processes are overly complex and take too long, which has significant implications for the cost of housing delivery. Concerns about the planning system were common to home builders and developers of all sizes, but many consider NSW to be the most difficult.

"Planning approvals are a nightmare. They're unnecessarily onerous and complex. Uncertainty, bureaucracy and inefficiency all add to the cost."

Small/medium builder, New South Wales

The New South Wales and Victorian planning systems were considered particularly bad, though some thought the Queensland system was becoming increasingly challenging due to increasing environmental regulation:

"Historically NSW has been more challenging but we're noticing a distinctive change since the change of government. Queensland has now possibly taken over as worst state to deal with, with the amount of green tape that's come in."

Large developer, National

Participants were concerned about the complexity of planning systems and noted a lack of consistency and certainty, particularly in greenfield development. It was also noted that numerous requirements at all levels of government accumulate to have a significant time and cost impacts that must be absorbed or passed on to the consumer:

"There are all these well-meaning policies out there that are justifiable on their own, but you take them as a whole and look at what they mean for the cost, and they're hardly justifiable at all."

Large home builder and developer, Victoria and New South Wales

"The cumulative effect of all of this legislation – on their own they make sense but when you add them up, someone has to pay for it and unfortunately it's the man on the street."

Large developer, National

The length of time taken to secure approvals at both the local and state level was a concern to all participants, including developers and home builders of all sizes. Participants were critical of inefficient assessment processes that over-complicate much development, give too much weight to objectors, and result in highly costly delays in the process:

"If there is even one objector, it could end up at VCAT and it can be a very long and drawn out process. We engage specialist consultants to run community consultation and engagement and again that requires a lot of skill and time."

Community housing provider, Victoria

Participants thought that Council controls in particular are overly prescriptive, rigid and stifling. Local government controls are reported to prevent and discourage innovation, even smaller dwellings/lots, and inappropriately stop the industry from being able to respond to the market. A number of participants also noted that local controls make the development of generic designs, a common practice for volume builders (Dalton et al, 2011), difficult due to variations in controls between local government areas (e.g. permissible widths of garage doors).

Comments included:

"Good design comes from innovation, rather than regulation"

Peak organisation

"If you're thinking outside the box, your projects should be judged on their merit and what they're delivering to the community. They're not, and innovation is hard."

Small/medium home builder and developer, Queensland

"Greenfield regulation on lot size and title-ing is too controlled by Council's. In Auburn we're allowed to sell granny flats on top of garages, but Blacktown won't allow us to do that. What are councils doing being involved in decisions that the market should make?"

Large developer, National

"Council mandated a minimum lot size – they've just added 50m2 of land to the price and driven the affordability and entry level buyers out of the project."

Small/medium home builder and developer, Queensland

"Because Council's have controls that are individually managed and adapted to suit their own needs, we can't develop generic designs that can be standardised and rolled out more efficiently."

Small/medium builder, New South Wales

A number of participants suggested the introduction of codes for the assessment of buildings beneath a certain scale or in particular strategic locations. The introduction of a code, with adequate community input at the outset, would negate the need for lengthy application processes and time-intensive public exhibitions:

"Apartments below a height of 25 metres should be assessed under a code assessable approach… Applications would not be publicly exhibited as they would conform to the requirements of the planning documents and would conform to the future character established by the community at the strategic planning stage."

Peak organisation

5.4 LAND SUPPLY

Participants identified a variety of factors limiting land available for development particularly in, and on the fringes of, metropolitan areas:

- In existing metropolitan areas, there are difficulties in locating appropriate and affordable land, while extensive planning controls and community opposition then make development a slow, difficult and expensive process. A number of participants noted the significant land holdings of Governments in cities and identified opportunities to partner to deliver supply in good locations.

- Developable land in fringe areas, particularly close to Melbourne and Sydney, consists primarily of small, rural residential lots that must be acquired and consolidated prior to development. The time and costs associated with acquiring land (owners „hold out" for the price they want) and seeking approval to consolidate (usually through re-zonings) are significant. These costs, as well as state and local infrastructure levies (discussed below), have implications for the financial feasibility of developing in these areas:

  Fragmented land-ownership is a challenge – getting and aggregating that land is difficult as their [land owners'] *expectations are too great and we can't efficiently develop"*

  Large developer, National

Some observed the role of developers in limiting land supply, with some developers releasing land slowly (even when large lots are rezoned and appropriately serviced) to guarantee buyers and to maintain price levels.

"They're deliberately drawing out the sales process to ensure they're getting their yield and their price… Even though they think they might be able to sell 300 lots, they only put out 100 because they're certain they can sell it. They're only putting out what they're certain they can sell and get maximum return"

Large home builder and developer, National

"We're becoming our own land developer because we're sick to death of their hold and release strategy."

Large home builder, Western Australia

5.5 COSTS ASSOCIATED WITH PROVIDING NEW HOUSING

There are significant costs that fall to developers and home builders providing new housing.

Infrastructure levies and development contributions in particular act as a barrier to affordable housing provision and a deterrent to the provision of new supply generally. There was a perception amongst home builders and developers of all sizes that the costs of providing new infrastructure primarily and unfairly fall to those providing new housing, rather than the broader community that benefit from additional services. Participants generally felt that infrastructure costs should be shared more evenly amongst government and the community (including those that own or are buying existing stock), and that infrastructure delivery should be more coordinated and better planned. Comments include:

"The state government needs to be prepared to pay for upgrades in infill areas."

Peak organisation

"Infrastructure provision needs to be better tied into planned growth. if you want to do something, then you have to support it with expensive infrastructure."

Small/medium builder, New South Wales

"To run a major arterial road up to a new suburb, it should be borne by the entire community. It's not just the developers or the locals using it, it's everyone."

Small/medium home builder and developer, Victoria

"When the government are lumping on infrastructure charges and making it the responsibility of developers – this gets passed on to buyers."

Small/medium home builder and developer, Queensland

These costs are differentially borne by those buying new houses. The tax and incentive system is "inequitable" and favours existing properties (especially due to rate capping in some jurisdictions). In particular, negative gearing, subsidies and capped taxes for existing properties act as incentives to buy existing properties, rather than build new ones. In this regard, the current system builds demand for existing properties, and does nothing to encourage the provision of new properties.

5.6 REGULATION

Participants discussed the impact of regulations on their ability to deliver affordable housing.

Environmental and sustainability regulations and requirements (such as BASIX in New South Wales), are not of as greater concern as might be expected. Participants of mixed sizes and types indicated support for sustainability. Environmental sustainability has "become the norm" (Small/medium homebuilder and developer, Victoria) and costs have been absorbed by builders and developers:

"Did notice it, but the market was really strong at that point and it was absorbed quite quickly."

Small/medium home builder, Queensland

At first environmental requirements meant more costs, but it"s become a norm now and everyone"s just adjusted their prices as they needed to."

Small/medium home builder and developer, Victoria

Other regulations however, are thought to be unreasonably demanding. In particular, it was noted that regulations such as universal design in some jurisdictions and recent changes to Occupational Health and Safety (including Workplace Health and Safety) regulations are onerous and when coupled with planning requirements, have cumulative impacts on costs and time for development.

"You can"t cry that housing isn"t affordable, and then on the other hand put in a whole lot of cotton wool controls."

Small/medium home builder, Queensland

There was some concern expressed about the impact of the carbon tax, with some participants estimating a cost increase in the range of 1.5% - 2%.

5.7 POLITICAL CONSISTENCY

There is a lack of long-term vision and consistency in strategic planning and governments" position on housing supply. Decisions are perceived to be often politically driven, which can subsequently result in inefficiencies and contradictory regulations, and the lack of certainty contributes to the overall conservatism in the industry. Participants identified a need for greater political leadership and for strategic planning to deliver certainty for development proposals. Comments included:

"Government need to show initiative and some more leadership. They"re always there cutting the ribbon for schools saying this is what our population needs. They need to be outside residential developments (as housing is an important community need as well)."

Large home builder and developer, Victoria and NSW

"Planning needs to be bipartisan, rather than a political football. There needs to be continuity, there needs to be some certainty and consistency."

Community housing provider, National

6 Discussion

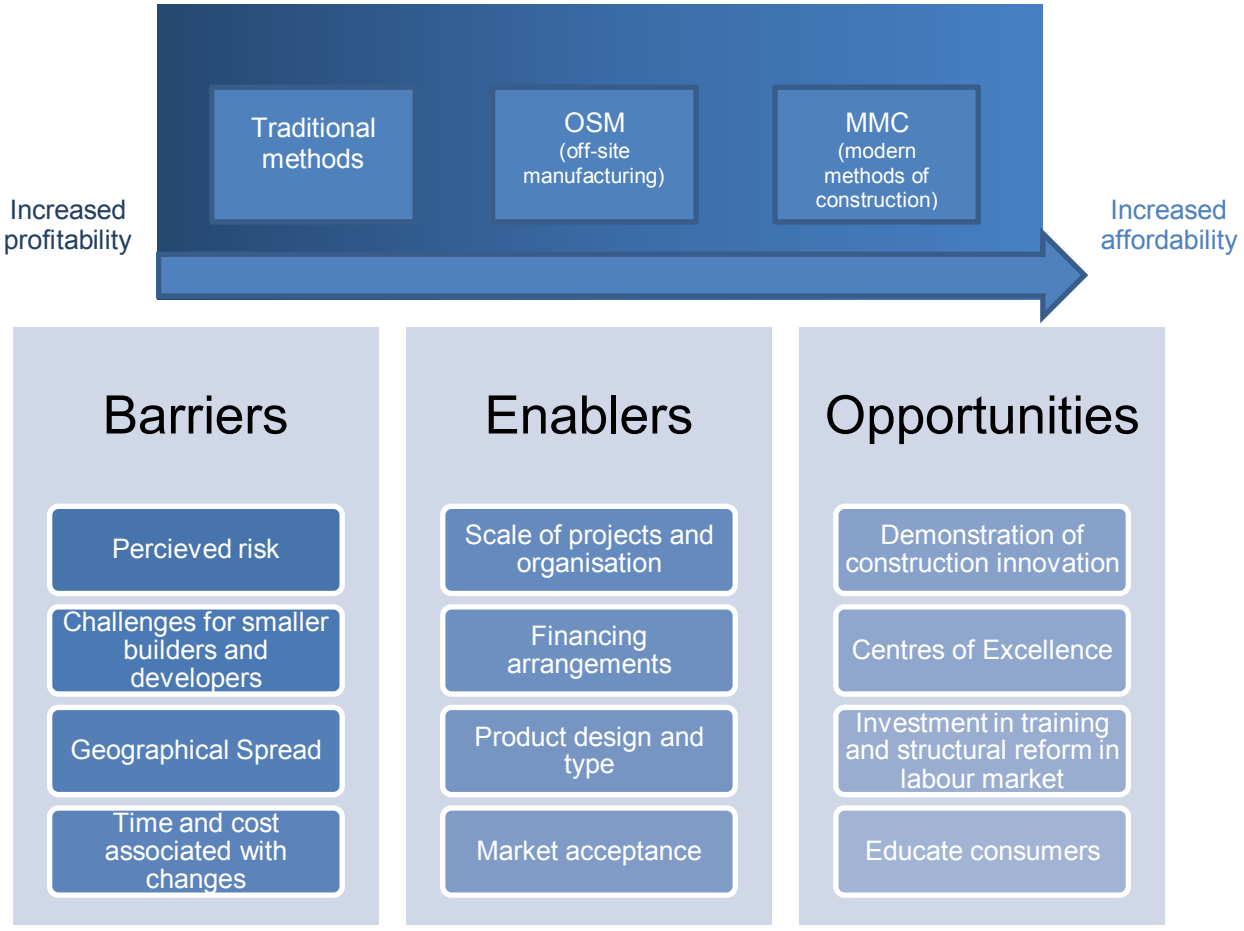
6.1 INNOVATION

Besides a few truly innovative, world-class projects, innovation in response to declining housing affordability is somewhat limited as evidenced through these interviews. Those who are responding most commonly do so through reducing dwelling and lot sizes, changing dwelling product and sourcing cheaper or more efficient materials that reduce time (and therefore costs) on site. These responses primarily seek to deliver dwellings within the price range that the bulk of the market can afford.

While these approaches seek to respond to the changing needs of the market, they have limited impact on overall housing affordability. The development, construction and building process has been refined to a point where without significant change, modifications to traditional techniques and materials can only ensure the saleability of dwellings and the ongoing viability of businesses.

Substantial improvements to affordability in construction and housing may only come with greater movement to off-site manufacture (OSM) and modern methods of construction (MMC). Addressing some of the challenges identified in Section 5 will also assist (e.g. land cost, planning, financing and so on).

FIGURE 1 – SNAP SHOT OF THE ISSUES



Note: *Large scale changes and innovation (e.g. OSM and MMC methodologies) require a certain scale of development in order to be economically viable and more cost-effective than traditional construction methods. Please see Section 6.2.5 for further detail.*

6.2 BARRIERS AND ENABLERS TO INNOVATION

6.2.1 PERCIEVED RISK

The residential development and construction industry faces a number of challenges that may lead to a conservative culture and potentially leaves them unwilling to take risks. Large-scale innovation is a risk which the industry may be unwilling to take, given the risks inherent in the development process and the uncertainty about whether the market will accept innovative approaches. Most developers and home builders are responding to affordability issues by reducing costs in the parts of the process that they can comfortably control.

6.2.2 MARKET EXPECTATIONS AND ACCEPTANCE

The industry follows the market and provides the products that they understand, through marketing and sales activities, to be in demand. The traditional detached, „sticks and bricks" home is perceived to be preferred by consumers, and continues to be the primary dwelling type delivered in Australia (Kelly 2011, Dalton et al, 2011). There is a reluctance in the industry to produce new and different products that the market might reject and the risks are perceived to be substantial when introducing a new product type (for example, terrace housing) in locations where these product types are relatively uncommon.

> *"The industry is concerned consumers don't want innovation, market acceptance is an issue."*
>
> Peak organisation

Although participants acknowledge modular home building as a logical and beneficial innovation, there is a concern that the market will not accept this new style of building. Participants suggested that the market may not respond well to the „sameness" of modular homes, and that traditional construction materials continue to be preferred.

There is an opportunity to educate consumers about the diversity of housing options and raise awareness of the benefits that higher density living and new materials can offer. Some level of market education is already happening, primarily in terms of advising consumers about what they can buy for the money they have available. Educating the market on innovation will assist the industry introduce different products and dwelling types, however there is also a need for the industry to be further educated about innovation and how it can meet consumer needs.

> *"Where the market allows us to, we'll try things out."*
>
> Large home builder and developer, National

6.2.3 TRAINING AND PROCESSES

Home building takes place through a system of multiple suppliers and contractors, carefully scheduled and coordinated by management systems of varying scales and complexities based on the size of the organisation and the project (Dalton et al, 2011). The adoption of new processes and materials requires these complex construction management processes to be reworked, and staff and subcontractors to be retrained or appropriately trained contractors to be found. The costs associated with doing this can be significant, particularly where home builders and developers „roll out" standard models that need to be delivered for several years in order to recoup the costs invested in their development. Therefore, the investment required to redesign fine-tuned systems and retrain staff is therefore a considerable disincentive to the adoption of innovation:

> *"It's all those little teething things."*
>
> Small home builder, Queensland

Many builders come through the industry as trades people, who learn on the job to manage larger scale projects. There is a significant step to take from managing a small development or a number of single dwelling projects to building multi-unit or large scale projects.

The skills required are a major leap from those of trades training. The current proliferation of construction management degrees is an attempt to meet this training gap, but graduates of these courses are being met with the criticism about their lack of on-the-ground expertise:

> *"There's a big gap in the skills required for builders to move towards production line management processes and construction management courses are not necessarily meeting these needs."*
>
> Peak organisation

There is an evident gap between trades expertise and that needed for large scale projects, which at this time may not be being effectively met by other construction professionals. This gap is even more significant with the introduction of innovative building methodologies.

6.2.4 ORGANISATIONAL STRUCTURE

There is considerable variation in the experiences and operations of different sectors of the industry (for example between home builders and developers, or between home builders of different sizes, or between developers who have different „operating" models) and therefore challenges to innovation are different for each of these ways of doing business.

TABLE 2 – SUMMARY OF FACTORS WHICH MAY INFLUENCE THE IMPLEMENTATION OF INNOVATION

FACTOR	DISCUSSION
Financing arrangements	▪ Most home builders and developers borrow from banks, however some (usually larger organisations) self-finance, using the proceeds of completed projects. ▪ Those who self-finance are generally better placed to innovate than those who borrow from the banks. The time impacts are greater and there is greater risk involved when financing is sourced from banks.
Scale of projects	▪ Innovation is more viable in larger scale projects due to the volume of dwellings produced and the opportunity to influence products in the market. ▪ Larger home builders and developers operate at larger scales than small and medium sized home builders and developers.
Geographical spread of delivery	▪ Innovation is easier to deliver when organisations work across smaller geographical areas where they can familiarise with legislation, the market and suppliers. ▪ Where organisations operate across jurisdictions, there is greater variation and it is more difficult to streamline the process
Capacity to engage in training	▪ Bigger home builders and developers with larger workforces can ensure more specialised skills are available across the organisation. ▪ Smaller builders are constrained by need to be on site.
Capacity for on-site management	▪ There is less capacity in small builders to retrain with respect to organisational techniques that might support innovation and changes to on-site management changes

Capacity to invest in research and development	▪ Some large home builders and developers have (or have previously had) in-house design and research capacity which is influential in the delivery of innovative products. ▪ Other organisations rely on peak organisations and relationships with architecture firms.
Type of dwellings	▪ There are opportunities for innovation (for example garage top dwellings) in all projects, at all scales. ▪ Project home builders' method of developing standard models for housing, provides opportunity for the use of modular products. ▪ Larger apartment builders and developers can use scale to change dwelling design, as well as the materials used. ▪ Larger single dwelling projects provide an opportunity to test housing mix and innovate in dwelling types. ▪ Medium and smaller sized home builders can develop innovation with respect to terrace housing in infill areas.

Those relying on external funding are more limited in their ability to take risks with innovation, due to the need to accommodate land holding costs (identified in Section 5 as a key challenge to affordability). On the other hand, those developers that are self-financed or are in partnership with government (who own the land) are usually better placed to respond.

For home builders, there are challenges coordinating the many parties involved in the contract-based building process to minimise time spent on-site. Dalton (2011) observes that as home builders increase the amount of dwellings produced, organisational structures become more complex and (out of necessity) more corporate in their management structure and style, with multiple levels of administration coordinating the process both on-site and from office environments. Greater efficiencies are able to be achieved through this more regulated process, and larger numbers of dwellings being delivered for a more affordable price. Smaller home builders who oversee the delivery of a smaller numbers of homes may struggle to make the move to larger scale and more affordable projects, due to finance or expertise.

Compared to private sector businesses, community housing providers tend to face fewer challenges around financing and are better able to innovate because they operate in areas where land is cheaper, they can build smaller and are able to integrate pre-fab and modular homes into their projects. The community sector is also supported by tax incentives and National Rental Assistance Scheme (NRAS). Participants from across the industry had mixed views on the NRAS system, however most suggested it was positive and effective in encouraging affordable housing. A smaller number of participants were critical of the NRAS system, noting that NRAS credits are allocated poorly and not utilised with the right intentions.

6.2.5 SCALE AND GEOGRAPHICAL CONSIDERATIONS

Large scale changes and innovation (e.g. OSM and MMC methodologies) require a certain scale of development in order to be economically viable and more cost-effective than traditional construction methods. A significant volume of dwellings is required to balance the costs associated with transporting modular components, which is reported to be a particular issue in Australia where housing is relatively geographically dispersed:

> *"There are problems with transport costs. If you want to set up factories here, you have to bear in mind that Australia is geographically dispersed."*
>
> Peak organisation

Some developers operate in limited geographies (for example, Sydney and Brisbane only) as a way of increasing their efficiency. They become familiar with the planning systems and they are able to influence the production of materials if they can be delivery larger quantities of stock in limited geographical locations. In one example, a major developer encouraged the establishment of a factory to produce a pre-fabricated component in a location near to where they were building a large number of dwellings, as they could guarantee an order of sufficient scale to make the setup of the business viable.

One participant estimated that the scale of projects needs to be in the range of 3,000 – 5,000 homes and/or delivering at least 100 dwellings per year in order to make OSM and MMC methodologies worthwhile. OSM and MMC methodologies are therefore best suited to higher density developments (e.g. apartments), usually delivered in metropolitan areas by larger home builders and developers who have the capacity to undertake these larger projects.

Participants suggested that development of this kind of scale is becoming increasingly difficult in metropolitan areas (where density is most successful) due to supply constraints and planning controls and this has implications for the adoption of these methodologies. As discussed at Section 3, research indicates that the majority of new dwellings will be delivered through smaller projects, in infill areas, with smaller home builders anticipated to be delivering an increasingly large share. Small and medium home builders and developers may not have the scale of necessary to make OSM and MMC methodologies feasible or to drive any changes in the market or the production of materials.

Community housing providers, particularly larger providers, benefit from developing in a more concentrated way, in one area and in some instance in areas where land is cheaper.

6.3 THE INDUSTRY IS WILLING AND INTERESTED

Despite limited evidence of widespread adoption at present, the industry is interested in, and open to innovation. A number of major players are beginning to more seriously explore the opportunities for introducing more pre-fabricated components, module home design and other types of innovation, and are increasingly looking to source components overseas.

Participants identified a number of sources that they look to for information and inspiration and these are discussed below.

6.3.1 DEMONSTRATED INNOVATION

The industry is interested innovations that have been demonstrated as cost-effective and successful. A number of developers and home builders look to overseas examples and are sending staff to look at what is done in other countries. Many are looking to Europe rather than the United States, reasoning that Europe has a long history of building smaller dwellings and demonstrating innovation in design using less space.

All sectors reported watching those taking risks with innovation, usually the larger players who have a more viable scale of operation and more to be gained from innovating, to see how they fare:

> *"There"s one company getting into modular homes. I know us and our peers are watching quite closely"*
>
> Large developer, National

Smaller businesses, who have less capacity to innovate given their access to finance and organisational scale, said they looked to larger players for information about innovation:

> *"We look to see what the big players are doing. They have the staff and the research teams to ensure they"re across it."*
>
> Small builder, Queensland

There is a role for government in catalysing change through demonstrating successful innovation in their own projects. Participants suggested government can lead by incorporating innovative materials or processes into project they lead or by requiring innovation in contracts to the private sector. One

participant recalled an instance where government pioneered a reduction in dwelling sizes in a residential development and the local industry has now followed.

6.3.2 PEAK ORGANISATIONS AND INDUSTRY BODIES

Without exception respondents look to industry bodies as a key source of information, however there were mixed views as to their usefulness and some participants questioned how up-to-date the industry are with innovations and new technologies.

6.3.3 IN-HOUSE RESEARCH

Larger companies often have in-house researchers and designers that develop and monitor innovation, both domestically and internationally. This is achieved through innovation in the design process or by researching other opportunities. Where businesses take this approach, they „run the numbers" internally to ascertain the likely success of the innovation for their style of operation:

> *"It's pretty much in-house. We're big and we have the resources"*
>
> Large builder, Western Australia

> *"We have an in-house technical committee who part of their job is to look at innovation. We are fairly conservative – we don't want to be trialling things that aren't shown to work"*
>
> Large developer, National

6.3.4 PRODUCT DEVELOPERS AND SUPPLIERS

Product manufacturers play a role in prompting innovation, with participants citing a number of instances where the adoption of innovative construction materials has been catalysed by a supplier who demonstrated the product and took responsibility for retraining contractors:

> *"We also partner with our suppliers and building materials managers in CSR, BlueScope, Bunning's and Boral and use their in-house reps who are out scouring the market for innovation."*
>
> Small builder, New South Wales

6.4 OPPORTUNITIES FOR CHANGE

The industry is aware of and interested in emerging innovations, however is reluctant to take significant action, or make major investments given existing challenges faced, the currently depressed housing market and their concerns about market acceptance of innovative product.

To stimulate widespread change toward innovation it is necessary to provide a level of confidence about the cost savings and the market acceptance of product changes, while supporting training in the skills and building processes required to implement these changes. It is also likely, particularly for the smaller builders, that the research and development investment for these changes will have to come from elsewhere.

There are a number of opportunities to drive change identified in this study and these are listed below.

6.4.1 REGULATION

- Require the use of innovative construction methods, materials and designs in contracts for government projects.
- Address the way the current contracting model works. The current approach is a disincentive to innovation because of its piecemeal and variation based nature.

6.4.2 INCENTIVES

- Invest in training to assist the industry to be able to implement innovation. Training should particularly consider the needs of small and medium home builders and skilled tradespersons, recognising that these businesses are delivering an increasingly large share of dwellings.

- Support research, development and dissemination of new methods and materials.

- Support infill development as a necessary and significant contributor to housing supply in Australian cities, acknowledging that the majority of new dwellings in future will be delivered in infill areas.

6.4.3 EDUCATION

- Promote innovation by „leading by example" in government projects, recognising that the industry responds well to innovation that has been demonstrated as successful elsewhere.

- Support the „Centre for Excellence and Innovation" model that recognises best practice models and benchmarks quality to actively promote change through the industry.

- Develop a broad community education strategy to enable home buyers to better appreciate some of the benefits of innovative products and different dwelling types, and how these will enhance affordability and allow more people into the market. This process also needs to be addressed to the housing industry itself, to inform it about deeper consumer issues that are beyond the standard market research preferences around fixtures and fittings.

7 Conclusion and areas for further research

7.1 THIS REPORT

This report, prepared for the National Housing Supply Council, has documented research undertaken by Urbis into the residential construction industry"s responses to declining affordability. Urbis completed a preliminary literature review and 33 interviews with representatives from across the industry in order to:

- Identity some of the existing responses and innovations implemented by the residential construction industry to date in response declining affordability.
- Understand the factors perceived to be driving declining affordability and the factors encouraging or discouraging innovation.
- Identify gaps in existing research and suggest areas that would benefit from further research.

7.2 KEY FINDINGS

Key findings of the research include:

- Residential home builders and developers are currently experiencing significant challenges that impact their ability to deliver affordable housing. These factors include the cost and availability of land, the cost and availability of finance, obtaining timely planning approvals, the cost of infrastructure provision, additional regulation and the lack of political consistency and leadership and support for housing development.
- Industry responses to addressing declining housing affordability through innovation in construction methods have been demonstrated to be fairly limited to date. While there are a number of high profile examples, the most common responses are to reduce dwelling and lot sizes, to introduce changes in dwelling types, to source cheaper materials from overseas, and to introduce some limited pre-fabricated materials (such as concrete walls) that reduce construction time and therefore costs.
- These changes are primarily focused on refining traditional trade-based methodologies.
- It is acknowledged that OSM and MMC methodologies could be the next step in further streamlining the construction process. However, in an already highly risky context, the industry is reluctant to pursue this in a significant way without some form of external or government support.
- Barriers to the more widespread adoption of OSM and MMC methodologies include the perceived financial risks without strong demonstrated evidence of significant cost savings, concerns about consumer acceptance, impediments associated with the lack of expertise and relevant training (constrained by impediments to accessing any training when particularly small builders cannot be „off the job") and the scale of projects understood to be required to make the investment in design and research and development commercially worthwhile.
- A number of opportunities to drive change have been identified including:
  - Require the use of innovative construction methods in government projects.
  - Address the current contracting model works which is a disincentive to innovation.
  - Invest in training to assist the industry to be able to implement innovation, particularly smaller and medium sized home builders and developers.
  - Support research, development and dissemination of new methods and materials.
  - Support infill development as a necessary and significant contributor to housing supply in Australian cities.

- Promote innovation by „leading by example" in government projects.

- Support the „Centre for Excellence and Innovation" models.

- Develop a broad community education strategy targeting home buyers as well as the industry themselves.

7.3 AREAS FOR FURTHER RESEARCH

Based on the findings of previous research and this study, there are a number of areas that may benefit from further research and provide insight into ways of addressing Australia"s housing affordability issues through innovations in construction products and methods.

There are three areas of research that may be considered:

- The needs of small/medium and large builders, builder/developers and developers differ with respect to encouraging adoption of innovation. The challenges faced in the delivery of housing in existing areas (in-fill) versus fringe areas (greenfield) also differ. There are therefore, two different kinds of research could be considered here:

  - Research into barriers and enablers of housing construction innovation in in-fill areas, where currently 56% of all new dwellings are built (National Housing Supply Council, 2011). This proportion is likely to increase in the future. Some of the barriers include the dominance of the smaller builder in these areas (with the exception of some large parcels of rezoned land which get developed by larger developers and builders), community opposition to density infill which slows the approvals process and the time taken to rezone large enough parcels of land to make a significant contribution to supply. Recognising the increasing contribution of infill development to the delivery of new dwellings (National Housing Supply Council, 2011), there is scope for a targeted piece of research exploring the challenges faced in adopting innovation in infill areas. With smaller and medium sized home builders and developers delivering an increasing share of new dwellings in infill areas, their experience would be important to consider.

  - The challenges confronted in increasing supply in greenfield areas are different from those in in-fill areas. These include consolidation of larger land holdings, infrastructure provision and costs, and consumer acceptance of different dwelling types. Where housing can be delivered in large quantities by the larger home builders and developers, the research might consider the scope for the production of large-scale, mass-produced housing and the opportunities for OSM and changes to construction methodologies.

- An investigation into high land costs as a primary contributor to declining affordability and the role governments can play in making well located land available for development with and by the private sector. This research would describe and evaluate different models of joint ventures between government and private builders and the construction sector, with particular emphasis on the ways in which government can stimulate construction innovation.

Appendix A Industry analysis

How many and what kind of dwellings

- Between 2010 and 2011 the Australian residential construction industry commenced the construction of approximately 157,541 dwelling units (Australian Bureau of Statistics, 2012).Of these new dwelling units 62% were new houses, classified as detached buildings used for long-term residential purposes and consisted of only one dwelling unit (Australian Bureau of Statistics, 2012).

- The remaining 38% were new *other* residential buildings, classified as a building other than a house, for long-term residential purposes which contain more than one dwelling unit, e.g. flats, home units, townhouses, terrace houses, semi-detached houses and apartments (Australian Bureau of Statistics, 2012).

- Over the long term there has been a decrease in the number of detached houses being developed and an increase in the number of other residential dwellings (multi-units and townhouses). It is suggested that this is due to changing preferences for lone-person, two-person households, lower house prices for these types of dwellings, and increases in infill development (National Housing Supply Council, 2011), (Kelly, *E4112*, 2012)

- These dwelling commencement rates represent an overall decrease of 4.8% since 2009/10; however the commencement of other (apartments, etc.) residential buildings has increased by 12.7% over the same period (Australian Bureau of Statistics, 2012).

- While new dwelling commencements had reduced for many states since 2009/10, commencements in ACT increased by 15.1%, and VIC increased by 8.6% (Australian Bureau of Statistics, 2012).

Where

- The State of Victoria had the highest rates of new dwelling commencements (38%) followed by NSW (20%), QLD (17%), WA (13%) SA (7%), ACT (3%), TAS (2%) and NT (1%) (Australian Bureau of Statistics, 2012).

- Most new other (apartments, etc.) residential dwellings are being constructed in NSW (33.6%) followed by Victoria (26.4%) and Queensland (21.6%) (Kelly, *E4112*, 2012)

- Infill development is the most dominant type of development across Australia. It is estimated that 56% of all new dwellings will be infill development, with 44% greenfield (National Housing Supply Council, 2011)

- It is anticipated that for the majority of states and territories a growing proportion of dwelling starts will be focused on infill dwellings. However there will be slight variation between states and territories, in Sydney 77% of dwelling developments will be infill, while in South-east Queensland 64% will be greenfield (National Housing Supply Council, 2011)

By whom

- The private sector was responsible for the construction of approximately 95% of new dwelling units, equivalent to 149,873 dwelling units (Australian Bureau of Statistics, 2012).

- The public sector was responsible for the construction of the remaining 5% (7,668 dwelling units) (Australian Bureau of Statistics, 2012).

- The largest private sector homebuilders in Australia are Metricon Group, Alcock Brown-Neaves (ABN), BGC, Simonds Group and Hickory Group. Together these five developers contributed 12,483 (8%) new dwellings in 2010/11 (HIA Economics, 2011)

- The largest private sector developers of multi-unit dwellings in 2011 were Brookfield Multiplex (4.0%) Meriton Apartments (4.0%) Mirvac (4.0%) LU Simon Builders (2.0%) Lend Lease Group (2.0%) and Australand Property (1.5%) (Kelly, *E4112*, 2012)

- Large developers dominate the market, with 47% of plot sales in capital cities attributed to the top 10 developers, also 36% of all housing starts across Australia contributed by the top 100 developers in

2011. However the dominance of large developers has been reducing in recent years, suggesting that medium and smaller developers and builders are increasing their market share (HIA Economics, 2011) (National Housing Supply Council, 2011).

Bibliography

Australian Bureau of Statistics. (2012). Dwelling Unit Commencements, Australia, Preliminary. *Issue 8750.0*.

HIA Economics. (2011). HIA Housing 100. *Housing 100, Australia's Largest Home Builders and Residential Developers 2010/2011*, 3.

Kelly, A. (2012). Building a new lifestyle: Home ownership is trending toward multi-unit apartments. *IBISWorld Industry Report E4112 Multi-Unit Apartment and Townhouse Construction in Australia*, 41.

Kelly, A. (2012). Solid foundations: Strong pent-up demand will help build industry revenue. *IBISWorld Industry Report E4111 House Construction in Australia*, 41.

National Housing Supply Council. (2011). *Key findings of the 2011 State of Supply Report.* Canberra, ACT: Australian Government.

Appendix B Organisations interviewed

TABLE 3 – PARTICIPANT ORGANISATIONS

CATEGORY	PARTICIPANT
Industry organisations	Australian Building and Quantity Surveying Alliance
	Australian Institute of Architects
	Housing Institute of Australia
	Master Builders Association
	Real Estate Institute of Australia (REIA)
	Urban Development Institute of Australia (2 interviews in different locations)
	Urban Taskforce
Community housing providers	Brisbane Housing Company
	Community Housing Federation of Australia
	Community Housing Ltd
	Powerhousing
	Wintringham Housing Ltd
Researchers	Australia Housing and Urban Research Institute
	Grattan Institute
	McKell Institute
	RMIT Centre for Design
Home builders and developers	Ausmar Homes
	Australand
	Barrington Homes
	Becton
	BGC
	Burbank

	Dennis Family Homes (2 interviews in different locations)
	Devine Group
	Kier Constructions
	KWC Capital Partners
	Landcom
	Leighton
	Lend Lease
	Meriton
	Mirvac
	Sekisui House (formerly AVJennings)
	Stockland

Within the category of home builders and developers, the composition of participants was as follows:

TABLE 4 – SUB-CATEGORIES OF BUILDERS AND DEVELOPERS

SUB-CATEGORY	NUMBER OF PARTICIPANTS
Business size	
Small / medium	6
Large	12
Business type	
Developer	4
Builder	7
Both	7
Business location	
National	9
New South Wales	3
Victoria	3

SUB-CATEGORY	NUMBER OF PARTICIPANTS
Queensland	2
Western Australia	1

Appendix C Discussion guide

NATIONAL HOUSING SUPPLY COUNCIL RESEARCH:
HOUSING SUPPLY RESPONSES TO CHANGE IN AFFORDABILITY

Discussion guide

CONTEXT

The primary focus of this research is how the residential construction industry has responded to declining housing affordability, especially amongst low to moderate income earners who previously purchased their own home in substantially greater proportions than they do today. The research seeks to understand whether the various components of the industry recognise that this has occurred and how they have, or could, respond in an attempt to reverse the loss of business that the declining affordability of land and housing has brought about and improve housing supply and affordability for workers in the essential services, single people on moderate incomes, and so on. Examples of responses may include:

- changing products
- methods of production
- raw materials
- organisation of labour
- scale and/or level of integration
- focussing on housing for investors to rent at affordable rents
- concentrating efforts on those parts of the market where the increasing cost of land, labour and materials has less, if any, impact.

A secondary focus of the research is on whether and how other influences on the industry – such as planning and development approval arrangements, the structure and cost of development and construction finance, the coordination and financing of infrastructure, or approaches to supervision and approval of building activity – have made or could make a contribution to improving housing supply and affordability.

THIS RESEARCH

The National Housing Supply Council has engaged Urbis, an independent research company, to conduct targeted research into the residential construction industry"s responses to decreasing affordability, especially for prospective buyers with low to moderate incomes. This initial research will provide direction for future studies in relation to affordable construction to inform policy.

As part of our research, we are speaking with stakeholders from various sectors of construction industry, including industry bodies, home builders, community housing providers and housing and planning policy agencies. Today"s interview will take up to 30 minutes and will seek to discuss:

- factors driving declining affordability
- industry responses to declining affordability, including innovation
- key data sources, industry contacts and areas requiring further research.

QUESTIONS TO GUIDE DISCUSSION

DRIVING FACTORS

1. What are the key factors driving declining housing construction affordability? In this instance, affordability means not only increasing costs, but also the cost of housing relative to the incomes

of prospective buyers, some of whom may not buy because the product they want is out of their reach.

2. How do these factors differ nationally across the States and Territories?

3. What are the key factors influencing changes to industry responses? For example, how much is attributable to consumer demand and how much to planning regulations (or other issues)?

INDUSTRY RESPONSE AND INNOVATION

4. Have the products you / the industry build, and the nature of your / the industry"s clientele changed as land and housing costs and prices have risen? How?

5. What form of responses have you / the industry undertaken to increase housing supply and address other issues of decreasing affordability (to be considered from a locational and industry perspective)? Are you aware of responses elsewhere in the industry?

6. What form of modifications to product type, land use, and lot sizes are occurring or are being considered?

7. What improvements and innovation in the building process are being used?

8. How have average lot sizes changed over time? Has this helped to lower the cost of the house and land package relative to buyers" incomes? What"s the dynamic happening here – e.g. smaller lot sizes merely go some way to offsetting the higher cost of land servicing and infrastructure charges?

LESSONS LEARNT, CAPACITY BUILDING AND TRANSFERABILITY TO OTHER JURISDICTIONS

9. What responses from industry are working to address declining affordability in the housing and construction industry and why? How do you know they are working? How are these targeting first home buyers and others on lower incomes?

10. What responses from industry are not working to address declining affordability in the housing and construction industry and why?

11. What are the key barriers and enablers to effective industry responses? This may include policy settings, timings of land release, workforce skill mix, access to cheaper housing materials and so on. How does the culture of the industry play a role?

12. What could be done to increase industry capacity to address declining affordability in the housing and construction industry? Suggestions may include measures:

    - to assist the industry (e.g., HIA/MBA research on lower cost products and building techniques, more efficient use of subcontractors, changes to industrial relations arrangements for apartments, etc.)
    - in policy settings (e.g. subsidies for first home buyers, increased spending on social housing, higher amounts for NRAS, removal of environmental star ratings etc.)
    - in planning settings (e.g. all lots over 600m2 approved for dual occupancy without planning approval)
    - in development approval arrangements (quicker, fewer conditions)
    - taxes and charges (e.g. no infrastructure charges for open space, community facilities, trunk roads etc.)

13. Which industry responses are transferable to other jurisdictions or locations and why?

AREAS FOR FURTHER RESEARCH

14. Where do you look for advice/information on innovation in housing types and styles, building methods, etc. that might reduce the final price of the housing you construct?

15. Are there any key data sources or literature that you consider we should be consulting in this research?

16. Are there other industry stakeholders who you recommend we should speak to?

Appendix D Literature review

PURPOSE OF THE REVIEW

The following presents a preliminary review of currently available documents and literature, identifying some gaps in understanding the responses of the housing industry to affordability.

The aim of this document is to review material produced over the last 5 years (since 2007), and to:

- Identify innovation and change responses by the residential construction industry, such as diverse product, construction improvements (for example innovations in pre-fabrication and partial construction of housing prior to completion on site), and smaller lot sizes.
- Identify levels of adoption of innovation and change across the residential construction industry, and any barriers and enablers to adoption.
- Identify best practice examples from other jurisdictions that could inform the Australian context.

APPROACH

Sources of information have been identified based on a review of key industry body publications, detailed search of relevant industry journals, wider desk based research into available data sources, and discussions with key stakeholders. Sources include, but are not limited to, the following:

- Australian Housing and Urban Research Institute (AHURI)
- Housing Industry Association
- Australian Bureau of Statistics
- National Housing Supply Council
- Universities and other research bodies
- Local and State wide research organisations
- Select Committee on Housing Affordability in Australia
- Sustainable Built Environment National Research Centre
- Australian Industry Group
- Master Builders Association
- Property Council of Australia

KEY FINDINGS

Housing Affordability – general context

- Essentially housing affordability is defined as a product of income against the costs associated with home ownership. Three measures of affordability have been defined, they include; purchase affordability in terms of capital costs; repayment affordability, in terms of mortgage repayment; and income affordability, in terms of the ratio between house price and income (Gan, Q, 2008).
- The most common method for measuring housing affordability involves the „income affordability" ratio approach which defines households who are spending over 30% of their income on housing as a household in „housing stress". This method is considered out-dated due to the lack of consideration of contextual matters. More modern measures include residential measures which consider income remaining after housing and living costs (O'Flynn, L., 2011).
- There is a wealth of research highlighting that housing affordability has decreased in Australia over the last two decades, with recent data suggesting that it now takes 6.7 times the median income to

purchase a house in Australia, compared to 5 times in the UK and 3.1 in the United States. While this does not consider wider affordability factors, and spatial differences, it does highlight the extent of the national affordability issue (O'Flynn, L., 2011).

- Housing affordability is impacted by both supply and demand factors. It is commonly understood that the supply of new homes in Australia has not been able to keep pace with increasing demand, therefore increasing the price of houses and reducing affordability (O'Flynn, L., 2011).

- There are a range of supply and demand factors which contribute to this. Demand factors have been found to include decreasing average household sizes, changing preferences for dwellings in well-connected centralised areas, migration, and demographic trends (Gan, Q, 2008).

- Supply side factors include the availability and cost of land for development, policies and processes related to development and planning, the construction process, and the capacity of the labour force (Gan, Q, 2008). These are the focus of this project.

Some documented industry responses

- There have been advancements by both the public and private sector to improve the delivery of housing at affordable rates, these are listed below. However these responses have not kept pace with the increasing demand and therefore housing affordability overall has continued to decline (National Housing Supply Council, 2011).

- The public sector has responded by increasing its capacity to deliver a greater variety of dwelling products. This diversity improves the supply of purpose designed products aimed at a range of needs. For example studio apartments for single person households are more affordable than larger dwellings. The public sector and not-for-profit sector has also been focusing on running costs to make housing more affordable. Organisations such as Mission Australia and Uniting Care Ageing have been particularly active in these areas (Milligan, V. 2009)

- It is also suggested that developers are including measures to tackle life-time costs associated with new developments. These can involve water and waste management practices, also energy efficiency techniques which may reduce overall running costs. However these techniques do not generally tackle the key issue regarding housing affordability, which are largely capital costs (Milligan, V. 2009).

- The private sector has increased the production of multi-unit dwellings on infill land. Infill development has become the most dominant type of development (56%) in recent years and recent statistics on new dwelling construction suggests that the development of higher density multi-units has increased by 12.7% since 2009/10 (Australian Bureau of Statistics, 2012). These higher density dwellings maximise the supply of dwellings in key areas of high demand.

- The private sector is also innovating with new construction techniques such as pre-fabrication and off-site manufacture (OSM). These techniques have long been recognised, both in Australia and internationally as potentially offering numerous benefits to the construction process though efficiency improvements, reduced construction times and costs (Berry, M., 2004). The drivers for using OSM include improvements to the construction process and programme, reducing construction time onsite, reducing site disruptions and hazards, and simplifying the construction process. Also OSM has significant cost, value and productivity drivers such as reduced cost of material and labour force pressures (e.g. shortage of skills or capacity or reduced labour expenses in remote areas). OSM also has identified OHS drivers such as improved conditions, reduced risk (Sustainable Built Environment National Research Centre, 2012). Despite these benefits its adoption through the industry is not widespread, and research of 50 organisations showed that only 8 have used modular building (homes, schools, shelters) and only 5 have used volumetric pre-assembly. It is suggested that greater understanding of international best practice and innovation methods is required to disseminate through the industry sooner to provide affordability benefits (Blismas, N., 2008).

Industry challenges

- Land for infill development is expensive and high-density projects involve a range of project risks and challenges, including planning approval delays and lack of experience in the workforce. Also there are few developers who have the capacity to take on such projects (Aikman, M., 2011).

- Key cost components of housing construction include construction costs and land costs. Construction costs have been impacted by the supply of labour, but also requirements associated with government legislation relating to environmental and safety. Land costs have been restricted by the release of land, which is in turn restricted by the provision of adequate infrastructure and services (Atkinson, R., 2007).

- According to Dalton, research suggests that the residential construction industry is dominated by small firms and the market share of the largest companies is expected to have decreased over recent years (Dalton, T., 2011). It is suggested that the market share of the top 100 house builders fell to 33% in 2010/11, from 36%. This is the lowest market share of the top 100 since 1994/95 (HIA, 2011). At the same time, the number of developers who operate across a number of states and jurisdictions has decreased in recent years. As the market share of the largest housing development companies drops, greater emphasis is required on innovations and techniques which can be adopted by small and medium sized builders to deliver housing at affordable prices. These techniques are likely to involve innovations relating to building materials, reducing the cost of labour and improved financial and management practices which may provide business efficiencies which will reduce costs (Dalton, T., 2011).

- Research identifies that the residential construction industry has the lowest rates of per employee expenditure on training. In addition to the low level of investment in education, key issues also include the efficiency of the training system and the suitability of the current model of training, which includes apprenticeships etc. The supply of adequate labour and the efficiency of labour can have impacts on the overall cost of labour for construction projects. This can also have impacts on the capacity of the workforce to adopt new working techniques and innovations developed by the industry (Dalton, T., 2011).

SOME RESEARCH AND DATA GAPS

Preliminary gaps in the research include:

- The management structure and organisational arrangements of smaller builders and developers, and their methods to procure and subcontract services, can have an impact on the length of construction projects and overall costs (Dalton, T., 2011). The research suggests that further information is required from small builders about their internal management practices including how they monitor performance of construction projects, if and how they implement continuous improvement practices, what contracting and procurement systems they have, and what are their professional development and training arrangements are for staff.

- A key gap in the existing understanding of the residential construction industry relates to the activity and type of products developed by various types of organisation (Dalton, T., 2011). While the ABS Building Activity Survey provides a general breakdown between residential houses and other residential building completions, further details are needed on the types of product (e.g. flats, units, terrace, semi-detached). This will support the analysis of how the residential industry is responding to demand for higher density affordable dwellings.

- A great deal of the research regarding innovation in the construction industry does not relate innovation techniques directly back to costs and therefore the implications for housing affordability. For example, while Sustainable Built Environment National Research Centre research on OSM provides information on the potential benefits of the new technique, data relating to its actual implementation is required to identify the actual cost savings.

- It is difficult to monitor the take-up of innovations by the residential construction industry. Blismas (2007) identifies that ascertaining the use of OSM used in Australia was difficult for a number of reasons, including the various types of OSM used, reporting between the construction and manufacturing industries, and the lack of a peak body or association to provide oversight of take-up

and utilisation rates. In order to understand the existing adoption and potential for take up of different types of innovation by the industry stakeholders must be engaged.

- Many of the responses by the industry to housing affordability relate to management approaches rather than construction method innovations. For example, practices such as improved staff training, procurement and subcontracting, partnership approaches, increasing the mix of development types and increasing development density, are management approaches. OSM is the only main construction method innovation which has been identified in depth.

- There is limited research which identifies the different industry responses in different jurisdictions. For example, Blismas. (2007) identifies a number of companies who have adopted OSM techniques; however there is no data relating to responses in individual states and territories..

KEY QUESTIONS

The following questions are based on research gaps identified above. These questions are designed as discussion topics which may be relevant for some stakeholders:

Performance monitoring and improvements

- How do you monitor the performance of construction projects, and how frequently is progress reviewed during the construction phase?

- How do you ensure that lessons are learnt between projects, to ensure mistakes are not repeated?

- What contract and procurement systems do you have in place?

Training and development

- What is your annual budget for staff training and development?

- What are your current arrangements for training and development of construction staff?

Knowledge sharing

- How do you find out about advancements in technology, innovations or new processes?

- How often do you integrate new practices and processes into your activities?

- Are you a member of any professional industry associations and do you actively share knowledge with through these organisations?

Innovations

- What, and when was the last major innovation to impact the residential construction industry in Australia?

- What, and when, did your firm last alter its construction practices to include a new or innovative method?

- What innovative methods do you use to reduce the costs associated with construction activity?

Bibliography

AIG, 2010, *Performance of Construction Index: Construction industry continues to languish*, AIG

Aikman, M., Frankel, D., and Wood, S., 2011, National Dwelling Cost Study, National Housing Supply Council

Atkinson, R. Dalton, T. Norman, B. and Wood, G. 2007, Urban 45: New Ideas for Australia's Cities, Housing and Community Research Unit/Global Cities Institute, UTAS/RMIT

Australian Bureau of Statistics 2011, Australian National Accounts: Input-Output Tables 2007-08 Final, Cat. No. 5209.0.55.001, Australian Bureau of Statistics, Canberra

Berry, M. Whitehead, C. Williams, P. and Yates, J. 2004 Financing affordable housing: a critical comparative review of the United Kingdom and Australia, Final Report No. 72, Australian Housing and Urban Research Institute, Melbourne

Blismas, N., Wakefield, R., 2007, *Drivers constraints and the future of off-site manufacture in Australia.* Construction Innovation Special Edition 2008\

Dale, H., Harvey, A., Murray, G., Hopkins, D., Lewis, K., 2012, HIA National Outlook: A quarterly update on the housing and renovation industry, HIA

Dalton, T. W. (2011). Australian suburban house building: industry organisation, practices and constraints. *AHURI Positioning Paper No.143*, 58.Gan, Q., Hill, R., 2008. *Measuring Housing Affordability: Looking Beyond the Median*, School of Economics, University of New South Wales, Sydney, Australia.

Dalton, T., Chhetri, P., Corcoran, J., Groenhart, L., and Horne, R., 2011, *Understanding the patters, characteristics and trends in the housing sector labour force in Australia*, AHURI.

Housing Industry Australia 2009, *HIA-RP Data.com Residential Land Report*, HIA

Housing Industry Australia 2010, *HIA-Commonwealth Bank Affordability Report,* HIA

Housing Industry Australia 2010, HIA 100*, Australia"s Largest Home Builders and Residential Developers,* HIA

Housing Industry Australia 2011, *HIA-Commonwealth Bank Affordability Report*, HIA

Independent Economics 2012. *Economic Analysis of Building and Construction Industry Productivity: 2012 Report*, prepared for Master Builders Australia, Canberra

Kelly, A. (2012). *Solid foundations: Strong pent-up demand will help build industry revenue.* IBISWorld Industry Report E4111 House Construction in Australia.

Kelly, A. (2012). Multi-Unit Apartment and Townhouse Construction in Australia. IBISWorld Industry Report E4112.

Lawson, J. and Milligan, V. 2007 International trends in housing policy responses, Final Report No. 110, Australian Housing and Urban Research Institute, Melbourne

Manley, K. 2006, *Innovate now: Improving performance in the building and construction industry*, Cooperative Research Centre for Construction Innovation, Brisbane

Milligan, V. Gurran, N. Lawson, J. Phibbs, P. and Phillips, R. 2009 *Innovation in affordable housing in Australia: Bringing policy and practice for not-for-profit housing organisations together*, Report No. 134, Australian Housing and Urban Research Institute, Melbourne

National Housing Supply Council 2011, *State of Supply Report 2011*, Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra

O"Flynn, L., 2011, *Housing Affordability Briefing Paper*, NSW Parliamentary Library Research Service

Sustainable Built Environment National Research Centre 2012, *Project Factsheet 2.2 Offsite Fabrication and Product and Process Innovation*, SBE, Brisbane

The Senate Select Committee on Housing Affordability in Australia 2008*, A good house is hard to find: Housing Affordability in Australia*, Commonwealth Government of Australia, Canberra

Williams, T. and Macken, S. 2012 *Homes for all: 40 things we can do to improve supply and affordability*, The McKell Institute, Sydney

Yates, J. and Milligan, V. 2007 *Housing affordability: a 21st century problem*, Final Report No. 105, National Research Venture 3: Housing affordability for lower income Australians, Australian Housing and Urban Research Institute, Melbourne

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