Final report:

Value of Design project

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Executive summary

The current housing market is failing to deliver good design outcomes for higher density housing in Australian cities. As a result, dwellings are unaffordable and inappropriate for the wide range of households that are seeking medium density living. Amongst housing industry stakeholders, there is a perception that good design provides long term benefits for the community, but that it may provide limited benefits for the initial investors and builders involved. As a result, without a rigorous evidence base, the arguments for good design are dismissed as part of a discipline-based ‘belief’ system and any additional costs that arise deemed unnecessary.

This study comprised an international literature analysis and a set of confidential interviews with building industry stakeholders from Victoria, NSW and SA to explore how they define, measure and incorporate value and good design elements in projects, and what the perceived costs and benefits are from mechanisms to improve design outcomes.

What is good design? Industry stakeholders broadly agreed that well-designed developments are connected, diverse, sustainable, comfortable, safe, walkable and characterful, adding to urban vibrancy and aesthetic experience. This follows many similar definitions (Appendix 2).

Three key findings emerge from this study:

- Design guidelines and design review panels were identified as an effective way to improve design outcomes, and such measures are needed in order to improve design outcomes in Australian cities;
- A range of supporting measures are needed to assist the industry in making the necessary transition in practice; and
- Further research is required to enhance the evidence base for good design.

Stakeholders from NSW (and other states where relevant) reported that SEPP 65 and the RFDC in NSW had improved design outcomes. While design guidelines can become too prescriptive there is a preference for simple and clear guidelines that can readily be factored in to feasibility studies. Design review panels are a beneficial way to allow flexibility in the design guidelines and allow for proposed developments to demonstrate site specific design outcomes. The main concern with design review panels was to ensure that each council a) had a design review panel and b) that the panel had a range of expertise amongst the
panellist and that these panellists remained independent.

In this study, good design was reported to add an average 55% extra value compared to baseline developments, for an additional capital cost of 12%. This is in addition to other benefits of good design such as developers receiving planning approval more quickly and wider societal benefits such as improved health outcomes and sense of community. These figures are generalised, and to date there has been a lack of measurable evidence of the value of good design across different projects.

Several stakeholders raised the disconnect in language and communication between good design guidelines (such as SEPP 65), design review panels and developers. This is a broader challenge across the building industry. Currently the building industry contains distinct, relatively unconnected sets of firms and jurisdictions. This results in learning and innovation based on good design uptake is ad-hoc and uncoordinated, rather than strategic, considered and evidence based.

A pragmatic approach is required that starts from where the industry and market is, and contributes to a transition in practice through; (a) improving techniques, methods and data for measurability; (b) accepting less measurable aspects of good design and putting in place binding policy and practice mechanisms (such as design review panels) to ensure the value they provide is captured; and (c) instituting programmes of professional development, communications and capacity development to influence industry and homebuyers/householders’ culture and practice.

While this study has made some steps towards addressing the state of the ‘value of good design’ research and activity in the Australian context, further work that would start to develop the necessary evidence includes:

- Conducting further interviews with more different building industry stakeholders to gain wider perspectives (e.g. designers, banks, builders);
- Conduct a larger survey of building industry stakeholders around the value and costs of good design elements; and
- Identify a range of case study projects and analyse costs and benefits using appropriate qualitative and quantitative methods, as an extended post-occupancy evaluation methodology, to develop ex post evidence of the costs and benefits of apartment design in the Australian context.
Key terms

The following is a list of key terms and their definitions which are used in this report.

- Accessibility – is the development and apartment accessible for a range of movement including for strollers, wheelchairs and bicycles. Are there good transport options for cars, public transport, cycling, walking, running and other modes of moving around?
- CABE - Commission for Architecture and the Built Environment (CABE) was an executive non-departmental public body of the UK government, established in 1999. In 2011 CABE was merged with the Design Council.
- Connectivity – Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones; whilst also respecting existing buildings and land uses along the boundaries of the development site? Also refers to wider connectivity to shops, services and transportation options.
- Cost-benefit analysis – A method of calculating the through-life costs and benefits of various policy options.
- Design – A plan or drawing which is produced to demonstrate the look and function or workings of a building (or other object) before it is made.
- Design guidelines - A set of recommendations or requirements to be met for various elements of a development in order to achieve a certain quality and outcome for the development.
- Design review panels – Generally made up of panels of experts across the design and built environment profession (e.g. architects, designers, landscape architects, planners) who provide independent third party advice on proposed developments. This advice is then used by local planning to assist in the planning approval process. It can be used by architects and developers to help improve their development.
- Function – to perform a specified action or activity.
- Hedonic pricing – A model which identifies price factors according to the premise that price is determined both by internal characteristics of the product being sold and external factors affecting it.
- Liveability – A term to describe how liveable a space in the built environment is, taking into account factors such as building quality, health, living standards, access to services, cost of living, mobility, environmental quality, sense of safety and community engagement.
• Market failure – A situation where, in any given market, utility is not optimised, for example, the product demanded by consumers does not equate to that supplied by suppliers. This is a direct result of a lack of certain economically ideal factors, which prevents equilibrium.

• Micro apartments – Apartments under about 25m² of internal floor area.

• Mobility – The ease of moving around the apartment, development or local community. Are different modes of moving catered for? E.g. walking, cycling, public transport, cars.

• Placemaking – The creation of safe, vibrant public destinations and neighbourhoods: places where people feel a strong sense of ownership in their communities and a commitment to making things better.

• RFDC - The Residential Flat Design Code provides tools for improving the design of residential flat buildings and gives guidance on how the design quality principles provided under SEPP 65 can be applied to new developments.

• ROI - A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio.

• SEPP 65 - State Environmental Planning Policy 65 – Design Quality of Residential Flat Development. Legislation in NSW that requires that residential flat buildings of a certain size are designed by registered architects and enables the Minister for Planning to form SEPP 65 design review panels to give independent advice on the design quality of residential flat building proposals.

• Uplift to surrounding property values – Where the value (economic, social or environmental) of a development is transferred (in whole or part) to other developments in the area, creating an ‘uplift’ of value for those developments even though they have undertaken no change to design themselves.
1 Introduction

The design of the built environment has a significant effect on many aspects of our day-to-day lives. Buildings, streets and parks influence us in all kinds of ways, some obvious, some less so [1].

Improving the design quality of buildings has not always been on the agenda for the building industry and governments [2-7]. Their focus has typically been on providing ‘affordable’ products for purchasers [8]. However, over the past 20 years there has been a broadening of this focus to include interventions aimed at improving design and value outcomes for the built environment [5, 7, 9]. This is in recognition that good design can add ‘social, economic and environmental value and help create neighbourhoods and communities which are robust enough for future challenges and change.’ [10]. Despite this progress there is still significant concern around the quality and design of new apartment construction. The research presented in this report is a first step to provide evidence around value and good design in the Australian context.

The following information in Section 1 outlines the project description, aims and scope of the research undertaken in addition to providing a brief background and context to the research.

1.1 Project description, aim and scope

This document reports on a study into the value of good design in Australia conducted during 2014 to assist policy discussion and build an evidence base around value and good design in Australia. The project was funded by the Government Architects Network Australia (GANA) and the Australian Institute of Architects (the Institute). Matching funding was also provided by the Australian Government through a Researcher in Business Grant.

The project brief, developed in conjunction with GANA, the Institute and RMIT, was to conduct a literature review analysing existing related research, policies and real world case studies regarding the value of good design in the built environment. This review would then inform a case study into value criteria on good design for residential apartments. Building upon value of good design research which has emerged over the past 20 years from the UK (e.g. [9, 11, 12]) and USA (e.g. [13, 14]), the project aim was to evaluate global research and collate evidence relevant for the Australian context and seek to measure the additional value delivered in development projects through the inclusion of good design practices/processes/objectives. After difficulties were encountered in obtaining data from
individual design cases, the following approach was developed through collaborative
discussions with GANA and the Institute: Confidential interviews were undertaken with
building industry stakeholders from Victoria, NSW and SA to explore how they define,
measure and incorporate value and good design elements in projects, and what the
perceived costs and benefits are from mechanisms to improve design outcomes. The aim of
these interviews was to provide anecdotal evidence of what is occurring within the building
industry with regards to the above areas of exploration and to guide a program of further
research and policy development to lift the quality of design and improve value metrics of the
built environment in Australia (see Section 2.2).

The scope of this project is residential apartments. Apartments represent a rapidly growing
housing type in cities around Australia and there are increasing concerns from policy
makers, the community and even within some sections of the building industry that the
apartments being developed currently are not providing the quality or amenity which is
required for a sustainable future [15, 16]. These issues are discussed in more detail in
Section 3.

While the focus of this report is on apartment developments, much of the literature, analysis
and discussion are relevant to the wider built environment. The following section briefly
explores some of this literature and wider context, with a more detailed discussion of the
literature presented in Sections 2 – 5.

1.2 Background

A key reason behind the above requirement for research regarding the value of good design
is that commonly, value is established through market prices for rent or purchase from a
limited range of tangible considerations including; location, function, aesthetics, return on
investment and quality [17, 18]. Some critical elements of ‘good’ design, such as quality of
life or liveability, are challenging to value, and difficult to reconcile with the financial
pro formas and risk determinations that determine whether projects proceed or not, and so
are often neglected or marginalised. In doing so wider value elements resulting from good
design are essentially given a value of zero [9, 17]. This acts against achieving these value
benefits [1, 9, 10, 19-21], including increased sale/resale value, improved return on
investment, lower maintenance costs, reduced running costs, quicker planning approvals,
increased public support, happier and healthier occupants, improved sense of place and
reduced crime.
Building elements which may improve design quality, such as sustainability features or minimum room sizes, may also have added capital costs associated with them, resulting in the perception that good design is an optional extra with additional costs and limited benefits or value to the entity (usually a developer) that must bear the initial cost increase [3, 22-24]. Although it has been demonstrated that many good design elements are cost neutral, particularly if considered early in projects [20], the perception of the cost impost of good design has persisted, and there has been a dearth of robust evidence supporting the benefits of good design, particularly those that are difficult to measure [19]. In the absence of such evidence, popular myths are propagated about costs and benefits. Bartlett and Howard [25] found that quantity surveyors in the UK had the perception that sustainable energy efficient buildings cost 5-15% more to build. However the authors found that the reality of additional capital costs was about 1% even where the design contains significant sustainability features. This cost may be more than offset by measurable benefits, for example, reduced through-life costs incurred over the life of a building [24].

Macmillan [6] states that the design fees equate to less than 10% of total capital costs for developments. In this light Macmillan rewrites the often quoted building and occupation costs of developments (1:5:200) to be:

- Design 0.1
- Construction 1
- Running costs 5
- Occupancy costs 200

Developers often seek to reduce design costs, and this can have significant implications for running and occupancy costs. This is partly a symptom of market failure, since in general developers are not liable for running and occupancy costs and so success is confined to containing cost in only the first two or three of the above dot points.

Market failures of this sort is typically mediated by the set of building and planning codes in place to ensure basic levels of building performance, however, these are often lagging and limited in their capacity to address issues of quality (see Section 2 for more detail). Moreover, without a rigorous evidence base, the arguments for good design are too easily dismissed as part of a discipline-based ‘belief’ system and any additional costs that arise may be deemed unnecessary. There have been few notable attempts to address this lack of evidence. The outstanding contribution has been from an organisation in the UK, the
Commission on Architecture and the Built Environment (CABE) which championed significant research in this area during the late 1990s and through the 2000’s [9, 26-29]. Despite the progress CABE and others have made, the perception of the cost impost of good design has persisted, and there still is a dearth of robust evidence supporting the benefits of good design [19]. Limited research has been undertaken in Australia residential context. The Green Building Council of Australia has produced some research in relation to office buildings [30].

A key challenge remains how to measure value from good design in an uncontroversial and robust way and how to capture the value of good design, and once captured how to integrate this into wider architectural practice [1, 18, 31-35]. The requirement to be able to measure and quantify impacts of ‘poor’ and ‘good’ design stem from the increasing concern that poor design – an absence of ‘good’ design - locks in owners, the local community and cities into substandard urban environments for decades [15]. The significant future risks from ‘bad’ designs, which no one wants to live in or are not suitable for future needs is a real concern for policy makers [10, 36].

Simmons [37] argues as per the ‘market failure’ idea above, that the structure of the residential development and construction industry encourages builders, owners and users to primarily think about their own requirements, with little consideration given to the wider urban environment, but that buildings and public space become part of the whole community’s habitat. *Prima facia*, the supply side of the market cannot accommodate (public) good design elements. Regarding the role of government planning and building regulations, compared to many other OECD countries, Australia’s regulatory regimes are arguably more permissive of suboptimal outcomes than most [38, 39].

There is an increasing awareness in the Australian context that the design of the built environment can have significant implications for those who live in and use it. For example the City of Melbourne [16] in a recent report states:

*Housing is a fundamental human need and the foundation of a good quality of life. It plays an important role in people’s health and wellbeing, in people’s ability to access jobs, in bringing communities together and in shaping our city. Homes are private places to retreat, to relax, unwind and sleep, to cook, socialise, study or work, to raise children, to recuperate, to celebrate and to just be.*

The report highlights the importance of good design in achieving quality of life outcomes:
Fundamental to a resident’s quality of life is the size and layout of an apartment. No amount of sensitive or innovative design can compensate for apartments that are too small to meet the basic living requirements of the household. [16]

Design quality and mechanisms to improve it are topical issues in Australia [40-49]. Furthermore, some jurisdictions, such as NSW through State Environmental Planning Policy 65 – Design Quality of Residential Flat Development (SEPP 65), have developed design guidelines for higher density housing which have helped lift the quality of design across the past decade [50].

In Australia, an evidence base is needed on the value of good design and the benefits and challenges of improving value outcomes through good design in the built environment. As part of this, metrics and measurement of elements of good design are needed. As Brown [51] states ‘if we can establish the financial value of urban design, and find ways to make the non-financial value relevant to developers, then we can start to influence behaviour’ and arguably decision making processes. The following sections present the methods applied in this study to begin to address this evidence gap.

1.3 Project methods

To address the project aim, the research was undertaken across two main phases as described below.

Phase 1

The first phase of the project involved a detailed desktop literature analysis. The findings are presented in Sections 3 – 6 of this report and building upon the information presented in the preceding background section (1.2).

Phase 2

With a detailed understanding of the state of knowledge, practice and policy development regarding the value of good design in the built environment, it was decided that interviews with key building industry stakeholders in Australia was a first step to begin to address the lack of information and evidence in the Australian context. Thus, semi-structured interviews were conducted with 24 key building industry stakeholders from Australia and the UK over April – September 2014.
Victoria was included in the analysis as there is a significant amount of apartment development occurring, with increasing concern from local policy makers [15] that in the absence of policies or guidelines, new development will not be adequate for meeting the wider needs of the community into the future. NSW was included in the analysis as it has had policies and guidelines for improving the design quality of apartments in place since 2000 [50]. This presented an opportunity to explore how these design requirements had impacted on the built environment, building industry and consumers. SA was included in the analysis, because it is undergoing significant urban regeneration, and resulting in increasing numbers of apartment developments being constructed. As this project draws upon significant research undertaken in the UK, it was also decided to interview two key stakeholders involved in that work to gain a wider contextual understanding of both where current thinking in the UK was around value of good design, and for wider comments on the Australian perspective. While other jurisdictions both within and beyond Australia were also considered, limited resources constrained the scope of data collection. It is expected that the findings will have a broader application provided they are applied with caution.

Across these jurisdictions, different stakeholders were interviewed including developers, local government design and policy professionals, advisory bodies, architects, industry groups and researchers. This was to ensure a range of perspectives were included in the analysis. Table 1 presents general characteristics of the stakeholders interviewed. The table also lists the codes which will be applied in the analysis presented in Section 6.

Semi-structured interviews allowed a set of key questions to be asked across all stakeholders, while retaining flexibility to explore elements in more detail where the conversation and experience of respondent presented appropriate opportunities. This was appropriate as a range of stakeholders were interviewed and each had different expertise and knowledge.

Drawing upon the findings in Phase 1, the interview schedule was developed to (a) inform an understanding of how value and good design is considered and measured across the building industry and the building industry perception of the view of consumers, and (b) inform approaches to improving value and design outcomes, such as through the use of design review panels or urban design guidelines. Appendix 1 presents the interview schedule.
Table 1: General characteristics of the 24 stakeholders interviewed.

<table>
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<th>Analysis Code</th>
<th>Area</th>
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</tr>
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<td>Industry group</td>
<td>General Manager</td>
<td>Victoria</td>
</tr>
<tr>
<td>S02</td>
<td>Developer</td>
<td>Design Manager</td>
<td>Victoria</td>
</tr>
<tr>
<td>S03</td>
<td>Developer</td>
<td>Project General Manager</td>
<td>Victoria</td>
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<tr>
<td>S04</td>
<td>Architect</td>
<td>Director</td>
<td>Victoria</td>
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<tr>
<td>S05</td>
<td>Government</td>
<td>Senior strategic planner</td>
<td>Victoria</td>
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<td>Government</td>
<td>Urban Designer</td>
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<tr>
<td>S09</td>
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<td>Director</td>
<td>South Australia</td>
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<td>S10</td>
<td>Developer</td>
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<td>Architect</td>
<td>Principal</td>
<td>South Australia</td>
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<td>S18</td>
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<td>Director</td>
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</tr>
<tr>
<td>S19</td>
<td>Developer</td>
<td>General Manager Sustainability</td>
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Interviews were conducted at the place of employment for the Victorian-based participants. For the interstate participants interviews were conducted over the telephone or Skype. The interviews lasted between 30-80 minutes, averaging approximately 50 minutes. Interviews were audio recorded and the audio was transcribed verbatim via a third-party transcription service. Interview transcriptions were then analysed using NVivo across a number of key themes which emerged from the interviews:

- Value and good design,
- Challenges,
• Interventions to improve good design outcomes, and
• Costs and benefits.

1.4 Structure of report

The outcomes of the methods detailed above are presented across the remaining report as follows:

Sections 2 – 5 presents an analysis of the literature on value and good design. Section 2 establishes what the problem is regarding value and good design in the built environment, with a focus on apartment dwellings. The section highlights why action is required to improve design outcomes.

Section 3 explores value in the built environment; how is it defined, what are the benefits, who receives the benefits, what is good design, what is bad design and what are the challenges. Section 4 then synthesises the literature on methods for quantifying value of good design and analyses this in the context of developing a more robust evidence base for measuring good design outcomes. Following this, in Section 5 mechanisms for improving design outcomes are introduced, setting context for the interview analysis which follows.

Section 6 presents the analysis and discussion from the interviews. Analysis is presented across four key themes; value and good design, challenges, interventions and costs and benefits. A conclusion and next steps is presented in Section 7.
PART 1: THE VALUE OF DESIGN

2 What is the problem and why is this an issue?

As highlighted in Section 1, there is increasing concern, both in Australia and internationally, regarding the quality of design in the built environment - particularly as governments and urban planners grapple with how and where to house expanding populations. Poor design impacts social, economic and environmental outcomes for occupants and users. Because the built environment endures, these impacts can continue for many decades. Once constructed, buildings can be both expensive and difficult to improve.

Poor design arises when housing markets fail to deliver optimal outcomes. This Section of the report begins with a discussion on market failures to set the wider context around valuing non-market goods. Following this, challenges and implications from the current housing market and poor design are discussed, with particular reference to the apartment market in Australia. This is then set against the wider developments of housing in a changing climate.

Market failures

There are housing policy makers and researchers who believe that the market will self-adjust and provide the quality of housing product required for a sustainable future. Subscribing to neo-classical economics, the idea is that better quality apartments will experience higher demand (and therefore, price) and that this will provide a signal to developers and those on the supply side to improve quality to stay in the market and reap the extra margin. However as events such as the 2008 sub-prime house crash in the USA demonstrate, housing markets can, and do, regularly fail. Many others involved in policy development, the housing industry and the associated finance sector argue that the market is currently not incorporating wider social and environmental benefits of good design, and may not be able to without some form of regulatory guidance. Neo-classical economics assumes that people act rationally with perfect information to choose an outcome which maximises their benefits. However, this notion of benefits or value is strongly contested within economics and, in particular, environmental economics literature [52-54]. Moreover, there are established types of market failure that pertain to housing, such as split incentives (e.g. developers vs. buyers, landlords vs. renters, private costs vs public benefits), asymmetrical information (when some have more information than others – rife in the housing market), externalities (where some goods, such as environmental quality, are not marketised and so effectively count for zero)
and unforeseen events (such as where risks or potential future demand/value are unanticipated).

The definition of ‘value’ is dependent on a range of factors such as cost, available information, quality, quantity, time, and previous choices [55-57]. The question of whose ‘value’, who does the ‘valuating’ and how this is undertaken is paramount [58, 59]. Where private investments determine the public realm and public goods, public policy is needed to correct the market distortion that would favour private interests, and to ensure public, community and environmental interests are served when ‘private means contradict the social ends of an efficient allocation of resources’ [60].

Market failures also occur when ‘rational’ choice cannot be exercised, due to a range of reasons that can include split incentives (different stakeholders experiencing different costs and benefits) and asymmetric information (different stakeholders withholding or being denied information). Also, there are ‘externalities’ that are costs not paid by those who benefit from the market, and these are treated as free goods. The most well-known externality is the environment; without a price on it, the natural world is treated as a ‘free good’ and so is subject to market failure. Pearce and others have produced an extensive body of work on how to determine economic values for non-market elements such as the environment [52, 56, 61].

The market responses to climate change, for example, have been described as the largest market failure in history by some commentators [62-64], resulting from the inability of consumers, including commercial, industrial and residential consumers, to place an adequate price on the environmental, social and inter-generational considerations of carbon emissions [60, 65]. Scorse [66] states:

*If we lived in a world where prices fully captured environmental costs, our entire economies would look vastly different: we would have different modes of transportation, different layouts for our cities and towns, different dietary habits, and consumer goods would likely contain much less toxic material. Prices of environmentally harmful goods would rise and much more R&D would go into alternatives, thereby decreasing their price. In such a world society’s resources would be invested in those things which bring the greatest social value.*

As Simmons [37] discusses, people who are involved with the construction, ownership or use of buildings have a primary focus on maximising their own needs and requirements. Indeed, companies have a duty to shareholders, and boards of Directors have
responsibilities under corporate legislation to ensure profits are maximised, which operates against any consideration of public goods or wider benefits beyond those of the company. As discussed in the introduction, limited quantifiable research about the value of good design means these stakeholders do not have the complete information on which to base decisions about good design and, therefore, long term benefits to the brand and standing of the company.

**Housing market and poor design**

Within the context of continuing market failures, there is increasing recognition in Australia and internationally that the housing market cannot continue to provide poor quality housing. For example, the City of Melbourne in a recent draft housing strategy identified a number of key challenges relating to improving design and quality of housing stock in Melbourne including [16]:

- Affordability means different things to different people;
- The number of vacant apartments is increasing, without a drop in rental prices;
- High land values and construction costs are impacting affordability, housing mix and design quality;
- Quality, amenity and performance are decreasing while density is increasing;
- The majority of high-rise housing in the municipality delivers poor environmental performance;
- Mix of housing typology and affordability impact on long-term community building and support for a vibrant cultural life;
- An increasing investor market is impacting on the design outcomes in apartments;
- Majority of new apartments are one or two bedrooms, with limited three or more bedroom apartments;
- There are limited options for schools and other services to match demand from increasing apartment numbers and occupants;
- Average apartment floor sizes are decreasing (average size of a one bedroom reduced from 52m$^2$ to 44m$^2$ from 2008-10 and from 77 m$^2$ to 67m$^2$ for a two bedroom apartment [15]); and
- Poor apartment layout and amenity is common.

Similar challenges to improving building quality outcomes have been found elsewhere in Australia and Internationally [9, 11, 36]. This is of significant concern considering the
predicted growth of apartments and population in major cities in Australia. In the City of Melbourne the population has doubled from 2001-2014 and is currently at 116,000 people living in 68,000 homes. This is predicted to grow to over 190,000 people living in over 115,000 homes by 2031 with the majority of new dwelling growth to come from 1 and 2 bedroom apartments [16].

Figures 1 and 2 show a snapshot of results from the recent City of Melbourne case study results against 14 broad ‘good design’ criteria [15]. This study looked at 25 residential apartment developments in the City of Melbourne which had been completed in the six years prior, covering over 3,500 individual apartments in developments ranging from three to 41 storeys high. A desktop review of the apartment and development plans was systematically undertaken across the 14 set good design criteria based upon international best practice. Overall very few dwellings achieved a good rating.

![Figure 1](image1.png)

**Figure 1:** Overall results by building height category against good design criteria for apartments in the case study in the City of Melbourne [15].
A number of common design issues were identified that led to the high proportion of ‘poor’ or ‘average’ results (84% of all case studies and 100% of all high rise case studies). These common issues were:

- Small apartment size;
- Lack of apartment choice;
- Dominance of car parking;
- Poor internal amenity (light, ventilation and privacy);
- Poor building layout;
- Poor apartment layout;
- Limited flexibility and adaptability;
- Poor environmental performance;
- Limited communal space and facilities; and
- Lack of storage and utility spaces.

Architect Adam Haddow characterises the issue of apartment design in Melbourne in an online opinion piece stating:

> On a recent research trip to Melbourne to inspect new multi-unit residential apartment developments, I was horrified to find a two-bedroom apartment for sale with both bedrooms inboard, without any natural light or ventilation. This was not a unique or isolated incident; this was a new build and there were a total of 15 apartments designed by a highly regarded architectural firm that contained this design ‘feature’. Indeed, this
‘affordability’ leaver was being pursued in many other buildings, albeit to a lesser extent. In this case, the market driven environment is clearly failing the community. A cheap apartment is only really cheap if it is fit for purpose. [67].

Many of these design concerns are not unique to Melbourne. In response to small floor area of homes in London, the Lord Mayor Boris Johnson stated:

> What's that all about? We're not Hobbits. I am not about building homes for Hobbits…I don't want to cast aspersions on particular homes but I do think in this [England] country, where if you read the newspapers we are not getting any thinner…they [houses] need to be human-sized' [68].

Not all the above points are seen as issues by everyone. For example Hall [42] states that the average size of small apartments in Australia has fallen from 52m$^2$ to 44m$^2$ across the past 5 years, pointing out that this is still larger than in many other places such as New York where the average micro apartment size is 37m$^2$. Hall argues that if clever design is applied, smaller spaces can feel spacious and meet the needs of the resident. This argument depends on the assumption that developers will achieve high quality design, and that occupants will know how to furnish the apartment to maximise the use and feel of space.

Recent news reports highlight the tensions between Melbourne City Council, the State Government Planning Department (DTPLI) and some developers who are failing to engage with good design [49]. Similar to Boris Johnson, Melbourne Lord Mayor Robert Doyle has criticised developers who offer windowless rooms comparing them to cupboards. "A room that doesn't have direct or indirect access to daylight, ventilation or outlook is not a room, it's a cupboard," Cr Doyle stated [49].

The City of Melbourne has set as one of its three housing goals to 'improve the design quality and environmental performance of new apartments’ [16]. The former State Government of Victoria also recognised that the current regulatory framework is not (generally) able to be involved early enough in initial design stages of a development, when key elements such as orientation and internal layouts are determined [69]. The government states that earlier involvement with the planning process could assist developments at the building approval stage and achieve better design outcomes, including improved sustainability.

In another project undertaken by the authors of this report (Moore and Horne) in 2014, interviews with 14 key building industry stakeholders in Melbourne identified that there was a significant shift occurring in the residential market in Melbourne which highlights the
challenges of good design in the apartment sector in Melbourne at present [70]. This involves:

- An influx of foreign developers who have their own funding arrangements, thereby circumnavigating local funding institutions who had rules in place about floor areas, in effect ensuring a certain floor area was maintained;
- A significant amount of CBD apartments being purchased by investors and many of these being foreign investors who may never physically see or use the apartment for themselves;
- Clear differences between the amenity that an owner-occupier desires and what an investor will accept;
- Consumers, particularly investors, will generally not spend additional money for wider public goods;
- Quality, sustainability and wider amenity is driven by regulatory requirements rather than market operation.

Clearly there is significant evidence which suggests that the quality of design, particularly of apartments in parts of Australia, is problematic with sections of the housing market failing to provide adequate design outcomes. This will impact on a range of stakeholders for decades to come if not addressed urgently.

**Housing in a changing climate**

In addition to the implications from poor design explored above, there is the overarching challenge of ensuring that all new buildings and urban designs are considered within the requirement to transition to a low carbon future.

The scientific consensus is that a reduction in global greenhouse gas emissions of up to 90% of 1990 levels by 2050 is required to limit climate change impacts [63, 71]. The built environment is a significant contributor to anthropogenic climate change, primarily through increasing demand for fossil fuel energy. Energy consumed in the built environment accounts for 40% of worldwide energy use and one third of greenhouse gas emissions [72, 73]. Specifically the residential sector is responsible for consumption of 14% of total delivered energy [74]. In Australia, the residential sector is responsible for 12% of total final energy consumption and 13% of greenhouse gas emissions [75, 76]. Efforts are underway in Australia, and internationally, to reduce the impacts of climate change.
Much of this effort is taking place under the broad banner of ‘sustainable urbanism’ whereby the hope is that cities can continue to grow while embracing the concepts of environmental and social sustainability. However as recent reports from Australia and elsewhere show, there is increasing concern that this approach is not achieving the outcomes predicted [16]. There is a requirement therefore for policy makers, urban planners, building industry stakeholders and consumers to rethink cities and development to improve design and liveability outcomes.

Climate change is predicted to impact directly on building users through increased operational costs through higher utility costs, more expensive insurance, increase damage from extreme weather events and increasing end of life costs [30]. Without improvements to design quality (both of individual buildings and the spaces around them), the built environment will face significant challenges in a changing climate. As Matthew Quinn from Stockland states:

* A lot of what we are talking about is actually just future proofing your asset base. If you are a long term holder of assets then it is about putting in place sustainable outcomes that will make them last longer and that future proofs them against changes that are inevitably coming* [30]

As presented throughout this section, there is a significant issue with the quality of new apartment developments and other areas of the built environment in parts of Australia and internationally. If these issues are not addressed, it could lock in a various stakeholders to a range of negative implications for many decades.
3 The value of design

With Section 2 providing an understanding of what the problem is and why it is an issue, this section of the report explores key developments in value of design research to establish where the current state of knowledge, research and policy development is regarding the value of good design in the built environment. Firstly, an overview of key developments and actors in this field of research, policy development and outcomes are presented in Section 3.1 to set the wider context of who has conducted analysis in this area. Section 3.2 then discusses how the literature and case studies define value, particularly with regards to good design in the built environment. The benefits of improving good design, including whom the benefits impact, are highlighted in Section 3.3. An examination of what constitutes good and bad design is provided in Section 3.4 before challenges around improving good design outcomes are presented in Section 3.5. This presentation of key developments in the literature provides a starting point for the interviews and analysis presented in this report.

3.1 Key developments

As touched on in the background information in Section 1, political and research interest in the value of good design really came to the fore during the 1990’s in the UK, with increasing concern that housing quality had been declining throughout the 1970s and 1980s [7]. This ultimately led to the development of the Commission for Architecture and the Built Environment (CABE) in 1999. CABE was tasked with championing good design across the built environment. To this end CABE undertook and commissioned projects to try and understand and put a metric on the value of good design. Key reports include:

This body of work, along with their other promotional, educational and policy development activities makes CABE a relatively significant driver of ‘value of good design’ research and guidance. A change of government in the UK in 2010 resulted in the funding and influence of CABE being wound back and it was integrated into the Design Council in 2011. However there is still active development of research and other activities around improving the understanding of value of good design in the UK [5]. For example Carmona [5] and others have proposed initiatives such as the formation of a representative body (Place Alliance) to continue to champion the good design agenda in a coordinated way.

Another significant source of evidence and research into the value of good design in the built environment has come from the health care sector, particularly in the USA involving the University of Texas and through the wider Pebble Project which is discussed in more detail in Section 3.2 [14]. This has emerged from recognition that design can improve patient health and staff wellbeing outcomes, with profound wider societal cost implications.

However, before specific value/measurement and good design research is presented, some key principles and terminology need to be discussed by way of setting the scene. These are explored below.

3.2 What is value?

With this research being around value, there is a requirement to establish how value is understood in the literature. Typically value has proved to be a notoriously difficult concept to
define [78]. In essence it is a measure of what an individual or group believes something is worth [9, 79, 80]. Determining ‘value’ can be achieved through a variety of formal methods such as professional valuations and open market bidding (e.g. a property auction), but ultimately all determinants of value are culturally and socially specific.

In a market based economy, the value of a commodity typically consists of its use-value, its exchange-value, and its price (when it is exchanged) [9]. A commodity or a ‘good’, in this sense, is something that has been produced by one entity to be exchanged to another. Clearly, residential dwellings such as apartments fall into this category as they are exchangeable (for a price) and have use value to their purchaser ranging from shelter outcomes to investment; they are a form of private good. However housing, as a collective, is also a public good, and so its value extends beyond that of a commodity. Macmillan [19], Brown [51] and others have identified additional value types which are generally overlooked in determining exchange value; image value, social value, environmental value and cultural value. Table 2 presents each of these in more detail. While some of the descriptors are clearly speaking to commercial or healthcare buildings, there are elements across each of these value types which are relevant for the apartment sector.
Table 2: Types of value in the built environment [1].

<table>
<thead>
<tr>
<th>Type of value</th>
<th>What does it mean?</th>
<th>How is it measured?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange value</td>
<td>The building as a commodity to be traded, whose commercial value is measured by the price that the market is willing to pay. For the owner, this is the book value, for the developer the return on capital and profitability. Also covers issues such as ease of letting and disposability.</td>
<td>Book value, return on capital, rental, yield.</td>
</tr>
<tr>
<td>Use value</td>
<td>Contribution of a building to organisational outcomes: productivity, profitability, competitiveness and repeat business, and arises from a working environment that is safe in use, that promotes staff health, well-being and job satisfaction, that encourages flexible working, teamwork and communication, and enhances recruitment and retention while reducing absenteeism.</td>
<td>Measures associated with occupancy, such as satisfaction, motivation, teamwork. Measures of productivity and profitability, such as healthcare recovery rates, retail footfall, educational exam results, occupant satisfaction.</td>
</tr>
<tr>
<td>Image value</td>
<td>Contribution of the development to corporate identity, prestige, vision and reputation, demonstrating commitment to design excellence or to innovation, to openness or as part of a brand image.</td>
<td>Public relations opportunities, brand awareness and prestige, the recognition and ‘wow’ factors.</td>
</tr>
<tr>
<td>Social value</td>
<td>Developments that make connections between people, creating or enhancing opportunities for positive social interaction, reinforcing social identity and civic pride, encouraging social inclusion and contributing towards improved social health, prosperity, morale, goodwill, neighbourly behaviour, safety and security, while reducing vandalism and crime.</td>
<td>Place making, sense of community, civic pride and neighbourly behaviour, reduced crime and vandalism.</td>
</tr>
<tr>
<td>Environmental value</td>
<td>The added value arising from a concern for intergenerational equity, the protection of biodiversity and the precautionary principle in relation to consumption of finite resources and climate change. The principles include adaptability and/or flexibility, robustness and low maintenance, and the application of a whole life cost approach. The immediate benefits are to local health and pollution.</td>
<td>Environmental impact, whole-life value, ecological footprint.</td>
</tr>
<tr>
<td>Cultural value</td>
<td>Culture makes us what we are. This is a measure of a developments contribution to the rich tapestry of a town or city, how it relates to its location and context, and also to broader patters on historical development and a sense of place. Cultural value may include considerations of highly intangible issues like symbolism, inspiration and aesthetics.</td>
<td>Critical opinions and reviews, professional press coverage, lay press coverage.</td>
</tr>
</tbody>
</table>

In the context of the built environment, value has typically been thought of in terms of capital costs, property values or other formal economic measures across a limited range of tangible considerations; location, quality, function, aesthetics and return on investment [17, 18]. As
discussed in Section 2, there has been a significant market failure in the ability to attach a tangible or measurable value to wider elements/creators of value – so in some cases elements are given a default market valuation of zero which is not reflective of their true value. CABE [9] supports this, stating; ‘markets are poor indicators of the value of many collective public benefits since their key feature consists of externalities which are not taken into account in the price for which the goods are sold’. **Figure 3** highlights one example of elements which create property value [81]. The structure presented by Nicholls and Crompton does include some wider elements of good design such as the environmental attributes but is still heavily geared towards the limited tangible considerations of location, quality, function, aesthetics and return on investment.
Figure 3: Representation of hedonic property value model\(^1\) [81].

\(^1\) A model which identifies price factors according to the premise that price is determined both by internal characteristics of the product being sold and external factors affecting it.
Part of the challenge of capturing robust data on the value of good design is that value is manifest in a variety of ways and can mean different things to different stakeholders who are developing ‘value’ within a range of constraints (e.g. monetary or legal) [9, 18, 31]. For example an investor is likely to want a product which has low maintenance and achieves a high Return-On-Investment (ROI). They may be less concerned about floor size, apartment layouts and nearby amenities if they are comfortable that they will achieve their desired financial paybacks. However, an owner-occupier will have different values. They want to create a home and want to ensure that they are happy with where they live and the amenity and opportunities for a certain lifestyle the area provides. They are unlikely to move again in the direct future so look for other elements of value to ensure they can improve their quality of life. For example a sense of community may be important. Differences in values and benefits will be explored further in the following sections.

3.2.1 Consideration of value of good design in the Australian context

In the Australian context there is some literature and research emerging regarding the value of good design in the built environment, however the literature is generally limited to professional/policy contexts, lacking peer review and not developing Australian based evidence. Table 3 highlights what elements are typically measured or valued by built environment stakeholders in the Australian context, and those which are less measurable. This table has been compiled from our analysis of the available literature.
Table 3: Design in the built environment elements and outcomes which are typically measured or valued, and those which are not.

<table>
<thead>
<tr>
<th>Typically measured/valued</th>
<th>Occasionally measured/valued</th>
<th>Rarely or never measured/valued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private costs</td>
<td>&quot;Lifetime&quot; energy costs</td>
<td>Stress levels of occupants and/or the local environment</td>
</tr>
<tr>
<td>Cultural/heritage/aesthetics</td>
<td>Mobility/traffic/travel costs</td>
<td>Quality of life</td>
</tr>
<tr>
<td>Property values</td>
<td>Connectivity</td>
<td>Equity for all of a population</td>
</tr>
<tr>
<td>Rent/capacity value</td>
<td>Accessibility</td>
<td>Civic pride</td>
</tr>
<tr>
<td>Vacancy rate</td>
<td>Productivity (occupants)</td>
<td>Sense of place</td>
</tr>
<tr>
<td>Take-up rates</td>
<td>Corporate image</td>
<td>Satisfaction</td>
</tr>
<tr>
<td>Energy and water costs</td>
<td>Uplift to surrounding property values</td>
<td>Firmness, durability, strength</td>
</tr>
<tr>
<td>Maintenance costs</td>
<td>Delight (aesthetic pleasure and meaning)</td>
<td></td>
</tr>
<tr>
<td>Safety/security/crime</td>
<td>Urban place/space quality</td>
<td></td>
</tr>
<tr>
<td>Pollution</td>
<td>Liveability</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We observe from this analysis, and the information presented in Figure 3, that elements which are rarely or never measured/valued are becoming increasingly important to improving design outcomes. For example, urban placemaking has emerged as a term to incorporate elements of liveability, productivity and ‘quality’ of urban spaces. The importance of Public Open Space for healthy, and sustainable cities is especially emphasised in a World Health Organisation publication from 1997 and echoed in a series of CABE documents that have appeared over the last decade [9, 11, 22]. The Project for Public Spaces, which broadly defines placemaking as a “catalyst for building healthy, sustainable and economically viable cities of the future”, is perhaps the oldest and the best known of these initiatives, although a host of government and public programs, projects and consultancies have sprung up in Australia over the last few years championing placemaking as their overriding agenda [82].

3.2.2 Measuring liveability

Essentially placemaking is about making places more liveable. However, what is the value of liveability? Certainly the popular quoted rankings of most liveable cities do not currently have measures that are credible or consistent for the purposes of reflecting urban spatial quality and/or that of housing. The Economist Intelligence Unit has been considering other ways of measuring cities. It sought submissions on alternative ways to construct its index. The “winner” was architect and planner Filippo Lovato, who compiled a Spatially Adjusted index.
Lovato’s entry added data on urban planning, including cities’ green space, (lack of) sprawl, natural assets, cultural assets, connectivity and (lack of) isolation. The result was that Hong Kong took the number one spot as a very compact city that managed to “maintain its natural heritage, create a dense network of green spaces and enjoy extensive links to the rest of the world”. We know from this and other work that the measurement of outputs, value and impacts relating to designed urban spaces include retail and economic value of improved streetscape, increased property values, increased patronage and sales [77, 83]. Evidence of the quantitative and qualitative impacts of good and bad ‘liveability’ outcomes has primarily come from the UK’s CABE publications. Furthermore, in both cases, evidence bases for the Australian context are needed as already highlighted throughout the report.

3.3 What are the benefits and who receives them?

As stated in the above discussion about value, there is a challenge around what the value is and who it is for. There are a range of ways of approaching measures of value in designed built environments, as detailed in Section 4 [9]. Any value measure will necessarily be a surrogate representation of reality and will only capture part of the picture. A logical starting principle in value assessment is to seek to measure aspects that are the most important and practical to measure ones in any given situation. Importance and practicality are likely to vary widely from case to case, as highlighted previously with differences in value requirements between owner-occupiers and investors.

Thus, understanding the value of good design is made even more complex when consideration of the benefits and who receives them is regarded. Just as how the value perspective differs depending on whose value is being considered, the benefits are different depending on the different stakeholders. A range of benefits of good design have been identified in the literature and from case studies [2, 9, 10, 18-20, 84-88]. Various policy makers in Australia and internationally have also recognised that there are positive economic, social and environmental benefits from improved development outcomes [69].

Table 4 presents a summary of the potential value of financial tangible and intangible elements of good design across the triple bottom line, as identified by CABE [9]. Again some of these are more relevant for commercial or health care buildings, but many are relevant for apartment buildings. Furthermore the use of the word ‘intangible’ in this table is interesting. Arguably all the benefits listed in the intangible list could be measured if there was resources to do so, it is just that they are difficult to, or rarely, measured.
Table 4: The potential value of good design [9]

<table>
<thead>
<tr>
<th>Economic value</th>
<th>Social value</th>
<th>Environmental value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial tangibles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Potential for higher land values</td>
<td>• Regenerative potential (encouraging other development)</td>
<td>• Reduced energy consumption</td>
</tr>
<tr>
<td>• Higher sales values</td>
<td>• Better security and less crime</td>
<td>• Reduced resource/land consumption</td>
</tr>
<tr>
<td>• Increased funding potential (public and private)</td>
<td>• Less pollution (better health)</td>
<td></td>
</tr>
<tr>
<td>• Higher rental returns</td>
<td>• Higher property prices</td>
<td></td>
</tr>
<tr>
<td>• Increased asset value (on which to borrow)</td>
<td>• Less stress (better health)</td>
<td></td>
</tr>
<tr>
<td>• Reduced running costs</td>
<td>• Reduced travel costs</td>
<td></td>
</tr>
<tr>
<td>• Maintenance of value/income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Reduced maintenance costs (over life)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Better re-sale values</td>
<td>• Potential for greater security of investment depending on market</td>
<td>• Reduced public/private discord (more time for positive planning)</td>
</tr>
<tr>
<td>• Easy maintenance if high quality materials</td>
<td>• Quicker permissions (reduced cost, less uncertainty)</td>
<td>• Greater accessibility to other uses/facilities</td>
</tr>
<tr>
<td>• Reduced security expenditure</td>
<td>• Distinctiveness (greater product differentiation)</td>
<td>• Increased public support (less opposition)</td>
</tr>
<tr>
<td>• Reduced running costs (energy usage)</td>
<td>• Allows difficult sites to be tackled</td>
<td>• Increased cultural vitality</td>
</tr>
<tr>
<td>• Reduced public expenditure (on health care/crime prevention/urban management and maintenance)</td>
<td>• Better developer reputation (increased confidence/‘trademark’ value)</td>
<td>• Better quality of life</td>
</tr>
<tr>
<td>• Increased economic viability for neighbouring uses/opportunities</td>
<td>• Future collaborations more likely</td>
<td>• More inclusive public space</td>
</tr>
<tr>
<td>• Increased local tax revenue</td>
<td>• Enhanced design professional reputation</td>
<td>• A more equitable/accessible environment</td>
</tr>
<tr>
<td>• Reduced travel costs</td>
<td>• Allows difficult sites to be tackled</td>
<td>• Greater civic pride (sense of community)</td>
</tr>
<tr>
<td></td>
<td>• Competitive investment edge</td>
<td>• Reinforced sense of place</td>
</tr>
<tr>
<td></td>
<td>• Higher quality longer term tenants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Happier workforce (better recruiting and retention)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Better productivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased business (client) confidence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fewer disruptive moves</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased occupier prestige</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased city marketing potential</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the above benefits, a number of potential costs of good design have been
identified (Table 5) which must be considered in any push towards improved design outcomes [9]. For example, good design could reduce land values for developers if it was perceived that building upon the land would cost more due to higher design requirements such as larger apartment sizes which may reduce the number of apartments which could fit in a development.

Table 5: The potential costs of good design [9].

<table>
<thead>
<tr>
<th></th>
<th>Economic value</th>
<th>Social value</th>
<th>Environmental value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial</strong></td>
<td>• Potential for reduced land values</td>
<td>• Higher public investment in design – planning advice, guidance, award schemes, etc.</td>
<td>• None</td>
</tr>
<tr>
<td><strong>tangibles</strong></td>
<td>• Higher risk if increased development costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Higher infrastructure costs (public space and social infrastructure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Higher construction costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Higher design costs (professional fees)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Greater capital investment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Continued private sector responsibility for public/private space</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Higher rents</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Higher management fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Financial</strong></td>
<td>• Increased design time (not always recognised in fees)</td>
<td>• Risk of no development if design standards demanded are too high</td>
<td>• None</td>
</tr>
<tr>
<td><strong>intangibles</strong></td>
<td>• More complex management if mixed use development</td>
<td>• Prospect of gentrification</td>
<td></td>
</tr>
</tbody>
</table>

While Table 4 provides a list of the tangible and ‘intangible’ benefits it says little about who these benefits are for and how they might change across time.
Table 6 presents the above benefits across different building industry stakeholders, including how they change across time. The table demonstrates the complexity of benefits resulting from good design outcomes and how they change across time. Such differences in benefits and priorities has been identified in recent City of Melbourne research [16]. The report states [16]:

*Options to improve the design quality, amenity and environmental performance of housing were seen as more important to residents already living in the municipality, whereas those who aren’t placed a greater emphasis on housing affordability.*
Table 6: The short- and long-term beneficiaries of value of good design in the built environment [21].

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Short-term value (social, economic and environmental)</th>
<th>Long-term value (social, economic and environmental)</th>
</tr>
</thead>
</table>
| **Investors** | Potential for greater security of investment depending on market  
Higher rental returns  
Increases assets value (on which to borrow)  
Reduced running costs  
Competitive investment edge | Easy maintenance if high-quality materials  
Maintenance of value/income  
Reduced maintenance costs (over life)  
Better re-sale values  
Higher-quality longer-term tenants |
| **Developers** | Quicker permissions (reduced cost, less uncertainty)  
Increased public support (less opposition)  
Higher sales values (profitability)  
Distinctiveness (greater product differentiation)  
Increased funding potential (public/private)  
Allows different sites to be tackled and higher densities achieved | Better reputation (increased confidence/"trademark" value)  
Future collaborations more likely with other developers/investors |
| **Designers** | Increased workload and repeat commissions from high-quality, stable clients | Enhanced professional reputation |
| **Occupiers** | Happier workforce (better recruiting and retention)  
Better productivity  
Increased business (client) confidence  
Fewer disruptive moves  
Greater accessibility to other uses/facilities  
Reduced security expenditure  
Increased occupier prestige  
Reduced running cost (energy usage) | |
| **Local authority** | Regenerative potential (encouraging other development)  
Reducing public/private discord and time spent on reactive planning | Reduced public expenditure (on crime prevention/urban management/urban maintenance/health problems)  
More time for pro-active planning  
Increased economic viability for neighbouring uses/development opportunities  
Increased local tax revenue  
More sustainable environment |
| **Community interests** | Better security and less crime  
Increased cultural vitality  
Less pollution (better health)  
Less stress (better health)  
Better quality of life  
More inclusive public space  
A more equitable/accessible environment  
Greater civic pride (sense of community)  
Reinforced sense of place  
Higher property prices | |

Attempting to capture a common value for different stakeholders and benefits is challenging.
3.4 What is good design? And what is bad design?

Now that the value and the benefits of good design have been discussed, there is a requirement to identify what is good design for the built environment and why it is good design – what is the value add and benefits from good designs? Equally as important is to understand what bad design is and why it is bad – what are the implications from bad design. The following section explores these elements.

A recent report by the City of Melbourne states that:

*Good design considers the character of an area and the interface between the building and the street. It considers the environmental performance and building orientation to minimise resource use and maximise building efficiency over its lifetime. It ensures flexibility and adaptability to enable minor changes to the internal configuration of apartments while offering the capacity for internal spaces within apartments or buildings to change and be modified over time. Good design means optimising rather than maximising the amount of development on a site to deliver well designed apartments with good levels of internal amenity….Good design will create buildings that make a positive contribution to a neighbourhood and provide homes which make a positive contribution to people’s general health and well-being.* [10]

There are a number of other definitions provided in the literature which broadly promote similar ideas, suggesting of what might be described as liveable cities and regions. Other elements of good design include diversity of building typology and appearance, ease of movement, physical building quality, neighbourhood security and safety, mixed uses, environmental sustainability, low maintenance and achieving pride of place for both residents and local communities [9, 18, 20, 80, 84]. Authors such as Keck [87] argue that good design is as much about what you cannot see as the elements you can see and that design is both a process and a product [79]. Importantly governments and urban planners are starting to understand that good design is not just about the upfront product, but also about longer term liveability [69].

The range of definitions highlights that good design is difficult to define and is very much a judgement issue varying between jurisdictions and stakeholders [23, 32, 84].

The Ministry for Environment in NZ [80] says:

*Urban design remains an art as much as a science, involving concepts that are sometimes elusive, such as character. It involves both public urban space and parts of the private domain, and concerns the urban*
environment at a range of scales. Urban design is also context-specific.

Various regulations (e.g. the SEPP 65 requirements from NSW) or guides (e.g. Building for Life from the UK or Places for people from the Australian Government) attempt to put more defined requirements around achieving good design outcomes. Refer to Appendix 2 for further information regarding good design criteria-guides.

An even earlier piece of work by Carmona [7] presents a conceptual urban design framework which has many similarities to those which have been developed since 1996 (Table 7).

While we need to know what good design is if we are to achieve such outcomes in the built environment, it is equally as important to acknowledge what bad or poor design is. Authors such as Simmons [37] and GBCA [30] summarise that poor design can mean buildings fail to last for their design life, have high management, maintenance and operating costs, have higher insurance premiums, have high environmental impacts, allow opportunities for crime and anti-social behaviour and face higher end of life demolition costs – essentially dwellings which fail to address the aforementioned good design criteria.

Simmons [37] lists the following reasons why bad design occurs:

- Market failures;
- Externalities;
- Lack of foresight;
- Lack of co-ordination and communication;
- Moral hazards;
- Lack of appropriate skills; and
- Failure to balance time, cost and quality.

Figures 4, 5 and 6 present examples of elements of poor design that have been cited within various good design research and policies, illustrating that there are numerous identifiable internal and external dwelling elements at play.
Table 7: Structuring of design considerations into a conceptual urban design framework [7].

<table>
<thead>
<tr>
<th>Spatial</th>
<th>Morphological</th>
<th>Contextual</th>
<th>Visual</th>
<th>Perceptual</th>
<th>Social</th>
<th>Functional</th>
<th>Sustainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open space</td>
<td>Building lines</td>
<td>Character</td>
<td>Bulk</td>
<td>Defensibility</td>
<td>Access</td>
<td>Infrastructure</td>
<td>Energy efficiency</td>
</tr>
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<td>Road hierarchy</td>
<td>Density</td>
<td>Conservation</td>
<td>Appearance</td>
<td>Distinctiveness</td>
<td>Crime</td>
<td>Footpaths</td>
<td>Landscaping</td>
</tr>
<tr>
<td>Settlement pattern</td>
<td>Layout</td>
<td>Context</td>
<td>Development size</td>
<td>Enclosure</td>
<td>Mixed use</td>
<td>House size</td>
<td>Orientation</td>
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<tr>
<td>Town cramming</td>
<td>Street pattern</td>
<td>Environmental quality</td>
<td>Local style</td>
<td>Place</td>
<td>Quality of life</td>
<td>House type</td>
<td>Sunlight</td>
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<td></td>
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<td>Height</td>
<td>Massing</td>
<td>Variety</td>
<td>Play space</td>
<td>Layout</td>
<td>Trees</td>
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<td></td>
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<td>Neighbourhood impact</td>
<td>Amenity</td>
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<td>Public health</td>
<td>Overlooking</td>
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<td>Landscape</td>
<td>Scale</td>
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<td>Public space</td>
<td>Overshadowing</td>
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<td></td>
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<td>Relation to other buildings</td>
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<td>Supervision</td>
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<td>Siting</td>
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<td>Vitality</td>
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<td>Road design</td>
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<td>Vistas</td>
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<td>Road safety</td>
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<td>Capital web</td>
<td>Block size</td>
<td>Boundaries</td>
<td>Balance</td>
<td>Appropriateness</td>
<td>Community</td>
<td>Lighting</td>
<td>Ecology</td>
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<tr>
<td>Compact form</td>
<td>Connectivity</td>
<td>Building groups</td>
<td>Colour</td>
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<td>Social equity</td>
<td>Servicing</td>
<td>Environment capacity</td>
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<tr>
<td>Districts</td>
<td>Edges</td>
<td>Contrast</td>
<td>Corners</td>
<td>Goals</td>
<td>Facilities</td>
<td>SLOAP</td>
<td>Microclimate</td>
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<tr>
<td>Neighbourhoods</td>
<td>Grain</td>
<td>Plot size</td>
<td>Focal points</td>
<td></td>
<td>Social cohesion</td>
<td>Traffic calming</td>
<td>Road dominance</td>
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<tr>
<td>Public transport</td>
<td>Incremental design</td>
<td>Unity</td>
<td>Form</td>
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<td>Minority needs</td>
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<td>Robustness</td>
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<td>Topography</td>
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<td>Harmony</td>
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<td>Personalization</td>
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<td>Site capacity</td>
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<td>Nodes</td>
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<td>Landmarks</td>
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<td>Public realm</td>
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<td>Structure planting</td>
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<td>Permeability</td>
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<td>Proportion</td>
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<td>Public/private</td>
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<td>Economic viability</td>
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<td>Space network</td>
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<td>Rhythm</td>
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<td>Spatial proportions</td>
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<td>Vertical vs. horizontal</td>
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</tbody>
</table>

39
Figure 4: Examples of common features in ‘poor’ housing developments [10].

Figure 5: The difference in space between a 45m$^2$ and 50m$^2$ 1 bedroom apartment highlighting the subtle difference in liveability from increased space [16].
Figure 6: Demonstrating the different impacts building form can have on local context [89].
3.5 Challenges

One of the main challenges to implementing good design (or avoiding bad design) is that key evidence of wider value benefits have typically been based upon anecdotal evidence from selected case studies [90]. Despite the work conducted in the UK and other countries across the past decade, there is still an ongoing challenge in conceptualising, measuring and translating the anecdotal evidence of design elements into something more quantifiable [21, 90]. This has meant that elements which are more easily able to be quantified, such as reducing energy and water consumption, have been a main focus of the building industry and policy makers [29].

Furthermore, there is not yet one simple method for capturing the wider value from good design. Methods such as cost-benefit analysis can be used (see Section 4 for discussion on measurement of value) but are not really designed for such a sophisticated or nuanced analysis, so it will always only be measuring a surrogate, or part of the true picture. This suggests that every wider element of good design requires unique methodology and analysis resulting in a resource intensive approach to data collection. In addition to challenges with collecting value data on individual elements of good design, there is still really no research which brings together all the data into one synthesised output and says ‘the value of good design, following these set criteria, is $x’. There are an increasing number of examples where researchers and policy makers are putting a quantitative measurement on what have traditionally been qualitative outcomes of good design. For these studies to have real meaning, there needs to be a way to bring together the analysis and have a meta-data analysis which clearly puts the case forward for the added value of good design.

As part of the need to demonstrate value, Carmona [5] argues that there is not enough post-development evaluation of built environment projects and we need to take a step back and evaluate recent progress across the building sector. This will allow for collation of evidence which demonstrates both success and areas for improvement. Currently this is not happening internationally or in the Australian context. While the provision of case studies occurs for other building types (e.g. commercial buildings through the Green Star program), there is an urgent requirement for this type of evaluation, and information distribution, to occur in the residential sector. Of course this assumes a consistent and robust methodology is available to undertake such assessments. The residential sector is different to the commercial sector so replicating measurement approaches may not be appropriate and new methodologies required. For example, measuring productivity of offices does not readily
translate to the domestic dwelling.

The next challenge is to integrate emerging evidence into changes in practice. Lawson [33] argues that despite significant progress in regards to measuring the value of good design in the health care sector, and demonstrating benefits of good design on recovery times of patients and improved work outcome for staff, design outcomes in health care buildings are not being universally applied to new health care buildings. However Lawson has pointed out that there has been more uptake of good design elements in new school buildings. Why there is a difference between the two building types is unclear.

Another challenge, as discussed in Section 3.2, is that value means different things to different people, as does what constitutes good design, particularly those elements which are more individual such as sense of place or delight [31, 88, 91]. Clients who commit funds to improved building outcomes want to know they are getting good value for money, based upon their perception and understanding of value and good design, which may differ across stakeholders [17]. Bringing all stakeholders onto the same page with regards to value and design expectations is challenging, particularly when many value increases (or benefits) will not be received by the client, or the user of the building, but by the wider community. It is equally challenging to convince decision makers about design who are not those who the ones who live in or will be using the buildings – what is the benefit to them if the occupant is happier and healthier with a better sense of community?

Additionally, just as value and benefits differ between stakeholders, each building project is unique due to location, project team make-up, financing arrangements etc., so developing a measurement approach to consider all this complexity and uniqueness has proved problematic. It has also been recognised that there is unlikely to be a straightforward correlation between improved design and increased value across all stakeholders [9]. This has made it difficult, in the absence of robust evidence, for the policy discussion to evolve. In addition, value changes across time [92] as highlighted in Table 6. As another example of this, Christensen [8, 93] discusses how value changes across time through changes in governance or process, in this instance the planning process. Land which was once considered lower ‘value’ (e.g. agricultural land) can become significantly more valuable after rezoning of the land (e.g. to residential), approval of building permits and after the construction of the development (Figure 7). The stage developers or purchasers get involved can impact on the value they pay or receive for land. This leads developers and land owners to play a speculative game and compete to artificially alter land values for their economic
benefit.

Figure 7: The changing nature of property value throughout the planning process [8].

There is also the perception that good design costs more and that this additional cost is not outweighed by the benefits, particularly for the building industry which, in the short term at least, are ‘price-takers’ who must meet market expectations. This is driven by a mindset that good design is an add-on rather than a standard approach [94]. There is evidence, however, that good design does not cost more when considered across the life of a building [19]. This is an indication of the struggle that policy makers have had to face in trying to convey a complex message across the key stakeholders [21].

Carmona [9, 88] identifies 14 key challenges to better urban design (Table 8).

While there are challenges around improving design and value outcomes in the built environment, there are clear benefits for a range of stakeholders as identified earlier. With more evidence around the wider value and benefits provided, there is the possibility that some of these challenges will be reduced. The following Section discusses measurement of value in the built environment.
Table 8: Key challenges to better urban design.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low awareness</td>
<td>Variable awareness of urban design issues amongst investors and occupiers, relating to how important they see design quality to the success of their operations. Research suggests that different sub-markets have different levels of concern and sophistication as regards to design.</td>
</tr>
<tr>
<td>Poor information</td>
<td>Unreliable available information about the actual preferences of perspective occupiers and investors, especially in the case of speculative developments. This adds to the risk of diverging from standards of design quality that are perceived to be ‘safe’</td>
</tr>
<tr>
<td>Unpredictable markets</td>
<td>The cyclical behaviour of the property markets, because the timing of a development in relation to the ups and downs of the property and investment market will to some extent dictate attitudes towards investing in urban design quality as perceived risk changes.</td>
</tr>
<tr>
<td>Piecemeal developments</td>
<td>The small size and uncoordinated nature of most developments as larger sites are more likely to bring to the fore the issues of ‘place-making and make it easier for investors to capture more of the ‘externalities’ in the form of rents and capital values.</td>
</tr>
<tr>
<td>Land costs</td>
<td>High land costs that can reduce profit margins and leave little room for any extra investment in quality, especially since in the property markets prices adjust only slowly and imperfectly.</td>
</tr>
<tr>
<td>Land ownership</td>
<td>Fragmented patterns of land ownership which can increase the time and the uncertainty of the development process and lead to fragmented design solutions.</td>
</tr>
<tr>
<td>Combative relationships</td>
<td>Confrontational relationships between developers and the public sector which increase the time taken to develop and consequently increase uncertainty and risk.</td>
</tr>
<tr>
<td>Economic environment</td>
<td>The general economic environment, which if dominated by high inflation and high interest rates, will lead to shorter-term investment decisions and to less investment in design.</td>
</tr>
<tr>
<td>Lack of choice</td>
<td>Constraints in the supply of the right quality of property in the desired location reducing the role of better design in occupier decision-making – if the right location does not have good quality space on offer, occupiers will go for lower quality development, rather than another location.</td>
</tr>
<tr>
<td>Short-term planning</td>
<td>The structure of capital markets, with planning horizons of 3 to 5 years, which makes it difficult for many businesses to engage in the long-term planning necessary for the perceived investments required for better design.</td>
</tr>
<tr>
<td>Perceptions of cost</td>
<td>The perception amongst occupiers that although many of the benefits of good design accrue to the wider community, it is the occupiers who will pay for it in the form of higher rent, running costs and commercial rates.</td>
</tr>
<tr>
<td>Decision-making patterns</td>
<td>Many of the important urban design decisions are taken not by planners, developers or designers but by people who may not think themselves involved in urban design at all.</td>
</tr>
<tr>
<td>Negative planning</td>
<td>Largely reactionary as opposed to ‘positive’ approaches to urban design across many local authorities, and a general failure to link the two concerns for urban regeneration and better urban design.</td>
</tr>
<tr>
<td>Skills deficit</td>
<td>The low levels of urban design skills on both sides of the development process which represent both a significant and consistent impediment to the effective delivery of better design.</td>
</tr>
</tbody>
</table>
4 Quantifying value of good design

With an understanding from the previous Section of value, good/bad design, benefits of good design and challenges around measuring the value of good design, this Section of the report discusses different methods of measurement for non-market valuation to quantify the value of good design before presenting a summary of various attempts from the literature where such measurement approaches have been applied with regards to the built environment. A framework for further measurement is then discussed.

4.1 Methods of measurement

There are a range of methods for attempting to quantify elements which are difficult to measure. These methods include revealed preferences (e.g. travel-cost method, hedonic pricing method) and stated preferences (e.g. contingent valuation, life-cycle costing and cost-benefit analysis) methods [54, 79]. Furthermore they address both use and non-use values as well as direct and indirect values (Figure 8)

![Figure 8: Classification of environmental values [54]](image)

The recent Australian Government report *Environmental Policy Analysis: A Guide to Non-Market Valuation* [54] discusses in detail the strengths, weaknesses and applicability of the aforementioned methods across a range of scenarios. What is clear from the report is that there is no ‘one size fits all’ approach when it comes to measuring value elements. Other authors identify additional measurement approaches including the planning balance sheet analysis, multi-criterion analysis, the analytical hierarchy process, the Delphi technique, avoided cost, replacement cost and factor income and discuss their relevant strengths and weaknesses [9, 79, 86, 95].

Table 9 presents an overview of various non-market measurement methods. These sit under the two broad approaches of revealed and stated preferences, although there is a third
method, benefit transfer, which can also be applied [54]. Revealed preference methods utilise observations of purchasing behaviour in addition to other behaviour to estimate a non-market value. The use of revealed preference methods are widely accepted in calculating valid non-market value [54]. However, revealed preferences are not applicable to all situations because the method requires using a ‘behavioural trace’ and so cannot be used to estimate ‘non-use’ values. The method is also criticised because it draws upon what has happened and is more limited in valuing potential future changes.

Stated preferences estimates values by asking people to make a choice between different policy options, therefore extracting what values people put on different options. The use of stated preferences has been more contentious than that of revealed preferences because of challenges with both asking the right questions but also in analysing the data [54]. Baker and Ruting [54] suggest there is increasing support for the validity of stated preference data with recent evidence showing that outcomes are broadly in line with revealed preferences and other forms of reaction/support to policies. A key challenge remains asking questions that the participant may not understand or they provide a false answer. Asking the same question in different ways helps to reduce this concern.

Benefit transfer is a method whereby results or values from one site or context are transferred to another to establish an estimated value. However this approach is likely to lead to imprecise and misleading outcomes unless there is significant similarities between the study or policy contexts [54]. Where little data exists, or can be easily collected, the use of benefit transfer may still be applicable to develop some initial value results.

Table 9 presents a brief overview of the more common non-market valuation methods. Further details on these can be found in Baker and Ruting [54]. Figure 9 then presents a framework for deciding which of these methods would be most applicable depending on the circumstances.
Table 9: Summary of non-market valuation methods. Compiled from Baker and Ruting [54].

<table>
<thead>
<tr>
<th>Broad method</th>
<th>Method</th>
<th>What</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stated preference</td>
<td>Contingent valuation</td>
<td>Involves asking people to make choices about outcomes and payments that can be used to estimate how much they are willing to pay for the non-market outcome provided</td>
<td>- Asks people to state a financial cost they would be willing to pay and develops a statistical model based upon this</td>
<td>- Extrapolating from sample to wider population can be problematic</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>- Difficult to discern what people say they would theoretically spend to what they actually do or would spend</td>
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<td></td>
<td>- Stated value needs to be considered within wider socio-economical constraints of the participant</td>
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<td></td>
<td>- Assumes that participants have enough knowledge of implications of their choices</td>
</tr>
<tr>
<td></td>
<td>Choice modelling</td>
<td>Involves offering people choices between different options that are made up of sets of attributes or characteristics that describe a policy outcome</td>
<td>- Estimates value across a range of options using a statistical model</td>
<td>- Extrapolating from sample to wider population can be problematic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- More sophisticated than contingent valuation method</td>
<td>- Stated value needs to be considered within wider socio-economical constraints of the participant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Assumes that participants have enough knowledge of implications of their choices</td>
</tr>
<tr>
<td>Revealed preference</td>
<td>Travel-cost method</td>
<td>Inputs the value that people place on visiting a recreation site by examining how much they spend to visit and the cost of their time</td>
<td>- Uses the actual ‘price’ (or cost) people pay to travel to and enjoy a particular site to estimate the value of the visit</td>
<td>- Has to estimate a cost associated with travel time</td>
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<td></td>
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<td>- Difficult to extract other reasons for visit or undertaken along the journey</td>
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<td>- Based upon what has happened rather than possible future changes</td>
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<tr>
<td></td>
<td>Hedonic pricing</td>
<td>Deconstructs the price of market goods that are influenced by non-market outcomes.</td>
<td>- Ability to extract key characteristics from a known price. E.g. elements of a house price like number of bedrooms</td>
<td>- Larger application to willingness to pay for wider societal change is not really able to be undertaken due to statistical complications and the strength of assumptions required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Assumes all attributes within the price are full capitalised</td>
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</tbody>
</table>
Figure 9: Framework for selecting a non-market valuation method – initial questions [54].

Research continues to emerge which attempts to improve measurement outcomes. For example Tobarra-González [96] in a recent paper proposed an improved method for contingent valuation (willingness to pay) when participants put in protest answers. By better accounting for these protest votes, and recalculating their travel costs as their minimum willingness to pay, improved estimates of value can be calculated.

It has been acknowledged that there is a lack of a consistent methodology regarding the quantification of the value of good design [11, 18, 35]. A number of researchers have developed measurements and indicators to try and capture the value of good design [97, 98] and wider design criteria [89, 99], however these have not emerged to create a detailed quantitative value of good design outcome.
There is an increasing body of research which is attempting to quantify elements of good design across a range of building types including, schools, hospitals, hotels, offices, housing and landmark buildings [3, 10, 18, 19, 22, 26, 29, 33, 80, 100]. Within these reports there is a range of evidence collected through a variety of the aforementioned methods of measurement on how good design improves wider outcomes for all stakeholders [26]. A summary of key research in valuing good design in the built environment is presented below.

4.2 Measurement of value of good design

This section presents some of the key studies and findings into the value of good design in the built environment. Evidence emerging from the non-residential sector is presented before research with a housing focus. Following this a framework for further measurement is stated.

Value of good design in non-residential buildings

As stated earlier in this report, there has been increasing research into the value of good design in the built environment. Much of this research has been across three key building types: health care buildings, school buildings and commercial offices. Of these it has arguably been the health care sector which has driven research into the value of good design [14, 101-103]. This has been in response to improving patient health outcomes, in addition to improving working conditions for staff. A key point of coordination of this work is through the Pebble Project in the USA [13]. The project began in 2000 and evaluates innovation in building design including outcomes for patients and staff in healthcare facilities in order to build up an evidence base of design outcomes. Results are then shared across the healthcare sector to ensure wider uptake from learnings, although it has been recognised that the uptake has not been as high as hoped to date [33]. In a review of the work undertaken in the Pebble Project, Joseph and Kirk Hamilton [104] found that there are significant benefits to both patients and staff from improved design outcomes in addition to wider economic savings for the facilities. While having made significant progress towards putting metrics on many good design elements, Joseph and Kirk Hamilton [104] argue there is still a need to refine measurement techniques to ensure a standardised measurement approach and that instruments to measure these elements still need to be improved.

Ulrich and Zimring [13] found through a desktop study that there was more than 600 studies which had been published in this area in top journals, with more than 500 of these written in the six years prior to 2004. The summary of research from the more than 600 studies found
general consensus that good design can:

1. Reduce staff stress and fatigue and increase effectiveness in delivering care;
2. Improve patient safety;
3. Reduce stress and improve outcomes; and
4. Improve overall healthcare quality.

In other analysis Mroczek, Mikitarian [105] found that hospital workers appreciated improved design features such as natural light, air flow and attempts to make the hospital feel less ‘hospitaly’ e.g. by having live music in the atrium several days a week, and that these elements had a positive impact on their quality of work life. However, several elements such as the ‘hotel like atmosphere’ and selection of artworks were found to not have as significant an impact so this demonstrates that there are some elements which are more beneficial than others. Further work is required to determine this refined list of benefits.

Significant outcomes have been measured across the health care sector. A summary of good design research in healthcare buildings undertaken by CABE [26] found that the outcomes included:

- Reduced stays by 14%;
- Reduced stays by 0.8 -6.1 days;
- Reduced patient behavioural issues by 24-40%;
- Improved staff morale by 56%; and
- Reduced requirements for medication.

From a broader societal and governance perspective, if hospitals can assist patients to recover more quickly this means the hospital can treat more patients, a pressing requirement as the population continues to grow and hospital waiting times also grow. It also reduces wider impacts to the workforce from patients needing time off work. In a high-stress work environment, such as hospitals, the improvement to staff morale is also a key benefit.

Another area of significant research into the value of design has been in schools [26, 106, 107]. This has perhaps emerged out of the health care research, particularly through the demonstration that natural light provides better health and also improves things such as concentration which leads to improved learning. In a summary of research in this area, CABE [26] found:
• Reduced requirement for lunchtime supervision of students by staff (from 8 to 5) as students were happier and healthier;
• Improved student learning scores 5.5% - 26% from improved design elements such as natural daylight;
• Reduced numbers of students repeating (9.8% - 2.5%) due to improved student learning scores; and
• Reduced dropout rates of up to 75% due to happier students with higher student learning scores.

Similar to the wider benefits from improved health care buildings, if schools can improve student learning and reduce the number of students who fail or dropout, this can have wider societal benefits. If a student is able to complete primary and secondary schooling this provides them with more options for future learning and employment opportunities. Potentially this could reduce reliance on government welfare through programs targeting youth unemployment, etc. While research has emerged in relation to the benefits (or value) from good design in schools, in a review of the literature Higgins, Hall [107] finds that due to differences between different schools, it is difficult to concretely attribute specific values to design outcomes. However it was clear that good design improves staff and student outcomes. Therefore there is still work to be undertaken to further refine the value of good design from schools and to ensure that learnings are taken and incorporated into wider literature and practice.

The third area where significant research into the value of good design has emerged has been the commercial building sector [26, 30, 108]. This has been driven by a need to increase profitability of businesses by reducing operational costs (e.g. through reducing energy consumption) and improving staff productivity. The green building movement has arguably been most successful in commercial buildings with organisations such as the Green Building Council generating a cultural shift around environmental performance of commercial buildings [30].

Improvement to design, again through things such as access to natural daylight, has been demonstrated to improve value for businesses. CABE [26] in a summary of research of good design in commercial buildings found that staff morale and happiness (satisfaction) improves; staff productivity can improve by up to 20%; businesses can hire less floor space due to more efficient use of space and increases in productivity saving them money; and building owners can charge higher premiums. Nieuwenhuis, Knight [108] recently found an increase
in productivity of office workers of 15% from having green plants within the office environment. Office staff were also found to be happier and healthier. In a time where market uncertainties are putting increasing pressures on businesses to cut costs and find efficiencies, improved building design can offer tangible benefits.

**Housing - Value of a view**

Bourassa, Hoesli [109] analysed nearly 5,000 house sales from Auckland, New Zealand, to determine the value of a view. The authors found that there were several elements which impacted on the value of a view including the type and scope of view, distance to the view (e.g. coastline), quality of nearby buildings and landscape. With the right combination of elements, an additional resale value of 59% could be expected from a view. As the quality of the elements decreases (e.g. less of a view) and/or the distance from the view increases, the additional resale value decreased (e.g. at 2km the additional resale value is 14%).

Similar results have been found for views of nearby natural amenities such as parks adding up to 15% resale value [27, 110-112] in addition to elements which decrease value such as a view of another apartment (decreased resale value of up to 7%) [27]. For example Tyrväinen and Miettinen [112] found that in Salo, Finland, dwellings which had a view of the forest had an increased sale value of 4.9% and as the distance to a forest increased, sale value decreased (5.9% decrease at 1km).

Bodies of water have also been found to add significant value. Ocean views have been found to increase sale value by 8-60% [113]. Luttik [114] found in the Netherlands that a view which overlooks water or open space increased property sale value by 6-12%. More broadly, Rogers, Saginor, and Jithitikulchai [115] found that the level of water in a lake can have an impact on economic activity of retail shops, particularly those whose activities closely related to the water. While not looking at the impact to the residential sector, if similar outcomes were observed it could have implications for the value of residential properties in a changing climate in the future for towns or areas which were heavily dependent on bodies of water as a key feature for their prosperity.

The above research tends to look at one or two value elements only. In Hong Kong, an analysis of almost 1,500 high-rise transactions Jim and Chen [116] looked at a multitude of elements and found that neighbourhood parks resulted in a price premium of almost 17%, with 15% for availability and 2% for the view. Jim and Chen also found that a harbour view resulted in a price premium of 5%. Not all natural elements were viewed positively with views.
of mountains not desired (decrease value of 2%), along with views of streets (a main street decrease in value of 1.4%) and other buildings. In another study by the authors in Guangzhou, China, they found that views of green spaces or water bodies lifted prices by 7-13% [117], highlighting differences for value outcomes across cities in similar regions adding to the complexity of attempting to develop a singular metric to be applied across all areas.

**Housing - Value of open space**

The value of open space is interrelated in some respects to the value of a view research presented above as if a natural environment can be viewed from the dwelling and provides value through this, it can (in most instances) be used as well, providing additional value.

Koohsari, Kaczynski [118] address some of the wider value elements of good design in the built environment by exploring the issue of proximity to open space on walking in Melbourne. The authors conducted a survey of residents to gauge the effects of proximity to open space for their walking habits. While not putting a measurable value on the outcomes, the authors did find that proximity to a park was less important for residents who already walked for leisure. What they concluded was that it was the size and quality of the nearby open spaces and the perception of safety while walking which was more important, an outcome which has been found in similar research in other jurisdictions [119-121].

Crompton [122] in a summary of value of open space research found an uplift in value of 20% for properties which adjoined or fronted parks. In one example Crompton presents the research of Fox [123] who studied the increased value of neighbouring property to Central Park in New York and found that there was a property uplift benefit for local property taxes of $5.2 million annually with ongoing maintenance costs for the park at $0.8 million providing an overall benefits of $4.4 million for the open space. However Crompton advises caution with existing research arguing that measurement methods are still underdeveloped. For example all of the property value increase to the neighbouring properties of Central Park were attributed to the park itself without wider consideration of other drivers of improved value. This was a limitation at the time of the research and there is ongoing efforts to improve these measures. It does however provide a proxy for which wider discussion and research can build upon.

While not looking specifically at parks, Des Rosiers, Theriault [124] found an increase of up to 8% from a suitable coverage of trees nearby through landscaping. This indicates that there is importance for the interconnecting areas around and between dwellings, both in terms of
to each other and to parks. The development of ‘green corridors’ for wider wildlife benefits has also been recognised. Others have found similar property uplift results from landscaping [125].

There is also emerging work which is looking at the value and benefits of green roofs, arguing that they provide similar benefits to nearby parks and can play a role in improving occupant health and wellbeing [126]. Lee, Williams [126] provides a detailed review of research and literature in this area. Their own research found that people preferred certain types of green roofs over others. This is important if more valued green roofs can be identified across a wider data set and therefore planning and development could target green roofs which are more valued, thus achieving higher value for projects in the longer term.

**Housing - Value of energy efficiency**

Research has shown that improved housing energy performance adds to the resale value of a house. A report by DEWHA [127] titled *Energy efficiency rating and house price in the ACT*, found that for every one star improvement to a house in the Australian Capital Territory, Australia, an added economic resale value of almost $9,000 was achieved. Another significant resale value study is from the USA: Nevin and Watson [128] found that for every dollar saved in energy bills an added value of $20 resale value is added to the house. Also from the U.S., Bloom, Nobe [129] compared energy star certified homes and standard homes in Colorado and found that the certified houses attracted an additional sale premium of $8.66 per square foot.

The above resale value studies did not explore the resale value of renewable energy technologies. There is limited information in the literature regarding added resale value of renewable energy technologies. The most significant study in the field was undertaken in California, where 72,000 houses were analysed [130]. The report, commissioned by the U.S. Department of Energy, found that there was an added resale value of up to $17,000 for a 3.1kW PV system less than 1 year old. The authors acknowledge that this added value decreased across time (by up to one third after 5 years).

In Australia, initial outcomes from a research project being undertaken by PRD Nationwide which has looked at the added value of sustainability features such as solar panels and solar hot water for resale value [43]. It is being reported that selling a sustainable apartment in Melbourne could improve resale value by $43,000 (or 11%) and that additional value of $137,000 (30%) could be realised for detached housing. However the research outcomes
must be questioned at this stage as the data is based upon the asking price of 50 dwellings with similar numbers of bedrooms and bathrooms across 41 suburbs. This is a small sample size when considering other value research such as that undertaken by [109] in NZ which analysed over 5,000 house sales (not asking price). In addition the initial research being reported has attached an additional value of housing with solar of almost $130,000 above median house prices.

While the data was reported in a media release and no further details are yet available, the data is at odds with other research undertaken at RMIT by the authors of this report [131]. For example a large solar system might cost $15,000-20,000. Even if future energy cost savings are factored in, it would be difficult to imagine an additional value being purposely attached to the property by real estate agents, their clients and potential purchasers beyond the purchase price of the solar system. Further it is unclear if the analysis considered that it is the middle to higher income level of households who took advantage of sustainability rebates such as the solar rebate [132, 133]. This would likely mean that if they had more resources to begin with, they would likely be living in more expensive properties. Therefore it is not applicable to attach the $130,000 above median value solely to the sustainability product.

A new apartment development under construction in Richmond, Melbourne, known as GreenEdge, is aiming to achieve 9 star NatHERS rating across the development [134]. The ESD consultant on the project has said that for an apartment of 50m2 size this would equate to a saving of $88 a year on heating and cooling bills [135]. The project is also registered for a 4 Star Green Star – Multi Unit Residential rating. The apartments have been designed with the aim of minimising the requirements for air conditioning. There are also a number of other good design elements incorporated into the building such as double glazing, improved sound insulation, duel aspect, natural ventilation etc in addition to ‘smarter’ design of common areas e.g. lighting requirements. The website for the development promotes 9 key benefits of buying into the development [134]. Benefits include through-life affordability, reduced utility consumption, improved thermal performance, location to local shops (including restaurants), nearby public transport and distance (2km) from the CBD allowing for commuting via bicycle, a roof top garden and proximity to the major Melbourne sporting precinct.

From an Asia perspective, Hu, Geertman [92] conducted a study in China looking at residents willingness to pay for green apartments (Table 10). They used a conjoint (stated preference) model to estimate the willingness to pay for green dwellings versus accessibility,
employment, neighbourhood quality and green attributes for three different socio-economic groups in Nanjing. In summary they found that it was only the wealthier residents that valued, and were willing to pay for, improved design elements which would improve their living comfort. In particular they were willing to pay to ensure reduced exposure to polluted environments. The authors used a stated preference model as limited data existed in this space for them to draw upon to use other methods. Specifically the conjoint model allowed residents to select an alternative from a set of options which provides them with the greatest benefit or utility [92].

**Housing - Value of improved function**

There are a few examples of the wider building industry and policy makers in Australia embracing the concept and benefits of good design in the residential sector. One Melbourne architect presents a case study of the value of design of a house on their website, essentially as a marketing tool [136]. In the real case study the author provides a comparison of two similar houses which were built for a single client on two similar blocks of land nearby to each other. One of the houses was designed by a draftsperson, with the other designed by the architect. The architect argues that the use of good design improved the function and usability of the house, while reducing building costs. Just one of the improvements in the architecturally design house was a reduction of ‘wasted’ hallway space by 5%, translating to a reduced construction and labour cost of around $18,000. The architect also stated that their house proceeded through the approvals process much quicker than the other house and had improved natural ventilation and day lighting benefits.

Other research into functionality elements has found significant value benefits including: style of housing (up to an additional resale value of up to 21%) [137], type of housing (e.g. detached) [138], the position of a house on a cul-de-sac in comparison to a typical grid street layout (additional resale value of up to 29%) [139], and street designs more broadly (adding 5% to resale value) [28].
Table 10: Willingness to pay for housing attributes by three socio-economic groups (yuan/m²) [92].

<table>
<thead>
<tr>
<th>Central districts</th>
<th>Southern districts</th>
<th>Northern districts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attribute</strong></td>
<td>Whole</td>
<td>Lower</td>
</tr>
<tr>
<td><strong>School quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average—Good</td>
<td>2189*</td>
<td>4598</td>
</tr>
<tr>
<td>Good—Very good</td>
<td>1154*</td>
<td>361</td>
</tr>
<tr>
<td>Environmental pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A lot—Some</td>
<td>4118*</td>
<td>856</td>
</tr>
<tr>
<td>Some—No pollution</td>
<td>3754*</td>
<td>3052</td>
</tr>
<tr>
<td>Safety from crime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor—Average</td>
<td>3047*</td>
<td>105*</td>
</tr>
<tr>
<td>Average—Good</td>
<td>-134*</td>
<td>6072*</td>
</tr>
<tr>
<td>Social status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low—Middle</td>
<td>1051</td>
<td>2879</td>
</tr>
<tr>
<td>High—High Neighbours</td>
<td>-201</td>
<td>-1066</td>
</tr>
<tr>
<td>Do not know</td>
<td>477</td>
<td>4454</td>
</tr>
<tr>
<td>Know—Know</td>
<td>395</td>
<td>515</td>
</tr>
<tr>
<td>−1 hour friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility to metro stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-30 mins→</td>
<td>-403</td>
<td>-2268</td>
</tr>
<tr>
<td>10-20 mins→</td>
<td>-433</td>
<td>-2828</td>
</tr>
<tr>
<td>&lt;10 mins→</td>
<td>985</td>
<td>-3216</td>
</tr>
<tr>
<td>Accessibility to job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-40 mins→</td>
<td>-671</td>
<td>-3062</td>
</tr>
<tr>
<td>&gt;40 mins→</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility to metro stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-40 mins→</td>
<td>-671</td>
<td>-3062</td>
</tr>
<tr>
<td>Energy and water costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High—Average</td>
<td>73</td>
<td>-2402</td>
</tr>
<tr>
<td>Average—Low</td>
<td>461</td>
<td>938</td>
</tr>
<tr>
<td>Construction materials</td>
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<td></td>
</tr>
<tr>
<td>Harmful—Somewhat non-toxic</td>
<td>1042*</td>
<td>5196*</td>
</tr>
<tr>
<td>Somewhat non-toxic—Non-toxic</td>
<td>561*</td>
<td>-2835*</td>
</tr>
<tr>
<td>Thermal insulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor—Average</td>
<td>1047*</td>
<td>4557</td>
</tr>
<tr>
<td>Average—Good</td>
<td>-1120</td>
<td>-6443</td>
</tr>
<tr>
<td>Sound insulation</td>
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<td></td>
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<td>Poor—Average</td>
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</tr>
<tr>
<td>Average—Good</td>
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<td>-3361</td>
</tr>
<tr>
<td>None—Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average—Good</td>
<td>873</td>
<td>2887</td>
</tr>
<tr>
<td>Average—Good</td>
<td>-236</td>
<td>-1876</td>
</tr>
</tbody>
</table>
**Housing - Value of improved developments**

Murray, Bertram [3] recently conducted an evaluation of the Nation Building—Economic Stimulus Plan Social Housing Initiative program in Australia. The researchers found that there were a number of common learnings across the developments they analysed regarding car parking, common spaces, privacy, noise, tenant diversity and efficient planning with regards to improving design and value. While the report is significant in exploring and providing examples of good design at the development scale, it does not develop them further into more widely applicable models. This is also seen across many other reports, from Australia and internationally, where the anecdotal evidence of design is presented, without developing a system that would make it quantifiable and comparable.

CABE [26] summarised the available quantifiable benefits of good design with regards to housing. It was found across multiple studies that there could be a sales premium of 11-15% resulting from improvements to design. In addition it was found that houses with good design had reduced time on the market, which is a significant benefit for both developers and homeowners selling in the future. This becomes even more important when housing markets slow down as was seen in 2008.

**Housing - Value of improved safety and security**

Lynch and Rasmussen [140] analysed more than 2,800 house sales in Jacksonville in the USA and estimated the impact of crime on house prices. The authors found that the cost of crime has almost no impact on overall house prices but that houses are heavily discounted, up to 40% in some high crime suburbs. In their conclusions, Lynch and Rasmussen highlight the substantial loss from property taxes to the local jurisdiction due to the lower house price which have resulted from high crime rate and therefore the negative impacts to wider society and the vicious cycle policy makers find themselves in – they want to spend more to improve crime outcomes, but have reduced money to do so due to the crime.

The research by Tita, Petras [141] contradicts that of Lynch and Rasmussen [140] to a certain degree by finding that violent crime does impact on overall property values and that this impact is different for every neighbourhood. Tita, Petras [141] analysed more than 43,000 housing transactions between 1995 and 1998 in Columus, Ohio, USA. Controlling for housing and neighbourhood characteristics they found that for low-income neighbourhoods, an additional violent crime per thousand (residents) resulted in a lower house price of 1.1%
or approximately $970 for the area. When considering the average number of additional violent crimes in these low-income areas, this translated into a reduced resale value of up to $4,100. In high-income neighbourhoods the reduction in sale value per additional violent crime per thousand was found to be 0.1% which translated to a reduced resale value of between $100-290. This demonstrates differences of equity and design for the residential market.

There is also some limited research which looks at design elements and their impact on the value of safety and security. For example, Wilhelmsson [142] found that noise could reduce the value of a residential dwelling by 30%. Improving design outcomes to reduce external noise can be achieved through things such as double glazing. While the double glazing has a cost attached to it, when factored against a 30% lower dwelling sale value, there is the potential for significant economic benefits for low upfront costs.

CABE [26, 28] found for low upfront costs there are design improvements which can help both reduce actual crime and vandalism and improve the perception of safety and security for occupants in the dwellings. For example, making footpaths slightly wider and activating street fronts in some areas was found to reduce crime. In some studies design was considered to reduce crime by 42-90%. In one example, the costs of extra design measures was £40 per dwelling compared to average burglary losses of £1,670.

**Housing - Value of sense of place, placemaking**

There is little quantifiable evidence about the value of elements such as sense of place or placemaking. Much of the research in this area is more qualitative in nature. In one study, Stedman [143] attempted to understand the value of sense of place in relation to the value of a nearby lake by undertaking a survey of 1000 households in the USA. Stedman found that landscape scenery matters to sense of place, both for attachment but also satisfaction. Stedman also warns that manipulating landscapes to improve sense of place must be done with care so that meanings of the area and local people are considered. However this research did not put a quantitative measurement on these values.

The development of communities (placemaking) and improving peoples attachment to areas where they live has become an increasing focus for developers in Australia. This is both because developers have realised that for many new developments the level of amenity is slow to be delivered and that this impacts on the overall feel and liveability of developments. Therefore some developers are attempting to create the amenity upfront in a more
connected and systematic manner. Furthermore it gives developers an additional marketing advantage when selling houses in these developments if they can demonstrate the potential community and placemaking that is being aimed for and point to previous developments.

**Housing - Value of occupant health and wellbeing**

There is increasing research emerging which looks at the health and wellbeing implications for occupants in various forms and types of housing. For example, research out of the UK and EU has been looking at the reduced real and potential health implications from improving the thermal performance of dwellings [144, 145]. It is argued that improving the thermal performance of a dwelling results in better internal thermal temperatures. It has been demonstrated that exposure to extreme temperatures and weather conditions can exacerbate health issues and result in increased death rates [146, 147]. Other research on comfort and wellbeing is being undertaken in Australia [148-151].

Improvements to the thermal performance of a building can reduce the requirement for mechanical heating and cooling, which can reduce living costs for occupants. Fuel poverty, whereby occupants cannot afford to pay for sufficient energy to meet basic living requirements (such as maintaining thermal comfort within a health range) has been identified as a significant issue in places such as the UK and increasingly in Australia [152, 153]. Fuel poverty is not just about the economics of paying for energy consumption but also leads to increased health issues through an inability to maintain thermal comfort and additional financial stress felt by occupants to be able to pay for energy bills.

In addition to thermal comfort and associated health implications, good design of housing and more importantly the areas around the house, has been recognised that it can aid or impact on wider health outcomes. Figure 10 presents examples of these wider health/design implications.
<table>
<thead>
<tr>
<th>Example disease</th>
<th>Relevant disease risk determinant</th>
<th>Example risk factor</th>
<th>Relevant domain of the health-built environment relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type II diabetes</td>
<td>Physical activity</td>
<td>Decreased activity in daily life</td>
<td>The built environment can get people active</td>
</tr>
<tr>
<td>Depression</td>
<td>Social interaction</td>
<td>Increased personal isolation and fear</td>
<td>The built environment can connect and strengthen communities</td>
</tr>
<tr>
<td>Heart disease</td>
<td>Nutrition</td>
<td>Reduced access to fresh fruit/vegetables</td>
<td>The built environment can provide healthy food options</td>
</tr>
</tbody>
</table>

**Figure 10: Relationship between Disease Determinants, Risk Factors and Built Environment Domains [154].**

Significant health benefits are being realised from improved building and local area design. An evaluation of the benefits to health from improved design and sustainability (including improved indoor air quality) of 37 public housing tenants in Boston, USA found that in comparison to control houses, the households in the sustainable housing experienced a reduction in self-reported health issues of 47% [155]. After controlling for year and temperature the adjusted result was a 57% reduction.

**Housing - Value of improved mobility**

Transport or mobility costs are another area where there has been emerging research into the value from good design in the residential sector. In terms of broader design in the built environment implications Wang [156] examined commuter costs for different suburbs across each state capital city in Australia. The author used vehicle operating costs, parking costs, public transport costs and taxi costs to calculate annual financial costs to a household. Unsurprisingly distance from the CBD influenced these costs significantly. The average cost of commuting to work by car was $7,200 more for a suburb 25km from the CBD compared to one only 5km from the CBD. Leaving a car at home and taking public transport to work reduced average costs by 50%, highlighting the importance that public transport can have on overall value of a property and surrounding area through liveability and affordability. Similar results have been found internationally. In a study of 900 house sale prices in Austin, Texas,
Bina, Kockelman [157] found that shorter commute times attracted a premium of $4,700 per minute saved in travel time, for example. There have been several studies into commute times for work and the implications this has on economics, health and environmental outcomes [158].

In addition to the above studies, researchers including Dodson and Sipe [159] and Kellett, Morrissey [160] have looked at the implications for living costs (e.g. rent or mortgage payments) based upon location and access to transportation options. For example, Dodson and Sipe [159] developed the vulnerability assessment for mortgage, petrol and inflation risks and expenses (VAMPIRE) index which looked at implications for liveability when the price of fuel changed. Dwellings in suburbs with access to a wider range of transport options felt cost of living impacts markedly less than those in poorly serviced and low-income suburbs, with household costs indicating significant and lasting benefits for families who can utilise public transport and/or other non-private car options for mobility.

In relation to housing values, Burke, Stone [161] found that there is significant measurable financial outcomes for the value of rent paid correlating to the quality of public transport accessibility for cities across Australia. In summary, they found better public transport access resulted in higher rental values. The Melbourne context is presented in Table 11.

**Table 11: Rent differential by quality of public transport accessibility disadvantage, houses and flats for Melbourne, 2012 [161].**

<table>
<thead>
<tr>
<th></th>
<th>1 Bed</th>
<th>2 Bed</th>
<th>3 Bed</th>
<th>4 Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flats</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor (&lt;5)</td>
<td>200</td>
<td>270</td>
<td>320</td>
<td>370</td>
</tr>
<tr>
<td>Marginal (5–14.9)</td>
<td>260</td>
<td>330</td>
<td>400</td>
<td>520</td>
</tr>
<tr>
<td>Good (15–19.9)</td>
<td>289</td>
<td>395</td>
<td>525</td>
<td>667</td>
</tr>
<tr>
<td>Very Good (20+)</td>
<td>340</td>
<td>493</td>
<td>685</td>
<td>820</td>
</tr>
<tr>
<td><strong>Houses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor (&lt;5)</td>
<td>230</td>
<td>280</td>
<td>315</td>
<td>360</td>
</tr>
<tr>
<td>Marginal (5–14.9)</td>
<td>250</td>
<td>370</td>
<td>380</td>
<td>495</td>
</tr>
<tr>
<td>Good (15–19.9)</td>
<td>291</td>
<td>480</td>
<td>600</td>
<td>752</td>
</tr>
<tr>
<td>Very Good (20+)</td>
<td>350</td>
<td>500</td>
<td>650</td>
<td>820</td>
</tr>
</tbody>
</table>

In wider transport research, Litman [162] summarises a range of studies which looked at speed of traffic, accidents and other value which could be considered within the placemaking framework. A reduction in traffic speed of 5km/h could reduce pedestrian fatalities by a third. In addition, neighbourhoods with lower transport speeds are more difficult to move through (in vehicles) have been found to have reduced crime rates (25-50%) and higher property values (up to 18%). In another USA study, Cortright [163] correlated walk scores and house
prices for different cities and found that above average levels of walkability added a sale premium of $4,000-$34,000.

A recent study based upon the analysis of the land tax of 10,000 properties in Cardiff, Wales, found that additional bus stops within a walkable distance added value to the land value [164]. The authors found that within a distance of 1500m from the property, each additional bus stop added land value of 0.11-0.22%. This increased up to 0.3% for additional bus stops within a 500m radius. The authors also found that there was a greater uplift in value for property which was priced above a certain price point (£195,000).

In Portland, USA, considered planning, policies and regulations to facilitate a shift towards a more sustainable future has resulted in significant benefits for local communities. For example Cortright [165] presents the case of transportation. Residents in Portland were found to commute 4 miles less a day compared to the 33 most populated cities in the country. Extrapolated that equates to a saving of almost 3 billion miles a year with calculated savings of $2.6 billion. This amount was calculated via savings on fuel and via attaching a cost (of $15/hour which was calculated from a wider study on what value residents put on commuting time) to the travel time savings. Because residents are travelling less, and saving more money, Cortright [165] hypothesises that this allows households more money to spend on other things such as eating out, and this additional money typically stays within local communities. The author also recognises that less travel has been criticised as meaning residents in Portland are worse off. However the report states that more than 60% of residents in Portland are happy with transportation. Indeed residents in Portland are twice as likely to use transit for their work commutes and seven times more likely to ride to work compared to the USA average. Furthermore there were significant environmental benefits being realised.

Recent research suggests that the costs and benefits of location in terms of transportation options are not a significant consideration in decision making for property, falling behind location, quality, function and aesthetics [70]. While important analysis, there are limitations in that the research by Wang focused on the easily collectable measures and does not factor in things such as improved health benefits from walking to public transport options, reduced congestion more broadly on the road network or the ability for the traveller to do other activities such as reading or additional work while traveling on public transport.
Housing - Value for developers

There have also been some case studies of benefits to developers presented in the literature. One developer in the UK, who states they embrace good design as standard practice, has analysed their sales data and found they sell their dwellings 20% faster with a 5-10% sale premium [166]. This is despite additional capital costs per dwelling of £3,700 for bespoke design. For developers there are cost savings from reduced land holding times. This is even more important in slower property markets which make it more challenging for developers to sell their product. Another benefit for developers was identified in Section 3 in that developments are able to progress through the planning process more quickly, which reduces costs and risks to the developer.

4.3 A framework for measurement

The above presents a number of examples of the research undertaken in Australia and internationally in the area of valuing good design. The examples demonstrate the complexity and challenges of putting a measurement on the value of good design in the built environment. There is still a lack of a consistent methodology regarding the quantification of the value of good design [11, 18]. Specifically the inclusion of intangible benefits has presented significant challenges for researchers and policy makers. A number of researchers have developed measurements and indicators to try and capture the value of good design [97, 98] and wider design criteria [89, 99], however these have not emerged to create a detailed quantitative value of good design outcome.

Recent research which evaluates design quality in the residential sector in Australia, such as that by the City of Melbourne [10, 15], have applied scales (e.g. 1 – 5) to good design criteria to establish design outcomes. In the case of the City of Melbourne they drew upon the Building for Life criteria from the UK to evaluate higher density housing in Melbourne CBD against 14 broad good design criteria. While this gives a proxy value for designs, it does not really capture the detailed benefits/values from different good design elements. For example a development that receives a score of 25 out of 30 would seem to be better than a development which receives a score of 15 out of 30, but what exactly is that difference?
In another example, AMION Consulting and Taylor Young [79] have undertaken analysis of a number of case studies in the UK across a number of design and economic criteria. The analysis is presented in spider diagrams across a scale of 1-10, rather than providing a specific economic outcome (Figures 11 and 12). While this allows for comparing dwellings within a study, it is difficult to replicate this in a robust way in different jurisdictions.

![Figure 11: Example of urban design quality assessment from AMION Consulting and Taylor Young [79].](image_url)
Overall AMION Consulting and Taylor Young [79] found that there was an increase in rental and capital value of 15-20% from good design. In addition good design reduced whole of life costs through reduced maintenance etc. Beyond this they do not present any additional cost information. They also find that good urban design can result in a range of social impacts including: civic pride, place vitality, greater social inclusion and interaction, improved community safety/crime reduction, public health benefits and improved access to goods and services.

The most comprehensive analytical framework for measuring the value of good design remains the framework developed by CABE [9], which provides different indicators and quantitative/qualitative measurement approaches across the economic, social and environmental elements of good design (Table 12) and key measurement elements:

- The pure economic performance of investment in good design;
- The direct and indirect value associated with the operational performance of a development;
- Costs associated with the production of good design; and
- The wider impacts of good design.
Table 12: Analytical framework to assess and measure the value of good design in the built environment [9].

<table>
<thead>
<tr>
<th>Dimensions of Value</th>
<th>Possible Indicators</th>
<th>Quantitative Assessment</th>
<th>Qualitative Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic viability</strong></td>
<td>Economic performance of investment in good urban design</td>
<td>Rental values, Capital values, Vacancy rates, Take-up rates, Investment availability</td>
<td>Comparison of indicators for exemplar developments compared with average for similar types of property</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If available, data for individual developments on energy consumption, management costs, productivity, etc., which can be compared within cases or on a broader basis.</td>
</tr>
<tr>
<td></td>
<td>Operational performance of good urban design</td>
<td>Management costs, Security expenditure, Energy consumption, Accessibility, Productivity of occupants, Health and satisfaction of occupants, Corporate imaging</td>
<td></td>
</tr>
<tr>
<td><strong>Economic viability</strong></td>
<td>Production of good urban design</td>
<td>Production costs, Infrastructure costs, Duration of planning approval process, Prestige and reputation</td>
<td>Comparison of production and infrastructure costs and duration of planning negotiation for the selected developments in comparison to average developments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Area regeneration/ viability impact of good urban design</td>
<td>Local property values, Place-marketing, Area reputation</td>
<td>Evaluation of land and property values around the selected developments compared to the average in the locality</td>
</tr>
<tr>
<td><strong>Social benefit</strong></td>
<td>Identity/civic pride, Place vitality, Inclusiveness, Connectivity, Safety, Facilities and amenities</td>
<td>Data on footfall for mixed use cases with retail, compared to average for locality (vitality).</td>
<td>Interviews with local authority officials and sample of local community addressing issues of place-identity, vitality and inclusiveness.</td>
</tr>
<tr>
<td><strong>Environmental support</strong></td>
<td>Energy consumption, Accessibility, Traffic generation, Greenery/ecology</td>
<td>Data on individual developments on energy consumption, modes of transport, traffic generation, commuting times, etc., for comparison between cases or on a broader basis.</td>
<td>Interviews with occupants, local authority officials and sample of local community addressing the environmental impacts of the development</td>
</tr>
</tbody>
</table>

Supporting the mixed-methods framework proposed by CABE, Lin and Lockwood [167]
argue that applying a singular method for measurement of wider intangible elements of value, in their case assessing the sense of place in natural settings, there is a requirement for a mixed methods approach. The authors explore through a case study in Tasmania, Australia, and review of the literature the strengths and limitations of applying singular methods, and the improved outcomes with reduced limitations when a mixed methods approach was applied.

Part of the challenge with developing a robust evidence base on the value of good design, as identified in Section 4, is that there is still limited industry post-occupancy evaluation, which could follow up notions and actualities of value, and particularly value across time [168]. Furthermore it is not clear if all elements in the above table could be reduced to a common metric such as monetary outcomes or if a range of metrics would be required.
5 Mechanisms to improve design outcomes

While there are ongoing efforts to place a value or measurement on the value of good design to help provide evidence to support improved design outcomes in the built environment, there are also other mechanisms being implemented which aim to achieve the same result.

Over the past 10-20 years good design guidelines and design review panels have been introduced by governments as integral processes to improving design outcomes across the built environment. Carmona [7] presents a timeline of development of design control in the UK which emerged in the early 1900s through the drivers of health and improving amenity. Design guides are shown on this timeline to have made their presence in the early to mid-1970s. However their influence was diminished during the late 1970’s and early 1980s during a push for ‘design freedom’. The debate around design and control re-emerged during the late 1980s and early 1990’s.

Design guidelines come in a range of formal and informal formats. Many jurisdictions in developed countries have some form of design guidelines to control what is built [36, 50]. These guidelines range in scale and context from guidelines that can be used by individual dwellings, to guidelines which apply to certain development sites through to covering larger governance areas such as a local council area or a city [169-171].

The overall aim of design guidelines is to improve design quality by directing stakeholders to what constitutes good design, and importantly what design elements to avoid. Some design guidelines, like Building for Life in the UK, are based more upon asking a series of design related questions to the designer [99]. Other guidelines are more prescriptive such as those applied in SEPP 65 in NSW, Australia, for example, these guidelines provide requirements for certain building sizes which must be adhered to unless it can be demonstrated why they should not apply for an individual context.

In Australia design guidelines for higher density housing include those in SEPP 65 and the Residential Flat Design Code (RFDC) which have been in place in NSW since 2002. Key within SEPP 65 is the requirement for an architect to undertake the design of developments over a certain size. A review of SEPP 65 in underway with a proposal for amendments to SEPP 65 and the RFDC released for comment in September 2014 [172]. There are a number of amendments proposed which include:

- Subtle changes to aims, definitions and objectives;
• Changing the name of the RFDC to the Apartment Design Guide;
• Applies to mixed-use developments which contain residential, including shop-top housing;
• The scale and built form design principles will be integrated to form a new principle ‘built form and scale’ which will reduce the number of design principles from 10 to 9;
• Specific criteria and solutions for good design outcomes;
• Greater flexibility for applicants to propose alternative design solutions in areas such as deep soil and open space, balconies, and apartment layout, to suit the needs of a particular development;
• A minimum size of 35 square metres for studio apartments (other minimum apartment sizes are already specified);
• Greater flexibility for applicants to reduce or remove car parking spaces, where there is good access to public transport and there is market demand to do so;
• Criteria and solutions for managing external noise and for limiting noise transfer between apartments, buildings and their private open spaces; and
• Confirming that apartment buildings being assessed under SEPP 65 also need to comply with BASIX.

In addition to design guidelines, design review panels have been an important driver of improving design outcomes in recent years [29, 173, 174]. Design review panels are panels of expert independent and impartial built environment experts who review proposed developments on behalf of local planning authorities. Typically a panel will be made up of various stakeholders with a range of skills such as architecture, planning, landscape architecture etc. This allows for a variety of views and discussion to occur. Design review panels provide proposed developments wider critique and help them improve design outcomes. They also identify where proposed developments fail to meet local design requirements. Design review panels provide a report of their findings to the local planning authority who then has the option to adhere to the advice provided or to make other decisions.

The Office for Design and Architecture in South Australia describes design review as a

...tried and tested method of promoting good design, and is a cost effective and efficient way to improve quality. It offers independent, impartial advice on the design of new buildings, landscapes and public spaces. [173]

Design review panels work best when proposed developments are reviewed early enough
that meaningful changes can still be made to the proposal. Design review panels are conducted in NSW as part of SEPP 65, where the Minister for Planning deems them required. Other jurisdictions around Australia engage with design review panels on a more ad-hoc basis. Design review panels are also implemented in several overseas jurisdictions such as the UK [29, 174].

Outcomes from design guidelines such as SEPP 65 and design review panels were explored through the interviews conducted for this report and will be discussed in detail in Section 6.3.
6 Analysis and discussion

This section of the report presents analysis and discussion from the interviews conducted with 24 building industry stakeholders (Table 1). The analysis is presented across four key themes which emerged from the interviews and the literature review presented in Part 1 of this report; value and good design, challenges, interventions to improving design outcomes and costs and benefits. Within each theme a number of subthemes are explored. For each theme (and subtheme) the analysis will be presented in the following format: Firstly broader analysis across all interviews will be presented, before differences between States and between the different types of stakeholder groups will be teased out where there are differences. Links will be made back to the literature and discussion presented in part 1 of this report where relevant. Section 7 will then discuss the implications of the analysis.

6.1 Value and good design

6.1.1 Defining value of good design

As identified in the wider literature, providing a concise and consistent definition of the value of good design from the stakeholders was challenging and there is not a 'single lone answer' (S09, landscape architect). While there was a broad shared understanding of the value of good design, in that it is about making places better for people, there were subtle differences across the stakeholders.

Almost a third of the stakeholders prefaced their responses to defining value by stating that defining value of good design was dependent on who was asking the question and to whom the question was directed (S01, industry group; S05, government; S07, government; S09, landscape architect; S10, developer; S17, architect; S21, government). Different stakeholders were recognised including the government, developers, builders, the (wider) community, owners and occupants; and that value was different for each stakeholder:

Well it depends from whose perspective you’re looking at because is it value to the community? Is it value to the government? Is it value to the developer? They probably would each see value in a slightly different way. (S21, government)

There were a range of approaches to defining the value of good design. Some (e.g. S03,
developer) defined value in terms of a more measurable quantum such as maximising ROI while others (e.g. S16, architect) talked about value from a more qualitative/public good perspective when the outcome is creating ‘memorable spaces such that people want to return to them’. Most definitions were framed directly, or indirectly, around the triple bottom line and the need to achieve a ‘balance’ across these. In this regard the definitions really only aligned with three of the six categories of value identified by Macmillan [19]; exchange, social and environmental value. The definitions did not fully engage with the use, image and cultural values also identified by Macmillan. For example S05 states:

So there's the economic value. There's the social value. There's an environmental value. And it's about trying to get a sort of equal balance and understanding of those values, the economic values such as improved capital value or improved rental returns, social value in terms of improved connectedness and social inclusion and obviously environmental value in terms of energy efficiency and responding to climate change. And it's about providing a sort of balanced approach to that. (S05, government)

Balance was a key theme that kept repeating in the definitions; the requirement to get the balance right across the triple bottom line. S24 argues that too often developments attempt to maximise one or two elements of perceived value to the detriment of other areas of value. As a result it is often the ‘bland buildings’ that do best across all areas of value (S24, researcher). Getting the balance right is proving to be an ongoing challenge, even in the UK which is arguably more advanced in recognising value of good design. However while stakeholders talked about balance across the triple bottom line, it was clear that it was only balanced after economic considerations were appeased:

I think where it might come from is trying to get the social and cultural drivers to balance with the inevitable economic and financial drivers, walking that line where the two are actually self-sustaining, or actually work together is where we target things. (S12, architect)

The most holistic definition of value of good design, as based upon the wider literature reviewed in Part 1 of the report, was from a State Government employee in SA. They stated:

I mean, value for the built environment is places that set a foundation that appreciate over time in interest and, therefore, value. If a place is only its best when the building or the area practically completes and then declines due to maintenance and activity, then that's not value creation. Value creation is something that, when it's finished, is actually the low point of value. What I mean there is it can go anything from the level of finish in terms of materiality and how the materiality is used to age well over time, including architectural fashion, and how that fashion is designed and built to age well in terms of style as well and then reverting to the fundamentals of good design in terms of layout, access to natural light, air, sun and...
microclimate as well, so microclimate and a volume of open space, style of open space, size of trees. So when you're looking for value or if you were to define value in the built environment, what you'd be looking for is something that has a lot of potential in the future to weather the storm of both maintenance, and style and functionality rather than following any particular fashion in terms of materials, or lack of durability or things that don't age particularly well. (S08, government)

Legacy was raised by several stakeholders. The importance of legacy as a value creation was in recognition that the built environment is a long-life infrastructure and that decisions made today will have impacts for generations to come. Other authors have discussed the importance of legacy in relation to value of good design [175]. While not (yet) the case in the Australian context, S24 suggested that the average lifespan of a dwelling in the UK was now estimated to be over 100 years which highlights the significance of getting value considerations right upfront, particularly at the macro scale across a development precinct.

There was little discussion on how value change across time. S05 spoke of the example of Fisherman's Bend in Melbourne as an area whose value changed rapidly when it was rezoned by the minister. The rezoning added significant economic value overnight, but did not impact on wider social or environmental value. Changes to value from actions such as rezoning or planning is discussed in the literature (e.g. [8]) (see Figure 7 in Section 3.5) and can foster speculative land purchasing.

Also addressing changing value across time, S02 provided a personal case study whereby they had selected a certain dwelling to live in near Melbourne CBD due to lifestyle factors (i.e. ability to eat out, nightlife). However, their circumstances have changed since they first purchased and they now have young children. They argue that value comes in the flexibility that they now don’t have to move and can keep some of the other elements they enjoyed:

So before we had kids, we had disposable income, I was going out all the time and X [his wife] going out all the time and money wasn’t an issue, ‘cause we really have any [financial stress], we bought early in Richmond...We had kids, your priority’s changed. So there’s a lot less social contact. You’re thinking more about them and how your family unit works for that. So your amenity attached to your home, you want something bigger that can, it can allow for the expansion. Or there’s opportunity in the property to expand, to absorb your values. (S02, developer)

Scale was an element where clear differences could be seen between stakeholder groups. For example the developers tended to be focused on value in terms of their own business, ensuring increasing financial returns. In a couple of instances the developers (S19,
developer; S10, developer) spoke of profit but also of wider value outcomes of health, community and placemaking:

*I think the obvious one is money. Everyone talks about money… when I say money I mean the value of the property that we create, the value of the income that it generates, the value therefore for shareholders and the value of our ability to have a living portfolio. But underneath that there are sort of inherent other things which are people, making the value to people that are in the built environment that we’re providing. That can be in different forms from productivity, health and wellbeing, prosperous companies. (S19, developer)*

*Value for me I guess per se is the profit that I’m able to take out of a project, but it probably, you also had many other levels there as well. Obviously if there isn’t profitability within a project then it doesn’t float, so that is key. You also would have what I would call “legacy value”, and that is, as a developer, once you’ve finished and you walk away, you look back at that project in two years, five years, 10 years’ time and what does it look like and how is it assimilated into the community that it sits. And then probably the other areas of value is the people that have purchased the property, do they enjoy the habitat that they’re living in? (S10, developer)*

The government stakeholders and industry group stakeholders had a different scale perspective where they defined value from the macro through to the micro. For instance, while they recognised that there needed to be certain values within a physical development, apartment developments needed to add value to the wider community and create links to wider amenity to ensure ‘legacy’ and that the benefits from good design were captured by the broadest audience possible:

*Our role in government is to consider value in the broadest possible sense. So we have to consider social, environmental and economic values. That includes the full gamut of values that the community has. And, when I say community, I mean community in the broader sense, so including landowners and the development industry but also including existing residential and business communities. (S20, government)*

*What we’re really taking about is a positive contribution to the world being as citizens and societies. So it’s about maybe a benefit that’s greater than the immediate purpose of a project. The collective benefit, the individual benefit. It’s, it has an economic dimension which is both direct in terms of a transactional value, but I think it also has an economic value in a more indirect, often longer term view as well in terms of how a neighbourhood works. (S07, government)*

Architects tended to be closer aligned to the government/industry body definitions than developers (Figure 13).
Based upon the stakeholders interviewed, stakeholders in SA and NSW provided slightly more nuanced definitions for value of good design. A better understanding of value of good design from stakeholders in NSW could be expected due to having SEPP-65 in place for 12 years. NSW and to a lesser degree SA engage with design guidelines and design review panels, whereas this has not typically been the case in Victoria, and this may impact on understandings around value and good design outcomes.

It was clear from the interviews that there is no clear and concise definition of value of good design. Even the two researchers from the UK who have been in this research space for a number of years found it hard to provide a concise definition of value. S24 said ‘There is no single definition of value, there’s just lots of different values’.

6.1.2 What are the benefits and to whom

A number of benefits of achieving good design outcomes were raised by the Australian stakeholders. Analysis of this data produces not only a clear pattern of benefits but also identifies who the different beneficiaries are of those benefits (Table 13). Many of these were raised in the literature introduced in Part 1 of this report.
Table 13: Identified benefits from the interviews for different built environment stakeholders.

<table>
<thead>
<tr>
<th>Developers</th>
<th>Owners/occupants</th>
<th>Government</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand development</td>
<td>Desired space</td>
<td>Legacy</td>
<td>Improved health and wellbeing</td>
</tr>
<tr>
<td>Higher ROI</td>
<td>Improved health and wellbeing</td>
<td>Future proofed</td>
<td>Legacy</td>
</tr>
<tr>
<td>Repeat customers</td>
<td>Lower maintenance costs and requirements</td>
<td>Improved environmental outcomes</td>
<td>Future proofed</td>
</tr>
<tr>
<td>Easier and quicker sales</td>
<td>Future proofed</td>
<td>Improved local support (reduced opposition to development)</td>
<td>Improved mobility, reduced car dependence</td>
</tr>
<tr>
<td>Quicker planning permission</td>
<td>Improved mobility, reduced car dependence</td>
<td></td>
<td>Improved productivity</td>
</tr>
<tr>
<td>Reduced holding costs/risk</td>
<td>Improved fitness</td>
<td>Improved productivity</td>
<td>Improved social interaction</td>
</tr>
<tr>
<td></td>
<td>Improved productivity</td>
<td>Improved amenity</td>
<td>Improved amenity</td>
</tr>
<tr>
<td></td>
<td>Lower operating costs</td>
<td>Improved activity</td>
<td>Improved amenity</td>
</tr>
<tr>
<td></td>
<td>Time savings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Efficient use of space</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enough storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower lifetime costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved amenity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved function</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For developers it was recognised, by both the developers themselves and the other stakeholders, that good design could lead to time savings which for a developer can equate to increased ROI and reduced risks. Good design was more likely to achieve quicker planning permission, quicker presales and total sales, particularly if the developer had a reputation for a good product. A quicker sale of product translates to more certainty over projects and provides banking institutions with more confidence. Interestingly, for an industry where it can be difficult to identify who the developer and/or architect was for different apartment developments from the street, brand development was recognised by several stakeholders as being a key benefit, especially for gaining repeat customers. The benefits for developers become even more pronounced when the housing market is flat or down. The following quotes demonstrate the above points:

*So rather than spending the money in slow sales and marketing, if you're trying to sell a dog that becomes really expensive in holding charges and risk and cost. They'd rather put the money into the quality of the product at the front end now so they secure quick sales.* (S18, architect)

*…there’s definitely research out there that says that improved design and value will improve capital returns and added value for the developer in terms of economic value. So I think, yeah, I think that can definitely help.* (S05, government)

Many of the benefits for occupants (and owners) had to do with reduced living costs,
improved social outcomes and improved health and wellbeing. Many of these were also identified as being relevant to the wider community as well, either directly (e.g. shared public open spaces) or indirectly (e.g. through reduced pressure on the medical system):

…and it means that you have lower energy costs. And when you move in you're going to be owner/occupier. So, yeah, and it's healthier. What's resonating with the mothers, and fathers and the health of their children is something that we can demonstrate, you know, "This is going to be a healthier place for you to live". (S03, developer)

So you've got far less car use, and far less energy and consumption. So the savings in terms of time, in terms of costs, in terms of energy, can just be quite extraordinary when added up, and I suppose the impact on one's life can be, yeah, much better. (S06, government)

However, some of the benefits were to do with the functionality of the physical apartment itself. The use of good design to improve layout, ensure sufficient storage, reduce maintenance requirements, achieve efficient use of space and importantly for apartments, to provide a sense of space were all raised as benefits. As one of the architects put it:

You give us an apartment design that you don't like, and we'll optimise that, get you more for it and as a bonus there's a logic to it. You don't see the dunny as soon as you walk in the door and the kitchen is in the right spot, and there's enough storage in the place and you can actually put your ironing board somewhere and all of those sort of pet peeves. (S04, architect)

While there were common benefits across the three States, there were subtle differences. Noting that we did not recruit a representative sample, it is a casual observation that in NSW the discussion was more around the benefits for the developers, whereas in SA the benefits were more about the wider community and the occupants within the dwellings. In Victoria it was more evenly spread between benefits for developers and occupants/community.

There were also some subtle differences between the different stakeholder groups. Again, while we did not control for such variables nor gain a representative sample, we observe that our developers tended to be more focused on short-term economic benefits and creating a market advantage, and engaging with wider occupant or social benefits through good design was driven by competitive market requirements rather than a sense of wider public good. The architects on the other hand were more about improving the function for occupants while being conscious of adding value to the wider built environment. Government stakeholders were focused on providing the maximum range of benefits to the largest number of people and so were interested in ensuring developments had benefits for the local community.
Common benefits identified by each stakeholder group were that good design leads to improved ROI, quicker sales, reduced risk for all stakeholders and improving social and health outcomes.

A number of the benefits identified through the interviews were also identified in the wider literature [21]. However, there were some key benefits raised in the literature which were not mentioned in the interviews. Benefits such as increasing chances for future projects, the flow on effect to encourage similar development standards in the local region, reduced societal costs (through reduced crime, improved health etc) and increased taxes for local government through higher property values. The most significant omission in terms of benefits was those which are considered ‘intangible’ such as quality of life, more inclusive space, more equitable environment, greater civic pride and sense of place just to name a few [21].

### 6.1.3 Good and bad design

As with defining value, respondents expressed diverse views on good design. While some stakeholders were confident they understood what good design was, and stated they were delivering good design in their own projects, others felt that good design was a poorly understood concept across the industry. For example, S16 stated ‘there’s this desire to create good design but no-one really knows what it is’.

The stakeholders all spoke of various elements which they engaged with in their roles to indicate what good design outcomes looked like. The following is a list of key phrases used by the stakeholders in their definitions of good design (in no particular order):

- Longevity, multi-generational
- High level of amenity
- Balance
- Low maintenance
- Uniqueness, individuality
- Memorable spaces that people want to return to
- Natural light
- Ensuring efficient design by doing what it needs to and nothing more
- Comfort
- Street space
- Sense of solace
- Sense of quietness
- Sense of place
- Healthy neighbourhoods
- Long-term well being
- Product which learns from what comes before it
- Scale
- Character
- Green, environmental sustainability
- Happy places
- Feeling of space (without requiring space)
- Common amenities
- Public open space – parks, squares, getting people into common spaces
- Active street frontage
- Community
- Public and private spaces
- Accessible
- Mobility, aging in place
- Productivity
- Health and wellbeing
- Satisfaction
- Quality
- Fresh air, breeze
- Sun
- Microclimate
- Acoustics
- Low living costs
- Investment protection
- Liveability
- Enjoyment
- Cultural
- Connectedness
- Social inclusion
- Energy efficiency
- Flexibility
- Lifestyle
- Security

As the above list demonstrates there are a multitude of elements which contribute to good design outcomes. Many of these were identified in the wider literature [9, 10, 18, 20, 80, 84]. Each stakeholder had their own focus of good design elements which was generally determined by the scale at which they described good design (macro/micro). While the value definition was more focused on the measurable elements of good design, the more ‘intangible’ outcomes of good design emerged when trying to define good design. Elements such as enjoyment, flexibility, connectedness, sense of place, character and memorable spaces. This highlights that wider value add elements of good design are known across the building industry, even if they are not yet factored into value discussions. However some stakeholders disagreed with this, arguing that good design was still thought of as how a development looked. For example S21 said:

Some people would define good design as pretty much you know
something that looks very stylish and of a certain, particular architectural kind of language and well built. (S21, government)

They followed this up by saying that good design was broader than this:

...getting sun in the winter and not sun in the summer, you know good environmental design, and having a place where you can eat outside and not just be forced to spend your entire family life inside, and things like that, as well as a sort of a place that if you can live in an apartment block, that provides sufficient acoustic privacy and that sort of thing. (S21, government)

Another stakeholder (S07, government) has a similar view; that good design is still too often thought of in terms of the more visible features for either the individual apartment or the development, but not beyond these boundaries:

So when it comes to an apartment building good design is often thought of in terms of nice open plan living, and nice finishes in your kitchen and so on. If you're lucky it comes down to a pleasant outlook, nice sun and the balcony or something. But even that is often not the case, I think design in apartments is often really honed down to the features again, and if it's not the features of the individual apartment it's the features of the inclusions in the apartment building. If they've got the swimming pool, they got the this or the that. And so it's, I think it would benefit everyone really, if I think those broader benefits were made more, more visible. (S07, government)

A NSW stakeholder (S18, architect) found similar outcomes in Melbourne and Brisbane markets where apartments were limited in their outcomes:

So I find when I look at Brisbane and Melbourne architecture now I think they're stylistically interesting and functionally and from a performance perspective incredibly naive. They are just big stack shapes of single aspect apartments and as the product itself compared to New South Wales thinking, I think they're primitive. (S18, architect)

S01 was one stakeholder who moved the discussion beyond physical elements of a building. For them it was about ensuring more than basic provision of shelter to enhancing liveability:

So, we were talking before about dumb buildings, as opposed to softly or elegantly designed buildings. A dumb building will provide shelter, so it meets a basic need, but does it do anything to actually enhance your experience of that shelter? If you're sleeping rough a bridge will do the job for you because it keeps you out of the rain and provides shelter, but if you're in a slightly better off position where you have choice and you can express your choice and express your individuality, then the opportunity to engage in the built environment and have that built environment influence the way you live your life, I think is a really powerful mechanism to deliver value to your lifestyle. Simple things like having a well-placed window so you can capture a view or capture a breeze, a relatively simple exercise,
but you know, dumb buildings may not do this stuff very well, and so you miss an opportunity, whereas a well-designed building—you capture that view, and so that’s bringing value into your life because it, you know, get up in the morning and say, ‘Oh that’s a lovely view, it’s raining, I’d better take an umbrella’. (S01, industry group)

Good design was recognised as being critical to ensure smaller apartments were useable. S14 argues that in their opinion, good design benefits had not yet been fully realised in helping improve the function of apartments, both in terms of maximising space efficiency and also in moving away from traditional ‘room’ requirements. They say:

I think that the way for rooms, bedrooms, living rooms and space have been configured in the past have not taken on board two criteria, one is that you don’t need rooms persé, you can have a more open plan approach to the flow of space and therefore get the benefit of a feeling of space more than actual; and secondly that there’ve been incredible advances in the way furniture and fittings and tables and desks and chairs and everything can flip up and go under and over and into various things which can rethink the way space occurs. (S14, industry group)

Similar thinking on historical requirements (e.g. an additional room) were now being thought to be traded off for better design outcomes in some instances:

In the old days if you [had a choice between] an extra room or good insulation you went for the extra room, but I think there’s a slight change now because apartments are seen as a place to live for the next generation rather than a rental or, and [short-term stay]. No, I think there is a value now being seen in all of the things I was talking about is what the value of an apartment is. (S22, architect)

A number of stakeholders made reference to good design occurring in international jurisdictions such as Vancouver (activating street frontages with retail, libraries, community services), New York (placemaking), Tokyo (density), Manhattan (active streets), Kipbrook, UK (have an internal design review process), Trumpington Meadows, UK (improved space standards, open space provision, community amenity), Accordia, UK (iconic housing, happy residents). In addition several local developments/areas were mentioned for their good design outcomes.

- Bowden (Adelaide)
- Loft on Seventh (Adelaide)
- Troppo Apartments (Adelaide)
- Ergo Apartments (Adelaide)
- Tonsley (Adelaide)
- Astor (Sydney)
- Paddington (Sydney)
While the focus during the interviews was on good design, the stakeholders often addressed what bad design was, or involved, in parallel to their discussion on good design. Sometimes these bad design elements were more technical elements, such as in the quote by S13:

_I don’t see too much being built here with double glass. And I don’t see people worrying about the size of the air conditioning, and I don’t see people putting in reusable bloody materials and all of that. Look, we’re not there yet._ (S13, developer)

Other times the bad design was about the layout of apartments, particularly with regards to what constituted suitable lighting arrangements for second bedrooms. S17 argued that SEPP 65 (discussed in more detail in section 6.3) had reduced the number of bad design outcomes in NSW. However, they were conscious that such practices were still occurring in Victoria:

_And also SEPP 65 in this state has written things out of the design process that happen in Victoria, which I would say [are] negative things, like we don’t do internalised bedrooms, for example. And it’s not even a question that we do them or don’t do them, they’re just not done. Whereas in Victoria it’s still a common practice to do them._ (S17, architect)

Some of the other bad design elements identified were at a larger development or community level. S04 gave an example of a foreign developer who had come into the Melbourne market with set ideas about what they wanted to build. Essentially they had decided that they would build significantly larger apartments (floor area) than what the market was offering. They failed to sell the apartments off the plan and the developer had to go to S04 for architectural advice to ensure they would be suitable for the market when re-launched.

Even when the stakeholders described examples of developments with good features, the stakeholders recognised there were still things which could be improved. For example S19 states:

_.. where it created a new community. And it's got a lot of the elements we just talked about, security, placemaking. It's got wetlands. It's got gardens. The design of the buildings is, [good] orientation. They've got solar panels. They've got low emission paints and everything else through them because it was part of the government push to be in the green games. So I think that's actually got a lot of the good elements to it. But I'm not sure it's_
It was interesting to hear the UK stakeholders discuss the progress of good design in the UK. In their opinion while there has been significant progress in London, where up to 70% of new developments would meet good design criteria, this engagement with good design declines the further out of London you travel and that there are still developments which have significant room for improvement:

*Well there’s still a lot of housing developments which almost don’t do anything right. There’s a lot of very poor quality development happening across the country, in almost every aspect you could think of.* (S23, researcher)

One of the developers (S19, developer) recognised that they needed to learn from bad design outcomes as much as they do from good design and said their company was in the process of reviewing previous developments. They were particularly interested in what had not worked:

*…at the moment in our business we’re trying to develop a failure report. So we’re trying to look at what failures we've had and try and create an environment of, "It's okay. It fails." And so at the moment I'm going through this whole process myself, asking the company what have we done well and what have we done badly. And I haven't got those answers yet.* (S19, developer)

As with the other analysis around value and benefits, there were some differences between the three States and between the stakeholder groups. In NSW many of the good design elements listed were considered business-as-usual. There was no doubt that this had been driven by SEPP 65 and the RFDC. What was apparent from the NSW stakeholders is that good design was now considered more broadly than an isolated building and considered wider social context. In SA there was a focus on emerging good design which seemingly was being developed with a balance between the physical building and wider community requirements. Victoria was discussed, by all stakeholders, as having significant issues with achieving good design outcomes. The focus in Victoria, it was felt, was on looking good rather than wider good design outcomes.

Developers were starting to embrace good design elements. However, it felt as though this was more to find a ‘hook’ to gain a selling advantage rather than a genuine holistic integration of good design for wider social or community reasons. These hooks were more likely to be about visual design elements, such as entrance ways or ensuring certain views. Architects on the other hand were more astute with wider ‘intangible’ outcomes and good
design elements. They used terms such as ‘sense of place’. In a clear distinction to the other stakeholders, the architects were the ones who mentioned the international examples of good design. The government stakeholders were focused on wider good design for the community, although they still recognised that there needed to be good design within a development to maximise benefits for residents.

6.2 Challenges

6.2.1 Market failure

There is some contestation within the stakeholders interviewed in regard to whether there are market failures in picking up wider value and benefits of good design in the Australian apartment market. Two stakeholders (S02, developer; S14, industry group) were very clear that the market was increasingly reflecting the appropriate level of value for good design and that consumers were aware about the elements which created good design outcomes. They argued that potential purchasers were savvy enough to ask enough questions and determine what price point they were willing to pay for a certain dwelling. As S14 says:

*I think the market is probably providing the appropriate level of value reflective to the market place...so my belief is the market place is determining those market value propositions that they can afford and that they want to pay for.* (S14, industry group)

However, the more general feedback during the interviews was that there was market failure. This arises in multiple ways. Firstly, consumers were not educated enough about good design and associated benefits to properly value them, or to even ask questions about them, and therefore there was no demand requiring improved design outcomes. Secondly, developers (not specifically those involved in this research but more broadly across the development industry) had significant power in numbers and were able to provide the product they wanted to. Some stakeholders argued this was based upon market research, but again it was within the constraints of an uneducated consumer – so there was a spiral of self-propelling ignorance to the market improving, hence there is a market failure:

*To be honest I actually think it’s pretty poor. I think there’s a pretty low understanding of the connection of things like, let’s say the prevalence of depression and social isolation in our community, and the economic impact that has it’s very low understanding of that and our built environment and our housing stock.* (S12, architect)

*So the market is sort of like it works both ways. Everyone’s like, "Why aren’t developers doing it?" Well, because people aren’t asking for it. And,*
if they're not asking for it, they're not prepared to pay for it. If they're not prepared to pay for it, why would anyone deliver it? So it kind of works both ways. The developer needs to stretch themselves and deliver new things but the purchasing public need to understand the benefits of this stuff so they get educated enough. And, I mean, it's been a massive change in the last 10 years. So they are asking which, to me, says they see the value. (S08, government)

It was argued by some that the market was still too focused on traditional design features; numbers of bedrooms, bathrooms, quality of finish and location. As S13 summaries:

...well the quality that they [general developers] do is low, and in terms of the numbers that they produce is high...when they sell, their sales pitch is about price, and amenity within the immediate locality. They talk about “Look, you're outside of a bus stop, you've got a school nearby, you've got pizza bars and coffee shops and supermarkets and playgrounds and everything around you. This is the place to live, come and get it”. Whereas the other way around, people start talking about long term running costs and sale, the resale value. See, one of the things that I always say to people, “Look, you buy one of our developments, you’re guaranteed the resale value because we ticked all of these boxes, and here they are, you do the comparisons, and this is the ongoing running cost”. (S13, developer)

This was also recognised in the UK context:

... people say that buyers are swayed by superficial things like the kitchens and the bathrooms rather than space standards. So I think the purchasing market is a bit skewed and I'm not sure if it's—I'm not sure how sensible it is to put total reliance on what it's saying to us. (S24, researcher)

The inclusion of wider good design considerations, such as environmental performance, is still problematic. As S03 states:

It's very difficult. It's something we're trying to do some work on at the moment. And that is thing's like the environmental performance of residential buildings in particular has been a very hard sell. You tend to find that people just want to know, "What does the apartment look like? Is it a stone bench top? What does the bathroom look like, kitchen/bathroom, how big's the bedroom? How big's the living space? How big's the apartment overall? And it very much depends on your target market. (S03, developer)

In another example of the difficulty of consumers valuing environmental performance within the market, S02 explains how their company found that consumers would not pay an additional $500 to improve the apartment performance from 5 to 7 stars. They say:

By changing one particular window in each of the units, we could've increased the star rating from five to seven for negligible cost. And I'm talking about sub $500. Maybe less. And that would've been potentially the
moral and ethical thing to do, and there was an opportunity to then leverage off that, hey you’re buying a seven star home, this was 4 years ago. But the question was asked, do the consumers value it? Yes. Are they prepared to pay more for it? No. So it wasn’t done. (S02, developer)

There were some examples where stakeholders contradicted themselves or took multiple positions on the ‘smartness’ of consumers and their role in driving good design. In some cases, they seemed to seek to blame consumers for not being aware of good design, and therefore letting developers get away with provide poor quality product. Elsewhere they noted the sophistication of the buyers:

I think the market is a lot smarter than a lot of people think. They know a lot about home unit design and they won’t pay for 2m² that they think are wasteful, they will renegotiate the price if they think the plan is inefficient. That’s pretty amazing I think that they can read a plan that well. Now that’s really just price driven through. (S18, architect)

Buying off the plan was raised a number of times as a key challenge for the market. The relatively immature apartment market in Australia, compared to some other jurisdictions, meant that there was a significant portion of purchasers who have not lived in apartments, making decisions based upon a plan they do not understand. There is a real sense that first time apartment purchasers fail to translate their understanding of value and design from detached housing to apartments. The need to educate consumers about understanding apartment design, and the role of architects or designers, was flagged as an ongoing challenge to overcoming the market valuation of the ‘invisible’ nature of design before it is constructed:

Apartments are still a relatively new form of housing type for most people to engage with and I think people don’t—particularly around ideas of buying off the plan and all these kinds of developer driven finance incentives, which are full of risk for the unwary, which most people are, the unwary purchaser. I think there is a real issue around people’s appreciation of what it is they’re buying, or indeed, even if they can walk into it, what it is they’re purchasing and how they will interact with this space, because apartments are—while people tend to think of them as, ‘It’s got a kitchen, it’s got a couple of bedrooms, it’s got two bathrooms and it’s got a nice big living area, all right, I’m set, that’s what I need,’ actually living in an apartment is nothing like living in a free-standing quarter acre block of land, which is the traditional Australian dream, particularly in Melbourne as we expand our suburbs…that’s why we want to get people to recognise that investing in an architect is an investment in design, in outcome, in quality and flexibility and all those sorts of things. That’s where it gets a bit difficult to value it because people really struggle with the idea that they’re buying something they cannot yet see, touch, feel, appreciate. (S14, industry group)
A number of stakeholders raised the issue that it was the developers who were strongly influencing how the market was operating, as the quotes below explore:

When they design apartments they make assumptions about what’s going to sell well. But those assumptions are not actually challenged that much. And I also think that because buying a house is one of the largest investments that people make in their lives, there’s a lot of very conservative thinking around it that really isn’t challenged. And by that I mean like even someone who might kind of actually prefer to have like a smaller place and not a car park in their apartment, thus reducing their overall mortgage often gets convinced that they should buy an apartment with a car park space because they’re told by people like Real-estate agents, “Oh that’s what the market wants, and it will improve your chances long term….” because the property’s not just seen as a place to live in. It’s seen as a kind of a way of building financial success in our culture. (S21, government)

The developers are making the decisions. And they’re making their decisions based on the market feedback. So the market will decide whether or not that apartment’s too small, or too big. (S02, developer)

More broadly, some of the stakeholders felt that there was a slow shift occurring in the market towards wider considerations for establishing market value. S03 provided an example of one of their new developments (a higher end development) where the view from the apartment was considered the number one consideration, followed by size and then price. However this needs to be considered within the context of it being a higher end development where finances are likely to be less of a constraint for purchasers. Another example of a subtle shift is from S08 who says:

People would easily pick granite, and upgraded taps and finishes over sustainability products. And I think what's happening is the cost to put them in is obviously going up and people are realising that they want to live a different way. And we're seeing less grand finishes and more attention to detail in terms of natural light, ventilation, north-facing, access, and recycled materials and also ongoing energy use. And I think that's working really well at the moment, despite having a few early hiccups, or quite a few early hiccups. (S08, government)

However, others felt that the market still faced a significant challenge around purchasers only having a fixed amount of money they could spend:

I think absolute price is a driver that can just overrule everything, because buying a house really does become a major undertaking where you are ultimately incredibly price driven. There are aspects which may increase your willingness to buy, but most people have a ceiling on how much money they can spend and they, hopefully, or perhaps sensibly, don't go over that ceiling, and no amount of additional features will make them go
over that ceiling because the value equation is not such that they feel they can afford...overall price I think is a very blunt driver that outweighs everything else, especially in the current market with burgeoning property prices. (S01, industry group)

Addressing market failure in Australia with regards to valuing good design in the apartment was recognised by one stakeholder as being a significant challenge. S19 states:

So in theory you'd say, "Well, then go and educate the masses and get them on board and that will create a market." An example of that would be Green Star....So if a tenant asks for it, of course we're going to build it or we're going to reposition an asset to be able to deliver it because that's what they want. And that helps the drive. They create a common language, like Green Star have done, means there's a language that even a tenant advocate can understand and, therefore, use it in defining a building, which to the public, that language doesn't exist. And so you'd have to create the language to educate them. And then once you've got that you've then got education. I say it's difficult because that's such a massive market [the residential market] to try and educate. It doesn't happen very quickly. (S19, developer)

In summary, there was mixed views on the prevalence of market failure regarding wider value of good design. On the whole the stakeholders believed that there was market failure due to information asymmetry and the control that developers have on the products that are built. Some identified a shift occurring whereby a larger percentage of consumers are asking more questions of developments and placing different values on design outcomes than has previously occurred. However, most still felt there is significant gaps between the values and benefits of good design and their representation in the market.

There were no clear differences in how the market was functioning between states or the key stakeholders, except perhaps that a certain level of good design was now expected in NSW new apartment developments, arising from SEPP 65.

6.2.2 Engaging consumers

A clear gap was identified in the need for measures to encourage consumers to engage with, and demand, good design outcomes. Only two stakeholders felt that the market was providing appropriate levels of value for good design based upon consumers desires, but there was a more mixed message when the stakeholders were asked about consumers engagement with value and good design. One developer in SA felt that as much as a third of consumers were now engaged with good design, although the majority contended that most consumers struggle to understand design differences between developments and still make
decisions based upon cost, location and room numbers:

So we've found that probably a good 30% of our purchasers recently have been very, very detailed in what they're asking. People will come in, they'll perhaps be enticed by the look, but then they'll start asking, “So is it a wool carpet in the bedrooms?” “When you say wood, are we talking hardwood? Where's the wood sourced from?” And you start getting a lot of very specific questions, you know, heights of ceilings, blinds, are they blackout blinds, are they not blackout blinds, sliding doors, “Do you have fly screens on the doors?” (S10, developer).

In NSW it was reported that consumers were led into a higher engagement and level of understanding about value and good design through SEPP 65 and the RFDC. However, this was more about providing an inherent level of confidence of the quality of the product rather than what could be described as active engagement in design detail:

Most of the general public can’t read plans, and when you're buying an apartment generally off the plan, which is where the SEPP is having its most impact, it just provides a level of certainty to the outcome of the project that people understand which way are apartment views and how much sunlight it’s going to get, and can you open the windows in the middle of summer and not turn the air conditioning on, those are the things that consumers find very difficult to understand or even ask, or even think to ask the question when they're purchasing. (S17, architect)

Furthermore, even with SEPP 65, reported engagement was still limited to the more visible features of good design such as ensuring daylight. Elements such as flexibility for ageing in place (‘only a tiny percentage of apartments are designed with those standards built in’ S20, government) which were less visible, and certainly more longer term good design features, are still often overlooked, but have a significant cost to retrofit later:

Something as simple as a grab rail for getting into a shower or a bath, you have to have reinforced stud work in the wall in order to attach the grab rail. Putting in an extra stud in construction costs almost zero. But ripping the whole wall apart, including all the waterproofing to do it as a retrofit, means a huge cost. Now, no-one's going to know that until they come to do that. They're certainly not going to recognise what the difference in build cost is versus retrofit because they would have no idea what the build cost is. And I think if only a tiny proportion of apartments are built with that, then actually the developers could almost charge people what the retrofit cost was because they have so few options. And so the market won't even give them that sense of difference in cost. (S20, government)

Generally the feeling from SA and Victoria was that there is a gradual increase of awareness and engagement by the general public to value and good design for apartment dwellings:

And I think it's improving. I think even in the two years I've been here I think
awareness has definitely improved...I think there's definitely a gradual awareness. Media coverage in the last few months in terms of unit size, in terms of developments without a window in the bedroom. People are starting to have that awareness now...And I think, as more people consider the benefits of living closer to work and closer to the city and within the city and the benefits that brings in terms of less commuting time, I think the awareness of that, of what they want from a, "Hey, we could stay here for five years or 10 years rather than just a year or two," that will then improve the awareness of what people are looking for. (S05, government)

S05 goes on say:

And it’s starting to happen now in Melbourne where you see developments like the Smith & Co on Smith Street in Collingwood which clearly advertises that it's a 7-star rating housing development versus the one in North Carlton which I think is called the Grand perhaps which advertises 7.5-star. I think probably if we’d have looked back two, three, definitely five years ago, I'm not sure stuff like that would have been advertised as part of the marketing material. I think people’s awareness is improving. (S05, government)

The overall feedback from the interviews was that consumers are increasingly engaging with the ideas of value and good design. Consumers in NSW were thought to be more engaged. SA and Victoria stakeholders felt that in these two states there was slow but increasing consumer engagement. This is resulting in more consumers asking questions of potential purchases about orientation, star ratings, natural light, storage space etc. However, this discussion is not engaging deeply with other important benefits of good design, with a plethora of wider benefits identified in the literature which were not mentioned.

Drawing upon Rogers [176] diffusion of innovation approach, it appears that consumers are (at best) in an ‘early adopter’ phase in their engagement with value and good design in the apartment market. There are a small percentage of consumers (less than a third of the purchasing population) who engage with the value and benefits of good design. This group is too small to be creating significant market changes as explored in the previous section. Moreover, they are not engaging with key aspects of design quality.

6.3 Mechanisms to encourage good design outcomes

We’ve got to remember we’re actually not building the buildings for the immediate consumer, we’re building the buildings for the 100 years of consumers that will come post us selling the apartment. So it’s about future proofing those dwellings. (S17, architect)
6.3.1 Design guidelines

Mechanisms to improve design outcomes were sought from respondents, including specifically their views of the use of design guidelines (e.g. SEPP 65 in NSW). These questions were placed at the end of the interviews and in the majority of cases, design guidelines were raised as important contributors to good design by the participant before the interviewer asked. The majority of the discussion around design guidelines was centred on SEPP 65 and the RFDC in NSW as this was recognised as being the most significant application of such an approach in the Australian context. As SA and Victoria currently do not have a similar guideline in place, the discussion presented below is primarily from the NSW stakeholders, however where relevant, stakeholder feedback from the other states is incorporated. As there was substantial discussion around design guidelines, this section has been broken into several sub-sections; general feedback, strengths, weaknesses, design innovation, difficulty in meeting design requirements, lessons learnt and summary comments.

6.3.1.1 General feedback

The general feedback was that design guidelines have an important role to play to facilitate good design outcomes. The feedback from NSW was that SEPP 65 and RFDC have helped to lift the bottom of the market and wider design and quality standards. Across all stakeholders there was significant support for SEPP 65 and what it had achieved:

I'd say that in New South Wales a higher quality design is enforced on consumers through the application of SEPP 65, and that is producing a much higher and better quality outcome, both in terms of the build form from a street perspective and from a general public point of view, but also from the consumer and their living standards and their life when they’re living in apartment buildings. I would say that is solely as a result of SEPP 65 being introduced…I would say that there is not one person within the industry in New South Wales which would say it was a bad thing. People would say that there are certain aspects of it which they would like to see better defined or amended or changed, but I have not spoken to somebody who physically works in this state, and is delivering projects in this state who has said it’s a bad thing. Even the Property Councils support it. (S17, architect)

I think there’s no doubt that the quality of design for apartment buildings has gone up in New South Wales since SEPP 65 came in and I think that’s through a number of reasons that there was a strong campaign at that time back to the industry about the need to lift the quality. I think there was the requirement obviously for only architects to do that building type which then put a clear message back to the development industry and that is the design quality was going to be important and I think there was a number of
design review panels set up which I'm a bit dubious about but in some cases I think that has also lifted the design quality. (S14, industry group)

The Residential Flat Design Code without doubt has been absolutely crucial. I mean, because basically, until the Residential Flat Design Code was brought in, individual councils were trying to come up with their own ways of regulating residential flat development. And there was no way that they could be exhaustive. And each one took a slightly different approach to doing it. So the Flat Design Code brought in a much more comprehensive range of criteria to think about and it also standardised the way in which you would think about it. (S20, government)

Stakeholders from SA and Victoria were very aware of SEPP 65. Some had worked with colleagues in NSW, had worked in NSW themselves at some stage in the past decade, or had followed its development through public and private discussions. In fact SA has adopted an informal version of SEPP 65 which is being applied for some developments. For example, ReNewSA has implemented a set of design guidelines based upon SEPP 65 for a number of their new developments, including Bowden:

It's the mid-market and entry-level market that's hard to do good design for 'cause you're so price-conscious in the build price or the design price. So SEPP 65 does that. It lifts the bar for all development. And we modelled a lot of the SEPP 65 for our guidelines and handbook for the developers here are modelled a lot on the SEPP 65 stuff. (S08, government)

It's probably the best example around the place I would have thought, or in Australia in any case. (S11, government)

Similar support was presented from Victorian stakeholders:

It's an extraordinary driver, it's simplistic and blunt ...you've got to have an architect on every project. (S01, industry group)

I think they're a very good thing if they're written well and used well. I think it's like any tool, if it's prepared well with good evidence and written well, it's a good tool but equally there can be blunt tools. I think from working with, from speaking to people in New South Wales and the City of Sydney and the like, SEPP 65 works well when it's used like that, when it's used flexibly and there's a good level of education and awareness by the, I guess, the government, the person in government, likely to be local government, that they have a decent awareness and education about why a particular scheme is doing what it's doing. But I think, from the outset that can be a very good thing because it means that developers and architects from the very beginning need to consider the design quality, outcomes and amenity. And, if they do it at the beginning rather than the end, it shouldn't cost anymore or much more. (S05, government)

However, while there was general support for design guidelines, there were also concerns raised that SEPP 65, and specifically the RFDC, has become prescriptive, limiting
innovation. For example S12 said:

Design guidelines can obviously improve the worst elements in our community, but they can also impact on innovation and creativity. I’m a supporter of design guidelines but there needs to be, within the structure and the way those guidelines are enforced and administered there needs to be a mechanism that allows for creativity and innovation. Because often the best design responses are those that take a particular set of criteria and come up with something that is, appears unexpected or unanticipated, whereas design guidelines are all about anticipating what’s going to happen. And controlling that. So design guidelines certainly help eliminate the worst end or lower end of any design response but they do take, they do impact on the other end as well negatively. (S12, architect)

6.3.1.2 Strengths

Several key strengths of design guidelines were raised. Firstly, the requirement in NSW that developments over a certain size were required to use an architect was flagged as being a significant driver of improving design outcomes. The use of an architect means:

The most crucial aspect from my end was that only architects could provide I think could design buildings above three stories or a certain number of apartments to ensure a level of design quality. (S14, industry group)

And so in those first few years where it came in initially it was seen as a really blunt tool that was there to stop the worst from happening. (S07, government)

Furthermore, by providing a guide to what as a minimum good design should be in a standardised way, it provides a common starting place for discussion and design to develop from:

It's important in actually lifting the capacity of the profession simply by not just being a document which put in place just hard standards, and the high standards not really even that hard because a lot of them are expressed as rules of thumb, but also just giving kind of generally guidance as to what good practice looks like. I think a lot of architects have just never been exposed to a lot of those things. And so just having a simple guide that they all had to have because, if they wanted to do that sort of work, they had to respond to and at the same time it was a training manual. I think those things combined have been very, very important. (S20, government)

...probably because it educates people, that it doesn’t try and convert them totally to a cause. I think it gives them a chance to think about issues one by one. (S11, government)

Design guidelines also allow for a common language to be identified and used across all stakeholders, making the discussion around good design a much easier proposition:
What he likes about it was that it gave him a language to talk to us about design and I think that's a powerful thing because it incrementalises criteria for good design and gives you a common working vocabulary for why you might be doing things and prior to that it was really a conversation about architects opinions or hearsay or somebody thinks this or somebody’s taste predominates. (S17, architect)

This was recognised by a SA stakeholder who said:

And in Adelaide, where we don’t have, we haven’t historically had design guidelines in that way, the conversation is more difficult. In fact one of the most important, or one of the most beneficial aspects of introducing SEPP 65 at the time in Sydney was it gave you as an architect, it gave you a legitimate opportunity to talk about things that many developers considered to just be fluff. (S07, government)

SEPP 65 and the RFDC provides a balance between strict performance requirements but also allowing some flexibility with rules of thumb approaches:

I think that it strikes a good balance between having some strict performance indicators, for example minimum distances between buildings, or the number of dwellings within a building which are required to have cross-ventilation and some access to sunlight, at the same time providing some rules of thumb which allow you to innovate within a fairly defined, within defined boundaries, but they allow you to innovate to try to deliver that quality output which might not have been imagined by the SEPP 65 when it was written. (S17, architect)

Can you legislate for good design outcomes? Of course the answer is no, but you can legislate to encourage intelligence and different skill sets and experience into the process, is where say that SEPP 65 goes, you know. (S01, industry group)

### 6.3.1.3 Weaknesses

While there was significant support for design guidelines, a number of stakeholders did caution that there were elements which could be improved upon. The main concern was that the guidelines in NSW had become too prescriptive and that this meant there were situations where the requirements could not be met, or where perverse outcomes were realised, as the following quotes demonstrate:

My only critique with those controls will be that they are actually published as guidelines but they’re administered as dogma and as law. So unfortunately they’re evaluating assessment bureaucracies can’t make qualitative decisions about value and design so they default to the metrics nominated in the guideline and that’s often really difficult. (S11, architect)

And I think that's why the SEPP 65 has worked well, but also that it has to have flexibility because you cannot write policies and guidance for every
context and every specific site. And there will be sites that can accord with maybe two-thirds of the guidelines or policy requirements but maybe not a third. And therefore they need to be applied flexibly and then not just a tick-box exercise. (S05, government)

One common example of where SEPP 65 and RFDC had realised perverse outcomes was with regards to views of Sydney Harbour. If the development was on the wrong side of the harbour, stakeholders argued it was difficult to meet the SEPP 65 requirements and still provide a view of the harbour:

*I think that quite often the access to sunshine is overplayed. I mean we’d have for instance a lot of apartments on the North side of Sydney Harbour where the occupants want to look at the Harbour rather than the sun which is on the other side of the building but they wouldn’t be able to comply with SEPP 65 which seems a perverse sort of situation. (S14, industry group)*

6.3.1.4 Design innovation

As raised in the general feedback, there were some stakeholders who felt design guidelines, while significantly lifting the bottom of the market, may constrain innovation at the top end:

*I think SEPP 65 is an excellent tool for 95% of the work that’s constructed… I’m not an advocate of being clubbed over the head every time you try and do something that moves away from it slightly such that it’s a betterment of what you’re doing not making it worse. And I think those sorts of things that are better easily understood by most people in the profession, or they should be. They shouldn’t be thwarted and stopped which I think is the case most times. (S16, architect)*

So, in a sense, it limits innovation because it’s now well understood enough to have fed directly back into the feasibility models that developers use. And they will generally not exceed the minimum standards put in by the RFDC. So in that sense I think you could say that it is limiting innovation now. (S20, government)

There were equally as many who thought it had fostered innovation:

You know they don’t stop developing because there’s qualitative rules and it’s led to a number of innovations and evolutions in the home units themselves. So cross ventilation for example. There’s different unit types now, different ways of achieving cross ventilation. Steve King at the New South Wales University has done a lot of work on how you don’t really need cross ventilation up to 10 stories I think because of the behaviour of air patterns around the buildings and a lot of these initial rules in SEPP 65 have been challenged in court by science and so New South Wales now has a lot of knowledge how the air actually behaves in and around apartments and I don’t think that knowledge would even have been accomplished were it not been for SEPP 65. (S18, architect)
I think it would actually prompt innovation. Because developers would have a clear understanding of what is expected, but because the structure of standards are, you have your object, if they were to be implemented, incorporated into the Victorian Planning Provisions, there's actually the objectives that need to be met, not the standard. So that the standards are just a way of achieving the objectives, but if you can prove that you can achieve those objectives in ways other than the standards then they have a degree of flexibility. So the standards are there for just basically a check, what do you call it, it's basically just a checklist. So it's a deem to satisfy approach, and so if, I suppose in design there's always going to be different variations and ways of achieving a certain outcome, so I think it actually prompts innovation, and that it wouldn't stifle innovation in those higher end apartments. (S06, government)

So overall there was some concern about innovation at the more expensive end of the apartment market. The stakeholders felt there was a requirement for more flexibility to be able to demonstrate that objectives had been met – this relates back to the design guidelines becoming too prescriptive. As will be discussed in the next section, design review panels complement design guidelines by allowing for that flexibility and therefore foster design innovation.

6.3.1.5 Meeting design requirements

Beyond occasional examples, for the most part meeting the requirements under SEPP 65 and RFDC was not considered difficult. The following are some key quotes on meeting SEPP 65 and RFDC requirements:

I mean, the wonderful thing about SEPP 65 is this is not rocket science. It's just good design. Like if you've gone through six years of architectural training, you know what good or bad design is. And all SEPP 65 is doing is giving you the ability to enforce better design outcomes (S17, architect)

My personal excuse is that it shouldn't, when the vast bulk of the situation should not be adding a cost. If the design is a, working smartly and if the developer is working smartly it should be a cost neutral situation, or the benefits, as in the sale price benefit should more than offset the upfront cost. (S12, architect)

Only a couple of stakeholders from NSW said that there was an additional price increase when SEPP 65 and RFDC were introduced as the industry adjusted. This quickly settled down and it is now business-as-usual:

I think that there are a couple of issues. One is that, the general answer is, no, it's not hard but it's costly. And so there was a teething issue where people who already owned land and had paid for it on the basis of a certain feasibility model now found themselves having to construct in a different
way which meant that they were not as profitable. And they had already made the land transactions. I think that once those developments had worked through the system, future land transactions happened on the basis of the new standards and so that problem kind of disappeared. (S20, government)

However S06 thought that design guidelines in Melbourne would likely lead to poor quality developments having to reduce their yield, which may impact on the development feasibility:

Well there would be, in many cases there would have to be a reduction in yield to lift the quality. And that change in yield it could be for the very, very poorest examples, which we see a lot of them. I mean no access to sunlight and very, very limited access to ventilation. The very, very most basic components of building are just omitted for sheer profit. So in the testing that we’ve done we’ve seen yields would drop between 0%, so they wouldn’t drop at all for the better examples, to about 15%. But also you might see the typical apartment mix that they’ve given might need to change as well to reduce the reduction in yield. So say you had a mixture of one, two, three bedroom apartments, if some of them wanted to achieve the same yield they might just have say a few studio apartments, more one beds, and less two beds, and no three beds, or something like that. So it may affect the diversity. (S06, government)

One NSW stakeholder felt that the requirements within SEPP 65 failed to match the advancement of design and living requirements in Australia and globally:

I mean just as an example of this but SEPP 65 does define minimum areas for bathrooms and bedrooms etc., but if you go to IKEA who have got their display centre in Sydney you can find a two bedroom apartment fully fitted out and furnished that is well underneath the area the SEPP 65 produce and is what is often a standard in Scandinavia so I believe that in that particular instance SEPP 65 is pushing standards sort of probably bigger than needed. (S14, industry group)

The stakeholders interviewed disputed any idea that the building industry would not, or could not, adapt to having design guidelines which they must adhere to:

I’ve read a bit of the media coming out of Victoria at the moment talking about minimum apartment sizes and how horrific that would be for Victoria, which is a complete load of rubbish, because the minimum apartment sizes in the SEPP, again, they’re a guideline. They’re a very good guideline. The majority of the apartments you do fit within those boundaries. There are always some that are smaller than that, and essentially that just is about analysing why and making conversation with Council… You know, unit and apartment sizes are not an issue, in terms of the application of the SEPP itself. And people are jumping up and down about saying “Oh my God, we’ve got to build 50 square metre apartments and we can’t build 35 square metre apartments”. Realistically that’s not, it hasn’t been an issue in New South Wales in terms of delivering quality stock at a reasonable price. (S17, architect)
There's no evidence at all that the industry didn't adapt in Sydney when it was introduced and New South Wales when it was introduced 10 years ago, when improved amenity and design standards were brought in in The London Plan and the London Housing Design Guideline came out, the industry adapted. I was at a workshop with some of the development industry. And there was a developer who said, contrary to lots of thoughts that you bring any standards and it will reduce affordability, he was of the opinion that it will improve affordability in improved costs by 25% because they would have a clear starting point and a clear what is required in terms of the design and amenity. So it means there’s less risk to the developer. It means it probably puts a more realistic price on the value of the land in terms of what you can get out of it, which will then reduce the impact of some of the sort of, it’s not a developer but the people who sort of act in between the landowner and the developer. They might buy it and then want to sell it on at a high cost. So it can help put a more realistic value on the land, which is obviously a huge issue in central London. (S05, government)

6.3.1.6 Lessons for the future

A number of lessons were raised by various stakeholders:

- Ensure it is more than ‘tick a box’.
- Guidelines need to be reviewed more frequently than has occurred in NSW. The feeling was that after a couple of years the building industry had settled and there may have been an opportunity to improve the guidelines sooner.
- Need to ensure not too prescriptive and allow for some site specific flexibility.
- Design quality in NSW would likely not have improved to the same extent they have without SEPP 65, RFDC and design review panels.
- Design guidelines need to be careful they do not duplicate existing requirements (e.g. in NSW developments still need to meet BASIX so perhaps environmental performance does not need to be included under SEPP 65).
- Key has been the requirement to use an architect.
- Need some sort of checks in place to ensure developers only pass on reasonable cost increases.
- Engage the building industry in the discussion and development of the guidelines as early as possible. It is easier to implement if you have buy-in.

6.3.1.7 Summary comment

Design guidelines are generally seen as a valuable mechanism for improving design outcomes and delivering multiple aspects of design value. It was clear that the stakeholders felt the design quality improvement in NSW apartments over the past decade was primarily
due to the design mechanisms put in place including SEPP 65 and the RFDC. While there were a few concerns raised about design guidelines, on the whole stakeholders were very positive about them. There was no indication that meeting good design outcomes significantly impacted on affordability concerns. Some stakeholders were so comfortable with SEPP 65 and RFDC requirements that they had been applying them to their developments in other states (e.g. S18).

### 6.3.2 Design review panels

As with design guidelines, there was substantial discussion around design review panels as a mechanism to improving design outcomes. This section has been broken down into several sub-sections; general feedback, strengths, weaknesses, lessons learnt and summary comments.

#### 6.3.2.1 General feedback

Respondents in NSW and SA felt that design review panels play an important role in improving design outcomes, particularly when applied in conjunction with design guidelines. Design review panels were deemed generally a beneficial process because developments were able to receive external expert advice. While there has been criticism in the literature that this expert feedback typically comes too late in the design process, stakeholders interviewed in this project found that they were generally able to present to design review panels early enough to influence design outcomes. Some stakeholders said that they were actively encouraged to present to a design review panel as early as possible (e.g. in SA). In particular design review panels were praised for their ability to allow subjective site specific context be applied to design guidelines to ensure better outcomes were achieved.

Architects liked design review panels because it gave their good design wider industry support, or helped them find better outcomes. Developers liked the design review panels because they acted as a double check over the design and provided them with more direction. Government stakeholders liked design review panels as they ensured a higher quality of design outcome and allowed flexibility to be retained for design innovation or allowances to be considered for challenging sites. There was no real difference in comments between stakeholders in NSW or SA. However there was little discussion beyond what they had learnt or heard from colleagues’ interstate from those stakeholders in Victoria. The following quotes demonstrate the general feedback on design review panels:
Well I think they’ve been wholly helpful because people that are architects are in a position to make a decision about something to do with the work that we’re producing. There is always the counter side, sometimes architects [on the design review panels] want to design the building for you but I’ve only heard that to be the case with other architects, that’s very seldom been the case with me. So in the whole part my only experienced with the review panels is that they are something that enables us to be able to look at SEPP 65 in its context. (S16, architect)

…it engages architects to work on a panel with councils, and they come and provide desired commentary to the proposals, and it is really good to have outside experts providing this commentary, a) because there is a couple of them, so it doesn’t become personalised; b) because they’re not there all the time at council. So in a way they’re kind of an independent source; And c) because they’re often really talented and dedicated people. For many of them [developers] it’s actually fantastic. They’re getting this free design advice. It’s a pretty good service. (S21, government)

While NSW has design review panels, there are also examples in SA where certain developments have been required to use such a process (e.g. Bowden). The feedback from SA stakeholders regarding design review panels was similar to that of NSW, that in the main they are great mechanisms to improve design outcomes:

So what we do is manage that through the encumbrance through a third-party design review panel that kind of contracts to us. So I guess they’re not entirely independent in that sense. They’re still administering the encumbrance but that gives it teeth as well because it says that, if we don't approve it, well, you can't even go to market and start selling it...Our design review process works less like a third-party statutory panel and more like a coaching process where everyone sits around the table and the design ends up being a better quality than it was to start with. So it actually adds value. And then what we offer is we organise, if you like, for the state government to be the planning authority instead of the council, which then depoliticises the planning process. We also offer CP or conditions in the purchase contract that you don’t actually need to buy the land until you get design review panel approval and the planning approval through the state government Development Assessment Commission. (S08, government)

I fully support design review I think it is the, it is the most important innovation that has happened in Australian industry in the last five to eight years...I personally prefer the design review process than guidelines because a design review is responding to the actual issues of an individual project rather than necessarily guidelines. So if I was to pick, I’ll be honest I find working to guidelines a restrictive process I think and I would hope that in my business and in my end of the business that a guideline is the lowest common denominator. Whereas a design review panel can help at least challenge, actually articulate some issues. (S12, architect)

I think it’s really important, it’s a really important element of that development process. I think in a similar way to how I said that introduction of SEPP 65 enabled legitimised conversations about design quality, I think
design review has happen, has enable that here to a degree as well. It makes it a little difficult when it's not complemented by clear performance criteria that you might see in something like SEPP 65. (S07, government)

Similar support from the two UK stakeholders was also presented on design review panels:

Well I think the whole idea of design reviews is a really, really good one because buildings, and particularly—not so much individual buildings, but urban spaces—will be there for such a long time that to get it right is so important, and I think to bring forward people with real expertise, stakeholders, and get them to give feedback to designers, I think it’s a very positive thing. (S24, researcher)

6.3.2.2 Strengths

There were several key strengths of design review panels raised by stakeholders in NSW and SA. The primary strength was the process allowed for good design outcomes which did not fit within the prescriptive design guidelines. By allowing an opportunity to present and discuss alternative design outcomes for some elements, all stakeholders felt that better, and generally fairer, outcomes were achieved:

It was critical I think in the SEPP in New South Wales that designers are involved in the value judgment and the kind of assessment of proposals so they can essentially understand where you’re innovating and why you’re innovating, and that that is a better quality outcome even if it doesn’t tick a box. So you may not necessarily comply to a numeric standard under the SEPP, but the design review panel understands the situation, understands the idiosyncrasies of it, and therefore is able to make a value judgment about the fact that not only are you achieving the control you are in some ways bettering the control that was imagined under the SEPP…So a knowledgeable design review panel and Council would say “Clearly we are not going to not have our living rooms of the apartment buildings facing the harbour when the opposite side of the building is a seven lane freeway”, if you know what I mean. (S10, architect)

In addition they give architects support for what they have been trying to achieve for clients who sometimes fail to understand the benefits from some of the design outcomes. Having the external experts review the development and provide comment is a way of reassuring the client that there is some logic behind design decisions. For example:

And really the value of the panel is that they provide you as the architect with the ability to steer a client to the right direction. Often you’ll be in a situation where you’re saying to a client “We need to do this, we need to do this, we need to do this”, and because of development, maybe performance indicators within a development equation they’re like “No, no, no, we’re not going to do that, we’re not going to do that”. And then when you present to the design review panel, they will often say, you know, so I
suppose in a way their knowledge enables them to assert a certain position which you might have tried to push, to get the client to agree to earlier. And then the client is much more likely to pursue, or to let you pursue that outcome, because they conceded there’s support and a kind of compliance level. (S17, architect)

So I suppose they would really help the industry adapt because there would be an independent panel that would assess many of the applications, but also provide support to local governments and State Government Departments, to assess them, and to upskill for their officers to make assessments according to standards. And then they would also I suppose act as a bit of a broker between the two parties, between developers and councils, to I suppose show that there are different ways of achieving a particular objective or outcome. And that it doesn’t always have to be black and white. I suppose, yeah, it would just really help address a whole lot of questions that are obviously going to come up with any change in, or restructuring of, legislation. (S06, government)

6.3.2.3 Weaknesses

While there was overall support for design review panels the stakeholders were quite vocal about a number of weaknesses. These weaknesses were common across both NSW and SA and were raised across the range of stakeholders. They are similar weaknesses which have been found in international contexts, for example in the UK. The weaknesses were not enough to have stakeholders waver in their support for design review panels, just that there was room for improvement in how they were conducted.

One of the key concerns, was that there have been several occasions where stakeholders felt that members of design review panels were pushing their own ‘wheelbarrow’ and not allowing for an effective review process. It was also raised that there were good and poor panels across the state (NSW) and you could find yourself presenting to a panel without the range of industry experts they were designed for. If this occurred, stakeholders were frustrated in trying to discuss design outcomes to professionals with very little design knowledge. Only one stakeholder (S18, architect) said this was a regular occurrence, but others all raised it as something they had come across personally or knew colleagues who had dealt with such a situation:

Some councils have design review panels made up of architects, other regional joint planning panels have maybe one architect and other people. So I think what’s good about that is that you have if you like experts looking at a case, but I also have encountered many times architects with their own strange ideas about the planet who put them on the table as a blockage. I don’t think architects are very good at assessing the universal work of other architects work. They have barrows that they push and I’ve often come out of review panels with clients who say to me, wow, I’ll never work with him.
because they bring to the table all sorts of unnecessary things and that blocks out the discussion about the matters that truly apply to that site...the panels also have a kind of reasonably arrogant format in that often you'd be asked in for 10 minutes because they're so busy or something to explain quite complex matters. So I don't know whether it's the way they're run but I guess it's better than councillors who have no education in design but then I think there's other prejudices at the table. (S18, architect)

Yeah, and they can have their views. It can be personalities or it can be their view on a certain type of design from a certain architect that they don't, I think it's just you can get that happening. I'm not saying it happens very often or all the time but I think that you can get a conflict of interest in the way people perceive design. And we have it internally. We'll go and test it with two design teams across and some people will think, somebody will think differently about the way we've designed a certain part of the project. And you can see that and you have to work through it. (S19, developer)

Similar feedback was reported in the UK:

I mean, the risk of CABE is that you end up with something which is called ‘cronyism’, and you won't see this in print, but what happened with CABE was that a whole lot of people who were kind of the usual suspects, the great and the good, CABE ended up using them, and so they became the sort of insider team, and I think that's very risky for CABE's reputation because instead of being seen to be independent and to run things so that anybody could have a say, you ended up with a sort of clique of the great and the good, who were then able to inform design review, steer design review, and you have to wonder whether it was fully independent. (S24, researcher)

Another minor issue was raised around timing. In some cases, for example Bowden in SA, developments were actively encouraged to go to an informal design review panel as early as possible to receive some feedback and guidance to ensure the design was heading in the right direction. The design would then undergo a formal review at a later stage. The other issue was that the feedback from the design review panel members could be disregarded by local planning authorities and so some stakeholders felt they needed more governance support to ensure that the panels were not a waste of time:

Well, that's completely up to you. We choose to engage in them quite early. Most Councils will allow you to elect to go to a design review panel quite early. It tends to be on projects where you know there are compliance issues going to be involved, where you need, where you then elect to go to speak to them quite early. Obviously if it's a straight up and down project where you're not really trying to test any boundaries, it's a fairly easy project to make work, obviously getting involved in a design review panel is far less required, there's not as requirement for that. But if you've got a project which is in a dense urban inner city environment where the SEPP wasn't really, when it was written it didn't really, I suppose, understand all of the complexities of some of those sites, remembering the SEPP's a
broad based document. In the end when we’re looking at the individual sites, we often have very specific and difficult things to resolve. We will always go to see the design review panel as early as we possibly can when we’ve got that situation. (S17, architect)

The value of the SEPP would be a lot more valued if the design review panels were a part of an enforceable outcome. At the moment the design review panels are advisory only, and therefore Council planning staff can either take on board or disregard the design review panel’s advice. (S17, architect)

I mean the reason the design review in South Australia I think was so successful in the early stages was because it was a voluntary system. So, some people would argue that you only ever got good projects coming through it because they knew they wouldn’t get hammered at the design review and there probably was a bit of that, but it also meant that there was no critique that you were overburdening the system. You were just looking to improve everything as it came through. But, I remain a strong supporter of it. (S11, government)

Another concern raised was the language used by design review panels and how they communicate outcomes. The need for common language around value and good design across building industry stakeholders has been identified elsewhere [177]:

…the other architect on the other side of the table being reviewed might go, "Mm, yeah, mm, yeah, I've got to look at that." And then the developer goes, "What the hell does that mean? What do you mean? Do you mean move that wall there? Do you mean move that window there?" So there’s a lack of specificity in that, which is sometimes helpful for an architect but sometimes difficult for a layperson, developer or builder to understand…There's a certain language in architecture as you probably know,…architects speak generally through their designs but, because the reviews are all verbal, developer leads are going, "What the hell did they just ask? I don't understand what changes they want." And then the panel say, "We're not telling you to do anything. We're just highlighting the issues that we could improve." And then the architect's going, "I've got it. Let me draw it up and I'll show you what they mean." So it actually doesn't add value to the process when people walk away confused. So that needs to be clarified. And we're working on that here. (S08, government)

6.3.2.4 Lessons for the future

A number of lessons were raised by various stakeholders in regards to the use of design review panels. These are:

- They work most effectively in conjunction with design guidelines;
- Ensure a range of experts on the panels who have good design knowledge and the capacity to see beyond the ‘tick a box’ requirements of guidelines;
• Have more experts involved who can be rotated through panels to ensure freshness of reviews and ideas – this could also help reduce panellists ‘pushing their own barrow’;
• Panels must be appropriately resourced;
• Panels reviews need to carry more weight for local planning approval, currently they can be dismissed too easily; and
• Developments need to go to review as early as possible, possibly even having an early informal review followed later by a formal review, depending on the complexity of the design.

6.3.2.5 Summary comment

Design review panels were generally well received amongst the stakeholders in NSW and SA. Panels were seen to improve design outcomes and complement design guidelines, particularly by allowing for flexibility for site specific challenges and design innovation.

6.3.3 Additional approaches

Design guidelines and design review panels are seen as key mechanisms for improving design outcomes and capturing broader design value for the built environment and its users. Additional approaches were also suggested which could be complementary to both. These included finding ways to improve communication about the benefits and value of good design, both amongst consumers but also the building industry. They also extended to a call for professional development, up skilling, and a development of common understandings of value and good design outcomes:

…the big thing is education – educating people to understand what's in it for them. The best way I think we can do that if you can is to build pilot studies and get some good examples that people can see the benefits in. You know, I've, like a picture is like a thousand words and all that you know. The building is worth a thousand pictures so if we can build examples to explain to people, and I don't know quite how you do this, but probably good displays and maybe government pilot projects. I'm not sure, but the more that is built the better kind of critical mass you get to convince people there's something in it for them you know. (S15, architect)

I think it's just, again, professionalism and being well educated ourselves, being aware of what happens both locally, nationally and internationally in terms of best practice and what the profession in the broader sense of the word is engaged in, and the way that they go about it. (S09, landscape architect)
Furthermore the mass-apartment market in Australia is reported as immature and so there is a need to understand the lived experience of apartment living, and therefore apartment choosing; what are the benefits, how is it different to a detached house or town house, what do you need to watch out for when purchasing an apartment, particularly if it is off the plan?:

I think there’s a general promotion issue about quality of buildings. I think we’ve got to be very careful though to not just have it as architects saying this is good and this is not so good. I think it’s got to be a broader community issue about building quality around the place. So I think there needs to be more promotional material about apartment living and the benefits and the sort of lifestyle things that go with it that is part of a broader design type issue is one part of it. (S14, industry group)

Well, you just start building it, for a start. You just start talking about it. You make magazine articles, social media are on it. So we have a social media page. We do a two to three magazines per year talking about the area, the community, the cool cafes, the stuff that's selling, profiles of people, interesting stories, community gardens, whatever. You can talk about anything in these things. They're just marketing documents but they serve a good purpose too because you always send them to a wider audience that can influence public opinion. (S08, government)

Design competitions were also suggested as a way of improving design outcomes. Competitions allow for the industry to showcase the great products they produce and add a sense of prestige to winning (and even finalist) projects. This then allows the industry and consumers to start to see who the better stakeholders are, and what award winning products look like.

The use of exemplar projects was also raised as a key to improving broader design outcomes.

Other suggestions made include:

- Continued development of tools to assist with capturing benefits of good design;
- Wider community consultation;
- Improved information through intermediaries such as real-estate agents; and
- Improving the evidence base around information and benefits of good design.

### 6.4 Costs and benefits

There was a recurring issue echoed in the interviews, which was raised in the wider literature; that there is limited robust evidence about the value and benefits of good design outcomes. It was one thing for an architect to know that natural light was beneficial, but it
was another thing providing evidence to clients and consumers. A lack of evidence has meant an ongoing query as to the additional upfront cost for good design outcomes. The stakeholders interviewed in this project stated that there was a requirement for improved information and evidence around the actual costs and benefits of good design. Without such information their attempts to educating clients and consumers were hamstrung:

I think that some of the environmental things you could probably measure. So obviously if you apply environmental standards that are meant to reduce energy consumption, then you can go and measure energy costs. You can measure what the capital cost was and then you can measure the energy costs down the track. That's fairly straightforward. The social ones, I think, are much harder. I think that there is some good work that's been done particularly in the UK measuring those kinds of costs. And they've definitely put in place specific standards for social housing because of the kind of behavioural issues that they see that come out when they don't. So I think that's definitely been done on a kind of cost benefit basis because they're very sensitive to increases in construction costs in the social housing sector. Some of the more ephemeral things like the quality of the public domain, I think it would be next to impossible to actually quantify the value of that. (S20, government)

I think also I'm a big believer in that you can't manage what you don't measure. So by measuring things a bit better and understanding them we can understand whether what we delivered is any good. We're looking at lots of different metrics to try and start to improve our understanding of what we are delivering, whether there's any science behind whether we've actually done a good job or not. And that obviously then rolls out to, "Okay, well, if we're doing that then you can explain to an investor why you've done it. You can explain to the board why you've done it." (S19, developer)

It's really critical. And it's a black hole at the moment, to be blunt. If you try to find and demonstrate the value of green star in residential, for example, or doing a seven star neighbours versus a five start or whatever building codes or whatever it is you decide to measure by, try to demonstrate over and above a normal house, an old house, a five star versus a seven star, NABERS versus green star. How do all these things measure up and what are the cost of living benefits that can pass on 'cause people buy with their wallet as well as their heart. So they want to fall in love with the place but they have to afford it. And people are thinking about energy consumption, particularly at the moment, because the price...So basically energy consumption's a massive issue and a massive cost of overhead to a house. So people ask on that basis. And there's not a lot of data on it. People start to use things like between five and 50% savings. You're like, that is a really big range. What does that actually mean to me? So I think, yeah, a lot more data can be done there. (S08, government)

In order to gain some broader cost and benefit data for good design in the apartment market in Australia, stakeholders were asked a set of questions (see Appendix 1) about their opinion of change in value to consumers (purchasers) for good design outcomes, and then what the
additional cost to achieve that good design outcome would be. The analysis was not meant to be a statistically valid approach to understanding costs and benefits, but as a way to start to understand what stakeholders across the industry felt the costs and benefits were. It also provides an opportunity to see difference in value and cost between different good design elements. The analysis provides a platform for future, more detailed and robust research to be conducted in this area.

The questions about value and cost were broken down into six broad good design elements. These elements were collated from the literature including design guidelines in Australia (SEPP 65/RFDC) and internationally (e.g. Building for Life, UK). The categories were:

- Safety and Security
- Flexibility, liveability
- Building efficiency, cost effectiveness
- Locational efficiency
- Urban aesthetic quality
- Urban design, place making

Stakeholders were asked to think about a development which had good design outcomes for the particular element and compare value and cost to a development which did not have the element. An overall total for a development with all elements was also asked. Answers were (generally) provided in terms of a percentage. The data is presented in Table 14. There were a total of 16 stakeholders who responded to the value and cost questions.

### 6.4.1 Perceived value and cost

Table 14 presents the stakeholder by stakeholder breakdown of estimates of design value and costs for six design elements. A range of values across all stakeholders, a mean, median and mode are presented for each of the design elements for both value and cost. The data should be used with caution in this form as the sample set is not statistically representative; as such it forms a guide and the following are general and formative observations in the context of this study.

Estimated value uplift emerges in every case and outweighs the additional cost to achieve the design element. Overall the average additional value change was 55%, compared to an additional upfront cost of 12% to achieve this. This is a 447% net ROI for the additional investment. Safety and security had an uplift of 523% followed by urban design and
placemaking (474%), urban aesthetic quality (398%), building efficiency and reduced operational costs (367%), flexibility and liveability (340%) and locational efficiency (256%).

Locational efficiency and urban design and placemaking were seen to provide the greatest value for consumers. However, they were the two elements with the highest upfront cost, with locational efficiency being significantly higher than the next closest (urban design and placemaking). The cost of locational efficiency was raised by many stakeholders as being something difficult for them to properly put a figure on because a significant element of the added cost of it is already captured in the land cost, and is therefore already internalised into development costs.

Victorian stakeholders reported noticeably different value add in individual categories compared to the overall results, although the total value add across all values was similar to the wider sample (55%). NSW respondents reported higher value adds (87%) than the average and also provided higher capital costs for achieving these good design outcomes (13%). The industry based respondents overall reported lower value add and lower capital costs; for developers government and architect cohorts there was a mix of design value and cost estimates with the only significant overall difference being that government stakeholders estimated higher values for benefits (89%). It is noteworthy that, while developers and architects responses differed their overall totals were remarkably similar.

Figures 14 – 16 present the data in a figure format, including breakdown by State and industry stakeholder group.
Table 14: Answers from all stakeholders to questions about value change for purchaser from good design element and cost to achieve good design element if incorporated upfront. Numbers are percentages (%). Where stakeholders did not provide an answer, or a clear answer, NA has been placed in the box.

<table>
<thead>
<tr>
<th>Added value of improved...</th>
<th>Victoria</th>
<th>NSW</th>
<th>Adelaide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Safety and security</td>
<td>5-10</td>
<td>0-5</td>
<td>0.5-5</td>
</tr>
<tr>
<td>Flexibility and liveability</td>
<td>0-5</td>
<td>NA</td>
<td>25</td>
</tr>
<tr>
<td>Building efficiency and reduce operational costs</td>
<td>10</td>
<td>NA</td>
<td>25</td>
</tr>
<tr>
<td>Locational efficiency</td>
<td>10-20</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Urban aesthetic quality</td>
<td>10</td>
<td>2</td>
<td>15-20</td>
</tr>
<tr>
<td>Urban design and placemaking</td>
<td>NA</td>
<td>0-1</td>
<td>25</td>
</tr>
<tr>
<td>Above element combined</td>
<td>10-20</td>
<td>NA</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost to improve...</th>
<th>Range</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety and security</td>
<td>0</td>
<td>0</td>
<td>0-0.5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Flexibility and liveability</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0-10</td>
<td>1</td>
</tr>
<tr>
<td>Building efficiency and reduce operational costs</td>
<td>1-2</td>
<td>0</td>
<td>5-10</td>
<td>20</td>
<td>?</td>
</tr>
<tr>
<td>Locational efficiency</td>
<td>10-20</td>
<td>0</td>
<td>NA</td>
<td>in land value</td>
<td>10</td>
</tr>
<tr>
<td>Urban aesthetic quality</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Urban design and placemaking</td>
<td>NA</td>
<td>0-1</td>
<td>5-10</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Above element combined</td>
<td>0-10</td>
<td>0-1</td>
<td>20</td>
<td>0-10</td>
<td>18</td>
</tr>
</tbody>
</table>
Figure 14: Perceived value and cost of good design by element.

Figure 15: Perceived value and cost of good design by stakeholder location.
Figure 16: Perceived value and cost of good design by stakeholder group.

In addition to the above tables and figures the following are some key quotes from stakeholders about the value and costs of good design. The general feeling was that if undertaken upfront in the design process, the capital costs should be significantly reduced, or even cost neutral, while there would be significant benefits for consumers.

*It shouldn’t be an added cost. Good design is a way of thinking.* (S18, architect)

*I mean there’s no doubt in my mind that quality of design generally adds a premium to the sales price but it’s not dramatic, it’s not dramatic and the more important issue I think would be size of apartment, outlook and location.* (S14, industry body)

*Because some of these things, in fact probably many of, most, if not all of these things doesn’t necessarily have any cost premium if they’re handled, it’s a fundamental question, if they’re dealt with at fundamental level often around the higher ordered question of the development before you’ve even honed in on a site. I mean what, so if you’re talking about a safety and security question, well it’s, if it’s at a level of site selection, then just making a sensible decision about where you’re developing, that’s a very different question to if there’s an assumption that you’re building an apartment building eyesight with 100 apartments in it, and the choice is whether you put better lighting and a security system in, or whatever it is as an add on, they’re quite different questions. And for me the value of design is actually*
to be tackling it at the fundamental level, the principal level not at the application level. So I don’t know whether I can answer these questions [laughs]. (S07, government)

While the above data begins to address the evidence gap about value, benefits and good design in the Australian context, the sample size is too small to draw significant conclusions and the data must be used with caution. There is a requirement to expand upon the above analysis to gather more responses and find additional approaches to calculating value, benefits and costs. However the anecdotal data does strongly suggest that the additional value significantly outweighs any additional capital costs. If the building industry, policy makers and consumers could understand this, it may lead to improved discussion and design outcomes and put to rest the myth that good design costs more for little or no payback (value add).

7 Conclusion

Good design in the urban environment is important for continued economic, environmental and social well-being. In a housing market where multiple market failures exist, too often it is traded off in the pursuit of short-term or sectoral considerations at the expense of long-term good design outcomes.

An extensive desktop review and analysis of 22 extensive interviews with stakeholders from Victoria, NSW and SA has identified that there is a significant gap in terms of understanding and defining design value in Australia. While there are examples of actions towards improved design outcomes in Australia, the research indicates a continuing market failure. A prevalence of short term, cost-driven decision-making is a particular concern as the built environment is a long-life infrastructure and decisions made now will impact on users for decades to come. This was identified by a number of stakeholders who referred to good design as a ‘legacy’ outcome which continued to grow in value from the day the development was completed.

The interviewees identified many of the benefits and good design elements which are highlighted in the literature presented in Part 1 of this report. In addition, each stakeholder had their own views on value and good design and there were subtle differences between their definitions and explanations. The key areas offered centred more on the ‘visible’ benefits of good design while the ‘invisible’ elements were not as commonly referred to.

Design guidelines and design review panels were identified as mechanisms to help improve
design outcomes and wider knowledge about the value of good design. The stakeholders from NSW observed that the quality of design in the apartment sector has improved dramatically since the introduction of SEPP 65 more than a decade ago. They also identified some weaknesses with design guidelines (e.g. become too prescriptive) and design review panels (e.g. ensuring impartial panel members), but overall felt they provide better outcomes. Such mechanisms can address some of the market failures associated with an increasingly investor-based housing stock, where renters have little say up front, but have to live with consequences in a crowded, location driven housing market. While such interventions hold the possibility of reducing the worst excesses of ‘bad’ design, further work is needed to develop metrics for good design and to develop innovative mechanisms to encourage good design across multiple stakeholders in the built environment, and to explore alternative mechanisms to achieving good design outcomes.

Several stakeholders raised the disconnect in language and communication between the guidelines/panels and developers. It was often left to architects to act as an intermediary. The need for a common language also extends to consumers. More broadly, the structure, conduct and performance of the industry, including how it understands and learns about good design, and how this is valued and these values are transacted, are all matters that require attention. In what is at present a disparate, relatively unconnected set of firms and jurisdictions, learning and innovation based on good design uptake is heuristic, contingent and opportunistic, rather than strategic, considered and evidence based. Stakeholders in SA have begun utilising various design guidelines and design review panels for various developments (e.g. Bowden) in an attempt to ensure good design outcomes, although this is not widespread across the building industry. In Victoria there are no formal requirements. The stakeholders felt that mechanisms such as design guidelines and design review panels should be applied across Australia to ensure both that the quality of apartments improves, but to also to provide a level playing field and a common set of working practices and processes. There is a preference for simple and clear guidelines that can be readily factored into feasibility studies. The development of SEPP 65 and the RFDC arguably provided a framework which allowed for simpler and clearer guidelines about what was expected in terms of improving design outcomes.

In this study, estimates of value change and capital cost were collated across a range of broad good design elements. This reveals clear value uplift from good design which outweighs additional upfront costs. This is in addition to other benefits of good design such as developers receiving planning approval more quickly and wider societal benefits such as
improved health outcomes and sense of community. Higher value uplift than capital costs was also a feature emerging from the wider literature as explored in Part 1 of the report (e.g. Barnes, 2013). However, measuring the value of good design is in its infancy and more work is required.

Multiple market failures in housing markets exist, and, in the short term at least, interventions likely to be most effective at countering these include a design review process in conjunction with guidelines. Design review panels can tackle less visible ‘good’ design such as ventilation, orientation, insulation and quality spaces around buildings.

7.1 Next steps

In research associated with CABE, Carmona [23] argued there is still a need for four types of evidence to make the case for good design:

- **econometric evidence** - described as the holy grail of evidence where direct links can be shown between improved design in the built environment and higher economic value,
- **structural evidence** – using secondary data source of value as a proxy for good design, for example how many additional jobs the development will support,
- **experiential evidence** - essentially capturing the user experience of value and good design outcomes, and
- **process-related evidence** – analysis of design in the built environment processes which may lead to improved value outcomes.

The evidence both from the literature review and interviews in this study concord with this view in the Australian context. Carmona also argues that the evidence utilised by transport planners is more scientific and technical, and is more accepted by policy makers and the wider community than that of designers [23]. To date there has been a lack of measurable evidence about a number of critical elements of good design, including specifically in the Australian context. The challenge is to broaden from readily measured elements of design such as cost per square metre or apartment size, to include the less readily measured ones such as sense of security or good ventilation, and to move design assessment beyond the direct boundary of the individual dwellings to include the implications for and on the local community. As Barnes [178] states ‘architecture is important but it is the gaps between the buildings where life happens’.
While this study has made some steps towards addressing the state of the ‘value of good design’ research and activity in the Australian context, further work that would start to develop the necessary evidence includes:

- Conducting further interviews with more different building industry stakeholders to gain wider perspectives (e.g. designers, banks, builders);
- Conduct a larger survey of building industry stakeholders around the value and costs of good design elements; and
- Identify a range of case study projects and analyse costs and benefits using appropriate qualitative and quantitative methods, as an extended post-occupancy evaluation methodology, to develop ex post evidence of the costs and benefits of apartment design in the Australian context.

This program would complement other existing or proposed research, for example the CRC for Low Carbon Living work conducting more holistic evaluations at the precinct scale [34]. A pragmatic approach is required that starts from where the industry and market is, and contributes to a transition in practice through; (a) improving techniques, methods and data for measurability; (b) accepting less measurable aspects of good design and putting in place binding policy and practice mechanisms (such as design review panels) to ensure the value they provide is captured; and (c) instituting programmes of professional development, communications and capacity development to influence industry and householders culture and practice.
Appendix 1

Value of design interview schedule

Introduction – Value
1. How do you define value for the built environment?
2. What do you think the market is not picking up with regards to value?
3. What do you think the main concerns are in valuing intangibles of good design in apartment buildings etc?
4. Do you think end-users (buyers) think about and value good design? Which elements (scale of 1 to 10)
5. How much of a dwellings market value reflects design value? What elements in particular?

General value and cost data – looking for quick generalized answers

Questions are about what is the value for homeowners, communities, building industry, and what would it cost the building industry to include these elements upfront.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td>6. What is the added value of improved safety and security? For the homeowner, community, building industry.</td>
<td></td>
</tr>
<tr>
<td>7. What would it cost to improve safety and security?</td>
<td></td>
</tr>
<tr>
<td>8. What is the added value of improved flexibility and liveability?</td>
<td></td>
</tr>
<tr>
<td>9. What would it cost to improve flexibility and liveability?</td>
<td></td>
</tr>
<tr>
<td>10. What is the added value of improved building efficiency and reduce operational costs?</td>
<td></td>
</tr>
<tr>
<td>11. What would it cost to improve building efficiency and reduce operational costs?</td>
<td></td>
</tr>
<tr>
<td>12. What is the added value of improved locational efficiency?</td>
<td></td>
</tr>
<tr>
<td>13. What would it cost to improve locational efficiency?</td>
<td></td>
</tr>
<tr>
<td>14. What is the added value of improved urban aesthetic quality?</td>
<td></td>
</tr>
<tr>
<td>15. What would it cost to improve urban aesthetic quality?</td>
<td></td>
</tr>
<tr>
<td>16. What is the added value of improved urban design and placemaking?</td>
<td></td>
</tr>
<tr>
<td>17. What would it cost to improve urban design and placemaking?</td>
<td></td>
</tr>
<tr>
<td>18. Added value total?</td>
<td></td>
</tr>
<tr>
<td>19. Added cost to achieve total?</td>
<td></td>
</tr>
</tbody>
</table>

Further discussion about value
17. Do you have any specific examples of increased value through good design? Any ‘bad’ examples?
18. How could value be captured more broadly in good urban development?
19. How could the market, regulations etc be changed to produce ‘better’ outcomes for a) developers (communities?), b) government, c) purchasers and d) community/public/users?
20. What would be the best way to engage buyers with the benefits of improved design for liveability and affordability? How do you get across the intangible benefits of good design?
Mechanisms to improve design outcomes

21. What are your comments on SEPP 65*?
22. What are the strengths of SEPP 65*? What elements of it work well?
23. What are the weaknesses of SEPP* 65?
24. Does SEPP 65* stifle design innovation?
25. What actual impacts have there been from SEPP65* to your business? E.g. cost, time, etc.
26. How difficult is it to meet the requirements of SEPP65*? E.g. any issues with orientation or minimum floor sizes?
27. What could be done to SEPP 65* to improve outcomes?
28. Comments on the design review panel?
29. What alternative approaches (other than SEPP 65*) could improve outcomes?

* Or other similar design guidelines.
Appendix 2

Various regulations (e.g. the SEPP 65 requirements from NSW) or guides (e.g. Building for Life from the UK or Places for people from the Australian Government) attempt to put more defined requirements around achieving good design outcomes. For example under the public transport criteria in the Building for Life guide it asks [99]:

3a) what can the development do to encourage more people (both existing and new residents) to use public transport more often?

The guide then provides a number of examples on how to address this, and notes key things to avoid. For example a key recommendation states:

Carefully considering the layout and orientation of routes to provide as many people as possible with the quickest, safest, attractive and most convenient possible routes between homes and public transport.

The Australian Government document Places for people: an urban design protocol for Australian cities document presents 12 broad principles for quality urban places in Australia [179]. These are:

- Enhancing – enhances local economy, environment and community;
- Connected – connects physically and socially;
- Diverse – diversity of options and experiences;
- Enduring – sustainable, enduring and resilient;
- Comfortable – comfortable and welcoming;
- Vibrant – vibrant, with people around;
- Safe – feels safe;
- Walkable – enjoyable and easy to walk and bicycle around;
- Context – works within the planning, physical and social context;
- Engagement – engages with relevant stakeholders;
- Excellence – excellence, innovation and leadership; and
- Custodianship – considers custodianship and maintenance over time.

Within each of these principles the document lists a number of dot points about the attributes each would achieve to good urban design (Figure 17). Figure 18 demonstrates how these principles relate to different elements of urban forms and scale.
Similar design principles or guidelines have been developed in other jurisdictions. For
example in New Zealand, the Ministry for the Environment [180] outlined seven ‘essential’ design elements which contribute to quality urban design:

- Context: seeing buildings, places and spaces as part of whole towns and cities;
- Character: reflecting and enhancing the distinctive character, heritage and identity of our urban environment;
- Choice: ensuring diversity and choice for people;
- Connections: enhancing how different networks link together for people;
- Creativity: encouraging innovative and imaginative solutions;
- Custodianship: ensuring design is environmentally sustainable, safe and healthy; and
- Collaboration: communicating and sharing knowledge across sectors, professions and with communities.

In the UK, the Building for Life guideline presents 12 key good design criteria under three broad categories [99]:

**Integrating into the neighbourhood**

1. Connections - Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones; whilst also respecting existing buildings and land uses along the boundaries of the development site?
2. Facilities and services - Does the development provide (or is it close to) community facilities, such as shops, schools, workplaces, parks, play areas, pubs or cafes?
3. Public transport - Does the scheme have good access to public transport to help reduce car dependency?
4. Meeting local housing requirements - Does the development have a mix of housing types and tenures that suit local requirements?

**Creating a place**

5. Character - Does the scheme create a place with a locally inspired or otherwise distinctive character?
6. Working with the site and its context - Does the scheme take advantage of existing topography, landscape features (including water courses), wildlife habitats, existing buildings, site orientation and microclimates?
7. Creating well defined streets and spaces - Are buildings designed and positioned with landscaping to define and enhance streets and spaces and are buildings designed to
turn street corners well?
8. Easy to find your way around - Is the scheme designed to make it easy to find your way around?

Street and home

9. Streets for all - Are streets designed in a way that encourage low vehicle speeds and allow them to function as social spaces?
10. Car parking - Is resident and visitor parking sufficient and well integrated so that it does not dominate the street?
11. Public and private spaces - Will public and private spaces be clearly defined and designed to be attractive, well managed and safe?
12. External storage and amenity space - Is there adequate external storage space for bins and recycling as well as vehicles and cycles?

Academic research has also provided input into the discussion about good urban design. Rowley [181] lists 50 urban design considerations across four broad categories; functional and social use considerations, natural environment and sustainability considerations, visual considerations and the urban experience:

**Functional and social use considerations**
(1) The convenience, safety and comfort of:
   - pedestrians
   - car users, including the amount of, and arrangements for, car parking
   - cyclists and/or public transport users
(2) The adequacy, convenience and efficiency of the servicing arrangements of buildings including the storage and collection of refuse
(3) The provision made for the special needs of the disabled, elderly, or children
(4) The location and purpose of community or other public buildings and facilities within the development
(5) The accessibility of other uses and facilities from the development
(6) The degree of separation of vehicle and pedestrian routes in the development
(7) The accessibility of the development by car/on foot/by bicycle/by public transport
(8) The provisions for minimizing crime and vandalism including the physical security of people and property
(9) The user-friendly design of the public and semi-public spaces
(10) Either the surveillance and control of public access and movement within the development or the freedom of public access and movement through the development
(11) The signing of building and facilities
(12) Overlooking and privacy
Natural environment and sustainability/ considerations
(13) The degree and manner in which the site's pre-existing features, natural and man-made, have been incorporated into the development
(14) The micro-climate of public and semi-public spaces
(15) The noise levels and air quality within the public and semi-public spaces
(16) The tidiness and cleanliness of the development
(17) The protection and encouragement of wildlife
(18) The provision of trees, other vegetation and possibly water within the scheme
(19) The measures taken to promote energy efficiency in the development (excl. in buildings)
(20) The adaptability of the development to respond to changing needs or circumstances without compromising the whole
(21) The efficient and purposeful use of land and space
(22) The durability of the materials and finishes of buildings and spaces
(23) The costs of maintaining and managing the external spaces

Visual considerations
(24) The external design and appearance of the individual buildings
(25) The visual relationship between the development as a whole and its surroundings
(26) The variety of buildings
(27) The design of the landscape
(28) The overriding order or coherence of the development creating a strong mental image and providing a lasting visual framework
(29) The formality or informality of the development's layout
(30) The definition of space
(31) The visual grain of the development
(32) The human scale of the development
(33) The density or intensity of the development
(34) The clearly defined entrances or 'gateways' to the development
(35) The design and location of street furniture, lighting, signs and public art

The urban experience
(36) The image or feel of the development or area
(37) The diversity and mixture of uses and activities within the development and the degree to which these animate the streets and other public spaces
(38) The assemblage of buildings, streets, spaces and uses within the development or locality
(39) The pedestrian flows
(40) The intensity of evening activity and/or the nightlife
(41) The opportunities for public entertainment, festivals and other celebratory events
(42) The opportunities for meeting friends and/or for relaxing away from the bustle of urban life
(43) The opportunities for people-watching or the potential for the unexpected meeting, experience or event
(44) The range of sensory experience, both visual and non-visual
(45) The sense of arrival on entering the development or area
(46) The ease of finding your way around the development even if you are a visitor
(47) The freedom of experience

(48) The scope for people to personalize the exterior of their property or the space around them

(49) The sense of community and sociability in the development or locality

(50) The sense of history, identity or place
8 Bibliography


2. Carmona, M., Better urban design adds value: Matthew Carmona, who led the research resulting in the recent Value of Urban Design report, explains how good urban design can deliver better social, environmental, and economic value - and bring about a sea-change in private and public development investment decisions. Town and Country Planning., 2001(October 2001).


8. Christensen, F.K., Understanding value changes in the urban development process and the impact of municipal planning. Land Use Policy, 2014. 36(0): p. 113-121.


15. City of Melbourne, Understanding the Quality of Housing Design. 2013, City of Melbourne: Melbourne.


50. DPI, *SEPP 65 and residential flat design code review*, NSW Department of Planning and Infrastructure, Editor. 2011, NSW Government: Sydney.


Moore, T., Facilitating a transition to zero emission new housing in Australia: Costs, benefits and direction for policy, in School of Global, Urban and Social Studies. 2012, RMIT University: Melbourne.


