Placing a value on good design for cities: evidence and prospects.

Professor Ralph Horne
School of Global, Urban and Social Studies
RMIT University
Melbourne, Victoria, 3001
E: ralph.horne@rmit.edu.au

Winthrop Professor Geoffrey London
School of Architecture, Landscape and Visual Arts
The University of Western Australia
Carwley, Western Australia, 6009
E: geoffrey.london@uwa.edu.au
And
Victorian Government Architect
Department of Transport, Planning and Local Infrastructure,
Melbourne, Victoria, 3000
E: geoffrey.london@ovga.vic.gov.au

Dr Trivess Moore
School of Global, Urban and Social Studies
RMIT University
Melbourne, Victoria, 3001
E: trivess.moore@rmit.edu.au

Dr Andrew Martel
Faculty of Architecture, Building and Planning
The University of Melbourne
Melbourne, Victoria, 3053
E: aamartel@unimelb.edu.au

Dr Tom Alves
Senior advisor, Urban Design and Architecture,
Office of the Victorian Government Architect
Melbourne, Victoria, 3000
E: thomas.alves@ovga.vic.gov.au

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Abstract

The built environment has value. Most commonly, that value is established through market prices for rent or purchase. Some elements of value, while recognised as important, are under-appreciated as it is difficult for them to be directly monetised or quantified in other terms. In addition, the value of the built environment from the perspective of general users, the community of public stakeholders, may differ and conflict with those of individual private stakeholders. This paper works with the proposition that good design in the built environment imparts value and that there is a need to articulate value in order to inform decisions about what is good design and how to achieve best value built environment outcomes. To be widely accepted and effective, arguments for good design must rest on a rigorous evidence base, with a clear methodology for establishing a cost-benefit assessment process or other consistent measurement approaches. Research addressing these issues has been investigated internationally, particularly from the UK. However, the value of good design is under-researched in Australia. There is, therefore, a requirement for research which seeks to improve the evidence surrounding the value of good design in the Australian context. This paper presents a review of the current state of research into the value of good design for the built environment, both in Australia and internationally. Following this, methods to address key gaps for valuation are presented and steps for further research outlined.

Keywords: Value; good design; measurement; built environment

Introduction

Improving the design quality of buildings and the wider urban environment has not always been a priority issue for the building industry and governments (Carmona, 2001, Murray et al., 2013, Ministry for the Environment, 2005). The focus has been on providing 'affordable' products for purchasers, and maximising returns for developers through 'highest and best use' criteria (Christensen, 2014). Commonly, value is established through market prices for rent or purchase. Some critical elements of 'good' design are challenging to value, and difficult to reconcile with the financial proformas and risk determinations that determine whether projects proceed or not, and so are often neglected or marginalised and in doing so are essentially given a value of zero (Cole, 2000, CABE, 2001).

There is a starting question as to what constitutes 'good quality', and to whom. Moreover, 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 (Murray et al., 2013, CABE, 2006, Carmona, 2013, Moore, 2014).

Although it has been found that many good design elements are cost neutral, particularly if considered early in projects (Places Matter!, 2009), 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 (Macmillan, 2006). In the absence of such evidence, popular myths are propagated about costs and benefits. Bartlett and Howard (2000) 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 amount is even less when considered in context of the through-life costs incurred over the life of a building (Moore, 2014).

A key challenge remains how to measure value in an uncontroversial and robust way and how to capture the value of good design (Bole and Reed, 2009, Gann et al., 2003, Abdul-Samad and Macmillan, 2004). The requirement to be able to measure and quantify impacts of 'poor' and 'good' design stem from the increasing concern that poor design locks in owners, the local community and cities into substandard urban environments for decades (City of Melbourne, 2013b). 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 (City of Melbourne, 2013a). Simmons (2012) argues 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*, there is market failure in the system of transacting urban real estate. This tendency is in part moderated by government planning and building regulations. However, compared to many other OECD countries, Australia's regulatory regimes are arguably more permissive of suboptimal outcomes than most (Burke and Hulse, 2010, Beer et al., 2006).

Without a rigorous evidence base, the arguments for good design are too easily dismissed as part of a discipline-based 'belief' system. There have been few notable attempts to address this lack of evidence. The outstanding contribution has been from an organisation in the UK, which has now lapsed. In the late 1990s the UK government recognised that in order to achieve outcomes which are both sustainable and meet the growing needs of societies, there needed to be an increased focus on the quality of the built environment, specifically aimed at capturing the value of good design. Subsequently, the Commission on

Architecture and the Built Environment (CABE) championed a range of research and policy development (CABE, 2001). No such work has been undertaken in Australia. As Brown (2013) 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. This paper reviews the research and literature on the value of good design. It discusses challenges in measurement, and concludes by contemplating future prospects for expanding on value of design research in the Australian context.

The value of good design in the built environment

What is value?

Value is a measure of what an individual or group believes something is worth (CABE, 2001). Determining 'value' can be achieved through a variety of formal and informal methods. 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) (CABE, 2001). A commodity or a 'good', in this sense, is something that has been produced by one entity to be privately sold 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 (2006), Brown (2013) and others have identified additional value types which are generally overlooked in determining exchange value; image value, social value, environmental value and cultural value. 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) (CABE, 2001, Bole and Reed, 2009, Abdul-Samad and Macmillan, 2004).

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 (Cole, 2000, Abdul-Samad and Macmillan, 2004). However, there has been an increasing focus on understanding and measuring wider value benefits of elements which have been harder to quantify (Brown, 2013). Table 1 highlights what elements are typically measured or valued

by built environment stakeholders, and those which are less measurable.

Table 1: Design in the built environment elements and outcomes which are typically measured or valued, and those which are not.

Typically measured/ valued	Occasionally measured/ valued	Rarely or never measured/ valued
Private costs	"Lifetime" energy costs	Stress
Cultural/heritage/ aesthetics	Mobility/traffic/travel costs	Quality of life
Property values	Connectivity	Equity
Rent/capacity value	Accessibility	Civic pride
Vacancy rate	Productivity (occupants)	Sense of place
Take-up rates	Corporate image	Satisfaction
Energy and water costs	Uplift to surrounding property values	
Maintenance costs		
Safety/security/crime		
Pollution		
Health		

What is good design?

A definition of what constitutes good design in the built environment is required before any measurement or analysis can occur (CABE, 2001). 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.' (City of Melbourne, 2013a)

There are a number of other definitions provided in the literature which broadly promote similar ideas to that of the City of Melbourne - all notions that suggest creating what might be described as liveable cities and regions. Other elements of good design include diversity, ease of movement, physical building quality, neighbourhood security and safety, mixed uses, environmentally sustainability, low maintenance and achieving pride of place (Places Matter!, 2009, CABE, 2001, Kent County Council, 2006, Abdul-Samad and Macmillan, 2004). Authors such as Keck (2013) argue that good design is as much about

what you cannot see as the elements you can see. The range of definitions highlights that good design is difficult to define exactly and is very much a judgement issue varying between jurisdictions (Kent County Council, 2006, Gann et al., 2003, Carmona, 2013).

Various regulations (e.g. the SEPP 65 requirements from NSW) or guides (e.g. Building for Life from the UK) 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 (Building for Life Partnership, 2012):

> 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.

While the above approaches aim to improve design outcomes in a more systematic manner, there is still significant ambiguity around design elements and how to achieve these. Furthermore, there has been criticism that these approaches are often applied too late in the design process to make significant contributions to outcomes (Turcu, 2012, Brown, 2013, Carmona, 2013).

It is equally as important to acknowledge what bad or poor design is. Authors such as Simmons (2012) and GBCA (2008) summarise that bad 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.

Simmons (2012) lists the following reasons for why bad design occurs:

- Market failures
- Externalities
- Lack of foresight
- Lack of co-ordination and communication
- Moral hazards
- Lack of appropriate skills

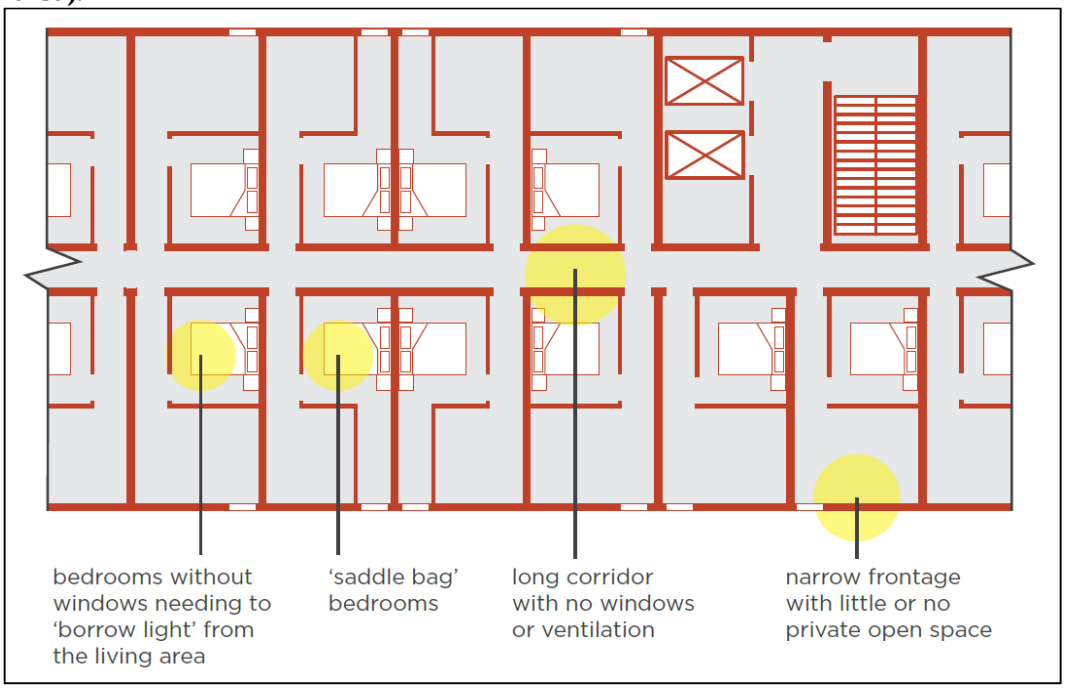
- Failure to balance time, cost and quality

In a recent review of medium and higher density dwellings in Melbourne CBD, 84% of all dwellings and 100% of all high rise case studies (those above 20 storeys in height) achieved ‘poor’ or ‘average’ outcomes against a set of good design criteria (largely based upon the Building for Life criteria from the UK) (City of Melbourne, 2013b). The report lists the follow common issues of poor design which were found:

- 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.
- Lack of storage and utility spaces.

Figure 1 shows an example of poor design as used by the City of Melbourne.

Figure 1: Examples of common features in ‘poor’ housing developments (City of Melbourne, 2013a).



What are the benefits and who receives them?

Another key element in valuing good design is the issue of benefits and who receives them. A range of benefits of good design have been identified in the literature and from case studies (Macmillan, 2006, CABE, 2001, Carmona, 2001, Kent County Council, 2006, Abdul-Samad and Macmillan, 2004, Places Matter!, 2009, Simmons, 2008, City of Melbourne, 2013a, Zhou and Rana, 2012, Keck, 2013). Table 2 presents the benefits for the different stakeholders. As the table shows, there are many different benefits and these change across the various stakeholders and across time. Attempting to capture these benefits as measureable value is therefore challenging. Some authors such as Barnes (2013) argue that the improved outcomes for communities from improved design in the built environment (or 'neighbourhood premium') more than offset any additional capital costs occurred by individual developments.

Table 2: The short- and long-term beneficiaries of value of good design in the built environment (Carmona et al., 2002).

Stakeholders	Short-term value (social, economic and environmental)	Long-term value (social, economic and environmental)
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 tacked 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

Stakeholders	Short-term value (social, economic and environmental)	Long-term value (social, economic and environmental)
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

Challenges

There are various challenges to implementing good design. One of the main challenges has been that key evidence of wider value benefits have typically been based upon anecdotal evidence from selected case studies (Bishop, 2011). 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 (Bishop, 2011, Carmona et al., 2002). This has meant that

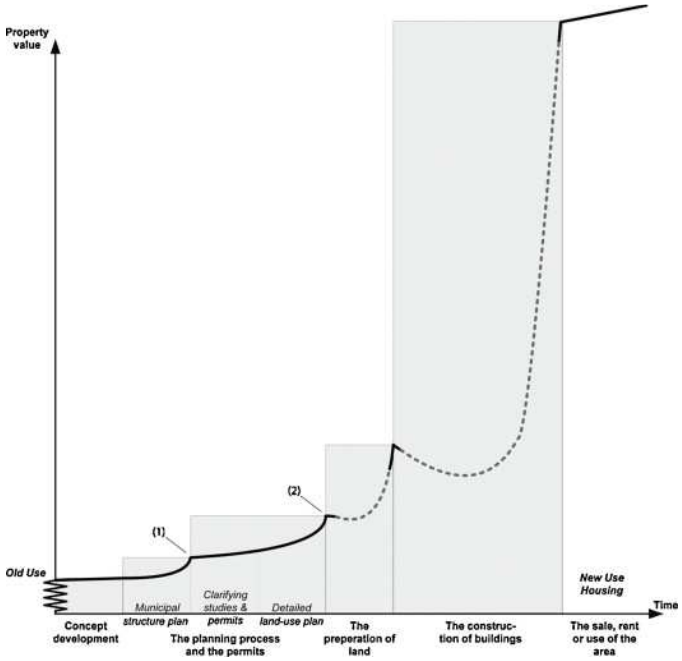
elements which are more easily able to be quantified, such as reducing energy and water consumption, have been a main focus of the building industry and policy makers (CABE, 2010).

Furthermore, there is not yet one simple method for capturing the wider value from good design. As will be discussed in the following sections, there have been a number of projects which look at a limited number of design elements and find ways to attribute a quantitative outcome to them, but there is still a requirement for a more holistic and robust valuing approach for good design elements.

Another challenge is that value means different things to different people, as does what constitutes good design (Bole and Reed, 2009). Additionally each building project is unique due to location, project team make-up, financing arrangements and so on, each development deals with unique parameters around design and value. It has also been recognised that there is unlikely to be a straightforward correlation between improved design and increased value across all stakeholders (CABE, 2001). This has made it difficult, in the absence of robust evidence, for the policy discussion to evolve.

In addition value changes across time as highlighted in Table 2. As another example of this, Christensen (2010, 2014) discusses how value changes across time through 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 2). Depending at what stage developers or purchasers get involved can impact on the value they pay or receive.

Figure 2: The changing nature of property value throughout the planning process (Christensen, 2014).



There is also the aforementioned 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 (Eden, 2013). There is evidence, however, that good design does not cost more when considered across the life of a building (Macmillan, 2006). 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 (Carmona et al., 2002).

These challenges are not limited to the built environment, similar issues face sustainability in general. As Turcu (2012) adds:

> 'Defining and measuring sustainability are not only objective issues but also, unavoidability, political and social ones which point to the difficulty of comprehending the 'social construction' of sustainability which is unlikely to be 'objective'.'

Possible methods for accounting for the value of good design

There is 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. The recent Australian Government report *Environmental Policy Analysis: A Guide to Non-Market Valuation* (Baker and Ruting, 2014) discusses in detail the strengths, weaknesses and applicability of these 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, factor income (CABE, 2001, Zhou and Rana, 2012).

It has been acknowledged that there is a lack of a consistent methodology regarding the quantification of the value of good design (Abdul-Samad and Macmillan, 2004, CABE, 2003a). A number of researchers have developed measurements and indicators to try and capture the value of good design (Song and Knaap, 2003, Zemke and Pullman, 2008) and wider design criteria (DETR, 2000, Building for Life Partnership, 2012), 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 (Macmillan, 2006, Abdul-Samad and Macmillan, 2004, CABE, 2006, CABE, 2002, City of Melbourne, 2013a, CABE, 2010, Horton 2013, Murray et al., 2013). Within these reports there is a range of evidence on how good design improves hospital patients recovery times (e.g. patients go home up to 6 days earlier, reduced requirements for medication), improvements to student learning (e.g. higher test scores of up to 26%, dropout rates reduced by 75%), increased work productivity in offices (e.g. 20% improvement in outputs) (CABE, 2002). Some of the reports relating to the urban environment, with a focus on housing, are summarised below.

Value of a view

Bourassa et al. (2004) 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%). Others have found similar results for nearby amenities such as parks (adding up to 15% resale value) (CABE, 2003b, Kong et al., 2007) in addition to elements which decrease value such as a view of another apartment (decrease up to 7% resale value) (CABE, 2003b).

Value of open space

Koohsari et al. (2013a) 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 in other jurisdictions (Giles-Corti et al., 2006, Sugiyama et al., 2010, Koohsari et al., 2013b).

Value of sustainability

Hu et al. (2014) conducted a study in China looking at residents willingness to pay for green apartments. 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 unpolluted environments. The authors used a stated preference model as limited data existed in this space for them to draw upon. Specifically the conjoint model allowed residents to select an alternative from a set of options which provides them with the greatest benefit or utility (Hu et al., 2014). In the U.S., Bloom et al. (2011) 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.

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. One Melbourne architect presents a case

study of the value of design of a house on their website, essentially as a marketing tool (Megowen, 2012). In the case study the author provides a comparison of two similar houses which were built for a single client. 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 improves 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.

Other elements looked at style of housing (up to an additional resale value of up to 21%) (Asabere et al., 1989), type of housing (e.g. detached) (Moorhouse and Smith, 1994), 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%) (Asabere, 1990), and street designs more broadly (adding 5% to resale value) (CABE, 2007).

Value of improved developments

Murray et al. (2013) 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, it does little to further these examples in terms of quantifying wider value. This is also seen across many other reports, from Australia and internationally, where the anecdotal evidence of design is presented, without taking the evidence to the next step and making it quantifiable.

Value of improved mobility

In terms of broader design in the built environment implications Wang (2013) 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. Unsurprisingly distance from the CBD influenced these costs, with the average cost of commuting to work by car $7,200 more for a suburb 25km from the CBD compared to 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. However, 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. While important analysis, there are limitations in that it is 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 on taking public transport.

Burke et al. (2014) 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. In wider transport research, Litman (1999) summaries a range of studies which looked at speed of traffic, accidents and other value. For example a reduction in traffic speed of 5km/h could reduce pedestrian fatalities by a third. In addition neighbourhoods with lower transport speeds and 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 a study of 900 house sale prices in Austin, Texas, Bina et al. (2006) found that shorter commute times attracted a premium of $4,700 per minute saved in travel time. In another U.S. study, Cortright (2009) 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.

Value for developers

One developer in the UK, who embraces good design as standard practice, has analysed their sales data and found they sell their dwellings some 20% faster with 5-10% higher values (Tinker, 2013). This is despite additional capital costs per dwelling of £3,700 for bespoke design.

The above presents a number of examples of the research undertaken in Australia and internationally in the area of valuing good design. However, the most comprehensive analytical framework for measuring the value of good design is from CABE (2001) who identified a number of 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

- The wider impacts of good design

The same CABE report presents a table which highlights the different indicators and quantitative/qualitative measurement approaches across the economic, social and environmental elements of good design (Table 3). The information in this table will provide a framework for a wider programme of research for the authors of this paper.

For CABE, and for other initiatives seeking to capture the less measurable as well as the measurable elements of good design (e.g. SEPP 65 in NSW, Australia) a workable solution to evaluating good design is to convene Design Review Panels, where experts conduct reviews of design proposals to assess the less measurable but important aspects of quality and value.

Table 3: Analytical framework to assess and measure the value of good design in the built environment (CABE, 2001).

Dimensions of Value		Possible Indicators	Quantitative Assessment	Qualitative Assessment
Economic viability	Economic performance of investment in good urban design	Rental values Capital values Vacancy rates Take-up rates Investment availability	Comparison of indicators for exemplar developments compared with average for similar types of property	Interviews with developers, investors and occupants to address their views on the economic performance of the development
	Operational performance of good urban design	Management costs Security expenditure Energy consumption Accessibility Productivity of occupants Health and satisfaction of occupants Corporate imaging	If available, data for individual developments on energy consumption, management costs, productivity, etc., which can be compared within cases or on a broader basis.	Interview questions to occupiers addressing the running costs of the development and the influence of urban design on their corporate performance.

Dimensions of Value		Possible Indicators	Quantitative Assessment	Qualitative Assessment
Economic viability	Production of good urban design	Production costs Infrastructure costs Duration of planning approval process Prestige and reputation	Comparison of production and infrastructure costs and duration of planning negotiation for the selected developments in comparison to average developments	Interviews with develops addressing production costs, the planning process, infrastructure costs, and the impact of the development on their standing in the marketplace. Interviews with local authority officials on infrastructure costs and the planning process.
	Area regeneration/ viability impact of good urban design	Local property values Place-marketing Area reputation	Evaluation of land and property values around the selected developments compared to the average in the locality	Interviews with local authority official and local economic development partnerships on impact of development on the local economy.
Social benefit		Identity/civic pride Place vitality Inclusiveness Connectivity Safety Facilities and amenities	Data on footfall for mixed use cases with retail, compared to average for locality (vitality).	Interviews with local authority officials and sample of local community addressing issues of place-identity, vitality and inclusiveness.
Environmental support		Energy consumption Accessibility Traffic generation Greenery/ecology	Data on individual developments on energy consumption, modes of transport, traffic generation, commuting times, etc., for comparison between cases or on a broader basis.	Interviews with occupants, local authority officials and sample of local community addressing the environmental impacts of the development

Discussion and future prospects

In research associated with CABE, Carmona (2013) 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.

Our review supports this view. 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 (Carmona, 2013). 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 (2013) states ‘architecture is important but it is the gaps between the buildings where life happens’.

Table 4 below highlights the broad design elements that have been compiled from the review reported in this paper. These represent a small subset of the possible values set, and they represent the residue of factors that meet the criteria of measurability, and plausibility of measurement. It must be noted that, given the market failure that is evident in the property sector, higher property values may not eventuate from good quality design at present – since there may be a range of problems in translating these benefits into value in the marketplace.

Table 4: Broad design in the built environment elements and possible measurement approaches.

Broad design elements	$/measurement	Description
Urban design, place making	Place value	The area is worth more, more highly valued
Urban aesthetic quality	Place value	The area is worth more, more highly valued
Locational efficiency	Cost ($) of mobility and place value	It is accessible, connected, serviced
Building efficiency, cost effectiveness	Cost ($) of construction, cost ($) of purchase, cost ($) of running	It is affordable and efficient to run
Flexibility, liveability	Property value	It is desirable, has higher property values
Safety and Security	(cost ($) of) crime, perception of safety	It is safe, feels secure

What is clear from this review is that there is more work to be done in measurement, as well as in providing ways to incorporate checks and balances into development processes that allow for the less measurable aspects of good design to be recognised – such as design review panel processes.

A change in approach may be required, from one seeking market value to one that is more focussed on establishing public benefits. Eden (2013) argues that political support should be garnered through what good design can do, rather than what it is. By this Eden means that the discussion needs to be taken back to how design impacts on the wider community and particularly linking good design back into political objectives such as improving health outcomes or controlling social costs.

Conclusion

Good design in the urban environment is important for continued economic, environmental and social well-being. Too often the debate is reduced to good design being seen as an added cost and therefore seen as a luxury. By such means, it is possible that good design may be traded off in the pursuit of short-term affordability at the expense of long-term good design outcomes. This paper has explored why valuing good design is important, and presented a number of examples of research in this area. There are still challenges relating to methodology and data collection, particularly in the Australian context, but there is a compelling requirement to address this evidence gap, through (a) improving techniques, methods and data for measurability, and through (b) accepting less measurable aspects of good design and putting in place mechanisms (such as design review panels) to ensure the

value they provide is captured.

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References

ABDUL-SAMAD, Z. & MACMILLAN, S. Improving design quality and value in the built environment through knowledge of intangibles Engineering Management Conference 2004, 2004. IEEE International.

ASABERE, P. 1990. The value of a neighborhood street with reference to the cul-de-sac. *The Journal of Real Estate Finance and Economics,* 3**,** 185-193.

ASABERE, P., HACHEY, G. & GRUBAUGH, S. 1989. Architecture, historic zoning, and the value of homes. *The Journal of Real Estate Finance and Economics,* 2**,** 181-195.

BAKER, R. & RUTING, B. 2014. Environmental Policy Analysis: A Guide to Non-Market Valuation. *In:* PRODUCTIVITY COMMISSION (ed.). Canberra: Australian Government.

BARNES, Y. 2013. The value of urbanism. *Urban Design,* 126**,** 3 - 5.

BARTLETT, E. & HOWARD, N. 2000. Informing the decision makers on the cost and value of green building. *Building Research & Information,* 28**,** 315-324.

BEER, A., KEARINS, B. & PIETERS, H. 2006. Housing Affordability and Planning in Australia: The Challenge of Policy Under Neo-liberalism. *Housing Studies,* 22**,** 11-24.

BINA, M., KOCKELMAN, K. M. & SUESCUN, D. 2006. Location Choice vis-à-vis Transportation: The Case of Recent Homebuyers. Austin: University of Texas.

BISHOP, P. 2011. The Bishop review. The future of design in the built environment. London: CABE.

BLOOM, B., NOBE, M. C. & NOBE, M. D. 2011. Valuing Green Home Designs: A Study of ENERGY STAR Homes. *Journal of Sustainable Real Estate,* 3**,** 109 - 126.

BOLE, S. & REED, R. 2009. The Value of Design: A Discussion Paper. *Architectural Science Review,* 52**,** 169-175.

BOURASSA, S., HOESLI, M. & SUN, J. 2004. What's in a view? *Environment and Planning A,* 36**,** 1427 - 1450.

BROWN, C. 2013. A developer's perspective. *Urban Design,* 126**,** 6 - 8.

BUILDING FOR LIFE PARTNERSHIP 2012. The sign of a good place to live. Building for Life 12. *In:* COLLINS, P. & QUINN, B. (eds.). London: Building for Life Partnership (Cabe at the Design Council, Design for Homes and the Home Builders Federation) with the assistance of Nottingham Trent University.

BURKE, T. & HULSE, K. 2010. The Institutional Structure of Housing and the Sub-prime Crisis: An Australian Case Study. *Housing Studies,* 25**,** 821-838.

BURKE, T., STONE, J., GLACKIN, S. & SHEURER, J. 2014. Transport disadvantage and low-income rental housing. Positioning paper no. 157. Melbourne: Australian Housing and Urban Research Institute.

CABE 2001. The value of urban design. London: Commission for Architecture and the Built Environment.

CABE 2002. The value of good design. How buildings and spaces create economic and social value. London: Commission for Architecture and the Built Environment.

CABE 2003a. The value of housing design and layout. London: Commission for Architecture and the Built Environment.

CABE 2003b. The Value of Public Space. How high quality parks and public spaces create economic, social and environmental value. London: Commission for Architecture and the Built Environment.

CABE 2006. Buildings and spaces: why design matters. London: Commission for Architecture and the Built Environment.

CABE 2007. Paved with gold. The real value of good street design. London: Commission for Architecture and the Built Environment.

CABE 2010. Helping local people choose good design. Design review network annual report 2009/10. London: Commission for Architecture and the Built Environment.

CARMONA, M. 2001. 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.*

CARMONA, M. 2013. Does urban design add value? *Urban Design,* 126**,** 47 - 49.

CARMONA, M., DE MAGALHÃES, C. & EDWARDS, M. 2002. Stakeholder Views on Value and Urban Design. *Journal of Urban Design,* 7**,** 145-169.

CHRISTENSEN, F. K. 2010. *When Property Value Changes During Urban Development – Model and Factors.* PhD, Aalborg University.

CHRISTENSEN, F. K. 2014. Understanding value changes in the urban development process and the impact of municipal planning. *Land Use Policy,* 36**,** 113-121.

CITY OF MELBOURNE 2013a. Future living. A discussion paper identifying issues and options for housing our community. Melbourne: City of Melbourne.

CITY OF MELBOURNE 2013b. Understanding the Quality of Housing Design. Melbourne: City of Melbourne.

COLE, R. J. 2000. Editorial: Cost and Value In Building Green. *Building Research & Information,* 28**,** 304-309.

CORTRIGHT, J. 2009. Walking the Walk. How Walkability Raises Home Values in U.S. Cities. Chicago: CEOs for cities.

DETR 2000. By Design. Urban design in the planning system: towards better practice. *In:*

DEPARTMENT OF THE ENVIRONMENT TRANSPORT AND THE REGIONS. COMMISSION FOR ARCHITECTURE AND THE BUILT ENVIRONMENT. (ed.). London: Department of the Environment, Transport and the Regions.

EDEN, S. 2013. Selling urban design to elected politicians. *Urban Design,* 126**,** 12 - 13.

GANN, D., SALTER, A. & WHYTE, J. 2003. Design Quality Indicator as a tool for thinking. *Building Research & Information,* 31**,** 318-333.

GBCA 2008. The dollars and sense of green buildings 2008 edition. Building the business case for green buildings in Australia. Sydney: Green Building Council Australia.

GILES-CORTI, B., TIMPERIO, A., CUTT, H., PIKORA, T. J., BULL, F. C. L., KNUIMAN, M., BULSARA, M., VAN NIEL, K. & SHILTON, T. 2006. Development of a reliable measure of walking within and outside the local neighborhood: RESIDE's Neighborhood Physical Activity Questionnaire. *Preventive Medicine,* 42**,** 455-459.

HORTON , G. 2013. *The Indicator: Ten Years Later, Has the Disney Concert Hall Made a Difference?* [Online]. Arch Daily. Available: http://www.archdaily.com/439551/the-indicator-ten-years-later-has-the-disney-concert-hall-made-a-difference/ [Accessed 04/11/2013.

HU, H., GEERTMAN, S. & HOOIMEIJER, P. 2014. The willingness to pay for green apartments: The case of Nanjing, China. *Urban Studies.*

KECK, S. 2013. The Value of Good Design. *Charter Insight.* Melbourne: Charter Keck Cramer.

KENT COUNTY COUNCIL 2006. Kent design guide 'the value of good design'. Kent County Council.

KONG, F., YIN, H. & NAKAGOSHI, N. 2007. Using GIS and landscape metrics in the hedonic price modeling of the amenity value of urban green space: A case study in Jinan City, China. *Landscape and Urban Planning,* 79**,** 240-252.

KOOHSARI, M. J., KACZYNSKI, A. T., GILES-CORTI, B. & KARAKIEWICZ, J. A. 2013a. Effects of access to public open spaces on walking: Is proximity enough? *Landscape and Urban Planning,* 117**,** 92-99.

KOOHSARI, M. J., KARAKIEWICZ, J. A. & KACZYNSKI, A. T. 2013b. Public Open Space and Walking: The Role of Proximity, Perceptual Qualities of the Surrounding Built Environment, and Street Configuration. *Environment and Behavior,* 45**,** 706-736.

LITMAN, T. 1999. Traffic Calming Benefits, Costs and Equity Impacts. Melbourne: Victoria Transport Policy Institute.

MACMILLAN, S. 2006. Added value of good design. *Building Research & Information,* 34**,** 257-271.

MEGOWEN, C. 2012. *The value of good design: A case study.* [Online]. Available:

http://www.christophermegowandesign.com/clients/the-value-of-good-design-a-case-study/ [Accessed 04/11/2013.

MINISTRY FOR THE ENVIRONMENT 2005. Summary of the value of urban design. The economic, environmental and social benefits of urban design. *In:* ENVIRONMENT, M. F. T. (ed.). Wellington: NZ Government.

MOORE, T. 2014. Modelling the through-life costs and benefits of detached zero (net) energy housing in Melbourne, Australia. *Energy and Buildings,* 70**,** 463-471.

MOORHOUSE, J. C. & SMITH, M. S. 1994. The Market for Residential Architecture: 19th Century Row Houses in Boston′s South End. *Journal of Urban Economics,* 35**,** 267-277.

MURRAY, S., BERTRAM, N., KHOR, L.-A., ROWE, D., MEYER, B., NEWTON, P., GLACKIN, S., ALVES, T. & R., M. 2013. Design innovations delivered under the Nation Building Economic Stimulus Plan—Social Housing Initiative. Melbourne: Australian Housing and Urban Research Institute at Monash University.

PLACES MATTER! 2009. The Economic Value of Good Design 2009. UK: Places Matter!

SIMMONS, R. 2008. Good design: the fundamentals. UK: Commission for Architecture and the Built Environment.

SIMMONS, R. 2012. How to get better design outcomes. *International Cities, Town Centres and Communities Conference.* Surfers Paradise: International Cities, Town Centres and Communities Society.

SONG, Y. & KNAAP, G.-J. 2003. New urbanism and housing values: a disaggregate assessment. *Journal of Urban Economics,* 54**,** 218-238.

SUGIYAMA, T., FRANCIS, J., MIDDLETON, N. J., OWEN, N. & GILES-CORTI, B. 2010. Associations between recreational walking and attractiveness, size, and proximity of neighborhood open spaces. *American Journal of Public Health,* 100**,** 1752-1757.

TINKER, C. 2013. What urban design adds to residentail schemes. *Urban Design,* 126**,** 9 - 11.

TURCU, C. 2012. Local experiences of urban sustainability: Researching Housing Market Renewal interventions in three English neighbourhoods. *Progress in Planning,* 78**,** 101-150.

WANG, J. 2013. Commuer costs and potential savings: Public transport versus car commuting in Australia. Lismore: Southern Cross University.

ZEMKE, D. M. V. & PULLMAN, M. 2008. Assessing the value of good design in hotels. *Building Research & Information,* 36**,** 543-556.

ZHOU, X. & RANA, M. M. P. 2012. Social benefits of urban green space: A conceptual framework of valuation and accessibility measurements. *Management of Environmental Quality: An International Journal,* 23**,** 173 - 189.